

CA IT Client Manager

Release Notes

Release 12.5 SP01



This Documentation, which includes embedded help systems and electronically distributed materials, (hereinafter referred to as the "Documentation") is for your informational purposes only and is subject to change or withdrawal by CA at any time.

This Documentation may not be copied, transferred, reproduced, disclosed, modified or duplicated, in whole or in part, without the prior written consent of CA. This Documentation is confidential and proprietary information of CA and may not be disclosed by you or used for any purpose other than as may be permitted in (i) a separate agreement between you and CA governing your use of the CA software to which the Documentation relates; or (ii) a separate confidentiality agreement between you and CA.

Notwithstanding the foregoing, if you are a licensed user of the software product(s) addressed in the Documentation, you may print or otherwise make available a reasonable number of copies of the Documentation for internal use by you and your employees in connection with that software, provided that all CA copyright notices and legends are affixed to each reproduced copy.

The right to print or otherwise make available copies of the Documentation is limited to the period during which the applicable license for such software remains in full force and effect. Should the license terminate for any reason, it is your responsibility to certify in writing to CA that all copies and partial copies of the Documentation have been returned to CA or destroyed.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CA PROVIDES THIS DOCUMENTATION "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT WILL CA BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, FROM THE USE OF THIS DOCUMENTATION, INCLUDING WITHOUT LIMITATION, LOST PROFITS, LOST INVESTMENT, BUSINESS INTERRUPTION, GOODWILL, OR LOST DATA, EVEN IF CA IS EXPRESSLY ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

The use of any software product referenced in the Documentation is governed by the applicable license agreement and such license agreement is not modified in any way by the terms of this notice.

The manufacturer of this Documentation is CA.

Provided with "Restricted Rights." Use, duplication or disclosure by the United States Government is subject to the restrictions set forth in FAR Sections 12.212, 52.227-14, and 52.227-19(c)(1) - (2) and DFARS Section 252.227-7014(b)(3), as applicable, or their successors.

Copyright © 2012 CA. All rights reserved. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

CA Technologies Product References

This document references the following CA Technologies brands and products:

- CA IT Client Manager (CA ITCM)

Note: CA IT Client Manager (CA ITCM) provides a set of cross-platform product capabilities for Windows, Linux, UNIX, and MAC environments. While CA ITCM was previously sold as a standalone product, it is now included as part of the CA Client Automation and CA Server Automation solutions. CA Client Automation has focus on managing end-user devices such as desktops, laptops, and end point devices, while CA Server Automation has focus on managing servers. This document describes functionality in terms of the CA IT Client Manager product capabilities.

- CA Client Automation
- CA Server Automation

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information that you need for your Home Office, Small Business, and Enterprise CA Technologies products. At <http://ca.com/support>, you can access the following resources:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

To provide feedback about CA Technologies product documentation, complete our short customer survey which is available on the CA Support website at <http://ca.com/docs>.

Contents

Chapter 1: Introduction	13
New Features, Enhancements, and Fixes.....	13
Internationalization Support	14
Deprecated Features	14
CA IT Client Manager Documentation.....	14
Chapter 2: Installation and Configuration	15
Installation Considerations.....	16
Installing Automated Migration	17
Installation Prerequisites	17
Installation Considerations	18
Install and Configure Automated Migration	18
DNS Name Resolution for Computers Hosting DSM Components.....	21
Chapter 3: Upgrade Information	23
Upgrade Path	23
Upgrade Considerations.....	23
Upgrade from R12 to R12.5 SP01.....	24
Chapter 4: Automated Migration	25
Automated Migration.....	25
Migration Types	25
Stages in the Migration Process	26
How the Automated Migration Process Works.....	26
Automating OS Migration	27
Plan—Evaluate the Environment	28
Build—Prepare for Migration.....	31
Validate—Test the Migration Process.....	42
Deploy—Activate Migration.....	45
Chapter 5: DMM Enhancements	51
Supported Versions	51
Recent Document Settings Option.....	51
Limitations.....	52

Chapter 6: MDB Enhancements 55

MDB PIF Package.....	56
Standalone MDB Installation	56
Oracle 11g Support.....	57
Prerequisites	57
How to Install an Oracle MDB (Standalone).....	58
Install the DSM Manager: Oracle MDB	60
Installation of Other CA ITCM Components	60
Remote MDB Installation on Oracle 11g.....	61
Database Synchronization.....	61
Support for Microsoft SQL Server MDB on Windows	62
Install the DSM Manager: Microsoft SQL Server MDB.....	62
Remote MDB Installation for Microsoft SQL Server.....	62
Unattended MDB Installation Using a Response File	63
Encryption and Decryption of Passwords in a Response File	63
CCS Considerations.....	64
MDB Upgrades	65
PIF Installation Records	66
Uninstallation	66
Noninstaller Code Changes	66

Chapter 7: OSIM Enhancements 67

SUSE OS Images.....	67
Creation of SUSE OS Images.....	67
Merging the Files from SUSE CDs or DVDs.....	68
OSIM Target Support.....	69
Overview	70
Support for VMware ESX 3.5 and 4.0.....	72
Support for VMWare 4.1 x64	76
Support for VNXware ESXi 4.1	77
SAN-based installation support for VMware ESX 4.0.....	83
Support for WinPE-based RedHat 5.x Installation	85
Microsoft Windows Server 2008 R2 Support.....	87
Support for Microsoft Windows 7 SP1 and Windows Server 2008 R2 SP1.....	89

Chapter 8: Virtual Desktop Support for VMware View 91

Chapter 9: Enabling and Configuring VDI Support 93

How You Prepare the VMware View Environment for a Golden Template.....	94
Prepare the CA IT Client Manager Environment for VMware View.....	95

Deploy Software Packages to Individual Virtual Desktops	102
Using VDI Support	106
Offline RAC	107
Status of Reinstallation	108
Computer Properties.....	108
Software Procedures.....	110
Collecting and Viewing Inventory.....	110
Virtual Desktop Identification	110
Reconfigure the Engine to Support Virtual Desktops	111
View Golden Template Inventory	112
Queries and Reporting	113
Query Designer Changes	114
DSM Reporter Changes	114
Obsolete Assets Wizard Excludes Golden Images.....	114
Migration Considerations for Virtual Desktops.....	115
The Compose.bat Script	116
Configuration Policies for Desktop Virtualization Support	119
General (CAF) Policy Group.....	120
registration Policy Group	120
Agent (Software Delivery) Policy Group.....	121
CADSMCMD Command Line Interface	126
Software Delivery Command Line Interface	126
ReinstallTarget--Software Reinstalled on Target	127
Encrypt--Encrypt Any String	128
JobCheck--Run the Job Check	128
CA IT Client Manager Web Services API Methods.....	129

Chapter 10: MDB Admin Console CLI 131

MDB Admin Console	131
Export and Import Considerations	132
Exporting and Importing Data Across MDB Platforms and Version	132
MDB Admin Console Files and Folders.....	133
Configure Database Connections	134
Using MDB Admin Console.....	136
Command Line Arguments.....	136
MDB Admin Console CLI.....	136
Open the MDB Admin Console	145
Troubleshooting	145
Error Logging	145
Configure Logging	145
Error Messages.....	147

Appendix A: Implementation of SCAP Standards **151**

Modify Windows Firewall Settings	152
SCAP	152
CVE	153
CCE	154
CPE	154
CVSS.....	155
XCCDF	155
OVAL.....	156

Chapter 11: CA ITCM Connector for CA Catalyst **157**

Chapter 12: OS Installation Management Functionality for Web Console **159**

Deploy OS on a New Computer.....	159
Deploy OS on an Existing Computer.....	160
Deploy OS on an Unmanaged Computer	162
View the Boot and OS Images Registered with the Boot Servers	163
States of an OS Installation Job	163
Manage the States of an OS Installation Job.....	164
Manage the OS Installation Parameters	165

Chapter 13: Extended DSM and OS Automation Web Services **167**

DSM Web Services End Point for UTF-8 Strings	167
OS Automation Services	167
Automation Web Services End Point	167
Methods	168
Sequences	192
Enumerations.....	215
Automation Web Services Messages	222
Web Services for OS Installation Management.....	240
Methods	240
Sequences	285
Enumerations.....	311
Web Services Messages	327
Web Services for Asset Script Jobs	329
Methods	329
Sequences	336
Enumerations.....	347
Web Services Messages	349
Web Services for Software Delivery.....	351

Methods	351
Sequences	355
Enumerations	361
Web Services for Computers, Groups, and Queries.....	363
Methods	363
Sequences	370
Enumerations	377
Web Services Messages	385

Chapter 14: Documentation Changes 386

DSM Explorer Help	387
LinkComputersToUnitGroupByName Method	388

Chapter 15: Troubleshooting 389

Deployment of Red Hat Enterprise Linux 5 Update 5 OS Fails	390
SD Agent Does not Start after a CAF Restart.....	390
Abort Command Fails during Reinstallation of VDI Components	391
CA Asset Intelligence Displays Installation Error	391
CA Asset Intelligence Fails to Launch from Shortcuts	391
DSM Engine Crashes When the Database is Stopped	392
Duplicate Entries Created by Asset Collector	392
Content Download Fails	393
DSM Explorer does not Display Prompt Window in Meeting Mode Connection	393
cfSystray Fails to Start on Redhat 6.0 update1 x86_x64	394
SM Packager Fails to Install on SUSE Linux Enterprise Desktop 11 x86_64	395
Remote Control Session Fails on a RHEL 5 Agent	395
Software Job History Behavior after the Uninstall Job.....	396
OSIM Samba Shares not Enabled during Boot Server Installation	396
Automation Service URL not Accessible.....	397
Unattended Installation of SLES 11SP01 with DHCP	397
Assigning a Hostname to Loopback IP.....	398
Unified Logon from Web Console Fails on Standalone WAC	399
Initialization fails for Migration Jobs	400
Logs in Temp Folder are Deleted.....	400
Execution of Multiple Instances of DMM Displays Errors	401
Automated Migration Tab Does Not Appear After Installing or Upgrading to SP1	402
Synchronization Error from SQL MDB to Oracle MDB Target	403
Synchronization Error on a Target MDB on Oracle	404

Appendix B: Automation Service Configuration File **405**

Appendix C: Customizing the Migration Process in CA IT PAM **409**

Modify the Migration Process409
Add and Configure the Wait Operator410
Create Software Job Data Definitions412
Configure the Run Software Install Generic Job Operator413

Appendix D: Supported MDB Object Types **417**

Appendix E: Rules for MDB Object Comparison **421**

Appendix F: Accessibility Features **423**

Product Enhancements423
Workarounds and Limitations.....426

Appendix G: Third-Party Acknowledgements **429**

Apache CXF 2.2.9.....430
Apache log4j444
Apache Log4j 1.2.8444
Apache Log4j 1.2.15449
Commons Codec454
Commons Logging557
EclipseLink 2.1.1563
Google Web Toolkit 2.0.4.....581
gwt-log 2.6.2.....586
httpcore.....591
httpClient.....600
InstallCert.java.....608
Oracle 11G JDBC driver 11.1.0.6.0610
Oracle 11G JDBC Driver616
Oracle JRE 1.6.0_21617
Ovaldi v.5.8.2.....621
spring framework 3.0.4630
Expat 2.0.1.....638
ICU4C 3.4639
libcurl 7.18.2.....639
libxml 2.6.7640
OpenLDAP 2.1641

ZThread 2.3.2643

Glossary **645**

Index **655**

Chapter 1: Introduction

CA ITCM is a cross-platform solution for Windows, Linux, UNIX, and Mac environments. CA ITCM capabilities use a management infrastructure that is Device and Software Manager (DSM). This product and documentation use the term DSM to refer to this industry-proven management technology.

Note: In this document, the term UNIX refers to the UNIX derivatives AIX, HP-UX, Solaris, UnixWare, and Mac OS X. If a system component or software feature of this release does not apply to all UNIX derivatives, this is specified in the description of the component or feature. For versions and more details about the supported UNIX derivatives, see the Supported Operating Environments section in the *CA ITCM Release 12.5 and 12.5 SP1 Readmes*.

This section contains the following topics:

[New Features, Enhancements, and Fixes](#) (see page 13)

[Internationalization Support](#) (see page 14)

[Deprecated Features](#) (see page 14)

[CA IT Client Manager Documentation](#) (see page 14)

New Features, Enhancements, and Fixes

This document provides details of the following functional enhancements and changes that are provided with this release of CA ITCM.

- [Automated Migration](#) (see page 25)
- [Oracle 11g Support](#) (see page 57)
- [Common MDF PIF Installation Package for Oracle MDB schemata](#) (see page 56)
- [Virtual Desktop Support for VMWare View](#) (see page 91)
- [MDB Admin Console Command Line Interface \(CLI\)](#) (see page 131)
- [OSIM Functionality for Web Console](#) (see page 159)
- [CA ITCM Connector for CA Catalyst](#) (see page 157)
- Web Services for OS Installation Management (OSIM)
- [Update to Software Job History Behavior after the Uninstall Job](#) (see page 396)

Note: Automated Migration and the OSIM functionality in Web Console are not localized for this release.

Internationalization Support

This release is available in English, French, German, and Japanese.

Note: FP1 Release Notes is not localized and only the existing screens are localized.

Deprecated Features

With Release 12.5 SP01, the Release Management feature is deprecated. If you do a fresh installation of SP01, the application does not provide you the Release Management feature. However, if you upgrade to SP01, the application deletes the Release Management link from the interface.

Note: The documentation bookshelf is not updated for this release, the documentation still has references to the Release Management feature. These topics are obsolete and invalid for this release.

CA IT Client Manager Documentation

The documentation set for CA ITCM consists of the *CA ITCM Release 12.5 SP01 Release Notes* along with the complete set of CA ITCM Release 12.5 bookshelf.

Note: None of the CA IT Client Manager Release 12.5 documents have been updated for this release.

Chapter 2: Installation and Configuration

This section contains the following topics:

[Installation Considerations](#) (see page 16)

[Installing Automated Migration](#) (see page 17)

[DNS Name Resolution for Computers Hosting DSM Components](#) (see page 21)

Installation Considerations

The following considerations apply when you want to install the MDB on Oracle 10g or Oracle 11g:

- At a minimum, an Oracle 10g Client must be installed with the Release 12.5 DSM manager.

Note: Oracle has dropped support for the Oracle Database 10g R2 release from July 2010. CA Client Automation support for Oracle Database 10g R2 ends with the release of CA Client Automation Release 12.5 SP01. It will not be supported in future CA Client Automation releases. We recommend that you upgrade to the latest release of the Oracle Database to ensure continued onward support.

- While installing a DSM manager with an Oracle MDB, if you choose to install the CCS component, you must have a C: drive and must leave the default installation path for the CCS component unchanged.
- CA ITCM supports only the EZCONNECT method of connection from the DSM manager to the Oracle database. For more information about setting the connection method to EZCONNECT, see the Oracle documentation.
- Both IPv4 and IPv6 are supported between the DSM manager and the MDB.
- A minimum of 2 GB is recommended for both the System Global Area (SGA) and Program Global Area (PGA).
- The installation log is found in the temp directory and is named mdb-schema-setup.log.
- Enter the correct sys, mdbadmin, and ca_itrm passwords during a reinstall or upgrade.
- The MDB PIF package supports unattended installation from a response file on Windows and Linux/Solaris.
- If the underlying database is Oracle, provide the mdbadmin credentials to connect to datasource. Also, for CA ITCM r12 SP1, CA ITCM r12.5 and CA ITCM r12.5 SP01, add the AIADMIN role to mdbadmin before running the extraction.
- The following considerations apply for the MDB Admin Console:
 - Verify that JRE 1.6 is available on the Windows computer where you want to install the MDB Admin Console. Also verify that the environment variable JAVA_HOME is set and points to the JRE installation folder.
 - MDB Admin Console uses Hibernate technology for accessing MDB objects. Download Hibernate 3.2.0 from <http://sourceforge.net/projects/hibernate/files/> and make it available on the computer where you want to use MDB Admin Console. For more information, see Install MDB Admin Console.

- When you install CA Client Automation Release R12.5 SP01 for the first time, the installer displays an option for you to select Automated Migration.

Note: Before you select to install Automated Migration, verify that the prerequisites for Automated Migration are met.

- When Windows Terminal Services is configured in Application Server Mode, The following settings are required:
 - Use the CONSOLE mode when performing installation from remote access.
Example:
`mstsc /v:HostName /console`
 - Change the terminal server USER settings to INSTALL before the installation.
Example:
`change user /install`
 - Execute the following command to verify the user settings:
`change user /query`

Note: For more information about the Windows Terminal Server CHANGE USER utility, see <http://support.microsoft.com/kb/186504>.

- We recommend that you disable the Software Content Download job before you install CA Patch Manager.

More information:

[Installation Prerequisites](#) (see page 17)

Installing Automated Migration

Installation Prerequisites

Verify that the following installations are available in your enterprise before you begin the installation:

- CA IT PAM Version 03.0.00 and Service Pack 03.0.01 or CA Process Automation 03.1.00 and Service Pack 03.1.01

Note: Optionally, you can install CA EEM for identity and access management. If you want to install CA EEM on a Windows 64-bit environment, follow the instructions in [EEM_Install_64.pdf](#) before the installation.

- If you are using Oracle MDB and CA IT PAM Version 03.0.00, you must install the CA IT PAM patch, ITPAM_3.0_11182010_OracleJar_HF_19813962 on your CA IT PAM installation.

Important! Stop the CA IT PAM Orchestrator service before applying the patch.

Installation Considerations

The following considerations apply to Automated Migration:

- Automated migration supports DSM domain managers and hence cannot be applied on DSM enterprise managers.
- Automated migration applies only to the default domain manager linked with the Web Console. If the Web Console is linked to multiple domain managers, the automated migration functionality will only be available when connected to the default domain manager.
- Automated migration can be installed only on one Web Console instance per domain manager. If multiple Web Console instances have the same default manager, you must install Automated Migration on only one of the Web Console computers.
- Automated migration is only supported on Windows operating environments.
- When you modify or uninstall Automated Migration, if WAC Manager is installed on a remote computer, verify that CAF is enabled.

Install and Configure Automated Migration

The installation process consists of the following tasks:

1. Configure CA IT PAM User Account in CA ITCM
2. Enable SSL for Web Console and Automation Web Services
3. (Optional) Modify Automation Service Configuration File

Configure CA IT PAM User Account in CA ITCM

Automated migration uses CA IT PAM to automate the OS migration workflow. To enable CA IT PAM to interact with CA ITCM, you must configure a CA IT PAM user account in the DSM domain manager.

Note: The CA IT PAM user you are configuring must have execute permissions in CA IT PAM.

To configure CA IT PAM user account in CA ITCM

1. Create a local WINNT user account for the CA IT PAM user in the domain manager computer. You can skip this step, if you want to use LDAP user credentials of the CA IT PAM user.

Important! Automated migration does not support Sun One Directory Server. If you are using Sun One Directory Server as your LDAP, you must use a WINNT user account for the CA IT PAM user.

2. Add the CA IT PAM user account to CA ITCM security profiles and grant Full Control to the following security object classes:
 - Software Job
 - Computer
 - Software Job Container
 - Os Installation Image
 - Procedure
 - Asset Group
 - Common Query
 - Manager
 - Database Credentials
 - Policy Software Based
 - Software Group
 - Software Package

The CA IT PAM administrator is authorized to access CA ITCM to perform the necessary functions. You specify the credentials of this user while creating the migration jobs.

More information:

[Assess Computers for OS Readiness](#) (see page 29)

[Create a Migration Job](#) (see page 39)

Configure DMM Share Access

If the DMM network share runs on Windows Server 2008 or higher, the DMM Apply procedure execution can fail with a runtime error on some of the target machines during the restoration phase.

Follow one of these steps:

- Use a DMM network share that runs on Windows Server 2003 SP2.
- Use a DMM network share that runs on Windows Server 2008 SP2 or Windows Server 2008 R2, with SMB 2.0 disabled as follows:
 1. Open Regedit.
 2. Navigate to HKLM, System, CurrentControlSet, Services, LanmanServer, Parameters.
 3. Add a DWORD key with the name smb2 and set the value to 0.
 4. Restart the server.

Enable SSL for Web Console and Automation Web Services

Enabling Secure Socket Layer (SSL) for Web Console and automation web services lets them communicate over a secure channel.

Follow these steps:

1. Follow the instructions in the Enable SSL for Web Console and Web Services topic in Web Console Help.
2. Change the value of the following parameters in the WACConfig.properties file in addition to the parameters specified in Enable SSL for Web Console and Web Services topic in the *DSM Web Console Help*:

WIN7SERVICE_URL:

Defines the automation web service URL. Modify the URL to start with https instead of http. For example,
`https://testmachine.test.com/axis/services/automationService`

ITCMEPR

Defines the CA ITCM WebService URL. Modify the URL to start with https instead of http. For example,
`https://testmachine.test.com/UDSM_R11_WebService/mod_gsoap.dll`

3. Complete the remaining instructions in the Enable SSL for Web Console and Web Services topic.

(Optional) Modify Automation Service Configuration File

The automation service configuration file contains configuration parameters that automated migration uses for various tasks. In most cases, the default settings help automated migration to work with optimized performance. However, you can modify certain settings to improve the job performance depending on your environment, the load that your servers can handle, and so on.

To modify automation service configuration file

1. Open the C:\Program Files\CA\DSM\Automation Service\bin folder or %autohome%\bin folder.
2. Edit the automation.config file in a text editor.
3. Change the value of the required parameters. For more information about each parameter, see [Automation Service Configuration File](#) (see page 405).

Note: An integer value in the automation.config file must not contain or be surrounded by spaces. When you specify an integer value in the automation.config file, verify that there is no space, within and around the value. Any space in the integer value can result in the malfunctioning of the automation service.

4. Save the file and restart tomcat using the following commands:

```
caf stop tomcat  
caf start tomcat
```

The changes to the configuration file take effect.

DNS Name Resolution for Computers Hosting DSM Components

All the computers hosting the DSM components such as, enterprise manager, domain manager, scalability server, and agents must support both forward and reverse DNS lookup. Verify that the communication between the DSM components works correctly.

Chapter 3: Upgrade Information

This section contains the following topics:

[Upgrade Path](#) (see page 23)

[Upgrade Considerations](#) (see page 23)

[Upgrade from R12 to R12.5 SP01](#) (see page 24)

Upgrade Path

CA ITCM supports upgrade from r12.0, r12.0 SP1 and Release 12.5 to Release 12.5 SP01.

Upgrade Considerations

- When you upgrade from CA ITCM Release 12.5 to CA ITCM Release 12.5 SP01:
 - If you have installed the Automated Migration patch on CA ITCM Release 12.5, the SP01 installer upgrades all DSM components to the latest version.
 - If you have not installed the Automated Migration patch on CA Client Automation Release 12.5, first upgrade CA ITCM using the SP01 installer. Then run the installer again and select the Automated Migration option.
- **Note:** The prerequisites for Automated Migration are applicable for this upgrade too.
- If WAC is configured with SSL before the r12.5 SP01 upgrade, verify that you import the certificates to the JRE 1.6 certificate store after the upgrade is complete. For more details, see the Enable SSL for Web Console and Web Services topic in Web Console Help.
- If CA Asset Management or CA Remote Control agents on Windows are upgraded through a Software Delivery job, the Software Delivery Agent package is added automatically to this job. Software Delivery agent is upgraded first, followed by requested Agents.
- When you upgrade OSIM IPS components, the upgrade process helps ensure that a customized template.ini is backed up before the latest template.ini is placed in the OSIM installation directory. Extract any custom changes from the backup of template.ini and apply them to the new template.ini.
In future releases, CA ITCM would contain extensible tool updates to support customization of the boiler template.ini.
- If you do not upgrade all the DSM agent plugs-in to R12.5SP01, it is possible that the older versions of DSM plugs-in do not work as expected. For the plugs-in to work properly, upgrade all DSM plugs-in to R12.5SP01.

Upgrade from R12 to R12.5 SP01

When you upgrade from R12 to R12.5 SP01, perform the following steps:

Follow these steps:

1. Verify that you remove the SQL JDBC Jars from CLASSPATH, added for CA Asset Intelligence R12. Retain the values of CLASSPATH added for other applications.
Important! If you do not remove the R12 class path of SQL JDBC drivers, the data extraction from the data sources fails.
2. Run the installer to upgrade to R12.5 SP01.
3. Add the SQLJDBC.JAR and OJDBC.JAR manually to the CLASSPATH after the upgrade.
4. Restart IIS.

The upgrade from R12 to R12.5 SP01 is complete.

Chapter 4: Automated Migration

This section contains the following topics:

[Automated Migration](#) (see page 25)

[Migration Types](#) (see page 25)

[Stages in the Migration Process](#) (see page 26)

[How the Automated Migration Process Works](#) (see page 26)

[Automating OS Migration](#) (see page 27)

Automated Migration

Automated Migration helps automate the process of migrating Windows desktops in your enterprise to a new operating system (OS). This feature helps you plan the migration, define the migration process, validate the process, and finally deploy the new OS on target computers. Automated Migration uses CA IT PAM to automate the migration workflow.

Migration Types

Migration types define the way computers are migrated to the target operating system.

Wipe and Reload Migration

Wipes and reloads the operating system, user settings, and software installations on the target computer. CA IT Client Manager performs a Wipe and Reload migration on computers that have the necessary hardware configuration to migrate to the new OS.

Machine Replacement Migration

Deploys the new OS and migrates the user settings and software installations from a source computer to a different target computer. If you are replacing computers that do not have the required hardware configuration for the new OS, perform a machine replacement migration.

Note: If an installed software is not compatible with the new OS, map the software to a version that is compatible with the new OS. The automated migration process takes care of installing the mapped software in such cases.

Stages in the Migration Process

Migrating the computers in an enterprise to a new OS consists of four key stages:

- Plan—Evaluate your environment and draft the action plan for the migration.
- Build—Prepare for the migration. Create the software packages for applications that are common to the entire organization and those applications that are specific to each function or group. Create the OS images for the different editions that you want to deploy.
- Validate—Validate the migration solution.
- Deploy—Deploy the new OS on target computers and restore the user settings and the software applications.

Note: For more information about each of these stages for a Windows 7 Migration, see http://www.ca.com/files/technologybriefs/client_manager_windows7_4901_229118.pdf.

More information:

[Plan—Evaluate the Environment](#) (see page 28)

[Build—Prepare for Migration](#) (see page 31)

[Validate—Test the Migration Process](#) (see page 42)

[Deploy—Activate Migration](#) (see page 45)

How the Automated Migration Process Works

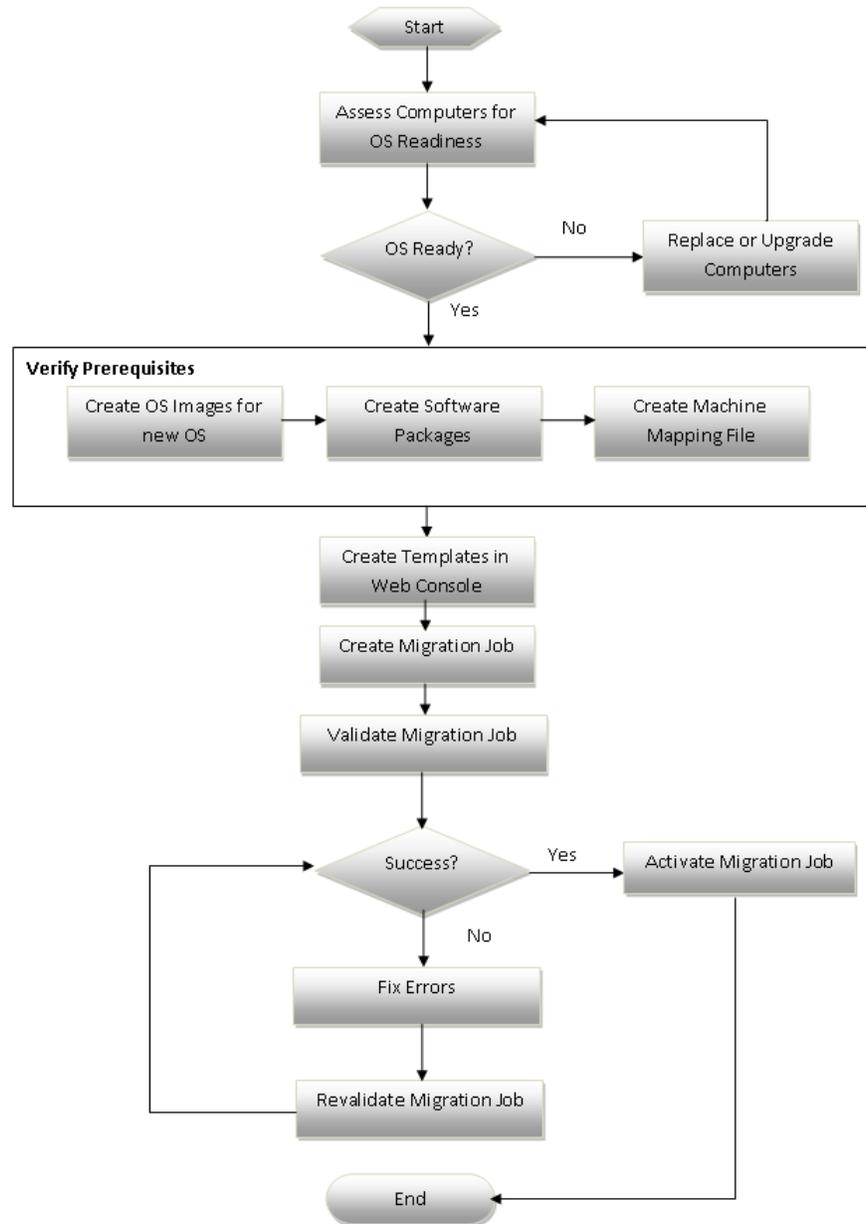
The automated migration process uses various components of CA ITCM to automate the OS migration process. The process uses hardware inventory data, software packages, OS images, and DNA files to perform an end-to-end OS migration.

The process comprises the following tasks:

1. Evaluates computers in your enterprise based on the hardware criteria you specify, and classifies the computers into three groups—New OS Ready, New OS Not Ready, and New OS Already Installed.
2. Captures the user settings, application settings, and user data from the source computers and stores them as a DNA file.
3. Deploys the new OS on the target computers.
4. Deploys relevant software on the target computers.
5. Restores the DNA file on the target computers.

Automating OS Migration

The following flowchart illustrates the tasks involved in automating OS migration:



Plan—Evaluate the Environment

Planning the migration is a crucial and important step in the OS migration process. You must decide on various factors such as, the machines you want to upgrade or replace, the operating system edition you want to deploy on different groups of computers, the deployment schedule, and so on. For more information about the migration requirements and considerations specific to the operating system you want to deploy, see <http://technet.microsoft.com>.

To help you plan the migration, CA ITCM provides Assessment Templates. These templates let you specify how you want to evaluate computers in your enterprise. You can then view the computers that are ready for the new OS and those computers that are not ready.

More information:

[Assess Computers for OS Readiness](#) (see page 29)

Create an Assessment Template

Assessment templates specify the hardware criteria for assessing computers for OS readiness. Create assessment templates to be able to use them in the [assessment jobs](#) (see page 29). You can either use a DSM query or specify the hardware criteria stating the minimum hardware requirements for the new OS.

Note: Assessment templates are not mandatory for performing assessment; you can directly specify the hardware criteria or use a query in the assessment job. However, creating the templates help you reuse them across jobs.

To create an assessment template

1. Log into the Web Console and click the Automated Migration tab.
The Automated Migration page is displayed.
2. Click Assessment Templates.
The existing assessment templates are listed.
3. Click New in the Actions pane.
The New Assessment Job wizard opens.
4. Follow the instructions in the wizard pages and click Finish in the last page.
The template is created and added to the list of templates.

Assess Computers for OS Readiness

You assess computers in your enterprise during the planning phase. The assessment lets you know whether the computers have the necessary hardware configuration for the new OS, or they require an upgrade or replacement. The assessment results are grouped under a new group named Assessment Results.

Note: The Assessment Results group is automatically created when you execute the first assessment job. The creation user of this group is the super user of the assessment job. Some of the users, for example, users of a different security area, will not have full permissions to this group unless explicitly granted. If you want to run any of the assessment jobs with a different super user, verify that the user has full permissions to the Assessment Results group before executing the assessment job.

To assess computers for OS readiness

1. Click Assessment Jobs in the Automated Migration tab.

The Assessment Job pane is displayed.

2. Click New Job in the Actions panel.

The New Assessment Job wizard opens.

3. Follow the instructions in the wizard.

Note: If a local domain manager group and a replicated enterprise manager group are with the same name, both the group names appear in the Select Groups page of the wizard. Although the selection includes both the groups, the assessment is only performed on the local group.

4. In the Supply Credentials page, provide the credentials of the CA IT PAM user account that you configured in CA ITCM. Specify the credentials in one of the following format depending on the user account type:

LDAP User

`ldap://dirc_name/user_name`

`ldaps://dirc_name/user_name`

WINNT User

`winnt://computer_name/user_name`

CA IT PAM uses the supplied credentials for accessing CA ITCM while executing the job.

5. Click Finish in the last page.

The assessment job is created and added to the Assessment Job page.

6. Select the job and click Execute.

The job executes in the background immediately and you can see the status of the job in the Assessment Job page.

Note: Click the Refresh icon  at the bottom of the page to get the most recent job status.

7. Click the job when the status of the job changes to "Complete."

The job details and the results of the assessment are displayed. The assessment job categorizes the computers that were part of the assessment into the following groups:

New OS Ready Group

Includes computers that are ready for the new OS.

New OS Not Ready Group

Includes computers that did not meet the hardware criteria specified in the assessment job. The computers in this group require either hardware upgrade or replacement.

Note: If you replace or upgrade computers in your environment, run the assessment job again.

New OS Installed Group

Includes computers that have already installed the new OS. The assessment job moves such computers to this group without performing any assessment as the computers already have the target OS.

These groups are regular DSM asset groups and are available under Assessment Results Groups node in DSM Explorer. You can use these groups in queries and reports, and also in the migration process.

8. Click a group.

The list of computers in the group is displayed.

More information:

[Configure CA IT PAM User Account in CA ITCM](#) (see page 19)

Build—Prepare for Migration

The build stage requires you to be sure that you have the necessary information and setup required to execute the migration plan. Consider the following factors during this stage:

OS Editions

- Determine the editions of the target OS you want to install.
- Determine the OS edition you want to deploy on each group.
- Create OS images for the different OS editions in CA ITCM.

Software Applications

- Identify the software applications that the entire organization uses.
- Identify the software applications that specific groups use.
- For the software applications that are not supported on the target OS, do the following:
 - Identify the version of the software application that is supported on the target OS.
 - Create a software package for the new application in DSM Explorer, if it does not already exist.
- If you want to replace any of the current software applications with a newer version, do the following:
 - Create a software package for the new software in DSM Explorer, if it does not already exist.
- Verify whether you have the software packages (in DSM Explorer) for all the software applications you identified.

User and Application Settings

- Identify the user and application settings you want to capture and migrate.
- Create migration solution packages using DMM Deployment Setup.

Computers and Groups

- Determine the naming convention for computer names on the new OS. For example, you may want to change the computer name from Comp1-XP to Comp1-Win7 after migrating to Windows 7.
- Create a machine mapping file that maps the old and new computer names.

- Determine how you want to group computers to assess better and migrate them. For example, you may want to group computers based on employee role, geography, computer model, and so on.
- Create computer groups to group computers that you want to migrate together. Perform this step only if the groups do not exist already.

Create OS Images and Software Delivery Packages

You require the necessary OS images and software packages to automate the process of OS and software deployment. If you do not have the OS images and software packages required for migration, create them using DSM Explorer. You then specify the details of the OS images and software packages while [creating OS and Software Templates](#) (see page 37) in the Automated Migration.

Note: If you want to create OS images for Windows 7 SP1 operating system, apply the [RO31603](#) patch on the domain manager before creating OS images. Also, read the knowledge base article [TEC548885](#) before using Windows 7 SP1 OS images.

To create OS images and software delivery packages

1. Using the Image Prepare System, create boot and OS images required to support the mix of OS variants and computer models that you are targeting.
2. Register the boot and OS images.

Note: For more information about creating and registering boot and OS images, see the *OS Installation Management Administration Guide*.

3. Using DSM Explorer, create software packages for new software you want to deploy as part of OS migration.
4. Register the new software packages with Software Library.

Note: For more information about creating and registering software delivery packages and procedures, see the *Software Delivery Administration Guide*.

More information:

[Create OS and Software Templates](#) (see page 37)

Create a Mapping Between Old and New Computer Names

You must create a mapping between old and new computer names in the following scenarios:

- (optional) To change the computer name after migrating to the new OS, in the case of wipe and reload migration.
- To map the old and new computer names, in the case of machine replacement migration.

The mapping, which is contained in a file, can include either all computers in your IT environment or computers in a particular migration job. In either case, you must create two mapping files; one for CA DMM and another for automated migration. The following procedure provides the steps for creating the two mapping files.

Note: The computer names included in the machine mapping file must not contain special or localized characters. Allowed characters for computer names are alphabets and numbers only. The hyphen (-) sign is allowed, but it must not be the first or last character. If there are any other special or localized characters in the machine mapping file, the migration job validation will fail.

To create a mapping between old and new computer names

1. Open a spreadsheet application (Microsoft Excel, for example).

Note: You can create and maintain the mapping information in a text editor such as, Notepad also. However, a spreadsheet application helps you creating and editing the information quickly.

2. Specify the details of the old and new computers. If you are using a spreadsheet application, specify the details given in the following format in separate columns (without commas). Use the following format depending on the migration type:

Wipe and Reload:

Source_name,Source_MAC_ID,Destination_name,Source_MAC_ID

Note: As wipe and reload migration is performed on existing computers, the MAC ID must be same for source and destination. Mapping information is optional for wipe and reload migrations and you can even specify a partial list of computers. Computers that are not part of the mapping file retain the old computer name after migration.

Machine Replacement:

Source_name,Source_MAC_ID,Destination_name,Destination_MAC_ID

Note: Mapping information is mandatory for machine replacement migrations. The mapping file must contain all the computers that are part of automated migration. Otherwise, the migration job creation will fail.

3. Save the file in .csv format.

Use this file for automated migration job. You specify the path to this mapping file while creating the migration job.

4. Remove the MAC ID columns from the spreadsheet. Swap the source and destination computer name columns because CA DMM requires the mapping information in the following format:

```
destination_name,source_name
```

5. Click Save As and save the file in .csv format.

6. Rename the .csv file to .txt as CA DMM requires the map file in .txt format.

Use the .txt map file for CA DMM. You specify the path to this mapping file while creating the migration solution package.

Note: The file name in the path is case-sensitive. If the case does not match with the actual file name, the Apply procedure will fail with an error "DNA file not found."

More information:

[Create a Migration Job](#) (see page 39)

[Create Migration Solution Packages to Store and Apply DNA](#) (see page 34)

Create Migration Solution Packages to Store and Apply DNA

A migration solution package contains various package procedures that automate the process of capturing and applying DNA settings. Depending on the variation in the user and application settings you want to capture, you can create multiple packages. For example, if the settings you want to capture differ depending on computer groups, you create multiple packages. When you create Software Templates, you specify the details of the package procedures that must be run before and after installing the OS.

To create a migration solution package, open DMM Deployment Setup and follow the instructions in the wizard. While creating the package, verify that the path you are providing for the DNA files will be accessible during migration.

Note: If you want to rename the computers after migration or are performing a machine replacement migration, specify the mapping file details in the wizard. For more information about the mapping file, see [Create a Mapping Between Old and New Computer Names](#) (see page 33).

For more information about creating migration solution packages, see the *DMM Deployment Guide*.

More information:

[Create OS and Software Templates](#) (see page 37)

Register Desktop Migration Solution Software Delivery Package

You must register the migration solution package with software delivery so that the store and apply procedures are available when you create the Software Template. After registering the package, modify the store and apply procedures in the package as install procedures. This change enables the procedures to run unattended and without a CA DMM installation on target computers.

To register and modify the migration solution package

1. Open DSM Explorer and navigate to Software, Software Package Library.
2. Right-click the folder in which you want to import the package and select Import, Software Package.
The Register Software package dialog opens.
3. Specify the path to the migration solution package and click OK.
The package is imported under the folder.
4. Open the package you imported and double-click Procedures.
All the DMM procedures in the packages are displayed.
5. Do the following steps on Apply DNA For Computer and Store DNA For Computer procedures:
 - a. Right-click the procedure and select New Based On.
The Register Procedure dialog opens.
 - b. Change the name of the procedure in the Name field. Select Install in the Task field. Click OK.
A new install procedure is created with the name you specified.
The new store and apply procedures are available install procedures.
6. Right-click the new apply procedure and select Properties.
The Properties dialog opens.
7. Click the Embedded File tab and remove "-w_dms" in the Parameters field.
The "-w_dms" switch requires user interaction. To enable automated migration to perform migration without user interaction, you must remove this parameter.
8. Click OK.
The migration solution package and the procedures are ready for deployment using automated migration. Use the new procedures in the Software Template.

Register Target Computers with OSIM

All the computers in the migration job must be registered with OSIM and must be in the unmanaged state. If you have computers that are already registered with OSIM and are in Current state, delete the computers from OSIM and reregister them. The registration process involves creating a dummy OS installation for the target computers and then deleting the OS installation job. The procedure varies for Wipe and Reload and Machine Replacement migrations.

To register target computers with OSIM (Wipe and Reload migration)

1. Open DSM Explorer and navigate to the group that contains the computers.
All the computers in the group are displayed in the right pane.
2. Select the computers that are part of the migration (use Ctrl or Shift keys for multiple selection), right-click, and select OS Installation.
The OS Installation wizard opens.
3. Click Next and select any OS image in the OS Image selection page.
The selected OS image is *not* used in the automated migration process. So, you can select any OS image to complete the registration process.
4. Click Next and select any boot server.
5. Click Next and select Setup OS installation later (edit boot parameter first) option.
Selecting the option is important to prevent the activation of the OS installation job.
6. Click Next and click Finish on the last page.
The selected computers are planned for OS installation.
7. Navigate to {Group Details} node of the group, and select OS Installations.
All the computers planned for OS installation appear in the right pane.
8. Select the computers, right-click, and select Delete (Planned).
The state of OS Installations changes to Unmanaged and the computers are registered with OSIM.

To register target computers with OSIM (Machine Replacement migration)

1. Open DSM Explorer. Right-click the group to which you want to add new computers, and select New Computer.
The New Computer pre-registration Wizard opens.
2. Click Next and specify the necessary details in the mandatory fields. Select the "Use OS Installation Management to set up a new operating system" option.
3. Click Next and select any OS image in the OS Image selection page.
The selected OS image is *not* used in the automated migration process. So, you can select any OS image to complete the registration process.

4. Follow the instructions in the wizard and click Finish when you are done.
The selected computers are planned for OS installation.
5. Navigate to {Group Details} node of the group, and select OS Installations.
All the computers planned for OS installation appear in the right pane.
6. Select all computers, right-click, and select Delete (Planned).
The state of OS Installations changes to Unmanaged.

Enable Job Container Completion Notifications

When all the jobs in a software job container are executed, the automated migration process requires a notification about the completion status. Only after receiving the notification, the process will move to the next step in the migration workflow. By default, the notification is enabled. If you have disabled it, you must enable the notifications for the migration process to work correctly.

To enable job completion notifications

1. Log in to DSM Explorer and navigate to Control Panel, Configuration Policies, DSM, Software Delivery, Manager.
2. Change the value of Software Job options: Disable job container completion event to False.

Job completion notifications are enabled.

Create OS and Software Templates

OS and software templates define the OS images and software packages you want to use for OS migration. Create the necessary templates before creating migration jobs.

Note: Before you proceed, verify that you have the necessary OS images and software packages in DSM Explorer.

Follow these steps:

1. Click the template type you want to create in the Automated Migration tab. You must create the following templates:

OS Templates

Defines the details of the operating system image that you want to associate with target computers. You can use a single OS image for all computers in the enterprise or associate different OS images based on the hardware model or group. The template also lets you customize OS installation parameters.

Note: Group-based OS templates must be associated with the new computers (target) for machine replacement migrations.

Software Templates

Defines a list of software delivery packages and procedures you want to install before and after OS migration. When you create a software template, you specify the software procedures for the following stages of migration:

Note: You can only select one procedure per package in each of the following stages of migration.

Prepare Software

Specifies the software packages and procedures you want to run before OS migration. Procedures such as, data backup, DNA store, and so on, can be specified in this list. In a Machine Replacement migration scenario, the procedures are run on the old (source) computer.

Note: Use the modified store procedure in the migration solution package to save to a DNA file.

Map Software

Specifies all the software packages and procedures you want to reinstall on the target computers after OS migration. The automated migration process reinstalls the software only if the software was installed on the computer before OS migration. In the case of machine replacement migration, the software is installed on the new computer only if it was installed on the old computer.

Note: If an installed software is not compatible with the new OS, map the software to a version that is compatible with the new OS. The automated migration process takes care of installing the mapped software in such cases.

Restore Software

Specifies the software packages and procedures you want to run after OS migration. Procedures such as, data restore, DNA apply, and so on, can be included in this list. The procedure to execute software specified in Map Software section is automatically included in the Restore Software page as Execute Mapped Software procedure. In a Machine Replacement migration scenario, the procedures are run on the new (target) computer.

Note: Use the modified apply procedure in the migration solution package to restore from the DNA file.

Important! Do not select Shutdown machine after last job in the Boot Level After Execution column for any of the software procedures in the preceding sections as it shuts down the target computer.

The list of templates available for the selected template type is displayed.

2. Click New in the Actions pane.

The New *Template* wizard opens.

3. Follow the instructions in the wizard pages and click Finish on the last page.
The template is created and added to the list of templates in the respective templates page.

More information:

[Create OS Images and Software Delivery Packages](#) (see page 32)

[Register Desktop Migration Solution Software Delivery Package](#) (see page 35)

Create a Migration Job

The migration job specifies the computers or groups you want to migrate, and the OS and software templates you want to use for OS migration. You must create a migration job to test and activate OS migration.

To create a migration job

1. Verify that you have the necessary OS and Software templates.
2. Click Migration Jobs in the Automated Migration tab.

The Migration Jobs page is displayed.

3. Click New in the Actions panel.

The New Migration Job wizard opens.

4. Specify a name for the job, select the migration type, and target type.

The selected migration type is applied to all the computers in the migration job.

5. Click Next. Select the target computers or groups.

Note: If a local domain manager group and a replicated enterprise manager group are with the same name, both the group names appear in the Select Groups page of the wizard. Although the selection includes both the groups, the assessment is only performed on the local group.

6. Click Next. Select the OS template.

Note: For a Machine Replacement migration that includes bare metal computers, you can only select an OS template that is of type global or group-based. Hardware model-based OS templates cannot be used for bare metal computers because the hardware inventory collection is not run on such computers. However, if you have already installed the DSM agent on the new computers and have collected the hardware inventory for such computers, you can use the hardware-model based OS template.

Note: To use a group-based OS template for a machine replacement migration, verify that all new computers (target) are associated with the OS template.

7. Click Next. Select the software template.

8. Click Next. Provide the credentials of the CA IT PAM user account that you configured in CA ITCM in the Supply Credentials page. Specify the credentials in one of the following format depending on the user account type:

LDAP User

ldap://dirc_name/user_name

ldaps://dirc_name/user_name

WINNT Local User

winnt://computer_name/user_name

WINNT Domain User

winnt://domain_name/user_name

CA IT PAM uses the supplied credentials for accessing CA ITCM while executing the job.

9. Select the machine mapping file in the Machine Name Mapping section.
Note: Mapping information is mandatory for machine replacement migrations. The mapping file must contain all the computers that are part of the migration job. Otherwise, the migration job creation fails.
10. Click Next, review the summary, and click Finish on the last page.

The migration job is created and listed in the Migration Jobs page. You can now validate and activate the job.

More information:

[Migration Types](#) (see page 25)

Import CA IT PAM Root Certificate into Web Console

If CA IT PAM is configured to communicate over SSL, you must import the root certificate of CA IT PAM into Web Console. This configuration helps ensure that CA IT PAM and Web Console communicate over SSL.

To import CA IT PAM root certificate into Web Console

1. Execute the following command to import the CA root certificate into the Web Console cacerts file:

```
keytool -import -v -trustcacerts -alias itpam -file rootcertname -keystore keystore_location -keypass key password -storepass store password
```

Note: The Keytool executable is available in java bin directory, for example, C:\Program Files (x86)\CA\SC\JRE\1.5.0_11\bin.

rootcertname

Defines the CA IT PAM root certificate name.

keyStore_location

Defines the path to the keystore. The default keystore location is C:\Program Files (x86)\CA\SC\JRE\JRE_Version\lib\security\cacerts.

keypass

Defines the password used to protect the private key of the generated key pair.

Default: changeit

storepassword

Defines the keystore password.

Default: changeit

On successful execution of the command, the root certificate is imported into the cacerts file.

Disable OS Migration of Computers with Specific Software Packages

If you do not want to migrate computers that have specific software packages installed, you can disable the OS migration of such computers. For example, you can disable OS migration of computers that have DSM Web Console installed. The computers are automatically excluded from the migration job during the validation process.

To disable OS migration of computers with specific software packages

1. Open the C:\Program Files\CA\DSM\Automation Service\bin folder or %autohome%\bin folder.
2. Edit the automation.config file in a text editor.

3. Specify the list of software packages within double quotes, as comma-separated values in the SoftwareBlackList parameter as follows:

```
SoftwareBlackList="Software Package Name" ,"Software Package 2 Name", ...
```

Important! Do *not* remove the default value CA DSM Manager that prevents the OS migration of DSM managers. You can append your list of software packages after CA DSM Manager.

4. Save the file.

The configuration changes are saved.

Validate—Test the Migration Process

The validate stage involves testing the process. This stage involves the following tasks:

- Verifying whether the required software packages, OS images, machine mapping file, and so on, are available in the system.
- Verifying whether any of the tasks in the migration process violates any CA ITCM policy.
- Testing the process on a few computers.

Validate the Migration Job

Validate the migration job to verify that the details specified in the migration job are appropriate and available. The validation process also includes verifying the super user credentials supplied in the migration job. You must validate the migration job before you can activate it.

To validate the migration job

1. Select the migration job in the Migration Jobs page and click Validate.

The validation process begins. The status of the migration job in the Migration Jobs page changes to Initialization In Progress. The validation process evaluates the computers based on various validation criteria. The process takes a while depending on the number of computers to be evaluated.

Note: Click the Refresh icon  at the bottom of the page to get the most recent job status.

When the validation process is complete, the status of the job shows one of the following values:

Validation Completed

Indicates that the validation task completed successfully. This status is not indicative of the status of computers in the migration job. A validation successful job can include computers that have failed the validation with errors or warning. The computers that have failed the validation with errors are automatically excluded from migration.

Validation Failed

Indicates that the validation task has failed. Unlike the Validation Completed status, all the computers in a validation failed job have the Validation failed status. Validation failed jobs cannot be activated.

2. Do the following if the job status is Validation Completed.

- a. Click the job.
- b. Click the Computers tab.

A list of computers that are part of the migration job is displayed. The list shows the validation status of each computer.

- c. Click View under Activity Log for the computers that have the status as Validation Failed.

The activity log displays the validation issues.

- d. Verify the validation issues and fix them.
- e. Validate the migration job again.

The job is revalidated.

3. Do the following if the job status is Validation Failed.
 - a. Click the job.
 - b. Click the Computers tab.

A list of computers that were part of the migration job is displayed. The list shows the validation status of all the computers as Validation Failed.
 - c. Click View under Activity Log for a computer.

The activity log displays the validation issues. All the computers in a validation failed job show the same log message. So, you can open one of the computers to know the reasons for validation failure.
 - d. Fix the validation issues.
 - e. Validate the migration job again.

The job is revalidated.

More information:

[Exclude Computers from the Migration Job](#) (see page 44)

[Activate OS Migration](#) (see page 47)

Exclude Computers from the Migration Job

After the validation, computers that have the Validation Completed or Validation Warning status are automatically included for OS migration; computers that have Validation Failed status are excluded from OS migration. If you want to defer the OS migration of Validation Completed or Validation Warning computers, you can exclude them from the migration job.

To exclude computers from the migration job

1. Select the computer you want to include in the migration job and click Enable Computer Migration in the Actions pane.

The selected computer is included in the migration job. The Enable Computer Migration link is deactivated and the Disable Computer Migration link is activated.
2. Select the computer you want to exclude from the migration job and click Disable Computer Migration in the Actions pane.

The selected computer is excluded from the migration job. The Disable Computer Migration link is deactivated and the Enable Computer Migration link is activated.

Deploy—Activate Migration

The actual migration happens in the Deploy stage. The migration process takes care of the following tasks:

- Capturing user and application settings
- Deploying the new OS
- Installing software applications
- Restoring user and application settings

Modify the Reinstall After Crash (RAC) Policy (Wipe and Reload Migration Only)

Note: The following procedure is applicable only for Wipe and Reload migrations. Before activating wipe and reload migrations, you must perform the following procedure.

Automated migration requires update to the RAC policy of the domain manager and target computers for the migration to work properly. The RAC policy of the target computers is automatically disabled during migration and is reset to the original value after migration. However, you must manually modify the policy of the domain manager.

To modify the RAC policy at the domain manager

1. Connect to the domain manager from DSM Explorer and navigate to Control Panel, Configuration, Configuration Policy, *Policy Name*, DSM, Software Delivery, Manager.

Policy Name

Refers to the configuration policy applied on the domain manager computer.

All the software delivery configuration policies related to the domain manager are displayed.

2. Modify the value of the following policies:
 - a. Set the value of RAC: Policy to True.
 - b. Set the value of RAC: Automation setting to 0. This policy must be locally managed so that automated migration can change the RAC policy at the target computers automatically. If the policy is centrally managed, change it to locally managed before activating migration. You can reset it to the original value after the migration is complete.

The settings help ensure that the installation history is removed from the target computers and the SD job containers are not created by the domain manager.

3. Save and seal the policy.

Modify the Reboot Prompt Timeout Settings

If you have specified a machine mapping file in the migration job for renaming the computers, the migration process renames the computer during migration. After the computer is renamed, a reboot of the computer is requested and a prompt waits for user response at the computer. By default, the prompt times out after 30 minutes and restarts the computer. This causes a delay in the migration job. You can modify the reboot prompt timeout settings to reduce the timeout and help ensure the reboot occurs almost immediately.

To modify the reboot prompt timeout settings

1. In DSM Explorer, navigate to the configuration policy DSM, Software Delivery, Agent, Reboot: Prompt timeout.
2. Double-click the setting and change the value to a required value. For example, specify 120 seconds to reboot the computer after 2 minutes.

The change impacts all the software jobs that require reboot. After the OS migrations, you can reset this value to the original value, if necessary.

Modify Settings to Improve Migration Job Performance

Modifying the settings of the following parameters in the Automation Service configuration file can help improve the performance of the migration job:

- `MaximumDelayOfJobContainer`
- `MaxNumberOfTargetsPerJobContainer`

The SD job activation waits until one of the following events occur, before submitting an SD job container for processing:

- The time specified in `MaximumDelayOfJobContainer` is reached.
- The SD job container is filled with the number of targets specified in `MaxNumberOfTargetsPerJobContainer`.

Adjusting the values can improve the overall performance of the migration job and must be considered in production environment.

To modify settings to improve migration job performance

1. Open the `C:\Program Files\CA\DSM\Automation Service\bin` folder or `%autohome%\bin` folder.
2. Edit the `automation.config` file in a text editor.
3. Change the values of the `MaximumDelayOfJobContainer` and `MaxNumberOfTargetsPerJobContainer` parameters according to your environment. The actual values depend on the hardware used for domain manager, automation service, web services, and the database.

Note: Choosing a low number can cause the creation of many job containers and has a negative impact on the overall performance of the system. Choosing a large number adds unnecessary delays in the submission of SD job containers for processing.

With minimal hardware requirements, the following settings have been found to be optimal:

Microsoft SQL Server Database:

MaxNumberOfTargetsPerJobContainer=50, MaximumDelayOfJobContainer=1800, which also are the default values.

Oracle Database:

MaxNumberOfTargetsPerJobContainer=50, MaximumDelayOfJobContainer=3600

4. Save the file and restart tomcat using the following commands:

```
caf stop tomcat
caf start tomcat
```

The changes to the configuration file take effect.

Activate OS Migration

The final step in OS migration is activating the migration job that performs the actual migration.

Note: You must have validated the migration job before activating it.

Important! OS migration is an irreversible action. Verify that all the computers in the migration job are actually intended for OS migration. Automated Migration excludes the enterprise manager, domain manager, and scalability servers from the migration job automatically.

To activate OS migration

1. Select the job in the Migration Jobs page and click Activate Migration in the Actions panel.

The migration job is activated. The migration job performs a final validation and automatically excludes the validation failed computers from the job. The job then proceeds to various tasks in OS migration. The job displays the status depending on the migration phase.

Note: Click the Refresh icon  at the bottom of the page to get the most recent job status.

2. Click the migration job.

The Properties tab of the job is displayed.

3. Click the Computers tab.

A list of computers that are part of the migration job is displayed. Each computer displays the migration status specific to the computer.

More information:

[Migration Job Status](#) (see page 48)

[Computer Status](#) (see page 49)

View the Migration Status of a Computer

You can view the migration stats of the computers to see which migration process is currently active on the computer.

To view the migration status of computers

1. Open the migration job to which the computer is added.

The Properties tab of the job is displayed.

2. Click the Computers tab.

A list of computers that are part of the migration job is displayed. Each computer displays the migration status specific to the computer.

Migration Job Status

Depending on the current phase of migration, the migration job indicates an appropriate status. The migration goes through the following phases:

Migration Not Initialized

Indicates that no activity has been started on the migration job. A migration job remains in this status until you validate the job.

Initialization

Verifies whether the required infrastructure components are initialized properly and initializes them if required. This phase is part of the validation phase.

Preparation

Gathers information required for the validation phase. Information like computer details, OS image and boot server details, and software package details are gathered during this phase. This phase is part of the validation phase.

Validation

Verifies whether the information gathered in preparation phase is available and is appropriate. This phase detects the conflicts in the configuration and inputs provided in the migration job.

Deployment

Performs the actual OS migration wherein the OS and software packages are deployed.

Resume

Gathers data to resume deployment. This phase verifies the progress made during deployment phase and adjusts the execution to match the actual deployment status. After the resume operation is successful, the job moves to Deployment.

Migration Job Completed

Indicates that the migration job is completed.

Note: This status does not mean that the migration is successful on all computers. It only indicates that the migration process is completed. To know the migration status of each computer, view the status of the computers in the migration job.

Migration Job Failed

Indicates that the migration job failed with errors. Check the activity log of any computer in the migration job to know the reasons for failure.

Computer Status

The status of computers that are part of the migration job, changes as the migration goes through the following phases:

Activity (Started/Not Started)

Indicates that an activity has been started on the computer and is waiting for execution. This status appears before the validation, migration, and resume phases. The computer remains in

Validation

Indicates that the computer is being validated for the migration job.

Preparation phase

Indicates that the migration job is preparing the computer for migration by backing up files, capturing DNA files, and so on.

OS install phase

Indicates that the migration job is deploying the new OS.

Restoration phase

Indicates that the migration job is performing restore actions like, copying backup files, applying DNA, installing the application, and so on.

Migration(success/failure)

Indicates the success or failure of the migration job on the computer.

Migration disabled

Indicates that the administrator has manually disabled the migration job for the computer.

Monitoring the Migration Job

You must monitor the migration job to help ensure that the migration is running without any issues. Following are some of the ways to monitor the migration job:

- Check the status of the computers in the migration job frequently.
- Check the status and activity log of the computers to view the exact process running on a computer.

Abort the Migration Process of a Computer

If you want to stop the migration of a target computer after activating the migration job, you can abort the migration process of the computer. You can include the computer in any other migration job later.

To abort the migration process of a computer

1. Click the job in the Migration Jobs page.
The Properties tab displays the job properties.
2. Click the Computers tab and find the Automation Process Name for the computer that you want to abort.
3. Open CA IT PAM Client. Click Default Process Watch, Running Instances.
All the running processes are listed.
4. Locate the process name of the computer you want to abort and click Abort.
The CA IT PAM process stops for the computer. The status of the migration job changes to Migration Failed for the computer.

Note: To include the computer in any other migration job, the computer must be in Unmanaged state in OSIM. If the computer has any other OSIM status, delete the computer from OSIM and register it again.

More information:

[Register Target Computers with OSIM](#) (see page 36)

Chapter 5: DMM Enhancements

Supported Versions

DMM supports the latest versions of the following applications:

- Adobe acrobat reader - 9.0,10.0
- Internet Explorer - 9.0
- Mozilla Firefox - 1.5,2.0,3.0,3.5,3.6,4.0,5.0
- MSN Messenger - 8.0, 8.1, 8.5, Windows Messenger 2009 14.0, 2011 15.4
- MS access – 2010
- MS project – 2010
- MS Visio – 2010
- MS visual Studio – 2010
- WinZip - 12.0, 12.1, 14.0, 14.5, 15.0, 15.5

DMM supports the following new application and its versions:

Google Chrome - 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13, 14, 15

Recent Document Settings Option

With this release, CA ITCM delivers a new option, Recent Document Settings, for all MS Office applications that are supported by CA ITCM. This option prompts the user to select the recent document settings.

- This option does not work with migration of 2003 MS Office recent document migration settings to any of 2007 or 2010 MS Office.
- This option works only if files are available at the same location as before migration. Otherwise, when you click the recent document, it displays a standard system error.

Limitations

- Report for MS Visio 2010 to MS Visio 2010 migration
Options that do not migrate:
 - Visio options, Advanced, Maximum number of undo
 - Visio options, Advanced, Angle
 - Visio options, Advanced, Show customer submitted Office.com content
 - Visio options, Advanced, Default units, Text
 - Visio options, Advanced, Default units, Duration
- Report for MS Visio 2007 to MS Visio 2010 migration
Options that do not migrate:
 - Quick Access toolbar does not migrate
- Report for MS Project 2010 to MS Project 2010 migration
Options that do not migrate:
 - Project Options, General, Initials
- Report for MS Project 2007 to MS Project 2010 migration
Options that do not migrate:
 - Quick Access toolbar does not migrate
- Report for MS Access 2010 to MS Access to 2010 migration
Options that do not migrate:
 - Access Options, Current database
 - Access Options, Client settings, No of recent documents
 - Access Options, Client settings This database in general tab
 - Access Options, Privacy Options, Trust center, Privacy all options do not migrate.
- Options that do not migrate in WinZip:
 - Options, Configuration, System, General, Include Winzip to the start menu
 - Options, Configuration, System, General, Include Winzip to the desktop
- When you migrate IE 9 settings to a destination, the most popular sites property does not migrate. This also means that the most popular sites thumbnail does not migrate.
- When you migrate from IE6 to IE9, after applying the following settings, you need to restart the computer:
 - Tools, Options, Advanced, Security, use SSL 3.0
 - Tools, Options, Advanced, Security, use TLS 1.0
- Settings that do not migrate in Visio:

- Options, Advanced, Default units, Text
- Options, Advanced, Default units, Duration

Chapter 6: MDB Enhancements

The major Management Database (MDB) enhancements for this release include the following:

- Remote MDB installation for Oracle on Windows, Solaris, and Linux
You can launch the new MDB PIF package either locally or remotely as a standalone MDB installer to the target database server.
Note: Remote MDB installation is only supported from a Windows computer.
- Support for Oracle 11g Release 2 on Windows, Solaris, and Linux
- Unattended MDB installation and upgrade from a response file on Windows and Linux/Solaris
- Several [noninstaller MDB code changes](#) (see page 66)

Note: You can run the English (ENU) only version of the MDB installer on German (DE) locale operating systems.

This section contains the following topics:

- [MDB PIF Package](#) (see page 56)
- [Oracle 11g Support](#) (see page 57)
- [Support for Microsoft SQL Server MDB on Windows](#) (see page 62)
- [Unattended MDB Installation Using a Response File](#) (see page 63)
- [CCS Considerations](#) (see page 64)
- [MDB Upgrades](#) (see page 65)
- [PIF Installation Records](#) (see page 66)
- [Uninstallation](#) (see page 66)
- [Noninstaller Code Changes](#) (see page 66)

MDB PIF Package

The Windows MDB PIF package is applicable for Oracle 11g Release 2. You can use the package as a standalone MDB installer.

Standalone MDB Installation

You can invoke the MDB PIF package as a standalone MDB installer by running the setup script (setup.bat or setup.sh) from the appropriate MDB directory:

```
<DVDR00T>\WindowsProductFiles_x86\mdb
```

```
<DVDR00T>/LinuxProductFiles_x86/mdb
```

```
<DVDR00T>/SolarisProductFiles_sparc/mdb
```

The MDB PIF package as a standalone installer supports new MDB installations, reinstallations, and upgrades to a local or a remote target database server.

For Oracle, the standalone MDB PIF package tests whether the Oracle Client is at the Oracle 11g Release 2 level.

More information:

[How to Install an Oracle MDB \(Standalone\)](#) (see page 58)

[Install the DSM Manager: Oracle MDB](#) (see page 60)

[Remote MDB Installation on Oracle 11g](#) (see page 61)

[Install the DSM Manager: Microsoft SQL Server MDB](#) (see page 62)

[Remote MDB Installation for Microsoft SQL Server](#) (see page 62)

[Unattended MDB Installation Using a Response File](#) (see page 63)

Oracle 11g Support

Support for Oracle 11g Release 2 includes the following features:

- Remote MDB installation for Oracle 11g
- Configurable Oracle MDB size
- Unattended MDB installation and upgrade using a response file
- MDB upgrades for Oracle on Solaris

Note: First upgrade your Oracle 10g R2 installation to Oracle 11g Release 2 before you upgrade the MDB. You need to stop all CA ITCM processes during the upgrades of the Oracle Server, Oracle Client, MDB, and manager. As in previous releases, you need to perform all upgrades top-down, starting with the enterprise manager and followed by the domain managers.

This release does not support the following functionalities with an Oracle 11g MDB:

- Oracle Real Application Clusters (RAC)
- Oracle Automatic Storage Management (ASM)

Prerequisites

This section lists the prerequisites for installing the MDB on Oracle 11g:

- Install Oracle 11g Server on the computer where you are planning to install or upgrade the MDB. This release supports Windows, Solaris, and Linux servers for Oracle 11g MDB.
- Create an Oracle instance using the Oracle Database Configuration Assistant. Consider the following factors while creating the instance:
 - The database instance name (SID) must be the same as the Oracle service name (global name).
 - Appropriate values must be entered in the SGA Size and PGA Size fields on the Memory tab of the Oracle Database Configuration Assistant.
A minimum of 2 GB is recommended for SGA.
- Install Oracle 11g Client on the computer where you are planning to install or upgrade the CA ITCM DSM manager.

Note: For detailed installation instructions, see the appropriate Installation Guide available in the Oracle Documentation Library.

How to Install an Oracle MDB (Standalone)

Important! Make note of the values and passwords you enter in the installation wizard steps because you need them later when configuring the DSM manager.

The basic steps for installing the MDB on Oracle 11g in interactive mode are as follows:

1. Create an Oracle instance using the Oracle Database Configuration Assistant if you have not already done so, and do the following:
 - Verify that the database instance name (SID) is the same as the Oracle service name (global name).
 - Enter appropriate values for the instance in the SGA Size and PGA Size fields on the Memory tab of the Oracle Database Configuration Assistant.

2. Run the appropriate script file on the target database server from the MDB directory:

Valid on Windows

```
setup.bat
```

Valid on Solaris or Linux

```
sh ./setup.sh
```

The MDB Installer is launched and the first wizard page, Choose Setup Language, appears.

3. Accept English as the setup language.

Note: The only available language for this release is English.

4. Accept the End User License Agreement.
5. (Windows only) Select the database type, Oracle Server, for this procedure.
6. Enter the path of the Oracle installation for the MDB in the ORACLE_HOME field, to define the working runtime Oracle environment.

For remote MDB installation, enter the ORACLE_HOME value of your local computer.

7. Specify the Oracle database server name and MDB size.
8. Specify MDB user and database administrator credentials.

Note: The default MDB user name is ca_itrm.

9. Specify advanced Oracle configuration settings, including Oracle service name, Oracle Transparent Network Substrate (TNS) name, port number, tablespace path, and MDB administrator password.
10. Review your database configuration options and confirm the installation by clicking the Install button.

Installation begins and the MDB schema gets created in the Oracle database.

Note: The Release 12.5 MDB installer on Solaris displays a dialog that shows the Oracle version and operating environment prerequisite checks. With the new MDB installer, this dialog appears only if there are prerequisite failures; otherwise, the installation proceeds.

11. Install the Release 12.5 DSM manager when installation of the Oracle MDB is complete.

Note: The DSM manager uses EZCONNECT to connect to the Oracle MDB, in the same way as in CA ITCM Release 12.5.

More information:

[Install the DSM Manager: Oracle MDB](#) (see page 60)

[Remote MDB Installation on Oracle 11g](#) (see page 61)

[Unattended MDB Installation Using a Response File](#) (see page 63)

Install the DSM Manager: Oracle MDB

Install the DSM enterprise or domain manager.

Follow these steps:

1. Install the Oracle 11g Client on the computer where you want to install your DSM enterprise or domain manager.
2. Install the CA ITCM Release 12.5 SP01 DSM manager and enter the details of your Oracle MDB in the relevant dialogs.

Note: When the manager installation requires the name of the MDB Oracle Server, enter the IP address only if the manager and the MDB are on the same computer. Otherwise, enter the host or DNS name.

3. Follow the wizard instructions to complete the manager installation.
4. Perform the following additional steps if the DSM manager is installed on the same computer as the Windows Oracle MDB:
 - a. Run the following SQL command as mdbadmin:

```
update ca_n_tier set
    label='<MDB Server host name>',
    db_host_name='<MDB Server host name>',
    db_server='<MDB Server DNS name>'
where domain_uuid in (select set_val_uuid from ca_settings where set_id=1)
```

- b. Verify that the update is committed. If auto-commit is turned off, manually commit the update.

- c. Run the following command from the command prompt:

```
ccnfcmda -cmd setparametervalue -ps /itrm/database/default -pn dbmsserver -v
<MDB Server DNS name>
```

5. Start CAF.

More information:

[How to Install an Oracle MDB \(Standalone\)](#) (see page 58)

Installation of Other CA ITCM Components

Scalability Server Installation

Install the CA Client Automation release 12.5 SP01 DSM scalability server.

Agent Installation

Install the CA Client Automation release 12.5 SP01 DSM agent.

Remote MDB Installation on Oracle 11g

Note: Remote MDB installation on Oracle 11g is only supported from Windows.

Use the Windows MDB PIF package to install the MDB schema to a remote Windows, Solaris, or Linux Oracle 11g Server. For a remote installation, the ORACLE_HOME environment variable refers to the local computer (where you may have only an Oracle 11g Client).

For installation and upgrades to a remote Oracle MDB, define a TNS name for the remote computer in the Oracle tnsnames.ora file on the local computer. This action allows the remote Oracle Server to be addressed.

For a local Oracle MDB install, the MDB installer creates the specified tablespace path folder if it does not exist. This step is not possible for a remote install. Therefore, verify that the tablespace folder path that you are going to select during the MDB installation exists on the remote computer. If the tablespace folder does not exist on the remote computer, an error occurs preventing the installation from proceeding.

More information:

[How to Install an Oracle MDB \(Standalone\)](#) (see page 58)

Database Synchronization

In CA ITCM Release 12.5, the Oracle Bridge synchronization feature is installed in your application environment as part of the DSM manager installation. The Oracle Bridge service pack supports database synchronization from Microsoft SQL Server to a target Oracle 11g MDB. However, the Bridge does not support database synchronization *from* Oracle.

The Oracle Bridge synchronization features support the following database scenarios:

- Microsoft SQL Server 2005 and 2008 on Windows as the source MDB for the synchronization with Oracle 10g Release 2 (10.2.0.4) as target MDB.
- Microsoft SQL Server 2005 and 2008 on Windows as the source MDB for the synchronization with Oracle 11g Release 2 as target MDB.

Note: For detailed information, see the Installation of Oracle Bridge section in the *CA ITCM Release 12.5 Implementation Guide*.

Support for Microsoft SQL Server MDB on Windows

Although this section focuses on Oracle 11g, this release also supports the installation of Microsoft SQL Server MDB on Windows operating systems. You can install Microsoft SQL Server MDB as a part of the DSM manager installation.

Install the DSM Manager: Microsoft SQL Server MDB

After completing the installation of the Microsoft SQL Server MDB, install the DSM enterprise or domain manager.

Follow these steps:

1. Install the Microsoft SQL Client on the computer where you want to install your DSM enterprise or domain manager.
Note: This step is not necessary if Microsoft SQL Server is already installed on the computer.
2. Install the CA ITCM Release 12.5 SP01 DSM manager and enter the details of your Microsoft SQL Server MDB in the relevant dialogs.
3. Start CAF.

Remote MDB Installation for Microsoft SQL Server

If you plan to run the DSM manager using a remote Microsoft SQL Server MDB, the manager and the remote MDB computer must have a trusted relationship when running in a Windows environment.

During the installation of a domain or enterprise manager, you can install the MDB on the local host or use an existing remote instance of the MDB.

For a remote configuration, install the database on the remote computer by selecting Install MDB (no CCS functionality).

If you need to use CCS with CA ITCM, you need to install CCS on the MDB host computer, whether local or remote. Use the Install CCS option from the top-level CA ITCM installation dialog. Then install the domain or enterprise manager.

If you use a remote Microsoft SQL Server, install the Microsoft SQL Client Management Tools *before* you install the domain or enterprise manager. Verify that the Microsoft SQL Client Management Tools are not deselected during Microsoft SQL Client installation. CA ITCM uses the specific user `ca_itrm` created on the database level to get authenticated for MDB access. You need to specify the same password for the user `ca_itrm` during "Install MDB" and CA ITCM installation dialogs. The user `ca_itrm` is created automatically.

When you install multiple domain managers with remote Microsoft SQL Server MDBs, verify that only one MDB exists on each database server instance. This restriction means you must have as many database servers as MDBs.

Note: With a remote Microsoft SQL Server MDB, the name of the server hosting the domain MDB is used as the name of the domain manager. Therefore, the DSM Explorer in the enterprise manager displays the domain manager with the name of its database server.

Unattended MDB Installation Using a Response File

The MDB installer supports unattended installation from a response file using the `setup.bat -r response_file` command on Windows and `setup.sh -r response_file` on Linux/Solaris.

The MDB installer also supports the creation of a response file using the `setup.bat -g response_file` command on Windows and `setup.sh -g response_file` on Linux/Solaris.

Instead of generating a response file, you can edit the response file template, `install.rsp`, and use this template to perform an unattended install.

Encryption and Decryption of Passwords in a Response File

By default, the MDB installers use the Blowfish encryption and decryption utility that is included in the MDB packages: `blfs.exe` on Windows and `blfs` on Linux and Solaris. When you run `setup` with the `-g` option, the application automatically uses Blowfish to encrypt passwords in the response file.

If you create the response file by editing the included template, `install.rsp`, run the Blowfish utility from a command or shell window to encrypt the password. Then copy the resulting string to the response file.

For example, if the `blfs validation_0101` command on Linux/Solaris returns the encrypted string, `0x530924b11654032a6e0e213281cd8565c3f9ec63b09dc673`, you need to copy this string to the response file as follows:

```
# Password of Oracle MDB admin user
ITRM_MDBADMINPWD=0x530924b11654032a6e0e213281cd8565c3f9ec63b09dc673
```

In both cases, when you run setup with the -r option, the application automatically uses the Blowfish utility to decrypt passwords in the response file.

Note: The unencrypted passwords cannot start with 0x (case-sensitive).

The Blowfish algorithm is not FIPS-compliant. You can provide a custom FIPS-compliant utility for encryption or decryption by setting environment variables pointing to the relevant programs. That is, set MDB_ENC_PROG to the full path name of the encryption program and MDB_DEC_PROG to the full path name of the decryption program.

Example: Changing the Encryption or Decryption Programs on Windows

```
set MDB_ENC_PROG=E:\tmp\my_encrypter.exe  
set MDB_DEC_PROG=E:\tmp\my_decrypter.exe
```

On Windows, the programs must have a .exe extension in the file names.

Example: Changing the Encryption or Decryption Programs on Solaris or Linux

```
MDB_ENC_PROG=/tmp/my_encrypter  
export MDB_ENC_PROG  
  
MDB_DEC_PROG=/tmp/my_decrypter  
export MDB_DEC_PROG
```

If you do not set MDB_DEC_PROG, or if the program does not exist, then MDB_DEC_PROG is assumed to be the same as MDB_ENC_PROG. If you do not set MDB_ENC_PROG or if the program does not exist, then the default Blowfish encryption and decryption programs are used.

CCS Considerations

The DSM manager setup automatically chooses the appropriate variant of CA Common Services (CCS), either Micro-CCS or full CCS. The application installs Micro-CCS with the DSM manager if its MDB resides on Oracle. Full CCS is installed with a Microsoft SQL Server MDB.

When you upgrade the DSM manager, the DSM manager setup attempts to upgrade either full CCS or Micro-CCS appropriately as in Release 12.5.

The Install CCS option is still available from the top level of the CA ITCM installation wizard. As in Release 12.5, it installs full CCS on the local computer. This option requires Microsoft SQL Server on the latter with the MDB preinstalled.

In this release, however, the Install CCS and MDB option has been removed from the top level of the CA ITCM installation wizard.

Note: For more information about CCS, see the *CA ITCM Release 12.5 Implementation Guide*.

MDB Upgrades

This release supports the following MDB upgrades:

- Release 12.5 or earlier DSM manager with Microsoft SQL Server MDB installed either locally or remotely
- Release 12.5 or earlier DSM manager with Oracle 10g MDB installed remotely on Solaris

Note: The Oracle 10g Server must be upgraded to Oracle 11g R2 first. Also, upgrade the Oracle Client on the DSM manager to Oracle 11g R2 before launching the DSM manager setup.

- Patched Release 12.5 DSM manager and Oracle 11g R2 MDB installed either locally or remotely on Windows, Linux, and Solaris

If the database server is remote, the MDB is upgraded during a DSM manager upgrade with the current release. For Microsoft SQL Server, no user interaction is required because the database details are retrieved from comstore. For Oracle, set the ORACLE_HOME environment variable and enter the Oracle service name, TNS name, and the mdbadmin and sys passwords.

If existing database sessions are found during the upgrade, each session is displayed with the names of the database user, process ID, and host computer. The database sessions are displayed in two lists in a dialog. The first list is for sessions that must be closed before the upgrade is allowed to proceed. This list includes sessions belonging to database users who are members of roles created by the DSM schema. Representative roles are ams_group, ca_itrm_group, ca_itrm_group_ro (Oracle only), ca_itrm_group_ams, upmuser_group, and mdbadmin (Oracle only). CCS roles (for Microsoft SQL Server only), like emadmin, emuser, uniadmin, uniuser, wvadmin and wvuser, are also included in the first list. (The roles are read from a configuration file on the DVD image.)

The second list displays any remaining sessions belonging to other database users. We recommend that you close these sessions also, but this step is not mandatory. You can proceed with the upgrade even with these outstanding open sessions.

Use the Refresh button in this dialog to refresh the lists as you close open database sessions. The Continue button is enabled only if the first list of database sessions is empty.

PIF Installation Records

The MDB installer does not leave any PIF installation records on the source computer that is invoked. As a result, you can reuse the source computer to install the MDB to a different target remote computer. No PIF installation records are left on the latter.

The MDB installer does, however, write its version number into the `ca_settings` table to assist maintenance.

Old PIF installation records on the remote MDB computer are not removed on an MDB upgrade, whether performed locally or remotely. You can remove these old installation records manually on Solaris with the `lsm -e` command.

Uninstallation

As in CA ITCM Release 12.5, this release does not support uninstallation of the MDB schema. You can use the data uninstall script during a DSM manager uninstall to remove selected data from the MDB. You can also use Microsoft SQL Server and Oracle functionality to delete and recreate MDB instances.

Noninstaller Code Changes

This release delivers the following noninstaller code changes, reflected primarily in `cmengine.exe`:

- Bulk copy API support for both Oracle 10g and Oracle 11g Clients
- Replication of tenant and ITAM Data Importer reconciliation data
- Bulk merge inventory optimization for Microsoft SQL Server
- Handling of duplicate inventory files during bulk merge
- Support for handling of lost CORA connection

Chapter 7: OSIM Enhancements

This section contains the following topics:

[SUSE OS Images](#) (see page 67)

[OSIM Target Support](#) (see page 69)

SUSE OS Images

From r12.5 SP01, the installation of SUSE 10 and 11 OS images is supported using only the extracted folders of ISO image. Installation using ISO images is not supported.

Creation of SUSE OS Images

The NFS share must contain the merged CDs or DVDs of the Linux distribution for SUSE versions 10 and 11, which is delivered on several CDs or DVDs.

Follow these steps:

1. Merge the files and directories from the CDs or DVDs into one directory called suse. When merging the CDs or DVDs, start from the last CD or DVD so that CD1 or DVD1 is the last to be merged. For more information about the folder structure, see [Merging the Files from SUSE CDs or DVDs](#) (see page 68).
2. Copy the suse directory to the NFS share.

Merging the Files from SUSE CDs or DVDs

Before creating the SUSE OS images, merge the files into a specific structure. The structure varies depending on the version of SUSE and the architecture.

Note: After merging the files, copy the parent SUSE folder to the NFS share.

SUSE 10 32-bit OS Images

suse

- boot
- docu
- media.1
- media.2
- media.3
- media.4
- media.5
- patches
- dosutils
- suse
 - i1586
 - i686
 - noach
 - setup
 - x86_64

SUSE 11 32-bit OS images

suse

- boot
- docu
- media.1
- media.2
- suse
 - i585
 - i686
 - nosrc

- noarch
- setup
- src

SUSE 11 64-bit OS Images

suse

- boot
- docu
- media.1
- media.2
- suse
 - i586
 - noarch
 - setup
 - x86_64
 - nosrc

OSIM Target Support

With this release, the OSIM functionality of CA ITCM supports the unattended installation of the following:

- VMware ESX 3.5
- VMware ESX 4.0
- VMware ESX 4.0 x64
- VMware ESXi 4.1
- SAN-based installation support for VMware ESX 4.0
- WinPE-based RedHat 5.x Installation
- Microsoft Windows Server 2008 R2
- Microsoft Windows 7 SP01 and Windows Server 2008 R2 SP01

This section details the information to create the required OS images.

Overview

VMware ESX 3i and VMware ESX 4i

VMware ESX Server 3i Installable is not supported.

The OSIM extension installs ESX Server 3.5 or 4.0 images on target computers by using the Kickstart installation method. The auto answer files are prepared as templates for most used installations but you can extend them. OSIM also provides post procedures to configure the target installation and to install the DSM agent.

OSIM supports OS installation parameters which can be used in auto answer files and in the post procedures. That makes it possible to prepare only one OSIM image for different types of installations.

VMWare ESX 3.5 and FIPS-Only mode

VMware ESX 3.5 is based on Red Hat Enterprise Linux ES 3, which the ITCM r12.5 agent does not support anymore. Instead, for ESX 3.5 an ITCM agent r11.2 is delivered, but this agent does not support FIPS 140-2 compatible password encryption. Hence, OS installations of VMware ESX 3.5 are not possible, when the DSM infrastructure operates in the FIPS-Only mode.

Boot Server

A Boot Server grants access to boot and OS images required by target computers during an OS installation.

Note: A boot server hosting an OS image of VMware ESX must have activated the NFS service. On a Windows boot server, install the Microsoft Windows Services for Unix and start the Server for NFS.

Target Computer

VMware ESX 4.0 only installs and runs on servers with 64-bit x86 CPUs. For further guidelines, refer the VMware Compatibility Guide:

<http://www.vmware.com/resources/compatibility/search.php>

Microsoft NFS Services

OSIM requires that the boot-server hosting ESXi installation files export these files via NFS-based services. When the boot-server is running on Microsoft Windows Server, depending on the OS version, some configuration changes could be required to the NFS server:

- Windows Server 2003 with Services for Unix 3.5
No configuration changes are required.
- Windows Server 2003 R2
Modify the NFS services as described in this support KB entry:
<http://support.microsoft.com/kb/916794>
- Windows Server 2008 and 2008 R2
Modify the NFS services as described in this support KB entry:
<http://support.microsoft.com/kb/977517/en-us>

Adding syslinux.exe

VMware ESX 3.5 and ESX 4.0 do not provide an RPM package including syslinux.exe, which is used by OSIM to boot the target computer into Linux (ESX).

Before you create an OS image of VMware ESX, download the latest syslinux version and copy syslinux.exe into the OSIM template folder on the Image Prepare System.

Download the latest version of the syslinux zip-file from the following location:

<http://www.kernel.org/pub/linux/utils/boot/syslinux/>

The file syslinux.exe is located in the win32 subfolder of the zip-file.

Note: If you do not copy syslinux.exe to the OSIM template folder, a warning message appears when you create an OS image for VMware ESX. Verify that you copy syslinux.exe to the created OS image (subfolder VMware) of the OSIM image store before you initiate an OS installation.

Support for VMware ESX 3.5 and 4.0

Creating an OS Image

You can use two different methods to create an OS image for VMware ESX on the Image Prepare System and installed from a boot server.

- Copy the VMware ESX DVD(CD) manually into an NFS share. The created OS image for VMware ESX contains only files that are required to start the Linux boot kernel and to control the OS installation process.
- Use the VMware ESX software packages that are embedded inside the OS image. The OS image contains the entire DVD(CD) contents.

You can create an OS image on the Image Prepare System either with a command-line utility from a command prompt window or by using the DSM Explorer.

Create OS Image Command

This command requires the type (-o option) and the name (-i option) of the OS image to be created. The new introduced types for VMware ESX are:

- VMWARE-ESX40 for VMware ESX Server 4.0
- VMWARE-ESX35 for VMware ESX Server 3.5

In addition, the command requires the name of the central NFS share (-a option):

```
createosimage -o VMWARE-ESX40 -i esx401 -a ESX401-NFS
```

This command reads the needed setup files from DVD(CD). An OS image for VMware ESX 4.0 named esx401 is created and the boot parameter OSImageNFS is preset with ESX401-NFS.

```
createosimage -o VMWARE-ESX35 -i esx35 -a ESX35-NFS -s c:\ESX35-setup
```

This command reads the needed setup files from the given source folder (-s option). An OS image for VMware ESX 3.5 named esx35 is created and the boot parameter OSImageNFS is preset with ESX35-NFS.

Software Packages Inside the OS Image

The second method to provide an OS image for installations of VMware ESX stores the entire DVD(CD) contents inside the OS image. During the OS installation, the target computer accesses the boot server using an NFS share defined inside the OS image.

While the OS image is created, the VMware ESX DVD(CD) is required to copy all files into the OS image. Alternatively, you can copy the DVD(CD) to a local or network folder once and then provide this folder to the OS image creation process.

Software Packages on Central NFS Server

You prepare a central NFS server manually. This method creates an OS image for VMware ESX which contains only the Linux setup and OSIM control files. During the OS installation, the target computer installs the software packages from the central NFS server using an NFS share.

When you create the OS image, specify a name for the NFS share. The specified name is assigned to the boot parameter `OSImageNFS`. In addition, the boot parameter `BootServerNFS` specifies the name or IP address of the central NFS server.

Note: You always must provide a name of an NFS share, even if the share does not exist yet. You can prepare the NFS share and change the boot parameter `OSImageNFS` later, before initiating the OS installation. If you omit the NFS share name, an OS image containing all software packages is created.

When you use an NFS share, while the OS image is created, the VMware ESX DVD(CD) is required to copy some setup files from the DVD(CD) into the OS image. Alternatively, copy the setup files from the DVD(CD) to a local or network folder once and then provide this folder to the OS image creation process.

Staging SD Agents

If you want to install the SD agent along with VMware ESX on the target computer, stage the SD agent on the respective boot servers before you initiate the OS installation.

VMware ESX 4.0 and VMware ESX 3.5 need different SD agent versions:

- VMware ESX 4.0: Current SD agent of ITCM r12.5
- VMware ESX 3.5: SD agent of r11.2 delivered on a separate ITCM r12.5 DVD

Import the SD agents from the ITCM r12.5 DVDs into the Software Package Library. Then deploy the SD agents to the respective boot servers. You can verify the staged SD agents on a boot server in the DSM Explorer. Navigate to the matching scalability server to view the server properties.

OS Installation Logging

The installation process of VMware ESX writes some files back to the boot server which possibly helps to detect installation problems. The files are available in the OSIM-targets folder in the used OS image of the image store on the boot server. A folder representing the target computer's MAC address contains these files:

canpc.dat

Lists all boot parameters that are defined for the OS installation process.

setup.bat

Defines the boot parameter replaced script executed in the Windows PE boot phase.

ks.cfg

Defines the boot parameter that is replaced when the kickstart file is executed in the first Linux boot phase.

custom.cmd

Is the boot parameter replaced script executed in the second Linux boot phase after VMware ESX has been installed.

postXinst.log

Contains a log of the OSIM post-installation process on the ESX target computer.

Boot Parameter Settings

OSImageNFS

The parameter presetting is the name of the NFS share as specified during the creation of the OS image. You can change the value before initiating the OS installation. Referring the chapter Preparing a central NFS share the value must be the share name ESX401-NFS (NFS Server on Windows) or the exported path /home/OSIM/ESX401-NFS (NFS Server on Linux).

BootServerNFS

If the OS Image uses a central NFS share, this parameter defines the name or IP address of the server providing the NFS share. If the value is empty, the assigned boot server is assumed to be the NFS server.

Note: If you specify a name for a VMware ESX 3.5 installation, the name must be a full qualified name (FQN).

Interface

For VMware ESX 4.0 this parameter (vmnic0, vmnic1 ...) refers to the uplink device for the virtual switch that is created for the service console.

For VMware ESX 3.5 this parameter (eth0, eth1 ...) specifies an Ethernet device for the installation.

NetProtocol

You can use static IP addresses for VMware ESX installations. In this case, change the default setting DHCP to static. The following boot parameters need special consideration when static IP addresses are used.

NetIPAddress

Defines the IP address of the machine to be installed.

NetDefGateway

Designates the default gateway as an IP address.

NetSubMask

Specifies the subnet mask for the installed system. The default value is 255.255.255.0

DNSServer

Designates the primary name server as an IP address. The IP address of a secondary name server can be added with a preceding comma.

DNSSuffix

Defines a search list for host name lookup. Use spaces for separating multiple suffixes.

BootSpecial

VMware ESX installations can only be installed with Windows PE boot images. DOSX boot images are not supported.

OSPasswd

The default password for the root user is 123Default-.

Hostname

The installation of a VMware ESX Server does not register the host name in DNS. The host name is only defined locally on the ESX Server. For remote access, such as by the VMware vSphere-client, you have to use the assigned IP address instead.

Support for VMWare 4.1 x64

Creating an OS Image

The creation of a VMware 4.0 OS image for WinPE x64 based delivery is similar to the 32-bit process with minor exceptions.

Copy the binary syslinux64.exe into the ESX40x64 template folder, under the IPS directories, instead of syslinux.exe. Similar to the 32-bit OS image creation process, copy the syslinux binary into the IPS template folder before an image is derived from this template. Otherwise, the images are created without the required syslinux binary. Update these images manually in the boot server folder structure.

The OSIM OS image type for VMware 4.0 with WinPE x64 delivery is VMWARE-ESX40-X64.

Steps and Considerations

- Use complex passwords when setting a password for ESX. See http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1012033
If you do not use a complex password, then the root password is not correctly set to the desired value and the active value is the string default. The OSIM install log records the failure to set a password, but does not fail the job as a whole.
- Install syslinux64.exe before generating ESX OS images. If you do not install syslinux64.exe before creating an OS image, then every time you create an OS image an OS image is created, manual updating of the OS image is required.
- Installation on Cisco UCS Systems and other systems with multiple disks. The default OSIM ESX installation deletes all partitions from the first detected hard disk only. If the target hardware contains two or more disks and the ESX installation detects that any VMFS partitions are present, then the installation aborts. This behavior by the installer ensures that any virtual machines are not destroyed. If it is required to provision ESX servers that already have existing VMFS partitions on non-primary disks, then modify the kickstart file such as ks.cfg, to add the overwritevmfs switch to the clearpart command, as follows:

```
clearpart --overwritevmfs --firstdisk
```

Support for VNWare ESXi 4.1

ESXi 4.1 is always a 64-bit operating system environment. This is not to be confused with the processor width of the WinPE pre-installation environment.

Post-update Steps

The OSIM VMware ESXi OS image templates require additional files before you can use them. For 32-bit WinPE, Win32 syslinux.exe is required and, for 64-bit WinPE, syslinux64.exe is required.

For licensing reasons, these tools cannot be distributed as part of the CA ITCM patch. You can obtain them directly from the following location:

<http://www.kernel.org/pub/linux/utils/boot/syslinux/>

The syslinux versions that were used with development of this [ESXi] patch were 4.03 and 3.86 (under the 4.xx and 3.xx folders, respectively, at the kernel.org site).

Additionally, patch the ESXi install binary mboot.c32 into the OS image template. This file is a COM32 binary format file on the ESXi 4.1 installation media. It is a syslinux module that assists in loading images using the multiboot protocol. The COM32 format was heavily changed [to become COM32R] when syslinux incremented from version 3 to version 4 and version 4 syslinux is incompatible with the older COM32 file. 64-bit syslinux support was only added in syslinux version 4 and later.

The ESXi OS image template is, by default, installed to the following location in the OSIM IPS:

`%ProgramFiles%\CA\DSM\osimips\os-template\images\ESXI41`

- If you are using syslinux 3.x, then you can use mboot.c32 from the ESXi installation media. You can use 32-bit WinPE to provision ESXi 4.1. Copy the mboot.c32 file from the ESXi media under the ESXI41 folder in the OS image template.
- If you are using syslinux 4.x, then you can provision ESXi using 32-bit or 64-bit WinPE variants. Extract the mboot.c32 file from the expanded syslinux archive. It is located under the com32\mboot folder. Copy this file under the ESXI41 folder in the OS image template.

Copy the 32-bit syslinux.exe to the i386 folder and the 64-bit syslinux.exe to the amd64 folder, respectively. Both the files are available in the ESXI41 folder in the OS image template.

The 32-bit syslinux.exe is found in the syslinux distribution under the Win32 directory and the 64-bit syslinux64.exe is found under the win64 directory.

OSIM deployment of VMware ESXi 4.1

OSIM deployment of VMware ESXi 4.1 consists of three phases:

- WinPE pre-install phase - In this phase, the WinPE boot image is downloaded from the boot-server and the ESXi pre-installation scripts are executed. This action creates a partition on the target disk for use by OSIM. These scripts typically apply per-machine customizations to the ESXi installation parameters and prepare the target machine for the subsequent ESXi install phase. In this case, using syslinux to prepare the target disk to boot up into the ESXi installer kernel.
- Syslinux ESXi install phase - In the ESXi install phase, the ESXi installer kernel is loaded, which loads some files from the OSIM partition on the target disk and some from the mounted NFS share. The custom kickstart file is read from the OSIM partition and used to configure ESXi. The following document details the available commands for ESXi kickstart:

http://www.vmware.com/pdf/vsphere4/r41/vsp_41_esxi_i_vc_setup_guide.pdf

- Post-install reboot - The final phase, after a successful install, is a reboot and start-up into normal ESXi operation. As part of the first boot, the system runs some startup scripts as specified in the post-install sections of the kickstart configuration script. These scripts apply the system password and execute the agent-less signaling mechanism to signify OS install completion (see Notes and Issues).

Creating an OS Image

The OSIM OS image type for VMware ESXi 4.1 with WinPE delivery is VMWARE-ESXI41.

Creation of an OS image from the VMware ESXi OS image template can be performed using either the OS image wizard or the command line.

New OS Image - Wizard

OS image creation from the GUI wizard is simple but limited:

1. Verify that the VMware ESXi 4.1 is inserted and readable in a local optical device (CD/DVD).
2. Select New OS Image from the Image Prepare System Wizards folder. Click Next.
3. Select the image type VMWARE-ESXI41 (operating system: VMware ESXi 4.1 (DVD + syslinux)). Click Next.
4. Enter a name for the OS image. Click Next.
5. Click Finished to initiate the copy of the ESXi installation files into the IPS and boot server store.

The image is created locally and available to the IPS, but you must register it with the DSM domain to be made available for deployment. Use the OS image registration wizard or the command line to register the image. When registering, you can opt to create an SD deployment image for distribution to one or more boot-servers using Software Delivery.

New OS Image - Command Line

OS image creation from the command line is more flexible than the OS image creation wizard because an alternative location can be specified for the installation files. The following example creates a VMware ESXi OS image called ESXI41 and reads the installation files from a folder.

```
createosimage -i ESXI41 -o VMWARE-ESXI41 -s f:\esxi-4.1-files
```

The image is created locally and available to the IPS, but you must register it with the DSM domain to be made available for deployment. Use the OS image registration wizard or the command line to register the image. When registering, you can opt to create an SD deployment image for distribution to one or more boot-servers using Software Delivery.

Boot Parameters

This section details some of the available boot parameters for an ESXi OS image. Some parameters could require special consideration.

OSPasswd

The default ESXi root password is 123Default-. The password is stored encrypted and is not displayed in the UI.

BootSpecial

The BootSpecial parameter defines the WinPE image to use as boot. It can be a 32 or 64-bit WinPE image. It defaults to WinPE 3.0 (AIK 2.0) 64-bit.

hostname

Specifies the host name for the installed system. Only works with bootproto=static. If you need a custom host name:

- Specify the value for NetProtocol as Static
- Specify appropriate values for the following parameters:
 - NetDefGateway
 - NetIPAddress
 - NetSubNetMask

InstallAgent

This boot parameter is used by the OS image and the OSIM manager to determine whether to install a DSM agent and to use the agent registration to signal completion of the OS installation. It defaults to Yes.

When used with ITCM 12.5, set this parameter to No. Because there is no native agent available for VMware ESXi 4.1, the installation status does not change to current (completed).

SignalCompletion

This parameter is present for future compatibility and default to Yes. With an updated boot-server and OSIM manager, this parameter in combination with InstallAgent=Yes, allows for signaling of OS installation completion without the need of a native DSM agent install.

NetProtocol

This boot parameter determines whether the ESXi server obtains its IP address from DHCP or is assigned statically. The default is DHCP.

If this parameter is set to static, the other boot parameters - NetIPAddress, NetSubMask, NetDefGateway, and DNSServer – must be considered.

NetIPAddress

This parameter specifies the IPv4 address that needs to be assigned to the ESXi host.

NetDefGateway

This parameter specifies a default gateway for the network.

NetSubMask

This parameter defines the subnet mask for the network.

DNSServer

This parameter specifies IPv4 addresses for DNS servers. Two DNS servers can be specified by delimiting the addresses with a comma.

Interface

This boot parameter specifies the name of the network device and defaults to vmnic0.

VLANID

An optional VLAN ID can be passed through to configuration. This is an integer value between 0 and 4095.

ProductId

This boot parameter specifies the ESXi license key as used during installation. If not set (or set to 000-000000), then ESXi will be installed in evaluation mode.

Steps and Considerations

- Centralized NFS installation is not supported. The ability to install ESXi from a centralized NFS share is not available in this release. Deliver the OS image from an NFS share local to the boot-server.
- An alternative source location cannot be specified in the OS image wizard. The ability to specify an alternative source location for the ESXi installation files is not available in the wizard but is available from a local optical media device (CD or DVD). This is a result of the inability to use a centralized NFS server for image hosting. You can use the command-line option `-s` to specify an alternate path to the OS files.
- No native agent support. The ESXi 4.1 host hypervisor environment does not support installation and/or operation of the native DSM agents. Use the AM RVI module for discovery of ESXi instances. Installation of a native DSM agent into ESXi 4.1 virtual machines is supported, dependent on the installed operating system and version.
Set the `InstallAgent` boot parameter to `No` to allow the OSIM configuration state to change to `current`, immediately after the boot image has been downloaded and activated. If set to `Yes`, the configuration job does not move to the `current` state because that state-change is signaled by the CSM hello message from the DSM native agent to its parent scalability server.
- Signaling mechanism. The ESXi 4.1 OS image template introduces a new boot parameter called `SignalCompletion`. This parameter is not used in the ITCM 12.5 environment but is available for future use. When this parameter is set to `Yes`, the completion of ESXi installation causes a TFTP-based signal to be sent to the host boot-server. This signal is then used to signal OS installation completion and to change the configuration state to `current`. Support for this signaling mechanism will be provided in a future update to CA ITCM.

SAN-based installation support for VMware ESX 4.0

SANID Boot Parameter

The SANID boot parameter has been added to the ESX40 OS images to identify a specific target SAN LUN. This provision ensures that the specified LUN is explicitly chosen.

The format of this entry is as follows:

```
attribute=value,attribute=value
```

where the supported attributes (with example values) are:

```
TargetLUN=naa.60a980005034445a686f643135474f78
```

```
TargetLUN=eui.6f643135474f78000a98005034445a68
```

```
-f
```

The first entry identifies a disk via IEE NAA Fibre-channel identity, and the second via its EUI64 identity. The SANID parameter value is passed to the finddisk.exe helper, which is part of the boot image. If a target LUN is successfully identified, then the LUN is prepared for use by the rest of the boot script and the OS image installation scripts. In the case of NAA and EUI64 identifiers, these entries are set into the installation environment in the OSIM boot parameter `$~TargetLUN$` for subsequent use by the installation scripts to manipulate the ESX kickstart installation so the correct LUN is also used by the ESX installer.

The `-f` entry is a special switch parameter to forcibly remove an existing letter C volume where it does not exist on the target LUN. If the script identifies a single LUN for installation, but also detects that another disk holds a valid volume that has been assigned the DOS drive letter C, then the tool declines to create the required OSIM volume unless the `-f` force parameter was specified. This provision prevents accidental damage to any SAN-connected disks or volumes.

There are other values for this parameter that can be passed into the OSIM configuration but are not openly documented. Do not use these values unless specified by a CA technical support representative.

If this [SANID] value is empty, then the ESX installation scripts uses the first available local disk as per the existing behavior.

Note: The original ESX40 x64 kickstart configuration file used a password of 'default' rather than the OS image password of '123Default-'. If the second phase of ESX installation failed for some reason, then the password is left as 'default', which is not intuitive because the OS image definition declares a default password of 123Default-.

Steps and Considerations

- RedHat 5.5 DVD Only. RedHat 5.5 OS image creation is only supported from the 5.5 DVDs and not CDs.
- Install syslinux[64].exe before generating RedHat OS images. If you do not install syslinux.exe and syslinux64.exe before creating an OS image, every time you create an OS image, manual updating of the OS image is required.
- Microsoft NFS Services. OSIM requires that the boot-server hosting RedHat installation files export these files via NFS-based services. When the boot-server is running on Microsoft Windows Server, depending on the OS version, some configuration changes could be required to the NFS server as follows. These files are not necessary for RedHat installations, but the patch images were validated under these configurations.
 1. Windows Server 2003 with Services for Unix 3.5. No configuration changes are required.
 2. Windows Server 2003 R2. Modify the NFS services as detailed in the following Support KB entry:
<http://support.microsoft.com/kb/916794>
 3. Windows Server 2008 and 2008 R2. Modify the NFS services as detailed in the following Support KB entry:
<http://support.microsoft.com/kb/977517/en-us>

Support for WinPE-based RedHat 5.x Installation

Post-update Steps

The OS image templates require additional files before you can utilize them. For 32-bit WinPE, Win32 syslinux.exe is required and, for 64-bit WinPE, syslinux64.exe is required.

For licensing reasons, these tools cannot be distributed as part of the CA ITCM patch. You can obtain them directly from the following location:

<http://www.kernel.org/pub/linux/utils/boot/syslinux/>

The syslinux versions that were used with development of this release were 4.03 and 3.86 (under the 4.xx and 3.xx folders, respectively, at the kernel.org site).

The RedHat OS image template is by default installed to the following location in the OSIM: `IPS:%ProgramFiles%\CA\DSM\osimips\os-template\images\RH5XPE`

Copy the 32-bit syslinux.exe to the i386 folder and the 64-bit syslinux.exe to amd64 folder, respectively. Both these files are available under the RHX5PE folder in the OS image template.

The 32-bit syslinux.exe is found in the syslinux distribution under the Win32 directory and the 64-bit syslinux64.exe is found under the win64 directory.

Creating an OS Image

The OSIM OS image type for RedHat with WinPE delivery is RH5XPE.

You can create an OS image from the RedHat 5.5 WinPE OS image template using either the OS image wizard or the command line.

New OS Image - Wizard

OS image creation from the GUI wizard is simple but limited:

1. Ensure that a RedHat 5.x DVD is inserted and readable in a local optical device (CD/DVD).
2. Select New OS Image from the Image Prepare System Wizards folder. Click Next.
3. Select the image type RH5XPE (operating system: RedHat 5.x (DVD + syslinux + WinPE)). Click Next.
4. Enter a name for the OS image. Click Next.
5. Click Finished to initiate the copy of the RedHat installation files into the IPS and boot server store.

Refer to the ITCM release 12.5 OS Installation Management Administration Guide, chapter 8, for details on installing RedHat in addition to using WinPE for deployment.

The image is created and is available to the IPS, but it must be registered with the DSM domain to be made available for deployment. Use the OS image registration wizard or the command line to register the image. When registering, you can opt to create an SD deployment image for distribution to one or more boot-servers using Software Delivery.

New OS Image - Command Line

OS image creation from the command line is more flexible than the OS image creation wizard because an alternative location can be specified for the installation files. The following example creates a new RedHat 5.5 x64 OS image called RH55x64 and reads the installation files from a folder.

```
createosimage -i RH55x64 -o RH5XPE -s f:\redhat_55_x65_files
```

The image is created and is available to the IPS, but it must be registered with the DSM domain to be made available for deployment. Use the OS image registration wizard or the command line to register the image. When registering, you can opt to create an SD deployment image for distribution to one or more boot-servers using Software Delivery.

OSIM deployment of WinPE-based RedHat 5.x

OSIM deployment of RedHat 5.x consists of three phases:

- WinPE pre-install phase - In this phase, the WinPE boot image is downloaded from the boot-server and the RedHat pre-installation scripts are executed. This creates a partition on the target disk for use by OSIM. These scripts typically apply per-machine customizations to the RedHat installation parameters and ready the target machine for the subsequent RedHat install phase; in this case, using syslinux to prepare the target disk to boot up into the RedHat installer kernel.
- Syslinux RedHat install phase - In the install phase, the RedHat installer kernel is loaded, which loads some files from the OSIM partition on the target disk and some from the mounted NFS share. The custom kickstart file is read from the OSIM partition and used to configure RedHat. The following document locations detail the available commands for RedHat kickstart installation:
http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/index.html
http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5/pdf/Installation_Guide/Red_Hat_Enterprise_Linux-5-Installation_Guide-en-US.pdf
- Post-install reboot - The final phase, after a successful install, is a reboot and start-up into normal RedHat operation. As part of the first boot, the system runs some startup scripts as specified in the post-install sections of the kickstart configuration script. These scripts apply the system password and install the DSM agent to complete the OS installation.

Microsoft Windows Server 2008 R2 Support

Microsoft Windows Server 2008 R2 is a 64-bit only operating system. Hence, installation is supported only via WinPE x64 boot images.

Boot Parameters

OSPasswd - Password

The default password for the both the W2008R2 and IMAGEX-W2008R2 OS types is '123Default-'. We highly recommend that all OS installations use a different password, or the default passwords be changed in the OSIM IPS before any OS images are derived from the Windows Server 2008 R2 templates.

BootSpecial – Boot Image Type

The boot image type must be an x64 variant of either WinPE 2.0 or 3.0.

Steps and Considerations

- If you use the ImageX tools to provision Microsoft Windows Server 2008 R2 and additional language packages are required to be added to the installation, then the boot image used must be derived from the version 2 AIK SDK (WinPE 3.0). If a WinPE 2.0 image is used, the language pack install fails because there is no pkgmgr.exe available on WinPE 2.0 boot images.
- Enabling BitLocker drive encryption during OSIM provisioning is not supported on Windows Server 2008 editions. The BitLocker option appears (with no value) during OS image creation due to definition files that are common with Windows 7 imaging.

Creating an OS Image

Refer to the OS Installation Management Administration Guide for creating Windows-based OS images.

The following tables list the OS and imaging types supported by SP1.

GetImage

Support OS Process	OSIM Type	Boot Image Type	Download Method
Prepare and capture Windows 7, windows7 SP1 and Windows Server 2008 R2 and Windows 2008r2 SP1 golden images from a model PC	GETIMAGE-WIN 7	WinPE2.0, WAIK 1.1 WinPE3.0, WAIK 2.0	Share

Microsoft ImageX Images

Imaging tool and target OS	OSIM Type	Boot Image Type	Download Method
ImageX – Windows 7 x86, Windows 7 Sp1 x86	Windows 7 - ImageX (WIM)	WinPE2.0, WAIK 1.1 WinPE3.0, WAIK 2.0	Share
ImageX – Windows 7 x64, Windows 7 SP1 x64	IMAGEX-WIN7x64 Windows 7 x64 - ImageX (WIM)	WinPE2.0, WAIK 1.1 WinPE3.0, WAIK 2.0	Share

Imaging tool and target OS	OSIM Type	Boot Image Type	Download Method
ImageX – Windows Server 2008R2 and Windows Server 2008r2 Sp1	Windows Server 2008 R2 - ImageX (WIM)	WinPE2.0, WAIK 1.1 WinPE3.0, WAIK 2.0	Share

Support for Microsoft Windows 7 SP1 and Windows Server 2008 R2 SP1

Creating an OS Image

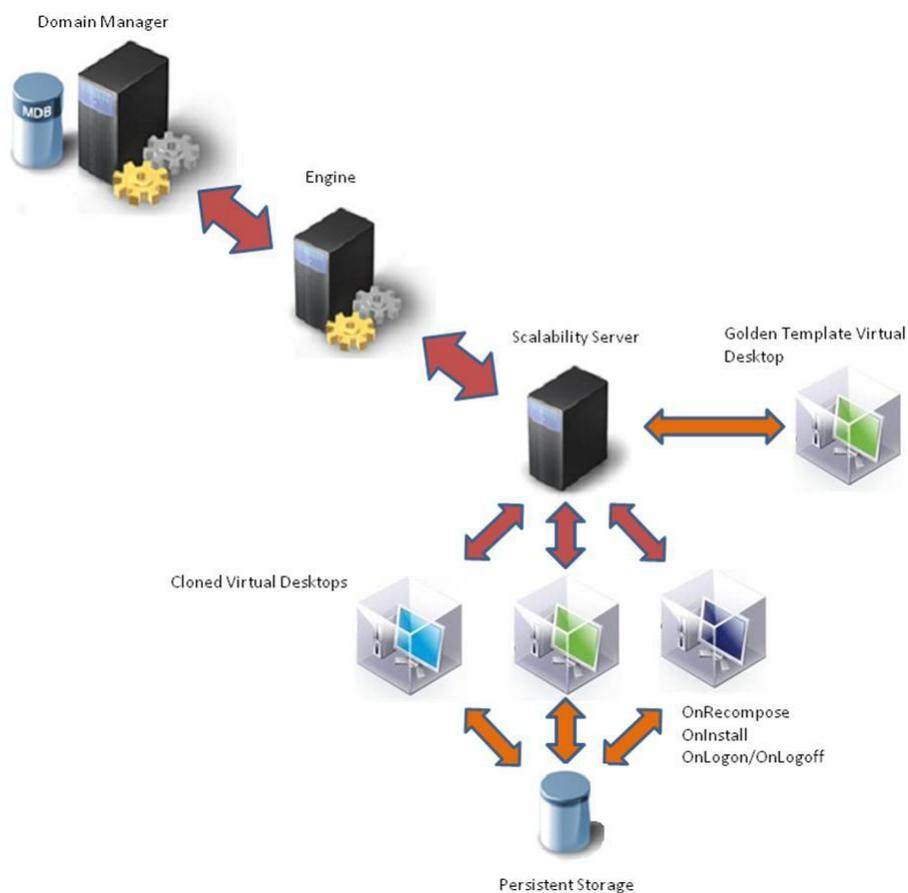
The new SP01 OS image templates are functionally identical to the previous Windows 7 and Windows 2008 R2 image templates. See the OS Installation Management Administration Guide for creating Windows-based OS images.

The new image templates are:

- Windows7-SP1
Windows 7, 32-bit edition, with service pack 1
- Windows7x64-SP1
Windows 7, 64-bit edition, with service pack 1
- W2008R2-SP1
Windows Server 2008 R2 with service pack 1

Chapter 8: Virtual Desktop Support for VMware View

The VDI Support enhancement enables CA ITCM to integrate with and manage the hosted virtual desktop infrastructures of VMware View. Support is provided for persistent linked clones and nonpersistent linked clones. CA ITCM maintains the links between users and their software, as shown here, after a golden template has been changed and the virtual desktops are refreshed. (The golden template is the virtual machine from which virtual desktops are cloned.)



To manage hosted virtual desktop infrastructures, CA ITCM has enhanced support for deployment of software to the golden template and to cloned virtual desktops. Additionally, it supports reprovisioning of software after the following virtual desktop types are recomposed or refreshed:

- Persistent linked clone virtual desktops
- Nonpersistent virtual desktops

Note: The terms "persistent" and "dedicated" refer to the same virtual desktop properties; however, we use "persistent" throughout our documentation. Similarly, "non-persistent" and "floating" virtual desktops have the same meaning but we use the term "nonpersistent" in our documentation.

Additional CA ITCM enhancements include a new virtual desktop identification and registration scheme, improved asset registration speed, and new out-of-the-box queries and reports.

Note: The management of user profiles, user data, user personality, or desktop configuration is not supported with this feature pack. Rather, Microsoft methods like roaming user profile and folder redirection handle these tasks. For more information, see your Microsoft documentation.

This section contains the following topics:

[Enabling and Configuring VDI Support](#) (see page 93)

[Using VDI Support](#) (see page 106)

[Offline RAC](#) (see page 107)

[Collecting and Viewing Inventory](#) (see page 110)

[Queries and Reporting](#) (see page 113)

[Migration Considerations for Virtual Desktops](#) (see page 115)

[The Compose.bat Script](#) (see page 116)

[Configuration Policies for Desktop Virtualization Support](#) (see page 119)

[CADSMCMD Command Line Interface](#) (see page 126)

[Software Delivery Command Line Interface](#) (see page 126)

[CA IT Client Manager Web Services API Methods](#) (see page 129)

Chapter 9: Enabling and Configuring VDI Support

The VDI Support enhancement enables you to manage virtual desktops provided by VMware View. Virtual desktops are cloned from a golden template, which is a virtual desktop template with the sole purpose of being cloned to individual virtual desktops. The golden template is a virtual machine and is managed by the software delivery functionality CA Client Automation.

Note: Golden templates are represented using regular computer records. This means that all operations available for regular computers are also available for golden templates. Because golden templates are logically different from regular computers, you must be careful while using them. Deleting a golden template before all of its clones have been deleted or decommissioned can have undesired consequences for software management, reporting, querying, and inventory viewing.

The inclusion of needed software in golden templates gives direct access to the software without the need to use network and server resources. Golden templates also reduce the need for post-cloning customization. Typically, you provide a golden template for each role, for example, one for Sales, one for Support, and so on. Special requirements can lead to the creation of many specialized templates; however, multiple templates are hard to track and require more maintenance. The goal is to minimize the number of individual golden templates in use and to maximize the software in each for optimization of infrastructure resources.

CA ITCM meets this challenge with solutions for two types of use cases, one for persistent virtual desktops and one for nonpersistent virtual desktops.

How You Prepare the VMware View Environment for a Golden Template

The VMware View environment requires the creation of a virtual machine for the golden template system and the installation of the VMware View agent. Next, the CA ITCM environment requires setting up of golden template mode on this virtual machine, and later, an automated desktop pool to be created using a snapshot of the virtual machine in golden template mode.

1. Create a virtual machine.
2. Install the VMware view agent.

You can use the OS installation management functionality to deploy the operating system to the virtual machine. For more information, see the CA ITCM Release 12.5 OSIM Administration Guide and online help.

3. Create a golden template.

For complete information on these procedures, see the VMware documentation.

Prepare the CA IT Client Manager Environment for VMware View

The CA ITCM environment requires the installation of the DSM agent on the golden template system. After it is installed and configured to register with a scalability server, the virtual machine created for the golden template system appears in the domain manager.

In addition, the reconfiguration of the engines may be necessary to help ensure that virtual desktops are registered as quickly as possible.

To prepare the CA ITCM environment for VMWare view, perform the following steps. These steps are described in detail in the subsequent sections.

1. Deploy and configure the DSM agent
2. Install the CA DSM Agent Add-on – VDI Support – Windows ENU
3. Configure VDI support configuration policies
4. Deploy production software packages
5. Tag the template and take a snapshot
6. Create a virtual desktop pool
7. Assign Snapshot to VMware View Virtual Desktop Pool
8. Apply the compose.bat synchronization script
9. Recompose the desktop pool
10. Repeat Steps 4–8 when it is time to update the golden template again.

Note: A working knowledge of VMware View Administrator, VMware vSphere, and VMware View Client is assumed. See the VMware documentation when necessary.

More information:

[Reconfigure the Engine to Support Virtual Desktops](#) (see page 111)

Deploy and Configure the DSM Agent

Use DMDeploy or the Infrastructure Deployment wizard to deploy the DSM agent (CA DSM Agent + Software Delivery plugin package).

Note: The term DSM agent refers minimally to the DSM common agent and the software delivery agent (CA DSM Agent + Software Delivery plugin). For the complete CA IT Client Manager functionality, you must also have the asset management and remote control agents installed. You can install either CA DSM Agent + Asset Management and CA DSM Agent + Remote Control plugins, or CA DSM Agent + AM, RC, SD plugin(s).

Follow these steps:

1. Open the Infrastructure Deployment wizard from the Control Panel, Deployment in the DSM Explorer tree. Alternatively, you can install the DSM agent from the CA IT Client Manager DVD.

Alternatively, you can install the DSM agent from the CA IT Client Manager DVD. For more information, see the CA ITCM Release 12.5 Implementation Guide and DSM Explorer Help.

2. Configure the DSM agent to register with a scalability server.

After the registration, the virtual machine created for the golden template system appears in the domain manager.

Install the CA DSM Agent add-on – VDI Support – Windows ENU Package

For integration purposes, you must install a new software delivery package on the golden template system after you upgrade or patch the golden template agents. The CA DSM Agent add-on - VDI Support - Windows ENU package contains all the logic and scripts required to enable the software delivery agent to operate and manage the virtual desktop environment. These scripts integrate with the hooks that the VMware View agent exposes before and after the recompose process.

Important! The following configuration policies must be set to Locally Managed before the CA DSM Agent add-on - VDI Support - Windows ENU generic package is installed. These parameters are centrally managed by default.

DSM, Common Components, CAF, Scheduler, Registration refresh scheduled job, CAF Scheduler: Enabled

DSM, Common Components, CAF, General, CAF: enable registration on startup

The CA DSM Agent add-on - VDI Support - Windows ENU package performs the following tasks:

1. Enables use of the software state database and, if needed, sets up the paths.
2. Sets the agent to the golden template mode.

3. Copies a set of cloning scripts to the golden template. The VMware View infrastructure calls these scripts during recomposition of a clone. These scripts are responsible for:
 - Disabling the golden template mode for the cloned computer and making any other configuration changes to the clone
 - Running the Offline RAC

Note: When the Compose.bat script runs as the VMware View post synchronization script, logon interception is needed for nonpersistent desktop pools. The script performs this logon interception. For persistent pools, logon interception is typically not needed; it is needed only when the script is configured to run at logon.

The CA DSM Agent add-on - VDI Support - Windows ENU generic package copies the following required scripts to the golden template. This package also sets the DSM agent to golden template mode.

- Install.dms
- Uninstall.dms
- TagTemplate.dms
- ClearTemplateHistory.dms
- VDICompose.dms
- Compose.bat

The CA DSM Agent add-on - VDI Support - Windows ENU package also contains the following procedures for managing the golden template and the cloned virtual desktops:

Install Template Mode

Installs all scripts and utilities needed for VDI Support for the agent and configures the system for golden template mode. The Install Template Mode procedure is the default installation procedure for the CA DSM Agent add-on - VDI Support - Windows ENU package.

Uninstall

Removes the files installed with this package.

Tag Template

Generates a time stamp that is reported as Template Tag to the manager in the scope of a clone's basic hardware inventory. This activate procedure also maintains a template tag history. In case the system is not in golden template mode, it fails with an appropriate error message.

Clear Template History

Clears the template tag history. In case the system is not in golden template mode, this activate procedure fails with an appropriate error message.

Configure VDI Support Configuration Policies

The VDI Support Configuration policies are classified into mandatory and optional. The mandatory ones are set by the VMware View integration scripts. These policies are labeled accordingly. The optional ones require inputs as documented.

This service pack delivers a new policy group, registration. Other configuration policy groups have been extended to provide support for managing virtual desktops provided by VMware View.

Follow these steps:

1. Configure a new configuration policy available in the extended policy group, General (CAF).
2. Install the CA DSM Agent add-on - VDI Support - Windows ENU package.
3. Configure CA IT Client Manager configuration policies for virtual desktops.

Note: You must apply the configuration policies needed by the agents of the cloned virtual desktops, with the exception of the mandatory locally managed policies set by the cloning scripts, to the agents of the cloned virtual desktops and to the agents of the golden templates before saving the golden template snapshot. This is because the policy is not automatically inherited by the cloned virtual desktops from the golden template. The values are cloned, but if the centrally managed policy assigned to the cloned virtual desktop has different values from the policy assigned to the golden template, the values are overwritten when the centrally managed policy reaches the clone shortly after registration with the manager.

Deploy Production Software Packages

You can deploy production software packages, such as Microsoft Office, Firefox, or WinZip, to virtual desktops in *one* of the following ways:

- Each virtual desktop, as a clone of a golden template, inherits all of the software deployed to that golden template.
You can install production software on the golden template to be replicated automatically on the virtual machines that use the golden template.
- As managed computers in the Management Database, cloned virtual desktops can be targeted with software jobs individually using the Software Delivery Catalog or the DSM Explorer.

Deploy Software Packages to the Golden Template for Inheritance

Deploy the software packages to the golden template to be inherited by virtual desktops.

Note: All scalability servers that are available to the clones must have the software packages staged for reinstallation to work.

Follow these steps:

1. Open the Deploy Software Package Wizard in the DSM Explorer.
2. (Optional) Run the CA ITCM software scanner on the agent to gather the latest software inventory.

For instructions, see the Software Discovery Collect task topic in the Asset Management section of the CA ITCM DSM Explorer Help.

3. Select the software packages and procedures, the golden template virtual machine as the target.
4. Select the Distribute and register software packages at the domains option.
5. Schedule the deployment.
6. Enter a job container name.
7. Select the Open the advanced job settings dialog when the Finish button is pressed option.
8. Click Finish.

The Setup Jobs dialog appears.

9. Select the Store packages from the jobs, jobs option, Scalability Servers Staging Library option and Click OK.

The specified packages are staged for deployment on the scalability server to the golden template as scheduled.

Tag the Template and Take a Snapshot

In a VMware View environment, when you create new golden images or when users are logged off, clones are destroyed and recreated at next user logon, according to some settings. This results in loss of all installed software on the clone. When an administrator wants to recreate this customized user environment (installed software for that particular user who utilized a clone) when a VMware clone is destroyed and recreated for the same user, you need to perform the steps listed below.

Follow these steps:

1. Tag the golden template by running the Tag Template activate procedure, which is available with the CA DSM Agent add-on - VDI Support - Windows ENU package.
2. Shut down the virtual machine and create a snapshot in VMware vSphere. This action associates the snapshot with the template tag.

Important! When you run a golden template on Windows XP, reboot the computer after the DSM agent installation to successfully run the Tag Template activate procedure.

Create a Virtual Desktop Pool

Follow the instructions in the VMware View documentation to set up a working persistent or nonpersistent virtual desktop environment.

Important! Nonpersistent desktop pools must be created with the "Power off and delete virtual machine after first use" option selected in VMware View 4.0. Otherwise, the Offline RAC functionality does not work. In VMware View 4.5, select instead the "Delete or refresh desktop on logoff" option and set it either to "Refresh Immediately" or "Delete Immediately."

Note: The OS installation management functionality can be used to deploy the operating system to the virtual machine. For more information, see the *CA ITCM Release 12.5 OSIM Administration Guide* and online help.

Assign Snapshot to VMware View Virtual Desktop Pool

Assign the snapshot to the virtual desktop pool in VMware View.

Note: The VMware View administrator creating or editing a desktop pool must reference the Compose.bat script in the QuickPrep Settings page of the VMware View Desktop Pool wizard.

Apply the Compose.bat Synchronization Script

Use the Compose.bat script to configure both persistent and nonpersistent virtual desktop environments. As stated previously, Compose.bat is referenced in the VMware View desktop pool definition.

Follow these steps:

1. Specify the instance software state database path (ISDBPath) parameter in the Compose.bat script:

```
Compose.bat "ISDBPath=<Path>"
```

Persistent use only:

For persistent pools, the instance software state database can reside on the persistent user data disk. The data disk is unique for a particular computer, and thus for a particular user. Alternatively, a network share location can also be used with embedded system environment variables, like %COMPUTERNAME%. This option results in a path unique for a user (because a persistent virtual desktop is always assigned to the same user).

Nonpersistent use only:

For nonpersistent pools, the instance software state database typically resides on a network share path. The user-specific environment variables, %USERNAME% and %USERDOMAIN%, can be included to identify uniquely the software state database for a particular user.

Also, in the case of network share paths, if there are multiple desktop pools assigned to a single user, you must select the location carefully. This action ensures that the software state of the virtual desktop used by a user in one pool is not overwritten by the data of another virtual desktop used by the same user in another pool.

Example: Given that "User1" is entitled to nonpersistent pools, poolA and poolB. If the path for both pools is specified as "*//<machine-name>/<share-name>/Database/%USERNAME%*", the software state of "User1" can be overwritten if the user logs on and uses both virtual desktops in both pools. Hence, ensure that you define different paths as follows:

```
"<machine-mname>/<share-name>/PoolA/%USERNAME%"
"<machine-mname>/<share-name>/PoolB/%USERNAME%"
```

2. Enter a value for the <Run> parameter. Valid options are:

OnRecompose

Specifies that Offline RAC be initiated on recompose/refresh. Use this option for persistent desktop pools.

OnLogon

Specifies that Offline RAC be initiated on user logon. Use this option for nonpersistent desktop pools.

Default: OnLogon

Persistent use only:

```
Compose.bat "ISDBPath=<Path>" "Run=OnRecompose"
```

Nonpersistent use only:

```
Compose.bat "ISDBPath=<Path>" "Run=OnLogon"
```

3. (Optional) Specify the encrypted name and password of the instance software database user in the <User> and <Password> parameters, respectively.

Note: The user name and password can be encrypted using the "sd_acmd encrypt" command.

4. Navigate to the Default Computer Policy, DSM, Software Delivery, Agent policy group and specify values for required and optional policies. See the Specify VDI Support Configuration Policies section for more information.

Recompose the Virtual Desktop Pool

The Compose.bat script is called automatically by VMware View during the recompose process, based on the command line parameters set when configuring the integrated environment. This script uses the following internal command for reinstalling software packages when a virtual desktop is recomposed or refreshed:

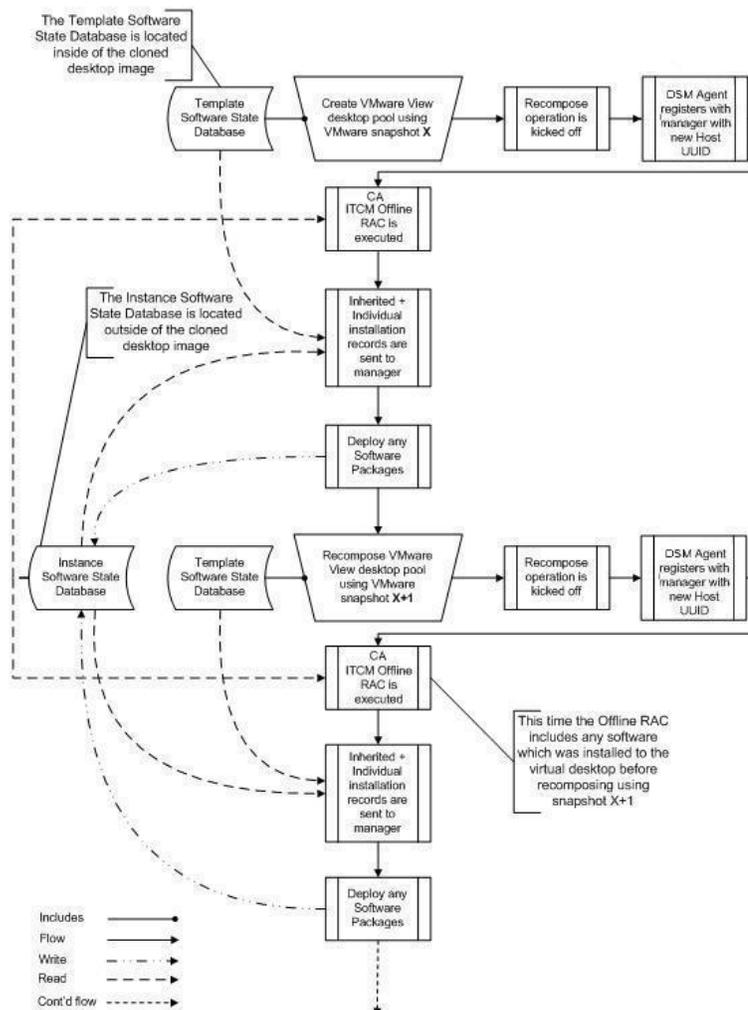
```
sd_acmd ReinstallTarget
```

Note: The software packages needed for Offline RAC must be staged at the scalability servers.

Deploy Software Packages to Individual Virtual Desktops

After software packages are staged on the scalability servers used to manage the golden template, you can deploy software packages to individual virtual desktops using software jobs.

The lifecycle of a managed virtual desktop is illustrated in the following flowchart:



Note: All scalability servers that are available to the clones must have the software packages staged for reinstallation to work.

Follow these steps:

1. Open the Deploy Software Package Wizard in the DSM Explorer.
2. Select the software packages and procedures.
3. Select the managed virtual desktop as the target.
4. Select the Distribute and register software packages at the domains option.
5. Schedule the deployment.
6. Enter a job container name.

7. Select the Open the advanced job settings dialog when the Finish button is pressed option.

8. Click Finish.

The Setup Jobs dialog appears.

9. From the Jobs, Jobs Options tab select the Store packages in the Scalability Server's Staging Library option. Click OK.

The specified packages are staged on the scalability server to be deployed to the virtual desktop as scheduled.

Note: For more information, see the "Delivery and Staging of Software" chapter in the *CA ITCM Release 12.5 Software Delivery Administration Guide*. Also, see the Software Delivery, Tasks, Deploy Software Package section of the *DSM Explorer Help*.

Implementation Guidelines for Virtual Desktops

The individual virtual desktop jobs are rerun every time the virtual desktop is recomposed or refreshed. The recompose process for persistent desktop pools takes place every month (or as often as there is a need to update the golden template, for example, after "Microsoft patch Tuesday"). However, a refresh of nonpersistent virtual desktops occurs every time the user logs on.

Recompose/refresh happens for many virtual desktops approximately at the same time. At this time, the DSM agent connects to the DSM scalability server to access the software packages, and this process puts a load on the infrastructure.

The environment, network bandwidth, scalability server IO speed, and other physical/virtual factors affect the performance. In addition, the types of software packages to be reinstalled at recompose/refresh, their size, and the time it takes to install them - all these factors have an impact on the final implementation of the CA IT Client Manager infrastructure. Thus, the number of scalability servers necessary for supporting a VDI Support environment varies from case to case.

If the total time to reinstall does not meet the desired time window, either the concurrency must be increased for the existing scalability servers or the number of scalability servers must be increased. However, each measure has consequences. For example, if the concurrency is increased, the load on the scalability server increases, which can increase the average package installation time. Also, increasing the overall concurrency affects the network throughput, which can increase the average package installation time.

For software packages that are installed to individual virtual desktops rather than to the golden template, you must consider the following limitations and guidelines:

- Packages that are not staged in the software library of the scalability server to which the agent is registered are not reinstalled.
- Reinstall is not supported for added procedures with new files.

- Reinstall is not supported for the User Profiles agent, only the Computer agent.
- When a virtual desktop is checked out using VMware View's Offline Desktop feature and rolled back (that is, checkout is discarded), any changes to the software state remain in the instance software database. When Offline RAC is performed, the software is reinstalled because it was recorded in the state database and not removed during rollback. Therefore, the software must be uninstalled manually if you do not want it.
- Sending software delivery jobs with reboot/logoff/shutdown options enabled is not supported for nonpersistent virtual desktops. A nonpersistent desktop is tied to a user only for as long as the user is logged on. The next time the user logs on, the user can be allocated to a different desktop. Hence, these options are not logical for this case.
- Packages that take a long time to transfer over the network or that take a long time to install must be installed to the golden template rather than to the individual virtual desktop. If not, the reinstallation time becomes unacceptable.
- Virtualized applications can be pre-staged on the golden template and later provisioned to individual virtual desktops using standalone installation. This way your network bandwidth usage is minimized during recompose/refresh and during use.
- A result similar to the previous item can be achieved using managed package formats like SXP, PIF and MSI with some research and possibly some tweaking. For example, SXP provides a user filter that allows the package to be installed to the golden template. However, the filter is only made available to users of the clones that belong to specific local or active directory user groups.
- Virtualized applications must be provisioned to individual virtual desktops in streaming mode. This way network bandwidth usage can be minimized during recompose/refresh, but not during use.
- Applications that store their configuration outside of the redirected user profile/folders do not automatically preserve their configuration after reinstall. Applications that reset their configuration rather than inheriting it as part of install also suffer from this issue.
- If both the template software state database and the instance software state database contain records of the same software but of different versions, the upgrade or downgrade is still performed by the Offline RAC. The administrator is responsible for configuring the system accordingly and preventing such a case, especially in downgrade scenarios.
- DTS download method is not supported for the virtual desktop agent.

- For nonpersistent desktop pools, reinstallations are only done when a user logs on. When the user logs off a cloned desktop that is part of a nonpersistent desktop pool created with the "Power off and delete virtual machine after first use" option selected in VMware View 4.0, then the cloned desktop is in the Locked by RAC state until a user logs on again. For VMware View 4.5, the equivalent situation occurs when the "Delete or refresh desktop on logoff" option is set to "Refresh Immediately" or "Delete Immediately." Therefore, we recommend that any critical patches be deployed as part of the golden template instead of deploying them as a part of the clone.
- We recommend that you disable the user profile mode for software delivery functionality in the case of linked clone virtual desktops.

User profiles are not needed here because there is a one-to-one relationship between the user and the virtual desktop. Enablement of user profiles causes additional communication between the agent and scalability server, which can affect overall scalability.

Using VDI Support

To use the golden template, you need to perform certain steps in the integrated environment.

Follow these steps:

1. Log on to the VMware vSphere Administrator interface and start the golden template virtual machine.
2. Deploy production software packages or patches to the golden template using DSM Explorer.
3. (Optional) Run the CA IT Client Manager's software scanner on the agent to gather the latest software inventory.

For instructions, see the Software Discovery Collect task topic in the Asset Management section of the *CA ITCM Release 12.5 DSM Explorer Help*.

4. Tag the template and shut down the golden template virtual machine.
5. Take a snapshot of the golden template.
6. Assign the new snapshot to the VMware View virtual desktop pool.
7. Recompose the desktop pool.
8. Repeat Steps 1–7 when it is time to update the golden template again.

Offline RAC

Currently, CA IT Client Manager's software delivery functionality supports the reinstall after crash (RAC) feature. When the operating system of a computer is reinstalled and the DSM agent is redeployed, RAC can be initiated. RAC creates a job container for that computer with jobs for all the software packages that were installed before the OS reinstallation. The purpose of RAC is to restore the system to its original state as quickly as possible. This mechanism is driven by the manager.

However, this traditional RAC functionality is not appropriate for the highly dynamic nature of virtual desktops. In a virtual desktop environment, the virtual machines are *recomposed*. That is, the disk of the virtual machine is reset wherein any changes to the virtual machine from the time of the previous reset are effectively voided. This can happen more or less frequently.

To address the highly dynamic nature of these virtual desktops, a new type of software reinstallation functionality, *Offline RAC*, is available in this feature pack for virtual desktops. In this case the agent, and not the manager, is responsible for the creation of the RAC job container. When the disk reset occurs, the agent initiates an Offline RAC to restore any software that has been deployed to the agent without relying on the manager.

For Offline RAC, the software delivery agent has been extended with a file system-based software state database. This database contains information about each installed software package, including details about the procedure used to install the software and any post-installation activation or configuration procedures for the computer target of the agent only. In addition, any job-specific information such as user parameters is stored. This software state database is maintained by the software delivery agent and updated each time a software job is executed. If an uninstallation is successful, the records for that particular software package are removed. If enabled, the software state database always reflects the current software delivery state of the agent.

Additionally, the software state database also inherits the installation history of the golden template on which the virtual desktop is based. Therefore, the software state database is split into two parts, one for golden template use and one for cloned instance use. The template part of the software state database is stored on the system disk of the golden template. Any software jobs targeting the golden template use this database only. When the virtual desktop is cloned, its agent only uses the instance software state database to track its state.

Because the system disk of a cloned virtual desktop is destroyed during a recompose or refresh operation, the instance software state database cannot be stored there. This database must be stored in a different location, controlled by common configuration policy, for example, either in the user data disk of a VMware View linked clone or on a file server accessible from the virtual desktop.

Important! Administrators must help ensure that the software state database is always accessible during standard software job management and while performing offline installation, especially if the instance software database is on a network share.

More information:

[Agent \(Software Delivery\) Policy Group](#) (see page 121)

Status of Reinstallation

At the end of the reinstallation process, the success or failure of each job is reported to the domain manager. The status is also visible in the agent's Software Delivery Job Check dialog when the offline reinstallation is on-going.

If a job fails, or if some jobs cannot not run due to other settings like Exclude From RAC, the Software Delivery Job Check dialog is configured to remain open until the user closes it explicitly. This software delivery agent RAC policy is configurable and can be turned off. Also, in the case of a failure to initiate offline reinstallation, such as in the case of an invalid download method or an attempt to report to a legacy scalability server, this failure is reported in the Software Delivery Job Check dialog. Additionally, if the scalability server is not accessible due to various reasons, the end user is provided with options to retry, postpone, or abort the reinstallation.

Computer Properties

As noted earlier in the Specify VDI Support Configuration Policies section, the value of the new configuration policy, RAC: RAC policy setting of the agent policy, defaults to the Software Delivery tab of the Computer Properties dialog. When this policy is set to True, the RAC Policy field is disabled so you cannot change the setting.

Additionally, the DTS download method is not supported for virtual desktops during Offline RAC. Therefore, this option is not displayed in the Download method drop-down list.

Unlock a Virtual Machine

After the agent reinstalls the software, it sends an Offline RAC completed notification to the scalability server which in turn sends it to the manager. After the manager receives this notification, it unlocks the virtual machine from Offline RAC.

However, if the agent reinstalled the software but was unable to send the Offline RAC completed notification to the scalability server, then you can forcibly unlock the virtual machine. For example, if the agent cannot send the notification if the server was not available at that moment, you can unlock the virtual machine.

Follow these steps:

1. In the DSM Explorer, navigate to the Computers and Users, All Computers folder.
2. Right-click the relevant asset in the corresponding All Computers pane.
3. Select the Clear pending RAC lock command from the context menu that appears.

Note: This new command is available only if the SD Status column indicates that one or more virtual machines is Locked by RAC. Otherwise, the command is disabled. Furthermore, this command is not enabled for any regular computer that goes into a Locked by RAC state.

The selected asset is unlocked.

RAC Policy Options Disabled

If the SD Status for a computer is Locked by RAC, then the Software Jobs, RAC Policy context menu options are disabled in the DSM Explorer.

Deleting the Virtual Machine from DSM Explorer

If a golden template is moved from one domain manager to another after the clones are created, the golden template is moved according to standard move functionality. However, if clones created from this golden template are recomposed, the clones automatically report to the new domain manager. Therefore, nothing needs to be moved for a recomposed clone because all of its installation history is recreated using Offline RAC.

To clean up the obsolete clones, which used to report to but are no longer managed by the previous domain manager, manually delete all the moved clones from that manager after the recompose of the clones of the golden template.

Also, if the naming pattern is changed and a particular virtual machine is deleted using VMware View, then a new virtual machine is created with a new name. In this case, manually delete the virtual machine from the DSM Explorer.

Software Procedures

The software delivery system currently lets you enable or disable RAC for individual software procedures. If you do not want an item procedure to execute as part of the RAC process, you select the Exclude from RAC option in the Properties dialog of the actual procedure. This option enables you to exclude obsolete packages or patches from RAC.

The Exclude From RAC functionality has been expanded to support Offline RAC. During offline reinstallation, the Exclude from RAC setting in the Properties dialog is checked for each software procedure, and the procedure is not run if the procedure is excluded.

An example is where an individual patch may be necessary to resolve a critical security issue involving your virtual desktops without having to recompose them. However, once recomposed, the new version of the golden template has all the patches applied and reinstalling that patch is unnecessary.

Collecting and Viewing Inventory

The domain manager and the DSM Explorer handle the configuration of the engine's Collect Task and its subtasks. The DSM Explorer has been extended to collect and display inventory information about the golden template used to compose cloned virtual desktops. The DSM Explorer also collects and displays asset inventory for virtual desktops.

As part of this new functionality, the engine's Collect Task has been redesigned to recognize new virtual desktops and identify recomposed or refreshed virtual desktops quickly. Additionally, a new registration policy group has been added for the registration of virtual desktops.

Virtual Desktop Identification

The Virtual Desktop Identification process works as follows:

1. The linked clones are registered to a DSM manager with a given host key.
2. The virtual desktop is recreated with a new host UUID but the same host key to reuse the same database record over time.
3. The engine's Collect Task matches any existing virtual desktop based on the host key sent to it by the DSM common agent using the common server.
4. When a recompose/refresh operation is performed, the virtual desktop is physically recreated, and a new host UUID is generated for the virtual desktop. The change in host UUID causes the engine to send a RAC notification for the virtual desktop.

Reconfigure the Engine to Support Virtual Desktops

You can reconfigure to ensure that the virtual desktops are registered faster. The optimal configuration is to have a Collect Task that only performs the Asset Registration subtask, and to assign this Collect Task to its own engine with an interval of five (5) seconds between jobs.

The engine's Collect Task collects the information from the scalability servers and updates the database. The inventory collection subtasks enable you to perform basic inventory collection and full asset management inventory collection at different times.

Follow these steps:

1. Open the Collect Task from the Control Panel, Engines, Engine Tasks, Collect Tasks folder.
2. Select the Asset Registration subtask from the Selected Tasks list.

This selection enables processing of asset registration and basic hardware inventory. Previously, this subtask was performed when an engine's Collect Task ran and could not be separated from the other subtasks.

3. Select the Hardware Inventory task.

This selection enables all subtasks except the asset registration.

Note: By default, the Collect Task includes all the subtasks shown in the Selected Task list. You can create additional collect tasks for a scalability server, but the DSM Explorer and the domain manager must not allow the same subtask to be selected in another collect task assigned to a different engine instance. However, you can assign two identical subtasks for the same scalability server to the same engine because they run sequentially.

More information:

[Prepare the CA IT Client Manager Environment for VMware View](#) (see page 95)

Scenario: Perform Agent Registration and Full Inventory Collection at Different Times

In this scenario, it is given that the scalability server is registered to the domain manager with its default Collect Task.

Follow these steps:

1. Clear all subtasks from the default Collect Task except for Asset Registration.
2. Assign the default Collect Task to a new engine.
3. Schedule an interval of 5 seconds between jobs in the Scheduling Options dialog.

Note: This configuration is optimal, allowing virtual desktops to be registered as quickly as possible.

4. Create a new Collect Task for the scalability server.
5. Select all subtasks in the new Collect Task except for Asset Registration.
6. Schedule the new Collect Task to run once a day between midnight and 6:00 a.m.

The Asset Registration subtask runs each time the default Collect Task runs, and the other collection subtasks run once a day between midnight and 6:00 a.m.

More information:

[Migration Considerations for Virtual Desktops](#) (see page 115)

View Golden Template Inventory

View the golden template inventory to know whether a virtual machine is a golden template or a virtual desktop. Here is an example of golden template of Citrix XenDesktop.

Follow these steps: (in DSM Explorer):

1. Navigate to the Computers and Users, All Computers, *computername*, Inventory, Operating System folder.

In the right pane, verify the value of the Virtual Machine attribute, which indicates whether the computer is a virtual machine.

2. Select the Template Settings subfolder to view the values for the following attributes:

IsGoldenTemplate

Indicates whether a virtual machine is a golden template (True) or a virtual desktop (False). The value is true, when a vDisk, master vDisk or a clone of master vDisk is booted in private mode for template management.

TemplateHostUUID

Specifies the host UUID of the golden template. For a master vDisk, the hostuuid is master target device and master vDisk for cloned vDisk.

For virtual desktops, the hostuuid of the master target device if the virtual desktops are based on the master vDisk generated from the master target device and if the master vDisk has not been independently managed until then. They will point to the master vDisk or a clone of it, if the vDisk has been booted in private mode for template management and is used to provision virtual desktops.

TemplateName

Specifies the name of the golden template.

TemplateTag

Indicates the date and timestamp of the template for the master target device or vDisk only if the template has been tagged.

3. Select the Template History subfolder to view the template history for the virtual desktop or the templates, providing that the templates have been tagged.

Follow these steps: (in Web Console)

1. Navigate to the Computers, Inventory, Discovered Inventory page.
2. Click the Operating System tab to view the value of the Virtual Machine attribute.
3. Click Template Settings under the More Details tab to view the values of the IsGoldenTemplate, TemplateName, TemplateTag, and TemplateHostUUID attributes.
4. Click Template History under the More Details tab to view the template history for the clone.

Queries and Reporting

To support querying and reporting on the template desktops, in addition to individual desktops based on those templates, the basic hardware inventory has been extended with the following attributes and values:

Is Golden Template

Boolean

Based on Template Name

String

Based on Template Version

Integer

Based on Template Host UUID

String

These attributes are displayed on the All Computers, *computername*, Inventory, Operating System pane in the DSM Explorer.

Query Designer Changes

When creating a query, you now have additional arguments for reporting on computers with a status of Offline RAC. Additionally, predefined queries have been added for VDI Support.

- For computer-based queries, a value of Offline has been added to the RAC Policy drop-down list in the Select field dialog of the query designer.
- Two predefined VDI Support queries, All Golden Templates and All Clones of Golden Templates, have been added to the Queries node in the DSM Explorer.

DSM Reporter Changes

The following predefined report templates for VDI Support have been added to the DSM Reporter:

- All Golden Templates
- All Clones of Golden Templates

After a report template is run and inventory collected, these reports list all discovered golden templates and their corresponding virtual desktops.

Obsolete Assets Wizard Excludes Golden Images

The Obsolete Assets wizard helps you track and optionally remove old and unused computers and users. Because golden templates are logically different from regular computers and their users, they have been excluded from the result sets of the obsolete asset queries generated by the wizard. Any obsolete asset query created using a previous release of CA IT Client Manager does not exclude golden templates and their associated users. Therefore, replace any existing obsolete asset queries to ensure that golden templates are excluded from the result sets.

Migration Considerations for Virtual Desktops

The VDI Support service pack is backward compatible with the previous releases of CA ITCM except for the following upgrade and migration limitations and restrictions:

Virtual Desktop Engine Collection

- A Release 12.5 engine can collect from an r12 scalability server irrespective of how the collect subtasks are split up.
- A Collect Task can still be forced to run next by issuing the same CADSMCMD command as before.

There are no new parameters that can be passed to CADSMCMD for running or not running the Asset Registration subtask.

Only the subtasks defined for the forced Collect Task are run.

- If you use an r12 DSM Explorer to connect to a Release 12.5 manager, the Asset Registration subtask is not available.

However, you can still use the r12 DSM Explorer to move other subtasks. Moving the Hardware Inventory subtask does not automatically move the new Asset Registration subtask.

The r12 DSM Explorer must not change the selection of the Asset Registration subtask.

- If you use a Release 12.5 DSM Explorer to connect to an r12 manager, the Asset Registration subtask is not available.

The Release 12.5 DSM Explorer must not set any selection for the Asset Registration subtask in the r12 manager's MDB.

- With r12 managers, you could create multiple Collect Tasks for the same scalability server and assign them to different engines. Additionally, an r12 manager always performed the Hardware Inventory subtask when a Collect Task ran.

When a manager is upgraded to Release 12.5, the Asset Registration subtask is added to all Collect Tasks that have the Hardware Inventory task assigned to them. When running a Collect Task, an engine checks whether any of the collect subtasks for a scalability server are also assigned to another engine. If true, the engine then displays an error message.

The engine performs the same check as the manager, covering all bases such as the upgrade scenario, and sends the same error message to the Collect Task.

Offline RAC

If a pre-Release 12.5 version of an agent reports to a Release 12.5 scalability server, the Offline RAC: Container Type policy is not available. If a Release 12.5 agent reports to a pre-Release 12.5 scalability server, the agent returns an error message.

The Compose.bat Script

When defining a desktop pool, persistent or nonpersistent, you must apply the Compose.bat script as a post synchronization script. The Compose.bat script resides in the <DSM install dir>\bin directory.

Note: The VMware View administrator creating or editing a desktop pool must reference the Compose.bat script in the QuickPrep Settings page of the VMware View Desktop Pool wizard.

You must invoke the Compose.bat script using the appropriate parameters for the integrated environment. Compose.bat invokes the VDICompose.dms script, which sets the following configuration parameters:

- IsGoldenTemplate=false
- OfflineRAC=true
- InstanceSoftwareDatabasePath
- InstanceSoftwareDatabaseUser
- InstanceSoftwareDatabasePassword.

The VDICompose.dms script is run in the scope of a recompose or refresh of a virtual desktop. Its purpose is to switch the configuration from golden template mode to normal virtual desktop clone and initiate Offline RAC.

Usage

```
Compose.bat [ISDBPath=< Path>] [Run=<Run>] [ISDBUser=<User> ISDBPassword=<Password>]
```

Mandatory parameter:

<Path>

Specifies the instance software database path, which can contain environment variables.

Typical instance software database locations are as follows:

- On the user data disk, like "D:\InstSWDB".
- On a network share:
 - a. Computer-specific such as "\\fileservershare\%COMPUTERNAME%\InstSWDB".
 - b. User-specific such as "\\fileservershare\poolname\%USERNAME%\InstSWDB". This option is more applicable in the case of nonpersistent pools.

Important! On Windows 7, if the path parameter contains the %USERNAME% environment variable, then this parameter must not be passed as a command line parameter to Compose.bat. Instead, include all the parameters inside the Compose.bat file.

Example:

```
dmscript.exe VDICompose.dms ISDBPATH="\\fileserverssds\%USERNAME%"  
RUN=ONLOGON
```

Optional parameters:

<Run>

Specifies when to execute the Offline RAC process. Valid values are OnRecompose and OnLogon.

Default: OnLogon

<User>

Specifies the name of the Instance software database user. You must encrypt the user name using the "sd_acmd encrypt" command. Do not use plain text.

<Password>

Specifies the encrypted instance software database password. You must encrypt the password using the "sd_acmd encrypt" command. Do not use plain text.

Important! All the parameters to Compose.bat must be specified within quotation marks, for example:

Example

```
Compose.bat "ISDBPath=D:\ssd" "Run=ONRECOMPOSE"
```

The administrator can also customize the following values in the script:

- **The string variable HostKeyMacro**

This variable sets the value of the Host key configuration policy under Configuration Policy, Default Computer Policy, DSM, Common Components, registration in the DSM Explorer.

By default this variable is set to `$env("COMPUTERNAME")`. You can use the following macros for customizing this key:

Environment variable: `$env(name)`

Example: `$env("COMPUTERNAME")-VDI`

Registry key: `$reg(key,value)`

Example: `$reg("HKLM\SOFTWARE\CA\GuestID","GuestUUID")-VDI`

INI file value: `$ini(path,section,key)`

Example: `$ini("c:\id.ini","identity","uuid")-VDI`

These macros can also be combined in the same string.

Example:

```
$env("COMPUTERNAME")-$reg("HKLM\SOFTWARE\CA\GuestID","GuestUUID")-VDI
```

- **The string variable sScalabilityServer**

The value in this variable is used to set the scalability server to which the cloned virtual desktop has to be registered. If the administrator configures the Scalability Servers Configuration policy under Configuration Policy, Default Computer Policy, DSM, Common Components, registration, the VDICompose.dms script sets this value. If this policy is not set, then the cloned virtual machine is registered with the scalability server to which the golden template agent is connected.

The logic for setting the scalability server is based on a VM naming pattern and range given by the administrator. The VM naming pattern and range are implemented in the GetScalabilityServer() function in VDICompose.dms. The following VM Naming patterns are supported:

Finance-{n}-Desktop

After deployment, {n} is replaced with the pool number of the desktop. So if there are two desktops in the pool, the desktop names are Finance-1-Desktop and Finance-2-Desktop.

Finance-{n:fixed=3}

A fixed-length token can be set using this naming pattern. In this case, the desktop names are Finance-001, Finance-002 ..., and so on.

Finance

In this case, the desktop names are Finance1, Finance2 ..., and so on.

If you want to change or add some new logic, you must modify the `GetScalabilityServer()` function.

Note: You can modify `VDIComose.dms` before you register the package with the software library or as part of a new version of the original package. However, the script does not get automatically updated on systems to which the old script has already been deployed. In that case, you must redeploy the package containing the updated script. You can also modify the script locally on the golden template systems. However, that is not recommended because you can lose track of what changes you have made to each system.

Configuration Policies for Desktop Virtualization Support

After installing the CA DSM Agent VDI Support Add-On package, configure CA ITCM configuration policies for virtual desktops. Some of these policies are mandatory and preset by the VMware View. Other policies are optional and require input as documented.

A new registration policy group is added to this feature pack and other configuration policy groups are extended to provide support for managing virtual desktops that are provided by VMware View.

Note: Apply the configuration policies to the agents of the cloned virtual desktops and to the agents of the golden templates. This process must be done with the exception of the mandatory locally managed policies preset by the cloning scripts before saving the golden template snapshot.

The policy is not automatically inherited by the cloned virtual desktops from the golden template. When the cloned virtual desktop values and the centrally managed policy values are different, the values are overwritten shortly after the registration with the manager.

General (CAF) Policy Group

The General (CAF) policy group has been expanded to include the following configuration policies.

CAF: Pre-initialisation Script

Specifies the script that you want to execute when caf starts up and is starting initialization. The script is executed before the UUID is checked and before any plugins are started.

CAF: Post-initialisation Script

Specifies the script that you want to execute after caf initializes. The script is executed after all plugins have started but before their first registration.

CAF: Pre-initialisation Script timeout (s)

Specifies the time in seconds for which caf waits before terminating the pre-initialisation script.

CAF: Post-initialisation Script timeout (s)

Specifies the time in seconds for which caf waits before terminating the post-initialisation script.

registration Policy Group

A new policy subgroup, registration, has been added under the Common Components policy group for virtual desktop-specific identification. The registration policy group contains the following policies:

Host key

Defines a string that is used to identify uniquely a cloned machine. A host key is required for linked clones because each Recompose of the virtual desktop generates a new virtual machine that registers a new unique computer in the MDB. The result is that, over time, the domain manager would see many computers that no longer exist. If the host key is used, the existing computer records for the virtual desktops in the MDB are reused over time.

A host key contains plain text plus any number of macros. On registration, CAF expands the macros and sends the result to the scalability server. The engine then uses the host key rather than the host UUID/host name/MAC address to identify assets in the MDB. From now on, the host key identifies the agent.

Note: In typical scenarios, the MAC address is not changed during the Recompose of persistent linked clones. However, in some cases VMware changes the MAC address of the persistent linked clones during the recompose operation. Therefore, the use of a host key is typically needed for both nonpersistent, persistent linked clones, and MCS-based virtual desktops as well.

Use the following macros:

Environment variable: \$env(name)

Example: \$env("COMPUTERNAME")-VDI

Registry key: \$reg(key,value)

Example: \$reg("HKLM\SOFTWARE\CA\GuestID"," GuestUUID")-VDI

INI file value: \$ini(path,section,key)

Example: \$ini("c:\id.ini","identity","uuid")-VDI

These macros can also be combined in the same string.

Example:

```
$env("COMPUTERNAME")-$reg("HKLM\SOFTWARE\CA\GuestID","GuestUUID")-VDI
```

Note: By default, the CAFPostInit.dms script sets the host key on the agent with \$env("COMPUTERNAME"). Hence, you do not need to modify this policy. However, if you want to use another macro, verify that all generated host keys are unique by using the appropriate host key macro strings in the CAFPostInit.dms script. Also, verify that the host key is not more than 64 characters long.

Default: empty, <locally managed>

Scalability Servers Configuration

Allows the administrator to configure the agent scalability server, which is based on the virtual machine naming pattern that is used for the desktop pool and range. You can apply multiple ranges. This policy is optional, and if no value is set, all clones report to the same scalability server as the agent of the golden template from which they have been cloned. For more information, see scalability servers configuration.

Agent (Software Delivery) Policy Group

The Agent (Software Delivery) policy group has been expanded to include the following configuration policies for managing the software delivery agent in VMware View environments.

Note: The RAC configuration policies in the Agent policy group apply only to Offline RAC. The traditional RAC functionality is configured by the policies in the Software, Manager policy group.

You can modify policy parameter values by double-clicking a policy to display the Setting Properties dialog.

RAC: Behavior for multiple entries of the same activate/configure procedure

Determines whether duplicate software procedures are excluded during OfflineRAC.

In software delivery, an install procedure is allowed to run only once, but activate and configure procedures can run multiple times. When the agent prepares the RAC container for a software package, a number of activate and configure procedures can be included. The value that is set for this policy determines how duplicate activate/configure procedures within a single software package are handled. Valid values are as follows:

re-run each duplicate activate/configure procedure

Specifies all activate/configure procedures recorded in the database are run.

re-run first duplicate activate/configure procedure

Specifies if any activate/configure procedures are included more than once, only the first duplicate is run.

re-run last duplicate activate/configure procedure

Specifies if any activate/configure procedures are included more than once, only the last duplicate is run.

Default: re-run each duplicate activate/configure procedure

RAC: Container Type

Specifies whether the agent runs software jobs in the offline RAC container as a batch or with no linkage. Valid values are as follows:

Batch

Specifies all jobs be run sequentially as a single unit of work for each target. If any job in the sequence fails, then the remaining jobs for that target are not executed.

No Linkage

Specifies the jobs that are run sequentially but independently from each other.

Default: Batch

RAC: Delete software procedure from software state database in case of failure

Controls whether the software state database is updated when one or more jobs in the RAC container fails. If set to True, the failed job entries are deleted from the software state database. If False, the failed entries remain.

Default: True

RAC: Keep job check GUI until end user closes

Controls whether the Software Delivery Job Check dialog waits for the user to close the dialog if RAC fails during an interactive-mode reinstallation. For example, a value of True ensures that a RAC failure is not overlooked when the user is away from the computer.

Default: True

RAC: Maintain Pre Install Software State Database

Defines whether a preinstall software state database is maintained when no users are assigned to the virtual desktops. A preinstall software state database is useful when virtual desktops in a pool are created and registered as agents but not yet assigned to any users. A preinstall database is useful for the administrator to push required software packages to the virtual desktops.

If set to True, a preinstall software state database is maintained on the local file system before a user is assigned to the virtual desktop. The preinstall database is merged into the assigned users instance software state database whenever the user logs in for the first time.

If set to False, the following conditions apply.

Persistent desktops:

For persistent desktops, if Offline RAC is configured to run on logon, setting this policy to False results in these software packages being reinstalled because the software job records are added to the instance database instead of the preinstall database.

Nonpersistent desktops:

For nonpersistent desktops, setting this policy to False results in software delivery job records not being maintained for these software packages. Furthermore, they cannot be reinstalled when the virtual desktop is refreshed later on.

Default: True

RAC: Maintain Software State Database

Controls whether the software delivery agent maintains a database of its state, regardless of the VMware View functionality.

Note: This policy is mandatory and preset by the VMware View integration scripts to True. Do not manually change the set value.

Default: False, <locally managed>

RAC: Maximum number of seconds to retry

Defines the maximum seconds that an agent can sleep between attempts to contact the scalability server during one job check. This policy works with the RAC: Number of retries in case of offline RAC policy. Reconnection attempts until the limit specified by either of these policies is reached.

Default: 60

RAC: Number of retries in case of offline RAC

Defines the maximum number of connection retries an agent can make to the scalability server during one job check. This policy works with the RAC: Maximum number of seconds to retry policy. Reconnection attempts until the limit specified by either of these policies is reached.

Default: 100

RAC: Password to access the instance software state database

Specifies the password of the user with access permissions to the instance software state database. The password string is encrypted. If specified, the agent uses these credentials to access the network share.

We recommend that you encrypt the password first using the "sd_acmd encrypt" command. Then provide the encrypted password as one of the parameters when running the Compose.bat script, which in turn sets the configuration parameter.

Alternatively, if the password for the share location is the same for all desktop pools to be created from a particular golden template snapshot, you can set the password in the configuration policy. Then apply the policy to the golden template and the cloned virtual desktops.

Default: empty, <locally managed>

RAC: Path to instance software state database

Specifies the installation path for the instance software state database. The specified path can include embedded environment variables, for example, "\\Fileserver1\Share1\%COMPUTERNAME%\InstanceSoftwareDatabase".

Note: This policy is mandatory, but enter the path manually as one of the parameters when running the Compose.bat script. This script in turn sets the configuration parameter.

Default: empty, <locally managed>

RAC: Path to template software state database

Specifies the installation path for the template software state database. If the value is empty, the agent uses the appropriate unit-specific path, that is, “<ITCM InstallDir>\SD\ASM\DATABASE\Agent\TemplateSoftwareDatabase”.

Default: empty, <locally managed>

RAC: RAC policy setting of the agent

Controls the RAC Policy setting of the software delivery agent. If set to True, the RAC Policy of the agent is set to Offline. If False, RAC Policy is set to the default RAC setting.

Note: This policy is mandatory and preset by the VMware View integration scripts to True. Do not manually change the set value.

The valueset here defaults to the Software Delivery tab of the Computer Properties dialog.

Default: False, <locally managed>

RAC: Set SD agent to golden template mode

Allows the agent to distinguish between running on a golden template or a clone. If True, the agent runs on a golden template.

Note: This policy is mandatory and preset by the VMware View integration scripts.

Default: False, <locally managed>

RAC: Username to access the instance software state database

Specifies the name of the user with access permissions to the instance software state database. The user name must be formatted as: *(domainname | local)\'user'*. The string is encrypted. If specified, the agent uses these credentials to access the network share.

We recommend that you encrypt the user name first using the "sd_acmd encrypt" command. Then provide the encrypted user name as one of the parameters when running the Compose.bat script, which in turn sets the configuration parameter.

Alternatively, if the user name for the share location is the same for all desktop pools to be created from a particular golden template snapshot, you can optionally set the user name in the configuration policy. Then apply the policy to the golden template and the cloned virtual desktops.

Note: By default, when a folder is shared its permissions include only the "Everyone" group with Read access permissions. To ensure that the instance software state database gets saved over a network, the network share must also include the user here in the Share Permissions tab with Full Control (WRITE) access.

Default: empty, <locally managed>

More information:

[Offline RAC](#) (see page 107)

[CADSMCMD Command Line Interface](#) (see page 126)

[CA IT Client Manager Web Services API Methods](#) (see page 129)

CADSMCMD Command Line Interface

Support for VMware View virtual desktops has been added to the CADSMCMD command line interface.

cadsmcmd targetComputer action=list Command

The filter criteria for the cadsmcmd targetComputer action=list command has been extended to support filtering for RAC policy set to offline. For example:

```
cadsmcmd targetComputer action=list filter="RAC policy=offline"
```

cadsmcmd targetComputer action=modify Command

If you try to change the RAC policy of a computer when it is in offline mode, the cadsmcmd targetComputer action=modify command generates an error message.

More information:

[Agent \(Software Delivery\) Policy Group](#) (see page 121)

More information:

[ReinstallTarget--Software Reinstalled on Target](#) (see page 127)

[Encrypt--Encrypt Any String](#) (see page 128)

[JobCheck--Run the Job Check](#) (see page 128)

Software Delivery Command Line Interface

The sd_acmd.exe client API has been extended with two new agent administrative commands, ReinstallTarget and Encrypt, for VDI support. Additionally, the Job Check command has been extended with three new switches.

Syntax

```
sd_acmd command command_arguments [arguments]
```

ReinstallTarget--Software Reinstalled on Target

This command initiates execution of the Offline RAC process wherein any software that was deployed to the agent is restored.

Note: This command is not typically called manually as it is invoked by the VDICompose.dms integration scripts. However, if the Offline RAC process is used for a purpose other than VMware View integration, you may need to invoke it using other mechanisms.

Syntax

```
ReinstallTarget [abort]
```

[abort]

 Cancels any pending reinstall target request. This parameter is optional.

Example

```
sd_acmd ReinstallTarget
```

This example performs offline reinstallation and calls the agent, which opens the instance software state database and reruns every procedure in chronological order using the current software library of the agent. The job status is reported to the domain manager and displayed in the Software Delivery Job Check dialog, similar to any standard software delivery job. In addition, the agent opens the template software state database and for each entry creates install/activate/configure records (same as generated by sd_acmd AddXXXRecord). At the end of the reinstallation process all generated records are sent up to the domain manager using the scalability server.

Note: This mechanism relies on the agent getting a new Host UUID each time it gets recomposed or refreshed. This triggers the deletion of the existing software records in the MDB for the computer (only to be replaced by new ones as soon as the Offline RAC is completed).

Encrypt--Encrypt Any String

This command encrypts any plain string that is passed as a parameter.

Syntax

```
encrypt <any-string>
```

<any-string>

Specifies a plain string.

Example

The following example returns the encrypted value of the plain string "machine1\user1", which is an account name for accessing the share:

```
sd_acmd encrypt machine1\user1
```

Similarly, the password can be entered as a plain string, and it also is encrypted.

JobCheck--Run the Job Check

This command runs the Job Check task and activates the software delivery agent to contact the scalability server.

Three new VDI Support switches—ReportTemplateSwStateDbRecords, ReportInstanceSwStateDbRecords, and ReportAllSwStateDbRecords—have been added to extend its functionality. These three switches are only used to send job records from the instance/template databases; they do not perform offline reinstallation.

Syntax

```
JobCheck [target="targetname"]  
        [update]  
        [installonly]  
        [/BG]  
        [/wait]  
        [/ReportTemplateSwStateDbRecords]  
        [/ReportInstanceSwStateDbRecords]  
        [/ReportAllSwStateDbRecords]
```

[target="targetname"]

Runs for the specified target, if a value is present. If no target is specified, the current context is the default if a user agent is enabled on the target computer. The parameter is optional.

[update]

Updates attribute only. The parameter is optional.

Note: The update and installonly options are mutually exclusive.

[installonly]

Does not update attribute. The parameter is optional.

Note: The update and installonly options are mutually exclusive.

[/BG]

Runs the Job Check task in background mode. The parameter is optional.

[/wait]

Ensures that sd_acmd does not return until a job check has completed. The parameter is optional.

[/ReportTemplateSwStateDbRecords]

Sends template state database records only without performing offline reinstallation. The parameter is optional.

[/ReportInstanceSwStateDbRecords]

Sends instance state database records only without performing offline reinstallation. The parameter is optional.

[/ReportAllSwStateDbRecords]

Sends all software state database records without performing offline reinstallation. The parameter is optional.

CA IT Client Manager Web Services API Methods

Support for VMware View virtual desktops has been added to the CA IT Client Manager Web Services API.

SetComputer

If you use the setComputerProperties method to change the RAC policy parameter of a computer when it is in the offline mode, the SetComputer API generates an error message.

SetComputerByName

If you use the setComputerProperties method to change the RAC policy parameter of a computer when it is in the offline mode, the SetComputerByName API generates an error message.

More information:

[Agent \(Software Delivery\) Policy Group](#) (see page 121)

Chapter 10: MDB Admin Console CLI

MDB Admin Console is a command line interface (CLI) for exporting and importing data related to CA IT Client Manager from one MDB to the other. For example, you can export data from your test environment and import it into your production environment using MDB Admin Console.

This section contains the following topics:

[MDB Admin Console](#) (see page 131)

[MDB Admin Console Files and Folders](#) (see page 133)

[Configure Database Connections](#) (see page 134)

[Using MDB Admin Console](#) (see page 136)

[Troubleshooting](#) (see page 145)

MDB Admin Console

The MDB Admin Console lets you deploy CA ITCM data from a source MDB to a target MDB and perform certain database administration tasks. CA ITCM exposes the MDB Admin Console as a command line interface (CLI).

You can use the MDB Admin Console to do the following tasks:

- Export and import data related to CA ITCM from one MDB to the other. For example, you can export data from your test environment and import it into your production environment using MDB Admin Console.
- Reconfigure database entries to adapt to a change in the network (IP) name of the DSM manager.
- Reconfigure database entries to adapt to a change in the network (IP) name of the DBMS manager.

Export and Import Considerations

The following considerations apply when you use MDB Admin Console to export or import data:

- MDB Admin Console can export and import the following MDB objects:
 - Security Profiles and Area definitions
 - Asset Groups
 - Queries
 - Query-based and Event-based Asset Policies
 - Configuration Policies
 - Software Groups, Procedure Groups, and Software Policies
 - Software Definitions

Note: For a detailed description of the supported MDB objects, see the "Supported MDB Object Types" appendix.

- You can perform export and import as two separate tasks. This approach lets you review the exported MDB data, which is stored in XML files, before you import the data into the target MDB.

Note: Do not change the contents of the XML file if you are planning to use the XML file for importing data into the target MDB later.

- MDB Admin Console does not delete any object from the target MDB when you import data.

Exporting and Importing Data Across MDB Platforms and Version

You can use MDB Admin Console to export and import data in the following scenarios:

CA ITCM r11.2 SP4, r12, or r12 SP01 to equivalent or higher versions of CA ITCM

You can export the MDB Objects from a CA ITCM r11.2 SP4, r12, or r12 SP01 MDB and import them into the MDB of an equivalent or higher version of CA ITCM. For example, you can export the MDB objects from a CA ITCM r11.2 SP4 MDB and import them into a CA ITCM r12 MDB.

Enterprise to Enterprise

You can export the MDB Objects from a DSM enterprise manager MDB and import them into another CA ITCM enterprise manager MDB.

Domain to Domain

You can export the MDB Objects from one domain manager MDB and import them into another domain manager MDB.

SQL Server to Oracle

You can export the MDB Objects from a SQL Server MDB and import them into an Oracle MDB. Similarly, you can export the MDB Objects from an Oracle MDB and import them into a SQL Server MDB.

Note: You can combine the export and import scenarios. For example, you can export the MDB Objects from a CA ITCM r11.2 SP4 enterprise manager MDB and import into a CA ITCM r12 enterprise manager MDB.

MDB Admin Console Files and Folders

The installer creates the following files and folders related to MDB Admin Console upon successful installation:

- **.\mdbac.bat** - Executable batch file which exposes the command line interface.
- **.\log** – Folder which includes log files from the MDB Admin Console. For more details about the log folder, see the Troubleshooting section.
- **.\cfg** – Folder including configuration files.
- **.\sample*.bat** – There are a number of files that you can use as examples of how the MDB Admin Console command line can be used.

Configure Database Connections

MDB Admin Console uses connection names to reference the MDB databases for its operations. Therefore, before using the MDB Admin Console, you need to define the connection names for the MDBs involved in the export and import operation. You supply these connection names as an argument to the MDB Admin Console command line interface.

Follow these steps:

1. Open the `mdbac.properties` file located in the `.\cfg` folder. The `.\cfg` folder is available in the MDB Admin Console installation folder.
2. Search for "Define the Connections" and either modify the existing database connection entries or add new entries for new database connections. Define the new database connection strings in the following format:

Oracle MDB

```
connection.connection_name=jdbc:oracle:thin:@Host:Port:SID
```

SQL Server MDB

```
connection.connection_name=jdbc:sqlserver://Host\[Instance_name]:Port;DatabaseName=database_name
```

To configure a trusted connection to the SQL Server MDB, use the following format:

```
connection.mssql-test
=jdbc:sqlserver://Host\[instance_name]:Port;DatabaseName=database_name;integratedSecurity=true
```

Connection_name

Defines the connection name. You specify this connection name as a parameter to the MDB Admin Console CLI to refer to the MDB.

Host

Defines the name of the computer that hosts the MDB.

Instance_name

(Optional) Defines the instance name to connect to.

Default: Default instance

Note: If your instance name starts with 'n', 'r', or 't', you must add the escape sign '\ ' before the character because these characters act as terminators when prefixed with a '\ '. For example, if the instance name is noname, the connection string must be as follows:

```
MyMachine\\noname:1488
```

Note: The `instance_name` parameter is mandatory for the `adjustmdbcfg` method even if you are using the default instance. The default instance name must be provided as "MSQLSERVER".

Port

Defines the port number of the MDB.

Database_name

Defines the database name of the MDB.

SID

Defines the SID of the MDB.

IntegratedSecurity=true

Indicates that trusted connection to the SQL Server MDB is required. You need a trusted connection to the SQL Server MDB for running the [adjustmdbcfg method](#) (see page 142).

Examples:

```
connection.mssql-test =jdbc:sqlserver://lab_test:1433;DatabaseName=mdb
```

```
connection.mssql-test
```

```
=jdbc:sqlserver://lab_test\MSQLSERVER:1433;DatabaseName=mdb;integratedSecurity=true
```

```
Connection.oracle-test=jdbc:oracle:thin:@lab-test:1521:orcl
```

3. Verify that the database connection to the MDB Admin Console is working. To do this, follow these steps:
 - a. Open the command prompt and navigate to the MDB Admin Console installation directory using the following command:

```
cd MDBAC_Installation_Directory
```

- b. Execute the following command:

```
mbac -testcon -target Connection_name -user username -pwd password
```

Verifies the database connection and returns the result.

Examples:

```
mbac -testcon -target mssql-test -user ca_itrm -pwd password123
```

```
mbac -testcon -target oracle-test -user mdbadmin -pwd password123
```

You can now use the connection names in your MDB Admin Console CLI.

More information:

[MDB Admin Console CLI](#) (see page 136)

Using MDB Admin Console

Command Line Arguments

The following command line arguments are common to all or most of the MDB Admin Console commands:

user

Specifies the user name for connecting to the database. The default user name is ca_itrm for Microsoft SQL Server MDB and mdbadmin for Oracle MDB.

pwd

Specifies the password for connecting to the database.

wallet

Specifies the path to the wallet file that contains the user name and password for connecting to the database. Use this argument as an alternate to the user and pwd arguments. Before passing the wallet argument to the MDB Admin Console CLI, you must create the file that contains the credentials using the createwallet method.

Work_folder

Specifies the relative or absolute path to a folder for storing data such as, exported xml data files. You need to verify that the folder exists in the specified path.

Connection name

Specifies the connection name that you defined while configuring the database connections in the mdbac.properties file.

More information:

[creatwallet method—Create a Wallet](#) (see page 137)

MDB Admin Console CLI

This section describes the methods that MDB Admin Console provides for various database administration tasks.

Note: To execute the MDB Admin Console CLI, change directories to the MDB Admin Console installation folder in the command prompt.

Order of Exporting and Importing MDB Objects

When you use MDB Admin Console to export MDB objects from a source MDB and to import them into a target MDB, you must follow the order below:

1. Security profiles
2. Areas
3. Queries
4. Asset groups
5. Query-based policies
6. Event-based policies
7. Software groups
8. Procedure groups
9. Software-based policies
10. Software definitions
11. Configuration policies

createwallet method—Create a Wallet

A wallet is a file that contains the user name and password for connecting to the database. You can provide a wallet as an argument to the MDB Admin Console CLI.

This command has the following format:

```
mbac.bat -createwallet
```

This command prompts you with a dialog to enter the user name and password for connecting to the database. Click Save Wallet to save the credentials to a file. If the specified file already exists, clicking Save Wallet overwrites the file.

export method—Export MDB Objects

The export method exports MDB objects from a source MDB. It creates an XML file for each object that matches the specified object name or pattern. The XML files are named as follows:

ObjectType__ObjectName__(counter).xml

Example: XML file name

BoQueryDef__Asset is a Virtual Machine - MS Virtual PC__(1).xml

This command has the following format:

```
mbac.bat -export MDB_Object_Type -name Object_Name -work workfolder -source Connection_Name {-user User_Name -pwd Password | -wallet wallet_file_name}
```

MDB_Object_Types

Specifies the MDB object type that you want to export.

Note: For a list of supported MDB object types, see the "Supported MDB Object Types" appendix.

Object_Name

Specifies the object name in the given object type that you want to export. You can use wildcard characters to match a pattern. For example, you can specify "Asset%" to process all the objects that start with the name "Asset" in the given object type.

Example: Export MDB Objects

This example command exports queries that start with the object name "Asset is a Virtual Machine" from a specified SQL MDB:

```
mbac.bat -export BoQueryDef -name "Asset is a Virtual Machine%" -work C:\TEMP\work -source mssql -user ca_itrm -pwd password123
```

Example: Using the Wallet Argument

```
mbac.bat -export BoQueryDef -name "Asset is a Virtual Machine%" -work C:\TEMP\work -source mssql -wallet dbwallet
```

import method—Import MDB Objects

The import method imports MDB Objects into a target MDB. It creates new objects and updates existing objects in the target MDB. For each of the supported MDB Object types, the object name is used as the unique reference to identify whether the object is new or existing.

Note: If you do not find the imported objects in the DSM Explorer, restart CAF.

This command has the following format:

```
mbac.bat -import -file file_or_folder_name -target Connection_Name {-user User_Name  
-pwd Password | -wallet wallet_file_name}
```

Note: While you can use the ca_itrm user credentials to import data into SQL Server MDB, you need the credentials of the mdbadmin user to import data into Oracle MDB.

File_or_Folder_Name

Specifies the name of the file or folder that contains the exported data.

Note: You can use the import method to import multiple files at one time. However, avoid storing several files of the same MDB object type and object name in one folder because the sequence of processing these files and the result of the import method cannot be determined.

Example: Import MDB Objects

This example command imports MDB objects from the work folder to the target MDB:

```
mbac.bat -import -file C:\TEMP\work -target mssql -user ca_itrm -pwd password123
```

compare method—Compare MDB Objects in Source and Target MDBs

The compare method compares MDB Objects in the source and target MDBs. It reads objects from source and target databases and creates corresponding xml files in the work folder. Each supported MDB object type has specific rules that determine when the objects are considered equal. For a list of these rules, see the "Rules for MDB Object Comparison" appendix.

Note: The source and target MDBs must have the same database credentials.

This command has the following format:

```
mbac.bat -compare MDB_Object_Type -name Object_Name - work work_folder -source  
Connection_Name -target Connection_Name {-user User_Name -pwd Password | -wallet  
wallet_file_name}
```

MDB_Object_Type

Specifies the MDB object type that you want to compare. This parameter accepts only a single object type. If you include multiple object types, the command returns invalid results.

Note: For a list of supported MDB object types, see the "Supported MDB Object Types" appendix.

Object_Name

Specifies the object name in the given object type that you want to compare. You can use wildcard characters to match a pattern. For example, you can specify "Asset%" to process all the objects that start with the name "Asset" in the given object type.

Example: Compare MDB Objects in Source and Target MDBs

This example command compares the queries that start with "Asset is a Virtual Machine" in test and production databases:

```
mbac.bat -compare BoQueryDef -name "Asset is a Virtual Machines" -work C:\TEMP\work  
-source mssql-test - target mssql-production -user ca_itrm -pwd password123
```

Note: For more details about why the compare command failed, you can view the diff.log file. The diff.log is available under the folder given in the -work parameter of the compare command.

view method—View Properties of an Exported MDB Object

The view method prints the properties of an exported MDB object (contained in an XML file) on the console. It reads the properties from the XML file and prints them on the console. The property names that the export method has generated need not necessarily match the property names in DSM Explorer.

This command has the following format:

```
mdbac.bat -view -file file_name
```

File_name

Specifies the name of a single file, the properties which you want to view.

Example: View Properties of an Exported MDB Object

This example command reads the properties from the BoQueryDef__Asset is a Virtual Machine - VMWare__(0).xml file and prints them to the console:

```
mdbac.bat -view -file C:\TEMP\work\BoQueryDef__Asset is a Virtual Machine - VMWare__(0).xml
```

unregman method—Unregister a DSM Manager

The unregman method unregisters a DSM manager from an MDB. After you have unregistered a DSM manager, you can install a new DSM manager and point it to this MDB. On the first startup, the new DSM manager registers with the MDB you pointed it to. The DSM domain and enterprise managers allow registrations with the corresponding domain and enterprise MDBs only. For example, you can register a domain manager only with a domain MDB.

Note: Before executing the command, verify that target MDB does not have any open sessions.

This command has the following format:

```
mdbac.bat -unregman -target connection_name {-user User_Name -pwd password | -wallet wallet_file_name}
```

Example: Unregister a DSM Manager

This example command unregisters the DSM manager associated with the test MDB:

```
mdbac.bat -unregman -target mssql-test -user ca_itrm -pwd password123
```

adjustmdbcfg method—Configure a DSM Manager to Use a Different MDB

The adjustmdbcfg method reconfigures a DSM manager to use a different MDB. You need to verify that the new MDB is not associated with any other DSM manager.

You must consider the following factors when you are using the adjustmdbcfg method:

- This method is available only for SQL Server MDB.
- To execute this method, install MDB Admin Console on the DSM manager that you want to reconfigure.
- The method lets you reconfigure the components of only the DSM manager. It does not include any reconfiguration for other components like CCS or DTS.
- The method allows reconfiguration of domain and enterprise managers to corresponding domain and enterprise MDBs only. For example, you can reconfigure a domain manager to point to a domain MDB only.
- Verify that the target MDB is accessible using a trusted connection.

The command for this method has the following format:

```
mdbac.bat -adjustmdbcfg -target connection_name -file rules_properties_file
```

Note: The connection string of the connection name that you are using for this method must explicitly state the database instance name even if you use the default instance. For more information, see [Configure Database Connections](#) (see page 134).

file

Specifies the path to the rules properties file that contains the reconfiguration steps and actions. For more information, see [Rules Properties File](#) (see page 142).

Upon execution, this command updates the following MDB connection parameters in the comstore of the DSM manager:

- Host
- Port
- Database Name

Note: If you have configured the rules properties file to create the ca_itrm user in the target MDB, you must verify that the password of the ca_itrm user in the comstore and in the rules properties file match. This is because the adjustmdbcfg method does not update the ca_itrm user and password parameters in comstore.

Rules Properties File

The rules properties file is a configuration file that lets you configure the steps that adjustmdbcfg method performs for an MDB move. An example file, mdbmove.properties, is available in the *MDB_Install_Directory*\cfg folder.

The following illustration displays the contents of the example file:

```
# step to be executed during a reconfiguration step
#
# syntax
#
# step<>.action { createllogin | droplogin | repairlogin
#               updatecomstore | updatedomain }
#
# parameters for createllogin
#   step<>.arg1.name - mandatory
#   step<>.arg2.pwd  - mandatory
#
# parameters for droplogin
#   step<>.arg1.name - mandatory
#
# parameters for repairlogin
#   step<>.arg1.name - mandatory
#
# parameters for updatecomstore
#   <none>
#
# parameters for updatedomain
#   step<>.arg1.label - optional, default value is server name
reconfigure.sequence=step1,step2,step3,step4,step5
# create a login
step1.action=createllogin
step1.arg1.name=testuser1
step1.arg2.pwd=testuser
# align login to exiting dbuser
step2.action=repairlogin
step2.arg1.name=testuser1
# create a login
step3.action=createllogin
step3.arg1.name=ca_itrm_ams
step3.arg2.pwd=NOT_changedR11
# align login to exiting dbuser
step4.action=repairlogin
step4.arg1.name=ca_itrm_ams
# update comstore
step5.action=updatecomstore
# update domain
step6.action=updatedomain
step6.arg1.label="new domain name goes here"
```

The following parameters and actions are available in the rules properties file:

reconfigure.sequence

Specifies the sequence of steps that the adjustmdbcfg method must follow. The sequence contains the step names in a comma separated list. Each step has an action name and parameters that are defined in the following format:

```
stepn.action
```

```
stepn.argm
```

createllogin (login_name, password)

Creates a database login with the given user name and password in the SQL Server MDB.

droplogin (login_name)

Drops the given database login from the SQL Server MDB.

repairlogin (*login_name*)

Aligns the SID of the SQL Server login with the user of the MDB.

updatecomstore

Update the comstore file of the local DSM manager with the database connection properties of the current SQL Server MDB (host name, instance name, port).

updatedomain([*label*])

Updates the *ca_n_tier* table of the MDB according to the properties of the server hosting the SQL Server MDB. If you have specified a label, it is used as the label for the domain.

testcon method—Test Database Connection

The testcon method tries to connect to the target database with the specified user name and password, and writes success or failure message to the console.

This command has the following format:

```
mdbac.bat -testcon -target Connection_name {-user User_name -pwd password | -wallet wallet_file_name}
```

Example: Test Database Connection

This example command tests the connection to the target database—mssql-test:

```
mdbac.bat -testcon -target mssql-test -user ca_itrm -pwd password123
```

createschema method—Create Clone Tables

The createschema method creates clone tables and procedures in the target database. The import method calls the createschema method in turn and creates the clone tables and procedures automatically. However, you can call the createschema method manually, if there is a problem with importing the data.

This command has the following format:

```
mdbac.bat -createschema -target connection_name {-user user_name -pwd password -wallet wallet_file_name}
```

Example: Create Clone Tables

This example command creates clone tables in the target database—mssql-test:

```
mdbac.bat -createschema -target mssql-test -user ca_itrm -pwd password123
```

dropschema method—Drop Clone Tables

The dropschema method drops the clone tables and procedures, created by the import method, from the target database. The import method creates clone tables for the import operation. These are temporary tables and you can drop these tables after the import operation is complete.

This command has the following format:

```
mbac.bat -dropschema -target connection_name {-user user_name -pwd password |  
-wallet wallet_file_name}
```

Example: Drop Clone Tables

This example command drops clone tables in the target database—mssql-test:

```
mbac.bat -dropschema -target mssql-test -user ca_itrm -pwd password123
```

Open the MDB Admin Console

To perform various database administration tasks, execute the MDB Admin Console CLI.

Change directories to the MDB Admin Console installation folder in the command prompt.

Troubleshooting

Error Logging

MDB Admin Console uses Log4J for creating the log files. By default, MDB Admin Console log files are created in a folder named log. The log folder is created as a subfolder under your current working folder. The default log level is ERROR. For each call of the mbac.bat command, a separate log file is created.

Configure Logging

You can configure Log4J to modify the location of the log files or the log level.

To configure logging, edit the *Installation_folder*\cfg\log4j.properties file and specify the log file location or the log level.

The following snippet shows the contents of the log4j.properties file:

```
*****
*****
# configure "MDB Admin Console" FILE logger
*****
*****
# Configure FILE log appender
log4j.appender.FILE = org.apache.log4j.FileAppender
log4j.appender.FILE.File = ${user.dir}/log/mdbac_${log4j.dateTime}.log
log4j.appender.FILE.Append=true
...
*****
*****
# mdbc logging options
*****
*****
log4j.logger.ca.itcm.mdbc.api=ERROR, FILE
log4j.logger.ca.itcm.mdbc.console=ERROR, FILE
log4j.logger.ca.itcm.mdbc.cmd.cnfregdb=ERROR, FILE
```

Error Messages

MDB Admin Console returns the following error messages when it is unable to process a request:

MDBAC-0=[MDBAC-0] no error detected

MDBAC-1=general command line error. Please command line arguments.

MDBAC-2=command line error

MDBAC-3=business class name unknown

MDBAC-4=no working folder given

MDBAC-5=internal error: the business class does not support the IBOExport interface

MDBAC-6=configuration/connection not found

MDBAC-7=input file not found

MDBAC-101=[MDBAC-101] feature is not supported at this level of implementation

MDBAC-102=[MDBAC-102] internal error: no import interfaces found

MDBAC-103=[MDBAC-103] unable to create database session

MDBAC-104=[MDBAC-104] cannot create Object

MDBAC-105=[MDBAC-105] Stored procedure for pushing data failed

MDBAC-106=[MDBAC-106] constrain violation during import

MDBAC-107=[MDBAC-107] verification of target schema failed

MDBAC-108=[MDBAC-108] failed to generate transaction id

MDBAC-109=[MDBAC-109] illegal XML file format detected during import/view

MDBAC-110=[MDBAC-110] failed to read name ids form the database

MDBAC-111=[MDBAC-111] failed to transform business object

MDBAC-112=[MDBAC-112] failed to import inventory name ids

MDBAC-113=[MDBAC-113] one or more files are failed during import of a folder

MDBAC-114=[MDBAC-114] cannot create connection to source database

MDBAC-115=[MDBAC-115] cannot create connection to source database

MDBAC-116=[MDBAC-116] connection name not found

MDBAC-117=[MDBAC-117] database type no supported

MDBAC-118=[MDBAC-118] illegal connection configuration, failed to setup a configuration to connect to the database

MDBAC-119=[MDBAC-119] error detected when reading the data from the database

MDBAC-120=[MDBAC-120] not all objects are exported, one or more object failed to get it exported

MDBAC-121=[MDBAC-121] deletion of one or more business objects failed

MDBAC-125=[MDBAC-125] database connection does not exists

MDBAC-126=[MDBAC-126] failed to adjust MDB configuration.

MDBAC-127=[MDBAC-127] connection name not found in properties file containing the adjust rule

MDBAC-128=[MDBAC-128] failed to adjust manager with MDB

MDBAC-129=[MDBAC-129] adjust properties file does not exist

MDBAC-201=[MDBAC-201] missing one or more command line arguments

MDBAC-202=[MDBAC-202] configuration undefined

MDBAC-203=[MDBAC-203] configuration file/name not found

MDBAC-204=[MDBAC-204] missing SQL file

MDBAC-205=[MDBAC-205] SQL folder does not exist

MDBAC-206=[MDBAC-206] SQL file does not exist

MDBAC-207=[MDBAC-207] missing name of database user

MDBAC-208=[MDBAC-208] missing password of the database user

MDBAC-209=[MDBAC-209] cannot connect to database

MDBAC-210=[MDBAC-210] command aborted

MDBAC-211=[MDBAC-211] error in SQL script

MDBAC-212=[MDBAC-212] creation of tables failed to extend the target schema

MDBAC-213=[MDBAC-213] failed to delete the target schema extension

MDBAC-214=[MDBAC-214] failed to verify the target schema extension

MDBAC-215=[MDBAC-215] failed to align the collation settings of the target schema extension

MDBAC-216=[MDBAC-216] failed to create target schema

MDBAC-217=[MDBAC-217] failed to align target schema, schema configuration problem

MDBAC-218=[MDBAC-218] session exists but failed to read connection information

MDBAC-219=[MDBAC-219] failed to export data via CcnfRegDb command

MDBAC-220=[MDBAC-220] CcnfRegDb command not found

MDBAC-221=[MDBAC-221] failed to import data via CcnfRegDb command

MDBAC-222=[MDBAC-222] policy data not found

MDBAC-223=[MDBAC-223] Security profile rejected. Security profile of this type is disabled

MDBAC-224=[MDBAC-224] Software definition rejected. Software definition of this type is disabled

MDBAC-225=[MDBAC-225] Warning: not all matched objects are exported

MDBAC-227=[MDBAC-227] Save or Update of an database object(s) failed

MDBAC-228=[MDBAC-228] failed to read database object(s)

MDBAC-229=[MDBAC-229] creation of database user failed

Appendix A: Implementation of SCAP Standards

The Device Compliance Scanner (DCS) in CA ITCM scans target computers for compliance with the FDCC checklist. This chapter describes the implementation of SCAP standards.

You must alter the following settings on the FDCC-compliant computers beforehand for CA ITCM to function properly:

- You must modify the firewall policy settings on Windows XP as follows:
 - Disable the Do not allow exceptions setting.
 - Enable the Allow local port exceptions setting and add the following ports to the exception ports on the firewall:
 - TCP port 4105
 - UDP port 4104
 - TCP port 4728

The internal communications mechanisms of the CA ITCM product use the ports described here. CA ITCM cannot operate unless these ports can be accessed. Without access agents are unable to contact their manager or report inventory or status. Also, control messages cannot be passed from the manager to the agent. Communications over these ports is securely encrypted and managed by the CA ITCM product; CA ITCM Release 12.5 uses FIPS-compliant encryption.

Note: For detailed information about using the DCS scanner, see the *CA IT Client Manager Release 12.5 Asset Management Administration Guide*.

This section contains the following topics:

[Modify Windows Firewall Settings](#) (see page 152)

[SCAP](#) (see page 152)

[CVE](#) (see page 153)

[CCE](#) (see page 154)

[CPE](#) (see page 154)

[CVSS](#) (see page 155)

[XCCDF](#) (see page 155)

[OVAL](#) (see page 156)

Modify Windows Firewall Settings

You must modify certain firewall settings on FDCC-compliant Windows XP and Windows 7 computers to ensure that CA ITCM functions properly.

Follow these steps:

1. Click Start, Run, and enter `gpedit.msc` at the Run prompt.
2. In the Group Policy dialog, locate the policies on the following path: Computer Configuration, Administrative Templates, Network, Network Connections, Windows Firewall, Standard Profile.
3. Change the Windows Firewall: Do not allow exceptions policy setting to Disabled.
4. Change the Windows Firewall: Allow local port exceptions policy setting to Enabled.

SCAP

The DCS is built around Security Content Automation Protocol (SCAP). SCAP is a suite of selected open standards that enumerate software flaws, security-related configuration issues, and product names. The suite also measures systems to determine the presence of vulnerabilities, and provides mechanisms to rank (score) the results of these measurements to evaluate the impact of the discovered security issues.

CA ITCM implements compliance checking of any SCAP 1.1 data stream written in the XML formats leveraged by the SCAP standard: XCCDF, CCE, CVE, CPE, CVSS, and OVAL. DCS is implemented as an asset management inventory module. DCS is distributed to all the agents, which then performs the compliance check at the scheduled time and produces the output files required by the specifications. The DCS scanner uses the XCCDF and OVAL assessment protocols to determine what items to check and how to check them. The scanner also uses the CPE, CCE, CVSS, and CVE reference protocols to verify that all rules are accurately and appropriately reflected in the system. The DCS scanner reports the results to the central management database for inspection, reporting, and querying. The result files are generated for each file in the input SCAP data stream and are stored on the agent computer and domain manager (if configured) for verification.

CVE

The Common Vulnerabilities and Exposures (CVE) standard is a list or dictionary that provides standard identifiers for publicly known information security vulnerabilities and software flaws. The compliance check results produced by CA ITCM include the relevant CVE ID references in the output for every rule checked, provided such references are included in the checklist definition itself. The CVE information is stored in the patch result XML file generated by the scanner and is available in the agent's working directory for inspection and verification.

In SCAP data streams, OVAL content meant for the detection of applications, patches, or vulnerabilities can contain CVE ID references identifying the exact element in the CVE list. The FDCC checklists for Windows XP and IE7 contain separate OVAL files dedicated to this purpose and include CVE IDs.

When processing these SCAP data streams, the generated OVAL result files also include the CVE ID references for each OVAL definition. Additionally, the inventory data presented for the target computer in the DSM Explorer contain a Detailed patch results group where every OVAL definition meant for detecting patches or vulnerabilities has its own subgroup. This subgroup contains a CVE References table wherever the OVAL definition has such references defined in the SCAP data stream itself. Each CVE reference contains the CVE URL and NVD URL. The DSM Explorer allows browsing directly to these URLs.

CCE

Common Configuration Enumeration (CCE) provides unique identifiers to system configuration issues to facilitate fast and accurate correlation of configuration data across multiple information sources and tools. For example, you can use CCE Identifiers to associate checks in configuration assessment tools with statements in configuration best-practice documents.

In an SCAP data stream, references to CCE IDs can be present in either the XCCDF file or in OVAL files. In the XCCDF file, the CCE reference takes the form of `<ident>` tags listing CCE IDs associated with each rule in the list. If the CCE IDs are present in the XCCDF file, DCS includes these references for each rule result. This information is available both in the generated XCCDF result file and in the inventory data sent to the database. In the DSM Explorer, the CCE reference information is available under Inventory, SCAP, Checklist Name, Rule Results, Rule Name, Idents.

The OVAL files can contain CCE IDs associated with each OVAL definition that are contained in `<reference>` tags. If such references are present, they are included in the OVAL result files generated while processing the OVAL definitions.

CCE references and results are also available with the set of result files under the name `<machine>-<checklist>-xccdf-CCE-result.txt`.

All the FDCC checklists packaged with CA ITCM include CCE ID references both in the XCCDF files and the OVAL files. The name and location of the output files can be viewed from the DSM Explorer under the Inventory, SCAP, Checklist Inventory Component, Status group.

CPE

Common Platform Enumeration (CPE) is a structured naming scheme for information technology systems, platforms, and packages. Based upon the generic syntax for Uniform Resource Identifiers (URI), CPE includes a formal name format, a language for describing complex platforms, a method for checking names against a system, and a description format for binding text and tests to a name.

An SCAP data stream can optionally include a CPE dictionary that maps CPE names to OVAL definitions that test for the presence of the OS or application identified by that CPE name. DCS uses this dictionary when the XCCDF file from the data stream contains `<platform>` tags, which indicate that the XCCDF file requires the presence of the specified CPE name. All the packaged FDCC checklists contain CPE dictionary files and their reference in the XCCDF files. The XCCDF results files contain the CPE names in the `<platform>` tags to indicate a successful platform test for the entire checklist. The name and location of the output files can be viewed from the DSM Explorer under the Inventory, SCAP, Checklist Inventory Component, Status group.

CVSS

The Common Vulnerability Scoring System (CVSS) standard provides an open framework for communicating the characteristics and impacts of IT vulnerabilities. Its quantitative model helps ensure repeatable accurate measurement while enabling users to see the underlying vulnerability characteristics that were used to generate the scores. Thus, CVSS is well suited as a standard measurement system for industries, organizations, and governments that need accurate and consistent vulnerability impact scores. Two common uses of CVSS are prioritization of vulnerability remediation activities and calculation of the severity of vulnerabilities discovered on computers. The National Vulnerability Database (NVD) provides CVSS scores for almost all known vulnerabilities.

For every patch or vulnerability, CVE ID references are provided in the DSM Explorer. The DSM Explorer also provides detailed patch results that contain the CVE URL and the NVD URL. The user can use the URL to visit the National Institute of Standards and Technology (NIST) web page for the corresponding CVE ID's entry in the NVD. This database entry includes the CVSS score and additional information about the vulnerability. The CVE reference details are available under the Inventory, SCAP, Checklist Inventory Component, Detailed patch results group.

XCCDF

eXtensible Configuration Checklist Description Format (XCCDF) is a specification language for writing security checklists, benchmarks, and related kinds of documents. An XCCDF document represents a structured collection of security configuration rules for some set of target systems. The specification is designed to support information interchange, document generation, organizational and situational customization, automated compliance testing, and compliance scoring.

DCS reads the XCCDF file and scans the target computers based on the rules given in the XCCDF file. The scanner generates an inventory file that contains the results for each rule in the XCCDF file. The XCCDF output file is stored in the agent's working directory on each agent computer. The results for each rule and the final scores are displayed in the DSM Explorer under Inventory, SCAP, Checklist Inventory Component, Rule Results.

You can view the name and location of the XCCDF files and generated result files in the DSM Explorer under Inventory, SCAP, Checklist Inventory Component, Status group.

OVAL

CA ITCM implements the Open Vulnerability and Assessment Language (OVAL) standard. OVAL is an international, information security, community standard used to promote open and publicly available security content. Its goal is to standardize the transfer of this information across the entire spectrum of security tools and services.

Checklist rule definitions in XCCDF files typically use references to OVAL definitions in OVAL files as the way to indicate how to check a target computer for compliance with the rule. Similarly, CPE names listed in the CPE dictionary also use references to OVAL definitions to specify how to check for the presence of a piece of software indicated by the name. All of the bundled DCS SCAP data streams contain at least one OVAL file for each of these purposes.

For each evaluated OVAL file, the OVAL interpreter produces an OVAL results file in the agent's working directory. You can view the name and location of all the OVAL files and generated result files in the DSM Explorer under Inventory, SCAP, Checklist Inventory Component, Status group.

Chapter 11: CA ITCM Connector for CA Catalyst

Note: You can install the CA ITCM connector with an existing domain manager or scalability server only on Windows operating systems.

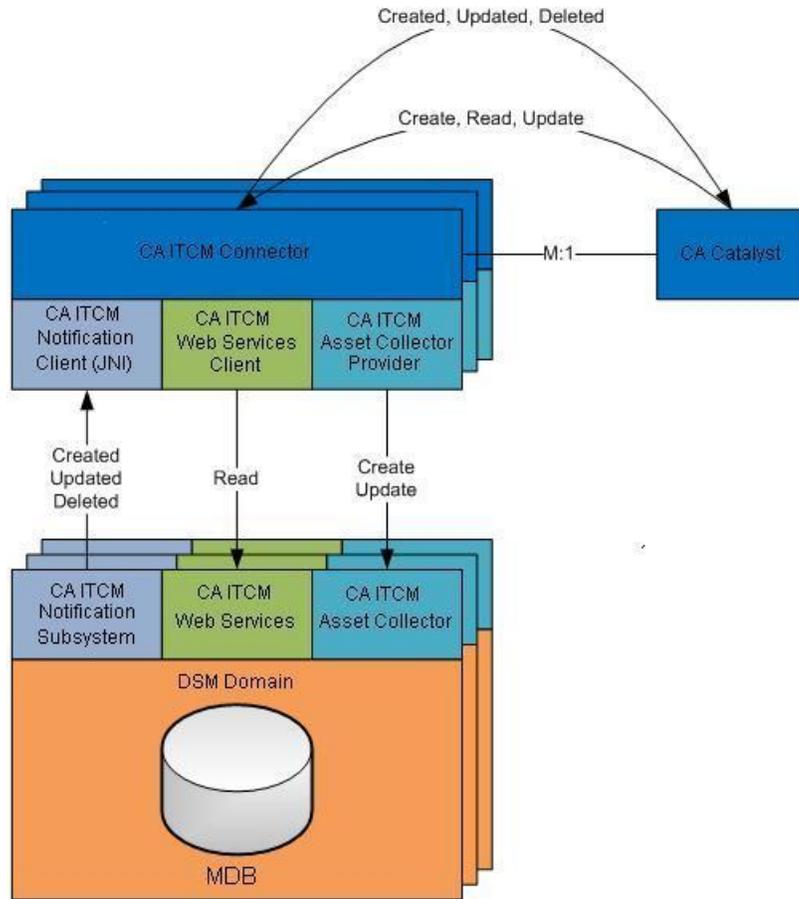
CA ITCM connector supports only the Northbound VMware ESX Server 3i Installable and VMware Installable are not supported functionality on SSA 2.5.

The CA ITCM connector interfaces with the DSM domain manager or a standalone scalability server registered with a domain manager to expose CA ITCM data for use by products that leverage the CA Catalyst infrastructure. Integrating CA ITCM data with consuming products, such as CA Spectrum SA, enables reconciliation and correlation of entity properties with existing configuration items (CIs). Integration also lets you evaluate the data in a different, broader business service context.

With CA Catalyst connector integration, there is one CA ITCM connector per domain. The CA ITCM connector interfaces with the domain manager using the following CA ITCM components or functionality:

- CA ITCM Web Services
CA ITCM Web Services is used to retrieve information about the CIs to be published to CA Catalyst.
- CA ITCM Event Notification Subsystem
Events about updates to published CIs are received through the CA ITCM event notification subsystem.
- Asset Collector
The Asset Collector component is used during CA Spectrum SA subscribe operations for Computer CI data. The Asset Collector files help to move the inbound create data and update data from the connector to the CA ITCM MDB.

The following graphic summarizes CA ITCM - CA Catalyst connector integration:



Note: For more general information about the CA Catalyst infrastructure and its connectors, information that applies to all connectors, and information about custom connector integrations, see the *Connector Guide* distributed with CA Spectrum SA. For complete information about installing, configuring, and using the CA ITCM connector, see the *CA IT Client Manager Connector Guide* also distributed with CA Spectrum SA.

Chapter 12: OS Installation Management Functionality for Web Console

In addition to the automated migration functionality, this release also enables you to perform OS installation tasks from the Web Console. These tasks were earlier available only in the DSM Explorer.

This section contains the following topics:

[Deploy OS on a New Computer](#) (see page 159)

[Deploy OS on an Existing Computer](#) (see page 160)

[Deploy OS on an Unmanaged Computer](#) (see page 162)

[View the Boot and OS Images Registered with the Boot Servers](#) (see page 163)

[States of an OS Installation Job](#) (see page 163)

[Manage the OS Installation Parameters](#) (see page 165)

Deploy OS on a New Computer

To deploy an operating system on a computer, the computer must exist in CA ITCM. If you want to deploy an operating system on a new computer, first create a computer entry in CA ITCM. Then associate an appropriate OS image to the new computer.

To deploy OS on a new computer

1. Connect to the required domain manager using Web Console.
2. Navigate to Computers, OSIM Options, Computers from the Console tab.

The All Computers page is displayed.

3. In the Actions panel, select New Computer.

The Create New Computer wizard opens.

4. Enter the Network Identification details.

The following field is not self explanatory:

User Defined Data

(Optional) Specifies additional information about user-defined properties. Use the User Data fields to associate any information with the current asset. These fields can be referred to in queries and reports.

5. Click Next.

The OS Image Selection page is displayed.

6. Select an OS image and click Finish.

A new computer for OS deployment is created.

Note: Selecting an OS image is sufficient for you to create computer for OS deployment. The rest of the steps are optional. You can click Finish in any subsequent pages of the wizard to create computer for OS deployment.

7. (Optional) In the Boot Server Selection page, clear the check box against Automatically Assign a Boot Server to assign a Boot Server manually and click Next.

If you select the Automatically Assign a Boot Server option, manually move the job to the required boot server *before* activating the OS installation. For more information about moving the job to a boot server, see [Manage the States of an OS Installation Job](#) (see page 164). The Agent Component Selection page is displayed.

8. (Optional) Select the agents you want to install and click Next.

Note: The Software Delivery agent is selected by default and is installed with the OS installation job.

The Activation page is displayed.

9. (Optional) Select Now to schedule the activation, and click Next.

The Summary page is displayed.

10. Review your selection and click Finish.

The new computer is added to the domain manager and the selected OS image assigned to the computer.

Deploy OS on an Existing Computer

On a computer that is already managed by CA ITCM, you can reinstall the OS or install a different OS.

To deploy OS on an existing computer

1. Launch the Web Console and from the Console tab, navigate to Computers, OSIM Options, Computers.

The All Computers page is displayed.

2. Apply the filter to view the computers that have the DSM agent installed.

A list of computers with the DSM agent installed is displayed.

3. Select the computer to deploy the OS image and in the Actions panel select Assign OS Image.

The Deploy an OS Image wizard opens. The Network Identification details are populated by default.

4. Click Next.

The OS Image Selection page is displayed.

5. Select an OS image and click Finish.

A job is created to deploy the OS image to the computer.

Note: Selecting an OS image is sufficient for you to create a job for OS deployment. The rest of the steps are optional. You can click Finish in any subsequent pages of the wizard to create a job for OS deployment.

6. (Optional) In the Boot Server Selection page, clear the check box against Automatically Assign a Boot Server to assign a Boot Server manually and click Next.

If you select the Automatically Assign a Boot Server option, manually move the job to the required boot server *before* activating the OS installation. For more information about moving the job to a boot server, see [Manage the States of an OS Installation Job](#) (see page 164). The Agent Component Selection page is displayed.

7. (Optional) Select the agents you want to install and click Next.

Note: The Software Delivery agent is selected by default and is installed with the OS installation job.

The Activation page is displayed.

8. (Optional) Select Now to schedule the activation, and click Next.

The Summary page is displayed.

9. Review your selection and click Finish.

A job is created to deploy an OS image to the computer.

Deploy OS on an Unmanaged Computer

You can deploy an OS image to a computer that is not managed by OSIM using the Web Console.

Follow these steps:

1. Launch the Web Console and from the Console tab, navigate to Jobs, OSIM Options, Jobs.

The OS installation page is displayed.

2. Apply the filter to view the computers that have the status as unmanaged.

A list of computers with status as unmanaged is displayed.

3. Select the computer to manage and in the Actions panel select Manage.

The Manage an Unmanaged Computer wizard opens.

The Network Identification details are populated by default.

4. Click Next.

The OS Image Selection page is displayed.

5. Select an OS image and click Finish.

A job is created to deploy the OS image to the unmanaged computer.

Note: Selecting an OS image is sufficient for you to create a job for OS deployment. The rest of the steps are optional. You can click Finish in any subsequent pages of the wizard to create a job for OS deployment.

6. (Optional) In the Boot Server Selection page, clear the Automatically Assign a Boot Server option to assign a Boot Server manually and click Next.

The Agent Component Selection page is displayed.

7. (Optional) Select the agents to be installed and click Next.

The Activation page is displayed.

Note: Software Delivery Agent is selected by default and is installed with the OS installation job.

8. (Optional) Select the date, time, and options for OS installation and click Next.

The Summary page is displayed.

9. Review your selection and click Finish.

A job is created to deploy an OS image to the unmanaged computer.

View the Boot and OS Images Registered with the Boot Servers

You can view the boot and OS images registered with the boot server.

To view the boot and OS images registered with the boot server

1. Launch the Web Console and from the Console tab, navigate to Software, OSIM Options and select *one* of the following:
 - Boot Images to view the boot image information.
 - OS Images to view the OS image information.
2. Select a computer.

The Boot Servers under the Actions panel is enabled.
3. Select Boot Servers.

The View Scalability Servers dialog is displayed with a list of boot servers.

States of an OS Installation Job

An OS installation job can have any of the following states:

Activated

Specifies that the OS installation is scheduled to be dispatched by the manager for execution per the activation date and time.

Pending

Specifies that the OS installation is dispatched for execution by the manager.

Cancel Pending

Specifies that a cancel request is raised for a scheduled OS installation.

Current

Specifies that the associated OS Installation is the current OS Installation on the target computer.

Failed

Specifies that the scheduled OS installation has failed.

Installing

Specifies that the scheduled OS installation is in progress.

Planned

Specifies that the OS installation is planned.

Stopped

Specifies that the OS installation is stopped due to a cancel request.

Manage the States of an OS Installation Job

You can view and manage the states of the OS installations from the Web Console.

Follow these steps:

1. Launch the Web Console and from the Console tab, navigate to Jobs, OSIM Options, Jobs.

The OS Installations page is displayed.

2. Select a computer.

The Actions panel is enabled.

3. Depending on the state of the OS installation, from the Actions panel you can make the following changes:

Activate

You can select this option only when the OS installation job is in a planned state.

Renew

You can select this option only when the OS installation job is in Stopped or Failed state.

Reinstall

You can select this option only when the OS installation job is in Current state.

Stop

You can select this option only when the OS installation job is in Activated or Pending state.

Abort

You can select this option only when the OS installation job is in Installing state.

Delete Planned

You can select this option only when the OS installation job is in Planned state.

Delete Failed/Stopped

You can select this option only when the OS installation job is in Stopped or Failed state.

Delete From OSIM

You can select this option when the OS installation job is in any state.

Move To Boot Server

You can select this option when the OS installation job is in any state.

4. Select an Action.

The state of the OS installation job is changed.

Manage the OS Installation Parameters

You can manage the OS installation parameters like the domain, domain user, hostname, and domain password from the Web Console.

Follow these steps:

1. Launch the Web Console and from the Console tab, navigate to Jobs, OSIM Options, Jobs.

The OS Installations page is displayed.

2. Select a computer.

The Details panel expands and you can see all the OSIM parameters and their states.

3. Select the parameter you want to change.

The Actions panel is enabled.

4. From the Actions panel, you can perform the following changes:

Edit Planned

Select this option to make the required changes to the parameter.

Reset To Default

Select this option to reset the parameter to the default value.

Edit Target Group

You can select multiple jobs in the OS installation page and select this option to make changes in all the selected job parameters.

5. Select an Action.

The parameter of the OS installation is changed.

Chapter 13: Extended DSM and OS Automation Web Services

This section contains the following topics:

[DSM Web Services End Point for UTF-8 Strings](#) (see page 167)

[OS Automation Services](#) (see page 167)

[Web Services for OS Installation Management](#) (see page 240)

[Web Services for Asset Script Jobs](#) (see page 329)

[Web Services for Software Delivery](#) (see page 351)

[Web Services for Computers, Groups, and Queries](#) (see page 363)

DSM Web Services End Point for UTF-8 Strings

With this release, CA ITCM provides a new WSDL and an end point for UTF-8 strings. The new WSDL and end point are available in addition to the existing WSDL and end point. Following are the new WSDL and end point that enable DSM web services to accept or return UTF-8 strings:

WSDL: webserviceapi_utf8.wsdl

End point: http://<hostname>/DSM_Webservice/mod_gsoap_utf8.dll

You can access the new WSDL that points to the new end point using http://<hostname>/DSM_Webservice/wsdl

OS Automation Services

Automation Web Services End Point

You can access the Automation Service URI and WSDL at the following locations:

- AutomationService URI - http://<hostname>:[tomcat port number]/axis/services/automationService
- AutomationService WSDL - http://<hostname>:[tomcat port number]/axis/services/automationService?wsdl

In addition, on the server, the Automation Service WSDL file is available at the following location:

<DSM Installed folder>\webservices\wsdl\addons\AutomationService.wsdl

Methods

The Automation Services uses the methods listed in the subsequent section for automated OS migration functionality.

createAssessmentTemplate

The createAssessmentTemplate method creates an assessment template

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AssessmentTemplate assessmentTemplate

Specifies the information required to create an assessment template. The assessment template name must be unique.

Return Values

Returns zero, if the assessment template is successfully created; otherwise, throws AutomationWebServiceException as a fault.

updateAssessmentTemplate

The updateAssessmentTemplate method updates an assessment template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string oldAssessmentTemplateName

Specifies the name of the old assessment template.

AssessmentTemplate assessmentTemplate

Specifies the information required to create an assessment template. The assessment template name must be unique.

Return Values

Returns zero, if the assessment template is successfully updated; otherwise, throws AutomationWebServiceException as a fault.

deleteAssessmentTemplates

The deleteAssessmentTemplates method deletes a list of assessment templates.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string[] assessmentTemplateName

Specifies the list of the assessment template names you want to delete.

Return Values

Returns zero on successful deletion of all the assessment templates; otherwise, throws AutomationWebServiceExceptionList as a fault.

getAssessmentTemplate

The getAssessmentTemplate method returns the properties of a specified assessment template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string assessmentTemplateName

Specifies the name of the assessment template you want to retrieve.

Return Values

AssessmentTemplate

Contains the properties of the assessment template on success; otherwise, throws AutomationWebServiceException as a fault.

getAssessmentTemplateList

The getAssessmentTemplateList method returns a list of assessment templates names and their last modified dates, based on the specified filter criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AssessmentTemplateFilter[] assessmentTemplateFilterArray

Specifies the filter condition on some of the assessment template properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

dsm:ASSESSMENTTEMPLATEPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int numberOfTemplatesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

GetTemplateListResponse

Returns a list of assessment templates names and their last modified dates, on success; otherwise, throws AutomationWebServiceException as a fault.

getAssessmentTemplateListDetailed

The getAssessmentTemplateListDetailed method returns a list of assessment templates and their details based on the specified filter criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AssessmentTemplateFilter[] assessmentTemplateFilterArray

Specifies the filter on some of the assessment template properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum ASSESSMENTTEMPLATEPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int noOfTemplatesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values**GetAssessmentTemplateListDetailedResponse**

Returns the list of Assessment templates, filtered and sorted as specified.

createAssessmentTask

The createAssessmentTask method creates an assessment job.

Parameters**xsd:string sessionId**

Specifies the session ID obtained from the DSM web services login.

xsd:string groupName

Specifies the name of group to be assessed.

AssessmentTask assessmentTask

Specifies the information required to create an assessment task. The assessment task name must be unique.

Return Values

Returns zero, if the assessment template is successfully created; otherwise, throws AutomationWebServiceException as a fault.

executeAssessmentTask

The executeAssessmentTask method runs an assessment job.

Parameters**xsd:string sessionId**

Specifies the session ID obtained from the DSM web services login.

xsd:string assessmentTaskName

Specifies the name of the assessment task you want to run.

Return Values

Returns zero, if the assessment task is successfully executed; otherwise, throws AutomationWebServiceException as a fault.

getAssessmentStatus

The getAssessmentStatus method returns the status of assessment for a particular assessment task.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string assessmentTaskName

Specifies the name of the assessment task.

Return Values

AssessmentStatus

Returns the status of assessment for the assessment task; otherwise, throws AutomationWebServiceException as a fault.

getAssessmentResult

The getAssessmentResult method gets the results of the assessment task.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string assessmentTaskName

Specifies the name of the assessment task, the results of which you want to retrieve.

Return Values

AssessmentResult[] assessmentResult

Returns the assessment results of the executed assessment task on success; otherwise, throws AutomationWebServiceException as a fault.

getAssessmentTask

The getAssessmentTask method returns information about the assessment task.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string assessmentTaskName

Specifies assessment task name for which you need the information.

Return Values

Returns the following sequence as a response on success; otherwise, throws AutomationWebServiceException as a fault.

AssessmentTaskInfo assessmentTaskInfo

Contains information about the assessment task.

getAssesmenTaskList

The getAssesmenTaskList method returns information about all assessment tasks, based on the specified filter and sort criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AssessmentTaskFilter[] assessmentTaskFilterArray

Specifies the filter on some of the assessment task properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum ASSESSMENTTASKPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int noOfTemplatesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

GetAssessmentTaskListResponse

Returns the list of assessment tasks based on the mentioned filter and sort properties.

deleteAssessmentTasks

The deleteAssessmentTasks method deletes a list of assessment tasks.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string [] assessmentTaskName

Specifies the list of the assessment task names you want to delete.

Return Values

Returns zero on successful deletion of all the assessment tasks; otherwise, throws AutomationWebServiceExceptionList as a fault.

createOSIMTemplate

The createOSIMTemplate method creates an OSIM Template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

OsimTemplate OSIMTemplate

Specifies attributes required to create the OSIM template.

Return Values

Returns zero on successful creation of OSIM template; otherwise, throws AutomationWebServiceException as a fault.

updateOSIMTemplate

The updateOSIMTemplate method updates an OSIM template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Xsd:string oldOsimTemplateName

Specifies the name of the old OSIM template.

OsimTemplate OSIMTemplate

Specifies attributes required to update an OSIM template.

Return Values

Returns zero on successful update of OSIM template; otherwise, throws AutomationWebServiceException as a fault.

deleteOSIMTemplates

The deleteOSIMTemplates method deletes a list of OSIM templates.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string [] OSIMTemplateNames

Specifies the list of OSIM template names you want to delete.

Return Values

Returns zero on successful deletion of all templates; otherwise, throws AutomationWebServiceExceptionList as a fault.

getOSIMTemplate

The getOSIMTemplate method returns the properties of an OSIM template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTemplateName

Specifies OSIM template name for which you want to retrieve the properties.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

OsimTemplate

Returns OSIM template properties.

getOSIMTemplateList

The getOSIMTemplateList method returns a list of OSIM template names and their last modified date, based on the specified filter and sort criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

OsimTemplateFilter[] OSIMTemplateFilterArray

Specifies the filter condition on the OSIM template properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum OSIMTEMPLATEPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int noOfTemplatesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

GetTemplateListResponse

Contains a list of OSIM template names and their last modified date.

getOsimTemplateListDetailed

The getOsimTemplateListDetailed method returns the OSIM templates objects list, based on filter and sort criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

OsimTemplateFilter[] OSIMTemplateFilterArray

Specifies the filter condition on the OSIM template properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum OSIMTEMPLATEPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int noOfTemplatesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

GetOsimTemplateListDetailedResponse

Specifies the list of OSIM templates with all fields based on the mentioned filter and sort properties.

createSoftwareDeploymentTemplate

The createSoftwareDeploymentTemplate method creates a software deployment template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

SoftwareDeploymentTemplate swDeployTemplate

Specifies the properties required to create software deployment template.

Return Values

Returns zero on successful creation of software deployment template; otherwise, throws AutomationWebServiceException as a fault.

updateSoftwareDeploymentTemplate

The updateSoftwareDeploymentTemplate method updates a software deployment template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Xsd:string oldSDTemplateName

Specifies the name of the old software deployment template.

SoftwareDeploymentTemplate swDeployTemplate

Specifies properties you want to update in the software deployment template.

Return Values

Returns zero on successful update of the template; otherwise, throws AutomationWebServiceException as a fault.

deleteSoftwareDeploymentTemplates

The deleteSoftwareDeploymentTemplates method deletes a list of software deployment templates.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string [] softwareDeploymentTemplateName

List of software deployment template names you want to delete.

Return Values

Returns zero on successful deletion of all the software deployment templates; otherwise, throws AutomationWebServiceExceptionList as a fault.

getSoftwareDeploymentTemplate

The getSoftwareDeploymentTemplate method gets the properties of a software deployment template.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string swDeployTemplateName

Specifies the name of the software deployment template for which you want to retrieve the properties.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

SoftwareDeploymentTemplate

Returns software deployment template properties.

getSoftwareDeploymentTemplateList

The getSoftwareDeploymentTemplateList method returns a list of software template names and their last modified date, based on filter and sort criteria specified.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

SoftwareDeploymentTemplateFilter[] sdTemplateFilterArray

Specifies the filter condition on the properties of the software deployment template.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum SOFTWAREDEPOYMENTTEMPLATEPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int numberOfTemplatesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Xsd:boolean refreshList

Specifies whether you want to recompute the result set for each call.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

GetTemplateListResponse

Contains a list of software template names and their last modified date.

getSoftwareDeploymentTemplateListDetailed

The `getSoftwareDeploymentTemplateListDetailed` method returns the software deployment templates object list based on filter and sort criteria specified.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

SoftwareDeploymentTemplateFilter[] sdTemplateFilterArray

Specifies the filter condition on the properties of the software deployment template.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum SOFTWAREDEPLOYMENTTEMPLATEPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int numberOfTemplatesRequired

Specifies the number of objects you want to retrieve from the `startIndex` position.

Return Values

Returns the following sequence on success; otherwise, throws `AutomationWebServiceException` as a fault.

GetSoftwareDeploymentTemplateListDetailedResponse

Contains the list of software templates along with their details, retrieved based on the specified filter and sort properties.

createAutomationProcess

The createAutomationProcess method creates an automation process (migration job).

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AutomationProcess automationProcess

Specifies the properties of the automation process.

xsd:string [] listOfgroupNames

Specifies a list of computer groups to be migrated.

xsd:string [] listOfComputerNames

Specifies a list of computers to be migrated.

DataHandler dataHandler

Specifies the handle to the machine mapping file.

Return Values

Returns zero on successful initiation of job creation task else throws Automation Web Service Exception.

deleteAutomationProcesses

The deleteAutomationProcesses method deletes a list of automation processes.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string [] automationProcessNames

Specifies the list of automation process names you want to delete.

Return Values

Returns zero on successful deletion of all processes; otherwise, throws AutomationWebServiceExceptionList as a fault.

executeAutomationProcess

The executeAutomationProcess method initiates the migration or revalidation of an automation process.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the name of the automation process you want to execute.

enum actionType action

Specifies the type of action.

Return Values

Returns zero on successful execution; otherwise, throws AutomationWebServiceException as a fault.

getAutomationProcessList

The getAutomationProcessList method returns basic information about the automation processes, based on the filtering criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AutomationProcessFilter[] apTemplateFilter

Specifies the filter condition on some of the properties of the automation process.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum AUTOMATIONPROCESSPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int noOfAutomationProcessesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

GetAutomationProcessListResponse

Returns a list automation process names and their last modified date.

getAutomationProcessListDetailed

The getAutomationProcessListDetailed method returns a list of automation process names and their last modified dates, based on the filtering criteria.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

AutomationProcessFilter[] apTemplateFilterArray

Specifies the filter condition on some of the properties of the automation process.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

enum AUTOMATIONPROCESSPROPERTY sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

int noOfAutomationProcessesRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

Returns the following sequence on success; otherwise, throws `AutomationWebServiceException` as a fault.

GetAutomationProcessListDetailedResponse

Returns the properties of the filtered automation processes.

getAutomationResult

The `getAutomationResult` method returns the result of the automation process.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name for which you want to retrieve the results.

Return Values

Returns the following sequence on success; otherwise, throws `AutomationWebServiceException` as a fault.

AutomationResultResponse

Contains the automation process results.

getAutomationResult2

The `getAutomationResult2` method returns the results of the automation process. This method supports sort and filtering operations.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name for which you want to retrieve the results.

AutomationResultFilter [] automationResultFilter

Specifies the filter on some of the automation result properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to `True` to perform an AND operation. Set the parameter to `False` to perform an OR operation.

enum AutomationResultProperty sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

int startIndex

Specifies an index number from which you want the objects to be returned from the result set. This is a zero based index.

xsd:int numberOfRecordsRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

AutomationResultResponse

Contains the automation process results.

getAutomationProcessTargetStatus

The getAutomationProcessTargetStatus method returns the migration status for the specified target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name. The process name must be a valid and the automation process must at least be in the Validation phase. Otherwise, an error message "No Activity information available" is returned.

xsd:string targetName

Specifies the target computer name.

xsd: string sourceName

Specifies the source computer name.

xsd: string targetUUID

Specifies the UUID of the target computer.

xsd: string sourceUUID

Specifies the UUID of the source computer.

xsd:string processInstanceName

Specifies the CA IT PAM process instance name.

AutomationTargetStatus status

Specifies the migration status of the target computer.

Return Values

Returns Automation Process Target Status on success; otherwise, throws AutomationWebServiceException as a fault.

getAutomationProcessStatus

The getAutomationProcessStatus method returns the migration job status.

Parameters**xsd:string sessionId**

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name. The process name must be a valid and the automation process must at least be in the Validation phase. Otherwise, an error message "No Activity information available" is returned.

Return Values

Returns the automation process status; otherwise, throws AutomationWebServiceException as a fault.

runAutomationSoftwareJobContainer

The runAutomationSoftwareJobContainer method launches the software job container execution from CA IT PAM process.

Note: This method can only be called from a workflow within CA IT PAM process and cannot be used as a standalone method.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd: int containerType

Specifies whether to run the preinstall or postinstall job container. Following are valid values:

0 (GENERIC)

Defines a generic job container. When this parameter is set, the generic job execution is initiated, using the information provided in SD template.

1 (PREINSTALL)

Defines a pre-install job container. When this parameter is set, the pre-install job execution is initiated, using the information provided in SD template.

2 (POSTINSTALL)

Defines a post-install job container. When this parameter is set, the post-install job execution is initiated, using the information provided in SD template.

xsd:string AutomationTaskUUID

Specifies the ID of the automation job which has spawned the CA IT PAM process.

xsd:string machineUUID

Specifies the UUID of the computer participating in automated migrations. This ID identifies an CA IT PAM instance launched for the computer. This ID is unique for each computer participating in the automation job.

Return Values

Returns the following information on success; otherwise, throws AutomationWebServiceException as a fault.

xsd:string jobId

Contains a handle that is used in subsequent calls related to automation job container. There will be one unique automation service JobID per computer regardless of how the jobs are optimized in CA ITCM.

runAutomationOSInstallJob

The runAutomationOSInstallJob method launches the OS deployment execution from CA IT PAM process.

Note: This method can only be called from a workflow within CA IT PAM process and cannot be used as a standalone method.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string AutomationTaskUUID

Specifies the ID of the automation job which has spawned this CA IT PAM process.

xsd:string machineUUID

Specifies the UUID of the computer participating in automated migrations. This ID identifies an CA IT PAM instance launched for the computer. This ID is unique for each computer, participating in an automation job.

Return Values

Returns the following information on success; otherwise, throws AutomationWebServiceException as a fault.

xsd:string jobId

Contains a handle that is used in subsequent calls related to automation job container.

runAutomationGenericJobContainer

The runAutomationGenericJobContainer method executes the automation generic job container. This method will be called from CA IT PAM process. Once a job is scheduled for execution, the job cannot be rerun because the JobID cannot be used to rerun the job. This eliminates the need to call a method to close the generic job container. Based on the BatchMode, the success status of the generic job container is determined.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationTaskUUID

Specified the ID that identifies the automation job that has spawned this ITPAM process.

xsd:string machineUUID

Specifies the ID that identifies the machine participating in automated migrations. Automation services provides this ID to ITPAM process instance.

SoftwareContainerData softwareContainerData,

Specifies software container data.

SoftwareJobData softwareJobData

Specifies software job data.

Return Values

Returns the following information on success; otherwise, throws AutomationWebServiceException as a fault.

xsd:string jobId

Contains a handle that is used in subsequent calls related to automation generic job container.

getActivityLog

The getActivityLog method provides the activity log for a computer participating in the automation process, identified by computer name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name. The process name must be a valid and the automation process must at least be in the Validation phase. Otherwise, an error message "No Activity information available" is returned.

xsd:String machineName

Specifies the computer name for which activity log is required. The computer name must be valid, and must be the original name of the machine. For example, if machine Test001-XP was submitted for Win7 deployment and is being renamed as Test001-W7, then this parameter should be Test001-XP. Otherwise an error "Invalid machine name" is returned.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

ActivityLog

Contains the ActivityLog, which provide chronically ordered activities for each requested state.

getActivityLog2

The getActivityLog2 method provides the activity log for a computer participating in the automation process, identified by the computer UUID.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name. The process name must be a valid and the automation process must at least be in the Validation phase. Otherwise, an error message "No Activity information available" is returned.

xsd:String machineUUID

Specifies the computer UUID for which activity log is required.

Return Values

Returns the following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

ActivityLog

Contains the ActivityLog, which provide chronically ordered activities for each requested state.

setActivationStatus

The setActivationStatus method enables or disables a list of computers for migrations.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string automationProcessName

Specifies the automation process name. The process name must be a valid and the automation process must at least be in the Validation phase. Otherwise, an error message "No Activity information available" is returned.

xsd:string [] listOfComputers

Specifies the list of computers on which you want to enable or disable migration.

boolean enableForMigration

Specifies whether you want to enable the list of computer for migration.

Return Values

Returns 0 on success; otherwise, throws AutomationWebServiceException as a fault.

getSupportedOSForAssessment

The getSupportedOSForAssessment method returns a list of OS family ClassIDs supported for assessment.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Return Values

Returns the list of following sequence on success; otherwise, throws AutomationWebServiceException as a fault.

OperatingSystemType

Contains operating system name and its classID.

Sequences

The Automation Services uses the sequences listed in the subsequent section for automated OS migration functionality.

AssessmentTemplate

The AssessmentTemplate sequence contains the properties of an assessment template. You can use this sequence to refer to a new or existing template.

xsd:string name

Specifies the name of the assessment template.

dsm:AssessmentTemplateType assessmentTemplatetype

Specifies the assessment template type.

dsm:ArrayOfOperatingSystemType operatingSystemsArray

Specifies an array of operating system types.

dsm:ArrayOfParameter parameters

Specifies the assessment attributes supplied, which needs to be used for assessment. There could be 'n' number of parameters. However each type of assessment will use only a fixed set of parameters.

xsd:DateTime lastModifiedDate

Retrieves the last updated date of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:DateTime creationDate

Retrieves the creation date of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:String lastModifiedUser

Retrieves the last modified user of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:String creationUser

Retrieves the creation user of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:String templateDescription

Retrieves the description of the template.

AssessmentTask

The AssessmentTask sequence contains the properties of an assessment job.

xsd:string taskName

Specifies the name for the assessment job.

xsd:string superUserName

Specifies the super user name. Super user is the administrator of the computer on which the automation service runs.

xsd:string superUserPasswd

Specifies the super user password.

AssessmentTemplate assessmentTemplate

Specifies the assessment template to be used for running the job.

ArrayOfParameter

The ArrayOfParameter sequence specifies the array of assessment parameters.

dsm:Parameter[] parameterList

Specifies an array of assessment parameters.

Parameter

The Parameter sequence specifies the name, data type, and value of a parameter.

dsm:AssessmentTemplateParameterDataType dataType

Specifies the data type of the assessment parameter.

dsm:AssessmentTemplateParameterName name

Specifies the name of the assessment parameter.

xsd:string value

Specifies the value for the assessment parameter.

AssessmentTemplateFilter

The AssessmentTemplateFilter sequence specifies the search filter for searching and listing assessment templates.

dsm:ASSESSMENTTEMPLATEPROPERTY assessmentTemplateProperty

Specifies the property you want to filter.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

xsd:string searchString

Specifies the string you want to search in the name property.

DateTime dateTime

Specifies the date and time value you want to search in the last modified date property.

GetTemplateListResponse

The GetTemplateListResponse sequence returns the number of templates and basic information about the templates.

int totalNoOfRecords

Specifies the total number of templates available.

ArrayOfTemplateProperties templatePropertiesArray

Specifies the array of template properties.

TemplateProperties

The TemplateProperties sequence specifies the properties of the template.

string templateName

Specifies the name of the template.

DateTime templateLastModifiedDate

Specifies the last modified date of the template.

xsd:DateTime creationDate

Retrieves the creation date of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:String lastModifiedUser

Retrieves the last modified user of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:String creationUser

Retrieves the creation user of the template. This parameter contains null value for createAssessmentTemplate and updateAssessmentTemplate methods.

xsd:String templateDescription

Retrieves the description of the template.

GetAssessmentTemplateListDetailedResponse

The GetAssessmentTemplateListDetailedResponse sequence contains the list of templates and the number of records retrieved.

int totalNoOfRecords

Contains the total number of records retrieved after applying the filter condition.

ArrayOfAssessmentTemplate assessmentTemplateArray

Specifies the array of assessment templates.

AssessmentResult

The AssessmentResult sequence contains the result of an assessment job.

ResultGroup grpName

Specifies the group type. The assessment job creates various groups depending on whether computers are ready for OS. This parameter contains the different groups.

xsd:string groupUUID

Specifies the group UUID.

AssessmentTaskInfo

The AssessmentTaskInfo sequence specifies the details of the assessment job.

xsd:string name

Specifies the assessment task name.

AssessmentTemplate assessmentTemplate

Contains assessment template properties.

xsd:string group

Specifies the group name on which this assessment task was executed.

AssessmentStatus status

Specifies the assessment task status.

DateTime creationTime

Specifies creation time of the task.

String creationUser

Specifies who created the task.

DateTime executionFinishTime

Specifies completion time of the task.

DateTime executionStartTime

Specifies the start time of execution of the task.

String executionUser

Specifies execution user who executed the job.

AssessmentTaskFilter

The AssessmentTaskFilter sequence specifies the search filter for searching and listing assessment jobs.

enum ASSESSMENTTASKPROPERTY assessmentTaskProperty

Specifies the property you want to filter.

enum FILTERCONDITION condition

Specifies the filter condition you want to apply.

xsd:string searchString

Specifies the string you want to search in the name property.

Date dateTime

Specifies the date and time value you want to search in the last modified date property.

GetAssessmentTaskListResponse

The GetAssessmentTaskListResponse sequence contains the list of assessment jobs and the number records retrieved.

int totalNoOfRecords

Contains the total number of records retrieved after applying the filter condition.

ArrayOfAssessmentTaskInfo assessmentTaskInfoArray

Specifies the array of assessment tasks.

OsimTemplate

The OsimTemplate sequence contains the details of an OSIM template.

xsd:string name

Specifies OSIM template name.

OsimTemplateType type

Specifies OSIM template type.

GlobalType globalType

Specifies the OS image information as given in [ImageType](#) (see page 198).

ArrayOfGroupType groupTypeArray

Specifies the array of group information mapped against the OS template.

ArrayOfHardwareModelType hwModelTypeArray

Specifies the array of hardware models mapped against the OS template.

Date lastModifiedDate

Specifies the last modified date of the OSIM template.

xsd:DateTime creationDate

Retrieves the creation date of the template. This parameter contains null value for createOsimTemplate and updateOsimTemplate methods.

xsd:String lastModifiedUser

Retrieves the last modified user of the template. This parameter contains null value for createOsimTemplate and updateOsimTemplate methods.

xsd:String creationUser

Retrieves the creation user of the template. This parameter contains null value for createOsimTemplate and updateOsimTemplate methods.

xsd:String templateDescription

Retrieves the description of the template.

CustomizationParameter

The CustomizationParameter sequence specifies the OS installation parameters.

xsd:string name

Specifies OS installation parameter name.

xsd:string value

Specifies OS installation parameter value.

ImageType

The ImageType sequence specifies the OS image you want to use in the OSIM template.

xsd:string name

Specifies the OS image name.

xsd:string imageUUID

Specifies the UUID of the OS Image ID. This ID is used to uniquely identify the OS image to be deployed.

ArrayOfCustomizationParameter customizationParameters

Specifies an array of OS installation parameters. This is a key-value pair.

OsimTemplateFilter

The OsimTemplateFilter sequence specifies the search filter for searching and listing OSIM templates.

dsm:OSIMTEMPLATEPROPERTY OSIMTemplateProperty

Specifies the property you want to filter.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

xsd:string searchString

Specifies the string you want to search in the name property.

DateTime dateTime

Specifies the date and time value you want to search in the last modified date property.

GetOsimTemplateListDetailedResponse

The GetOsimTemplateListDetailedResponse sequence contains the list of OSIM templates and the number records retrieved.

int totalNoOfRecords

Contains the total number of records retrieved after applying the filter condition.

ArrayOfOsimTemplate osimTemplatesArray

Specifies the array of osim templates

SoftwareDeploymentTemplate

The SoftwareDeploymentTemplate sequence contains the properties of a software deployment template. You can use this sequence to refer to a new or existing template.

xsd:string name

Specifies a unique name for the software deployment.

SoftwareJobContainerType preInstallJobs

Specifies the software packages to be installed before the OS Deployment.

SoftwareJobContainerType postInstallJobs

Specifies the software packages to be installed after the OS Deployment.

SoftwarePackageMappingType packageMapping

Defines the mapping between an old and new software packages.

xsd:DateTime lastModifiedDate

Specifies last modified date of the template.

xsd:DateTime creationDate

Retrieves the creation date of the template. This parameter contains null value for createSoftwareDeploymentTemplate and updateSoftwareDeploymentTemplate methods.

xsd:String lastModifiedUser

Retrieves the last modified user of the template. This parameter contains null value for createSoftwareDeploymentTemplate and updateSoftwareDeploymentTemplate methods.

xsd:String creationUser

Retrieves the creation user of the template. This parameter contains null value for createSoftwareDeploymentTemplate and updateSoftwareDeploymentTemplate methods.

xsd:String templateDescription

Retrieves the description of the template.

SoftwareJobContainerType

The SoftwareJobContainerType sequence specifies the job properties of the software job container.

SoftwarePackageType [] softwarePackages

Specifies the array of software packages.

xsd:string userMessage

Specifies the user message.

boolean promptUser

Specifies whether you want to prompt the user with the message.

boolean allowCancellation

Specifies whether you want to allow the user to cancel the job.

boolean executeOnPromptTimeout

Specifies whether you want to execute jobs, if the user prompt times out.

boolean preventUserLogOn

Specifies whether you want to prevent users from logging in while job executes.

long promptTimeOutHours

Specifies the number of hours for which you want to display a user prompt before forced execution of the job starts.

Default: 24 hours

long jobTimeOutHours

Specifies the time (in hours) after which, if the job is unable to complete, the job will cease attempts to complete.

Default: 48 hours

boolean storePackageAtSSLibrary

Specifies whether you want to store packages in the scalability server library.

SoftwarePackageType

The SoftwarePackageType sequence specifies the properties of the software package.

xsd:string name

Specifies the software package name.

xsd:string version

Specifies the software package version.

xsd:string procedure

Specifies the software package procedure you want to use.

int bootLevelPriorExec

Specifies the restart options requested for the software job before the job is executed.

Default: noReboot

int bootLevelAfterExec

Specifies the restart options requested for the software job after the job is executed.

Default: noReboot

xsd:string userMessage

Specifies the user message.

SoftwarePackageMappingType

The SoftwarePackageMappingType sequence specifies the mapping between an old and a new software package. If you want to replace a software with a newer version of the software after OS deployment, you can map such software using this sequence.

SoftwarePackageType source package

Specifies the package type defining the source software package.

SoftwarePackageType targetpackage

Specifies the package type defining the target software package.

SoftwareDeploymentTemplateFilter

The SoftwareDeploymentTemplateFilter sequence specifies the search filter for searching and listing software deployment templates.

dsm:SOFTWAREDEPLOYMENTTEMPLATEPROPERTY sdTemplateProperty

Specifies the property you want to filter.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

xsd:string searchString

Specifies the string you want to search in the name property.

DateTime dateTime

Specifies the date and time value you want to search in the last modified date property.

GetSoftwareDeploymentTemplateListDetailedResponse

The GetSoftwareDeploymentTemplateListDetailedResponse sequence contains the list of software deployment templates and the number records retrieved.

int totalNoOfRecords

Contains the total number of records retrieved after applying the filter condition.

ArrayOfSoftwareDeploymentTemplate sdTemplateArray

Specifies the array of available software deployment templates.

AutomationProcess

The AutomationProcess sequence contains the details of an automation process.

xsd:string name

Specifies automation process name. The name must be unique.

xsd:string OSIMTemplateName

Specifies OSIM template name.

xsd:string softwareDeploymentTemplateName

Specifies software deployment template name.

xsd:string processInstanceName

Specifies process instance name.

xsd:string superUserName

Specifies the user name of the CA IT PAM users that you have [configured in CA ITCM](#) (see page 19).

xsd:string superUserpasswd

Specifies the password of the CA IT PAM users that you have [configured in CA ITCM](#) (see page 19).

xsd:DateTime executionTime

Specifies the execution time of the process.

enum AutomationProcessMode automationProcessMode

Specifies automation process mode.

enum AutomationProcessStatus processStatus

Specifies automation process status.

xsd:string StatusText

Specifies additional information regarding status of the automation job created.

AutomationProcessFilter

The AutomationProcessFilter sequence specifies the search filter for searching and listing automation processes.

dsm:AUTOMATIONPROCESSPROPERTY apProperty

Specifies the property you want to filter.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

xsd:string searchString

Specifies the string you want to search in the name property.

DateTime dateTime

Specifies the date and time value you want to search in the last modified date property.

GetAutomationProcessListResponse

The GetAutomationProcessListResponse sequence contains the list of automation processes and the number records retrieved.

int totalNoOfRecords

Contains the total number of records retrieved after applying the filter condition.

ArrayOfAutomationProcessBasicInfo apBasicInfoArray

Specifies the list of automation processes basic information.

GetAutomationProcessListDetailedResponse

The GetAutomationProcessListDetailedResponse sequence contains the details of the automation processes.

xsd:int totalNoOfRecords

Specifies the total number of available automation processes.

ArrayOfAutomationProcessDetailed automationProcessArrayDetailed

Specifies the list of automation processes.

ArrayOfAutomationProcessListDetailed

The ArrayOfAutomationProcessListDetailed sequence includes the automation process properties.

AutomationProcessListDetailed[] automationProcessListDetailed

Specifies the list of automation processes with detailed information about OSIM and SD Options.

ArrayOfAutomationProcess

The ArrayOfAutomationProcess sequence includes the automation process properties.

AutomationProcess[] automationProcess

Specifies an array of automation process properties.

ArrayOfAutomationProcessBasicInfo

The ArrayOfAutomationProcessBasicInfo sequence contains basic information about the automation process.

AutomationProcessBasicInfo[] apBasicInfo

Specifies an array of basic information about the automation processes.

AutomationProcessListDetailed

The AutomationProcessListDetailed contains the detailed information about the automation process.

OsimTemplate OSIMTemplate

Specifies the OSIM template parameters used in the automation process.

SoftwareDeploymentTemplate SDTemplate

Specifies the software deployment template parameters used in the automation process.

String additionalInfo

Provides additional information in case of a failure.

DateTime creationTime

Specifies the creation time of the job.

String creationUser

Specifies the user who created the job.

DateTime executionFinishTime

Specifies the completion time of the job.

DateTime executionStartTime

Specifies the start time of the job execution.

String executionUser

Specifies the super user name provided while creating the job.

String jobName

Specifies the name of the job.

AutomationProcessMode mode

Specifies the mode of the created job.

AutomationProcessStatus status

Specifies the current status of the job.

AutomationProcessBasicInfo

The AutomationProcessBasicInfo contains the details of the basic information about the automation processes.

xsd:string name

Specifies the automation process name.

xsd:string processInstanceName

Specifies process instance name.

enum AutomationProcessMode processMode

Specifies automation process mode.

enum AutomationProcessStatus processStatus

Specifies automation process status.

String additionalInfo

Provides additional information in case of job execution or job creation failure.

DateTime creationTime

Specifies creation time of the job.

String creationUser

Specifies the user who created the job.

DateTime executionFinishTime

Specifies the completion time of the job.

DateTime executionStartTime

Specifies the start time of the job.

String executionUser

Specifies the user who executed the job.

SoftwareContainerData

The SoftwareContainerData sequence contains details about the software container used in automation process.

xsd:boolean BatchMode

Specifies whether you want to execute the jobs in batch mode. If set to false the jobs will execute in No Linkage mode.

xsd:string name

Specifies the software container name.

xsd:long priority

Specifies the job priority.

Range: 1 (highest) to 10 (lowest)

Default: 5

xsd:string userMessage

Specifies the custom user message.

SoftwareJobData

The SoftwareJobData sequence contains details about the software jobs.

xsd:dateTime activationTime

Specifies the execution date. If not specified, the default value is the current date and time of the domain manager computer.

xsd:boolean allowCancellation

Allows end users to cancel the prompt for the software job.

xsd:int bootLevelAfterExec

Specifies the restart options required for the software job after the job is executed.

Default: 0 (noReboot)

xsd:int bootLevelPriorExec

Specifies the restart options required for the software job before the job is executed.

Default: 0 (noReboot)

xsd:string deliveryCalendar

Specifies the name of a delivery calendar to be used for scheduling the job. The calendar controls the days, dates, and times when delivery is permitted. The time cells that are not set in the calendar define the exclusion intervals. If the name of the calendar is unknown to SD, the job is not created.

xsd:dateTime deliveryTime

Specifies the delivery date and time. If not supplied, the default value is the current date and time of the domain manager computer.

xsd:boolean executeOnPromptTimeout

Specifies whether to execute jobs, if prompt times out.

xsd:boolean ignoreJobCalendarsOnTargetComputers

Specifies whether to ignore job calendars, if any, on target computers.

xsd:long jobTimeOutHours

Specifies the number of hours after the job the will timeout if it was unable to complete.

Default: 168 hours

xsd:boolean jobsTriggerSS

Specifies whether the job must trigger the scalability server.

xsd:boolean logonShield

Specifies whether to prevent users from being logged on while job executes.

xsd:string name

Specifies the software job name.

xsd:long promptTimeOutHours

Specifies the number of hours for which you want to display a user prompt before forced execution of the job starts.

Default: 24 hours

xsd:boolean promptUser

Specifies a message to be prompted on the target computer before the job starts.

xsd:boolean resolveQueryGroups

Specifies whether to resolve the target groups before the job is set up.

xsd:boolean runAtShutdown

Specifies whether to run while the system is allowed to shutdown.

xsd:boolean runofflineFromSS

Specifies whether to execute procedure offline from the scalability server.

SoftwarePackageData softwarePackage

Specifies the software package data.

xsd:boolean storePackageAtSSLibrary

Specifies whether to store the packages in the scalability server library.

xsd:boolean timesRelativeToEM

Specifies whether the time is relative to enterprise manager.

xsd:boolean useDeliveryCalender

Specifies whether the deliveryCalendar parameter is supplied.

xsd:string userParameters

Specifies the user-defined parameters.

SoftwarePackageData

The SoftwarePackageData sequence contains details about the software package.

xsd:string packageName

Specifies the software package name.

xsd:string procedureName

Specifies the name of the procedure to be run.

xsd:string versionNumber

Specifies the version number of the software package.

AutomationResultResponse

The AutomationResultResponse sequence contains the result of the automation process.

int totalNumberOfTargets

Specifies the number of computers involved in the automation process.

enum AutomationProcessStatus jobStatus

Specifies the job status. This is the overall job status.

ArrayOfAutomationProcessTargetStatus status

Specifies the array of target status.

String additionalInfo

Specifies additional information in case of job execution failure.

ArrayOfAutomationProcessTargetStatus

The ArrayOfAutomationProcessTargetStatus sequence specifies a list of target statuses.

AutomationProcessTargetStatus [] targetStatusArray

Specifies the list of target statuses.

SoftwareJobContainerParameter

The SoftwareJobContainerParameter sequence specifies the details of software job container.

xsd:string parameterName

Specifies the name of the software job container parameter.

xsd:string parameterValue

Specifies the value of the software job container parameter.

ActivityLog

The ActivityLog sequence contains the activity log details:

xsd:string activityMessage

Specifies the activity message.

enum LogLevel logLevel

Specifies the log level.

xsd:dateTime timestamp

Specifies the timestamp of the message.

ActivityLogResponse

The ActivityLogResponse sequence contains the following information:

ArrayOfActivityLog activityLogArray

Specifies an array of activity log entries.

ArrayOfActivityLog

The ArrayOfActivityLog sequence contains the following information:

ActivityLog [] activityLog

Specifies the array of activity logs.

ArrayOfAssessmentTaskInfo

The ArrayOfAssessmentTaskInfo sequence contains the following information:

AssessmentTaskInfo [] assessmentTasks

Specifies an array of assessment tasks.

ArrayOfAssessmentTemplate

The ArrayOfAssessmentTemplate sequence contains the following information:

AssessmentTemplate [] assessmentTemplates

Specifies an array of assessment templates.

ArrayOfGroupType

The ArrayOfGroupType sequence contains the following information:

GroupType [] groupType

Specifies an array of group type. This parameter can have multiple group information mapped against an OS image. For example: Group1 -> OSImage1, Group3-> OSImage2.

ArrayOfHardWareModelType

The ArrayOfHardWareModelType sequence contains the following information:

HardWareModelType [] hwModelType

Specifies an array of hardware model types. This parameter can have multiple hardware models mapped against OS images. For example:HWModelName->OSImage1, HWModel2->OSImage3.

GlobalType

The GlobalType sequence contains the following information:

ImageType imageType

Specifies information about the OS image that is applicable for all the target computers.

GroupType

The GroupType sequence specifies the following information about the group type. This sequence can have multiple group information mapped against an OS image.

xsd:string name

Specifies the name of the group.

ImageType imageType

Specifies information about the OS image mapped to the group.

HardWareModelType

The HardWareModelType sequence contains the following information:

xsd:string name

Specifies name of the hardware model.

ImageType imageType

Specifies information about the OS image mapped to the hardware model.

ArrayOfOsimTemplate

The ArrayOfOsimTemplate sequence contains the following information:

OsimTemplate [] osimTemplates

Specifies the array of osim templates

ArrayOfSoftwareDeploymentTemplate

The ArrayOfSoftwareDeploymentTemplate sequence contains the following information:

SoftwareDeploymentTemplate [] sdTemplates

Specifies an array of software deployment templates.

ArrayOfSoftwarePackageMappingType

The ArrayOfSoftwarePackageMappingType sequence contains the following information:

SoftwarePackageMappingType [] softwarePackageMappingTypeArray

Specifies an array of software package mapping types.

ArrayOfSoftwarePackageType

The ArrayOfSoftwarePackageType sequence contains the following information:

SoftwarePackageType [] softwarePackageTypeArray

Specifies an array of software package types.

ArrayOfTemplateProperties

The ArrayOfTemplateProperties sequence contains the following information:

TemplateProperties [] templates

Specifies an array of template properties.

ArrayOf_xsd_string

The ArrayOf_xsd_string sequence contains the following information:

xsd:string [] stringArray

Specifies an array of string values.

AutomationProcessTargetStatus

The AutomationProcessTargetStatus sequence contains the following information:

xsd:string targetName

Specifies the target name.

xsd:string targetUUID

Specifies the UUID of the target computer.

enum AutomationTargetStatus status

Specifies the automation status of the target computer.

ArrayOfAutomationProcessTargetStatus

The ArrayOfAutomationProcessTargetStatus sequence contains the following information:

AutomationProcessTargetStatus [] targetStatusArray

Specifies an array of target status.

AutomationResultFilter

The AutomationResultFilter sequence contains the following information:

enum AutomationResultProperty automationResultProperty

Specifies the automation result property.

enum FilterCondition filterCondition

Specifies the filter condition.

xsd:string searchString

Specifies the string you want to search in the specified property.

AutomationTargetStatus status

Specifies the target status.

AutomationProcessTargetStatus

The AutomationProcessTargetStatus sequence contains the following information:

xsd:string targetName

Specifies the target name.

xsd:string targetUUID

Specifies the UUID of the target computer.

enum AutomationTargetStatus status

Specifies the automation status of the target computer.

ArrayOfCustomizationParameter

The ArrayOfCustomizationParameter sequence contains the following information:

CustomizationParameter [] customizationParameters

Specifies an array OS installation parameters that you want to customize. This parameter provides a placeholder for OS deployment parameters.

AutomationWebServiceException

The AutomationWebServiceException sequence contains the following information:

xsd:string errorCode

Specifies the error code.

xsd:string errorMessage

Specifies the error message.

xsd:string additionalInfo

Specifies additional error details, if any.

AutomationWebServiceExceptionList

The AutomationWebServiceExceptionList sequence contains the following information:

ArrayOfAutomationWebServiceException automationWebServiceExceptionArray

Specifies the array of AutomationWebServiceExceptions.

ArrayOfAutomationWebServiceException

The ArrayOfAutomationWebServiceException sequence contains the following information:

AutomationWebServiceException [] automationWebServiceExceptionArray

Specifies the array of AutomationWebServiceExceptions.

OperatingSystemType

The OperatingSystemType sequence contains the following information:

xsd:string name

Specifies the operating system name.

xsd:long classID

Specifies the operating system classID.

ArrayOfOperatingSystemType

The ArrayOfOperatingSystemType sequence contains the following information:

OperatingSystemType[] operatingSystemTypeArray

Specifies the array of operating system type.

Enumerations

The following sections describe all the enumerated types (enums) that the Automation Services uses for automated OS migration functionality. These structures are a mapping of the underlying layer functionality.

AssessmentTemplateType

Specifies whether the assessment template is based on parameters or on a query.

Following are the possible values:

- PARAMETERBASED
- QUERYBASED

AssessmentTemplateParameterName

Specifies the name of the parameter used for creating the assessment template. For example, if you want to create an assessment template based on CPU speed, specify the parameter name as CPUSPEED.

Following are the possible values:

- CPUSPEED
- HDDSPACE
- RAMSIZE
- HWMODEL
- CDROM
- QUERYUUID

AssessmentTemplateParameterDataType

Specifies the data type of the parameter used for creating the assessment template.

Following are the possible values:

- INTEGER
- LONG
- BOOLEAN
- STRING

ASSESSMENTTEMPLATEPROPERTY

Specifies the properties of the assessment templates that you can use to filter and sort the list of assessment templates.

Following are the possible values:

- ASSESSMENTTEMPLATENAME
- ASSESSMENTTEMPLATELASTMODIFIEDDATE
- ASSESSMENTTEMPLATELASTMODIFIEDUSER
- ASSESSMENTTEMPLATECREATIONDATE
- ASSESSMENTTEMPLATECREATIONUSER

ASSESSMENTTASKPROPERTY

Specifies the properties of assessment tasks:

- ASSESSMENTTASKNAME
- ASSESSMENTTASKEXECUTIONFINISHDATE
- ASSESSMENTTASKEXECUTIONSTARTDATE
- ASSESSMENTTASKCREATIONDATE
- ASSESSMENTTASKCREATIONUSER
- ASSESSMENTTASKEXECUTIONUSER
- ASSESSMENTTASKEXECUTIONGROUP

AssessmentStatus

Specifies the status of assessment job.

Following are the possible values:

- STARTED
- EVALUATING
- SUCCESS
- FAILED
- NOT_STARTED

ResultGroup

Specifies the result group type.

Following are the possible values:

- WIN7_READY
- WIN7_NOT_READY
- WIN7_INSTALLED

OsimTemplateType

Specifies the type of the OSIM template.

Following are the possible values:

- GLOBAL
- GROUP
- HARDWAREMODEL

FilterCondition

Specifies the valid filter conditions for different properties.

You can use the following filters:

FILTER_WILDCARD_EQ

Defines the wildcard equal filter.

Note: Use this filter with xsd:string elements.

FILTER_WILDCARD_NE

Defines the wildcard not equal xxx.

Note: Use this filter with xsd:string elements.

FILTER_EQ

Defines the equal filter.

Note: Use this filter with xsd:long, dsm:DateTime, and enumerations.

FILTER_NE

Defines the not equal filter.

Note: Use this filter with xsd:long, dsm:DateTime, and enumerations.

FILTER_GT

Defines the greater than filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

FILTER_GE

Defines the greater than or equal filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

FILTER_LT

Defines lesser than filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

FILTER_LE

Defines the lesser than or equal filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

OSIMTEMPLATEPROPERTY

Specifies the properties of the OSIM templates that you can use to filter and sort the list of OSIM templates.

- OSIMTEMPLATENAME
- OSIMTEMPLATELASTMODIFIEDDATE
- OSIMTEMPLATELASTMODIFIEDUSER
- OSIMTEMPLATECREATIONDATE
- OSIMTEMPLATECREATIONUSER

SOFTWAREDEPLOYMENTTEMPLATEPROPERTY

Specifies the properties of the software deployment templates that you can use to filter and sort the list of software deployment templates.

- SOFTWAREDEPLOYMENTTEMPLATENAME
- SOFTWAREDEPLOYMENTTEMPLATELASTMODIFIEDDATE

AUTOMATIONPROCESSPROPERTY

Specifies the properties of the automation process:

- AUTOMATIONPROCESSNAME
- AUTOMATIONPROCESSSTATUS
- AUTOMATIONPROCESSMODE
- AUTOMATIONPROCESSCREATIONDATE
- AUTOMATIONPROCESSEXECUTIONFINISHDATE
- AUTOMATIONPROCESSEXECUTIONSTARTDATE
- AUTOMATIONPROCESSCREATIONUSER
- AUTOMATIONPROCESSEXECUTIONUSER

AutomationProcessMode

Specifies the automation process modes:

- WIPE_AND_RELOAD
- REPLACEMENT

AutomationProcessStatus

Specifies the status of the automation process:

- NOT_INITIALIZED
- INITIALIZATION_IN_PROGRESS
- INITIALIZATION_SUCCESS
- INITIALIZATION_FAILED
- RESUME_PROGRESS
- RESUME_SUCCESS
- RESUME_FAILED
- PREPARATION_SUCCESS
- PREPARATION_FAILED
- JOB_CREATION_IN_PROGRESS
- JOB_CREATION_FAILED
- VALIDATION_IN_PROGRESS
- VALIDATION_SUCCESS
- VALIDATION_FAILED
- DEPLOYMENT_IN_PROGRESS
- DEPLOYMENT_SUCCESS
- DEPLOYMENT_FAILED

AutomationTargetStatus

Specifies the status of the computers in the automation process:

- ACTIVITY_NOT_STARTED
- ACTIVITY_STARTED
- VALIDATION_SUCCESS
- VALIDATION_FAILED

- VALIDATION_WARNING
- PRE_OS_INSTALL_PHASE_STARTED
- PRE_OS_INSTALL_PHASE_FAILED
- PRE_OS_INSTALL_PHASE_SUCCESS
- OS_INSTALL_PHASE_STARTED
- OS_INSTALL_PHASE_FAILED
- OS_INSTALL_PHASE_SUCCESS
- POST_OS_INSTALL_PHASE_STARTED
- POST_OS_INSTALL_PHASE_FAILED
- POST_OS_INSTALL_PHASE_SUCCESS
- MIGRATION_SUCCESS
- MIGRATION_FAILED
- MIGRATION_DISABLED

AutomationResultProperty

Specifies the properties available in the automation result:

- AUTOMATIONTARGETNAME
- AUTOMATIONTARGETSTATUS
- AUTOMATIONSOURCENAME

LogLevel

Specifies the log level:

- INFORMATION
- WARNING
- ERROR

ActionType

Specifies the action to be taken on the automation process:

- MIGRATION
- VALIDATION

Automation Web Services Messages

AWS00052

Invalid manager. Verify whether the default manager is passed.

Reason:

Automation Services are supported only on default manager. Verify whether you have specified the default manager.

Action:

Specify the default manager name.

AWS00053

Invalid user name or password passed.

Reason:

Either the user name or the password is null or empty.

Action:

Specify a valid user name and password.

AWS00054

Object which you are trying to delete is successfully deleted.

Reason:

Object which you are trying to delete is successfully deleted.

Action:

NA

AWS00055

Invalid value for provided for the target name.

Reason:

The specified target name is either null or contains an empty string.

Action:

Specify a valid target name.

AWS00103

Session not found. Please login again using ITCM Web Service login.

Reason:

The specified session ID does not exist or is invalid.

Action:

Specify a valid session ID. Execute the CA ITCM Web Service login method to get a valid session ID.

AWS00104

Session already exists with this session ID.

Reason:

Automation Services are initialized by some session ID. You are trying to initialize the automation services that are already initialized.

Action:

Do not initialize if you have already initialized the automation services.

AWS00105

ITCM session validation failed. Verify ITCM session.

Reason:

CA ITCM WS does not have a session with the specified session ID.

Action:

Specify a valid session ID.

AWS00201

Invalid Assessment Template

Reason:

You may have passed null for the Assessment template object.

Action:

Specify a valid Assessment template object.

AWS00202

Invalid Assessment Template Name

Reason:

You may have passed null or empty string for the Assessment template name.

Action:

Specify a valid assessment template name.

AWS00203

Invalid Assessment Template Parameters

Reason:

You may have passed null for the assessment template parameters.

Action:

Specify a valid assessment template parameters.

AWS00204

Invalid Assessment Template Type

Reason:

You may have passed null for the assessment template type.

Action:

Specify a valid assessment template type.

AWS00205

Invalid Assessment Task Name

Reason:

You may have passed null or empty string for the assessment task name.

Action:

Specify a valid assessment task name.

AWS00206**Invalid Group Name****Reason:**

You may have passed null or empty string for the group name.

Action:

Specify a valid group name.

AWS00207**Assessment template creation failed****Reason:**

The assessment template creation failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00208**Assessment template updation failed****Reason:**

Assessment template update failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00209**Some or all of the requested assessment templates deletion failed****Reason:**

One or more assessment templates you specified do not exist.

Action:

Verify that the templates do exist. Verify the error details for more information and take appropriate action.

AWS00210

Get Assessment Template Failed

Reason:

The assessment template details cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00211

Invalid list of Assessment Template Names

Reason:

You may have provided null or empty list for assessment template names list.

Action:

Specify a valid list of assessment template names.

AWS00213

Get Assessment Status Failed

Reason:

The assessment status cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00214

Execute Assessment Task failed

Reason:

The assessment task execution failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00215**Get Assessment Result failed****Reason:**

The assessment result cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00216**Get Assessment Task Failed****Reason:**

The assessment task cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00217**Invalid list of Assessment Task Names****Reason:**

You may have provided null or empty list for assessment task names list.

Action:

Specify a valid list of assessment task names.

AWS00218**Some or all of the requested Assessment Tasks Deletion Failed****Reason:**

One or more assessment tasks you specified do not exist.

Action:

Verify that the tasks do exist. Verify the error details for more information and take appropriate action.

AWS00219

Assessment Task Deletion Failed

Reason:

The assessment task deletion Failed.

Action:

Specify a valid assessment task name. Verify the error details for more information and take appropriate action.

AWS00220

Assessment Template Deletion Failed

Reason:

The assessment template deletion Failed.

Action:

Specify a valid assessment template name. Verify the error details for more information and take appropriate action.

AWS00221

Invalid Assessment Task

Reason:

You may have passed null for assessment task object.

Action:

Specify a valid assessment task object.

AWS00222

Assessment task creation failed

Reason:

The assessment task creation failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00223**Invalid value provided for the field Operating Systems****Reason:**

You may have passed null or empty list for the field Operating Systems Array.

Action:

Specify valid Operating Systems array.

AWS00301**Invalid Osim Template****Reason:**

You may have passed null for OSIM template object.

Action:

Specify a valid OSIM template object.

AWS00302**Invalid Osim Template Name****Reason:**

You may have passed null or empty string for OSIM template name.

Action:

Specify a valid OSIM template name.

AWS00303**Invalid Osim Template Type****Reason:**

You may have passed null for OSIM template type.

Action:

Specify a valid OSIM template type.

AWS00304

Invalid hard ware model Type

Reason:

You may have passed null for hardware model type or have passed an empty list for hardware models.

Action:

Specify a valid hardware model type object.

AWS00305

Invalid Global Type

Reason:

You may have passed null for global model type.

Action:

Specify a valid global model type object.

AWS00306

Invalid group model Type

Reason:

You may have passed null for group model type or have passed an empty list for group models.

Action:

Specify a valid group model type object.

AWS00307

Invalid Image Type

Reason:

You may have passed null for image type.

Action:

Specify a valid image type object.

AWS00308

Invalid Image Name

Reason:

You may have passed null or empty string for image name.

Action:

Specify a valid image name.

AWS00309

Invalid Hard Ware Model Name

Reason:

You may have passed null or empty string for hardware model name.

Action:

Specify a valid hardware model name.

AWS00310

Osim Template Creation Failed

Reason:

The OSIM template creation failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00311

Osim Template Updation Failed

Reason:

The OSIM template update failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00312

Osim Template Deletion Failed

Reason:

The OSIM template deletion failed.

Action:

Specify a valid OSIM template name. Verify the error details for more information and take appropriate action.

AWS00316

Some or all of the requested Osim Templates Deletion Failed

Reason:

One or more OSIM templates you specified do not exist.

Action:

Verify that the templates do exist. Verify the error details for more information and take appropriate action.

AWS00313

Invalid list of Osim Template Names

Reason:

You may have provided null or empty list for OSIM template names list.

Action:

Specify a valid list of OSIM template names.

AWS00314

Get Osim Template Failed

Reason:

The OSIM template cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00401**Invalid Software Deployment Template****Reason:**

You may have passed null for Software Deployment template object.

Action:

Specify a valid software deployment template object.

AWS00402**Invalid Software Deployment Template Name****Reason:**

You may have passed null or empty string for software deployment template name.

Action:

Specify a valid software deployment template name.

AWS00404**Invalid Software Package Mapping Type****Reason:**

You may have passed null for Software Package Mapping Type.

Action:

Specify a valid Software Package Mapping type object.

AWS00406**Invalid Pre Install Jobs****Reason:**

You may have passed null for Software Job Container Type Object for pre-install jobs.

Action:

Specify a valid Software Job Container Type Object.

AWS00407

Invalid Post Install Jobs

Reason:

You may have passed null for Software Job Container Type Object for post-install jobs.

Action:

Specify a valid Software Job Container Type Object.

AWS00408

Software Deployment Template Creation Failed

Reason:

The software deployment template creation failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00409

Software Deployment Template updation Failed

Reason:

The software deployment template update failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00410

Software Deployment Template Deletion Failed

Reason:

The software deployment template deletion failed.

Action:

Specify a valid software deployment template name. Verify the error details for more information and take appropriate action.

AWS00411**Invalid list of Software Deployment Template Names****Reason:**

You may have provided null or empty list for software deployment template names list.

Action:

Specify a valid list of software deployment template names list.

AWS00412**Get Software Deployment Template Failed****Reason:**

The software deployment template cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00414**Some or all of the requested Software Deployment Templates Deletion Failed****Reason:**

One or more software deployment templates you specified do not exist.

Action:

Verify that the templates do exist. Verify the error details for more details and take appropriate action.

AWS00601**Invalid Automation Process****Reason:**

You may have passed null for automation process object.

Action:

Specify a valid automation process object.

AWS00602

Invalid Automation Process Name

Reason:

You may have passed null or empty string for automation process name.

Action:

Specify a valid automation process name.

AWS00603

Invalid Automation Process Mode

Reason:

You may have passed null for automation process mode object.

Action:

Specify a valid automation process mode object.

AWS00604

Create Automation Process Failed

Reason:

The automation process creation failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00605

Execute Automation Process Failed

Reason:

The automation process execution failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00607**Get Activity Log Failed****Reason:**

The activity log cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00608**Set Activity Status failed****Reason:**

Set Activity Log failed.

Action:

Verify the error details for more information and take appropriate action.

AWS00609**Invalid list of Automation Process Names****Reason:**

You may have provided null or empty list for automation process names list.

Action:

Specify a valid list of automation process names list

AWS00610**Automation Process Deletion Failed****Reason:**

The automation process deletion failed.

Action:

Specify a valid Automation Process name. Verify the error details for more information and take appropriate action.

AWS00611

Some or all of the requested Automation Processes Deletion Failed

Reason:

One or more Automation Processes you specified do not exist.

Action:

Verify that the Automation Processes do exist. Verify the error details for more details and take appropriate action.

AWS00612

Get Automation Result failed

Reason:

The automation result cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00613

Get Automation Process Status Failed

Reason:

The automation process status cannot be retrieved.

Action:

Verify the error details for more information and take appropriate action.

AWS00701

Invalid Automation Job ID

Reason:

You may have passed null or empty string for automation job ID.

Action:

Specify a valid automation job ID.

AWS00702

Invalid Automation Machine ID

Reason:

You may have passed null or empty string for automation machine ID.

Action:

Specify a valid Automation machine ID.

AWS00703

Invalid software container data

Reason:

You may have passed null for software container data object.

Action:

Specify a valid software container data object.

AWS00704

Invalid software job data

Reason:

You may have passed null for software job data object.

Action:

Specify a valid software job data object.

Web Services for OS Installation Management

The Web Services for OS Installation Management describes the methods made available through the CA ITCM Web Service as described in the CA ITCM Web Service WSDL (webserviceapi.wsdl or webserviceapi_utf8.wsdl) , which is in the top level CA ITCM install directory.

Note: For more information about how web services work, see the "Web Services Tutorial Writing Client Applications" chapter and the Web Services Reference topic in the *CA IT Client Manager Web Services Reference Guide*.

Using the web services included in this release, you can perform the following OSIM tasks:

- Create a new computer for OS deployment
- Deploy an OS image to a computer
- Deploy an OS image to an unmanaged computer
- View the boot and OS images registered with the boot servers
- Manage the states of the OS installation jobs
- Manage the OS installation parameters

Methods

The DSM Web Services uses the methods listed in the subsequent section for OSIM functionality.

Considerations for Using OSIM Web Services

Consider the following factors when you use the OSIM web services:

- To use the ByName version of OSIM methods, the OSIM registered computers must have unique labels.
- A single session cannot have multiple listhandles opened simultaneously by a given method. You must close the listhandles opened by a method before opening it again using the same method. For example, within a given session, if you have opened a listhandle by calling the OpenOSImageList method, you must call the CloseOSImageList method before you make a call to the OpenOSImageList method.

CreateOSIMComputer

The CreateOSIMComputer method is used to create a new computer for OS deployment.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the web service.

dsm:createOSIMComputerProperties

Defines the [properties to create a computer](#) (see page 303).

Return Values

xsd:string computerId

Returns the UUID if a computer is created.

Remarks

This web service preregisters a new computer.

RegisterComputerWithOSIM

The RegisterComputerWithOSIM method is used to register the CA ITCM computer for OSIM deployment.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the web service.

xsd:string OSIMTargetID

Specifies the UUID of the computer.

xsd:string osimImage

Specifies the OSIM image.

Return Values

None

Remarks

None

RegisterComputerWithOSIMByName

The RegisterComputerWithOSIMByName method is used to register the CA ITCM computer for OSIM deployment using the host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osimTargetName

Specifies the host name of the target computer.

xsd:string osimImage

Specifies the OSIM image.

Return Values

None

Remarks

None

ActivateOSInstallation

The ActivateOSInstallation method activates a planned installation request for execution.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the web service.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

xsd:boolean bWakeOnLAN

Specifies that the boot server must send a wake on LAN to the target computer.

xsd:boolean bReboot

Specifies that the boot server must send a reboot request to the target computer.

Note: For the target computer to reboot, the software delivery agent must be installed.

xsd:boolean bWaitForBootServer

Specifies that the execution must wait until the target computer is assigned a boot server.

dsm:WS_OSIM_DEPLOY bWaitForImages

Specifies if the manager must [wait for the OS images](#) (see page 312).

dsm:DateTime activateTime

Specifies the date and time for the installation. If start date is not specified, the installation begins immediately.

Return Values

None

Remarks

None

ActivateOSInstallationByName

The ActivateOSInstallationByName method activates a planned installation request for execution by using the host name.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the Web Service.

xsd:String OSIMTargetComputerLabel

Specifies the computer label of the target computer.

xsd:boolean bWakeOnLAN

Specifies the boot server to send a wake on LAN to the target computer.

xsd:boolean bReboot

Specifies the boot server to send a reboot request to the target computer.

Note: For the target computer to reboot, the software delivery agent must be installed.

xsd:boolean bWaitForBootServer

Specifies that the execution must wait until the target computer is assigned a boot server.

dsm:WS_OSIM_DEPLOY bWaitForImages

Specifies if the manager must [wait for the OS images](#) (see page 312).

dsm:DateTime activateTime

Specifies the date and time for the installation. If the start date is not specified, the installation begins immediately.

Return Values

None

Remarks

None

CancelOSInstallation

The CancelOSInstallation method cancels the OS installation.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

xsd:bool bForceCancel

Specifies that the OS installation must be canceled.

Note: You cannot cancel an OS installation job that in *Installing* state.

Return Values

None

Remarks

None

CancelOSInstallationByName

The CancelOSInstallationByName method cancels the OS installation of the give host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetComputerLabel

Specifies the computer label of the target computer.

xsd:bool bForceCancel

Specifies that the OS installation must be canceled.

Note: You cannot cancel an OS installation job that in *Installing* state.

Return Values

None

Remarks

None

ReActivateOSInstallation

The ReActivateOSInstallation method reactivates a canceled or a failed OS installation.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the web service.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

xsd:boolean bWakeOnLAN

Specifies that the boot server must send a wake on LAN to the target computer.

xsd:boolean wakeOnLANSupplied

Specifies if the bWakeOnLAN value is specified.

xsd:boolean bReboot

Specifies that the boot server must send a reboot request to the target computer.

Note: For the target computer to reboot, the software delivery agent must be installed.

xsd:boolean rebootSupplied

Specifies if the bReboot value is specified.

xsd:boolean bWaitForBootServer

Specifies that the execution must wait until the target computer is assigned a boot server.

xsd:boolean waitForBootServerSupplied

Specifies if the bWaitForBootServer value is specified.

dsm:WS_OSIM_DEPLOY bWaitForImages

Specifies if the manager must [wait for the OS images](#) (see page 312).

xsd:boolean waitForImagesSupplied

Specifies if the bWaitForImages value is specified.

dsm:DateTime activateTime

Specifies the date and time for the installation. If start date is not specified, the installation begins immediately.

Return Values

None

Remarks

None

ReActivateOSInstallationByName

The ReActivateOSInstallationByName method reactivates a canceled or a failed OS installation of the given target computer.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the Web Service.

xsd:String OSIMTargetComputerLabel

Specifies the computer label of the target computer.

xsd:boolean bWakeOnLAN

Specifies the boot server to send a wake on LAN to the target computer.

xsd:boolean wakeOnLANSupplied

Specifies if the bWakeOnLAN value is specified.

xsd:boolean bReboot

Specifies the boot server to send a reboot request to the target computer.

Note: For the target computer to reboot, the software delivery agent must be installed.

xsd: boolean rebootSupplied

Specifies if the bReboot value is specified.

xsd:boolean bWaitForBootServer

Specifies that the execution must wait until the target computer is assigned a boot server.

xsd:boolean waitForBootServerSupplied

Specifies if the bWaitForBootServer value is specified.

dsm:WS_OSIM_DEPLOY bWaitForImages

Specifies if the manager must [wait for the OS images](#) (see page 312).

xsd:boolean waitForImagesSupplied

Specifies if the bWaitForImages value is specified.

dsm:DateTime activateTime

Specifies the date and time for the installation. If the start date is not specified, the installation begins immediately.

Return Values

None

Remarks

None

ReInstallOS

The ReInstallOS method reinstalls the current OS.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the web service.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

xsd:boolean bWakeOnLAN

Specifies that the boot server must send a wake on LAN to the target computer.

xsd:boolean wakeOnLANSupplied

Specifies if the bWakeOnLAN value is specified.

xsd:boolean bReboot

Specifies that the boot server must send a reboot request to the target computer.

Note: For the target computer to reboot, the software delivery agent must be installed.

xsd: boolean rebootSupplied

Specifies if the bReboot value is specified.

xsd:boolean bWaitForBootServer

Specifies that the execution must wait until the target computer is assigned a boot server.

xsd:boolean waitForBootServerSupplied

Specifies if the bWaitForBootServer value is specified.

dsm:WS_OSIM_DEPLOY bWaitForImages

Specifies if the manager must [wait for the OS images](#) (see page 312).

xsd:boolean waitForImagesSupplied

Specifies if the bWaitForImages value is specified.

dsm:DateTime activateTime

Specifies the date and time for the installation. If start date is not specified, the installation begins immediately.

Return Values

None

Remarks

None

ReInstallOSByName

The ReInstallOSByName method reinstalls the current OS by the host name of the target computer.

Parameters**xsd:string sessionId**

Specifies the session id obtained from the login to the Web Service.

xsd:String OSIMTargetComputerLabel

Specifies the computer label of the target computer.

xsd:boolean bWakeOnLAN

Specifies the boot server to send a wake on LAN to the target computer.

xsd:boolean wakeOnLANSupplied

Specifies if the bWakeOnLAN value is specified.

xsd:boolean bReboot

Specifies the boot server to send a reboot request to the target computer.

Note: For the target computer to reboot, the software delivery agent must be installed.

xsd: boolean rebootSupplied

Specifies if the bReboot value is specified.

xsd:boolean bWaitForBootServer

Specifies that the execution must wait until the target computer is assigned a boot server.

xsd:boolean waitForBootServerSupplied

Specifies if the bWaitForBootServer value is specified.

dsm:WS_OSIM_DEPLOY bWaitForImages

Specifies if the manager must [wait for the OS images](#) (see page 312).

xsd:boolean waitForImagesSupplied

Specifies if the bWaitForImages value is specified.

dsm:DateTime activateTime

Specifies the date and time for the installation. If the start date is not specified, the installation begins immediately.

Return Values

None

Remarks

None

DeregisterOSIMComputer

The DeRegisterOSIMComputer method removes a target computer from OSIM managed systems using the MAC address of the target computer.

Note: This method does not delete the target computer from the CA ITCM MDB. If you do not remove the computer from the network and do not disable PXE, the computer reregisters with OSIM during the boot process.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the OSIM computer.

Return Values

None

Remarks

None

DeRegisterOSIMComputerByName

The DeRegisterOSIMComputerByName method removes a target computer from the OSIM managed systems using the host name of the target computer.

Note: This method does not delete the target computer from the CA ITCM MDB. If you do not remove the computer from the network and do not disable PXE, the computer re-registers with OSIM during the boot process.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osimTargetLabel

Specifies the computer label of the target computer.

Return Values

None

Remarks

None

GetUnnamedOSIMRegisteredComputers

The GetUnnamedOSIMRegisteredComputers method fetches the list of computers that are registered with OSIM from the network but not during discovered hardware. These computers show a MAC address and not the host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Return Values

dsm:ArrayOfOSIMTargetProperties

[Array of OSIM target properties](#) (see page 286), one for each OSIM registered computer. The array contains the following properties of the target computers:

- Name—Name of the Target. For unnamed OSIM targets, this parameters returns empty string.
- MAC address—MAC Address of the target
- Host name—Host Name of the target
- Network address—Network address of the target

- Created at—Creation date
- Boot status—Boot status of the target
- Name of attached boot server—Name of the boot server the target is associated with.

Remarks

None

GetUnmanagedOSIMRegisteredComputers

The GetUnmanagedOSIMRegisteredComputers fetches the list of computers that are in an unmanaged state.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Return Values

dsm:ArrayOfOSIMTargetProperties

[Array of the OSIM target properties](#) (see page 286), one for each unmanaged computer. The array contains the following properties of the target computers:

- Name—Name of the Target. For unnamed OSIM targets, this parameters returns the MAC address of the computer.
- MAC address—MAC Address of the target
- Host name—Host Name of the target
- Network address—Network address of the target
- Created at—Creation date
- Boot status—Boot status of the target
- Name of attached boot server—Name of the boot server the target is associated with.

Remarks

None

GetOSInstallationRequest

The GetOSInstallationRequest method is used to retrieve the installation request details for the target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

dsm:WS_OSIM_CONF_TYPE

Specifies the [type of installation request](#) (see page 312).

xsd:bool confTypeSupplied

Specifies if the configuration type is specified.

Return Values

dsm:ArrayOfOSIMProperties

Displays a list of [OSIM installation request attributes](#) (see page 285). The array contains the following properties of the target computers:

- Target name
- Target UUID
- Image name
- Image UUID
- Boot status
- Configuration state
- Date of last status change
- Activation time

Note: Activation time is not available for Planned requests.

The following details are available only for scheduled requests:

- Wake on LAN required
- Reboot required

- Wait for boot server required
- Wait for images

Remarks

None.

GetOSInstallationRequestByName

The GetOSInstallationRequestByName method is used to retrieve the installation request details for the target computer by using the host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetLabel

Specifies the computer label of the target computer.

dsm:WS_OSIM_CONF_TYPE

Specifies the [type of installation request](#) (see page 312).

xsd:bool confTypeSupplied

Specifies if the configuration type is specified.

Return Values

dsm:ArrayOfOSIMProperties

Displays the list of [OSIM installation request attributes](#) (see page 285). The array contains the following properties of the target computers:

- Target name
- Target UUID
- Image name
- Image UUID
- Boot status
- Configuration state
- Date of last status change
- Activation time

Note: Activation time is not available for Planned requests.

The following details are available only for scheduled requests:

- Wake on LAN required
- Reboot required
- Wait for boot server required
- Wait for images

Remarks

None.

GetInstallationRequestList

The GetInstallationRequestList method is used to request the list of installation requests for the target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

Return Values

dsm:ArrayOfOSIMTargetInstallationRequestsProperties

Displays the [installation requests for the target computer](#) (see page 286). The array contains the installation request properties, one for each Installation Request:

- Target name
- Target UUID
- Image name
- Image UUID
- Boot status
- Configuration state
- Date of last status change
- Activation time

Note: Activation time is not available for Planned requests.

The following details are available only for scheduled requests:

- Wake on LAN required
- Reboot required

- Wait for boot server required
- Wait for images

Remarks

None.

GetInstallationRequestListByName

The GetInstallationRequestListByName method is used to retrieve the list of installation requests for the target computer by using the host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetLabel

Specifies the computer label of the target computer.

Return Values

dsm:ArrayOfOSIMTargetInstallationRequestsProperties

Displays the [installation requests for the target computer](#) (see page 286). The array contains the installation request properties for the target computer:

- Target name
- Target UUID
- Image name
- Image UUID
- Boot status
- Configuration state
- Date of last status change
- Activation time

Note: Activation time is not available for Planned requests.

The following details are available only for scheduled requests:

- Wake on LAN required
- Reboot required

- Wait for boot server required
- Wait for images

Remarks

None

DeleteOSInstallationRequest

The DeleteOSInstallationRequest method is used to delete a planned or scheduled installation of an OSIM target computer.

Parameters**xsd:string sessionId**

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

dsm:WS_OSIM_IR_STATUS irStatus

Specifies the [installation request status of the OSIM computer](#) (see page 312).

Return Values

None

Remarks

None

DeleteOSInstallationRequestByName

The DeleteOSInstallationRequestByName method is used to delete a planned or scheduled installation of an OSIM target computer by using the host name.

Parameters**xsd:string sessionId**

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetLabel

Specifies the computer label of the target computer.

dsm:WS_OSIM_IR_STATUS irStatus

Specifies the [installation request status of the OSIM computer](#) (see page 312).

Return Values

None

Remarks

None

SetOSIMComputerMACAddressByName

The SetOSIMComputerMACAddressByName method is used to change the MAC address information and the installation requests by using the host name of a target computer.

Note: You can apply this method only when there is no scheduled request. If there is a scheduled request, it must be of Failed or Stopped status .

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetLabel

Specifies the computer label of the target computer.

xsd:string MACAddress

Specifies the new MAC address of the target computer.

Return Values

None

Remarks

None

SetOSInstallationParameters

The SetOSInstallationParameters method updates multiple OS installation parameters for a particular target identified by MAC address.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osimTargetMACAddress

Specifies the MAC address of the target whose OS installation parameters are to be updated.

ArrayOfOSIMParameters arrParams

Specifies an array of installation parameters to be updated.

SetOSInstallationParametersByName

The SetOSInstallationParametersByName method updates multiple OS installation parameters for a particular target identified by computer label.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string string osimTargetComputerLabel

Specifies the computer label of the target whose OS installation parameters are to be updated.

ArrayOfOSIMParameters arrParams

Specifies an array of installation parameters to be updated.

GetOSInstallationParameters

The GetOSInstallationParameters method is used to fetch the installation parameter settings with the descriptions of planned, scheduled, or current installation request for the target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

Return values

dsm:ArrayOfOSIMTargetPropertiesWithDesc

Array of the [installation parameters of the target computer](#) (see page 287).

Remarks

None

GetOSInstallationParametersByName

The GetOSInstallationParametersByName method is used to fetch the installation parameter settings with the descriptions of planned, scheduled, or current installation request by using the host name of the target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetLabel

Specifies the computer label of the target computer.

Return values

dsm:ArrayOfOSIMTargetPropertiesWithDesc

Array of the [installation parameters of the target computer](#) (see page 287).

Remarks

None

SetOSInstallationParameter

The SetOSInstallationParameter method changes the OS installation parameter of the target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the target computer.

xsd:string installParameterName

Specifies the parameter name of the target computer.

xsd:string installParameterValue

Specifies the new parameter value of the target computer.

Return Values

None

Remarks

None

SetOSInstallationParameterByName

The SetOSInstallationParameterByName method changes the OS installation parameter by the host name of the target computer.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:String OSIMTargetComputerLabel

Specifies the computer label of the target computer.

xsd:string installParameterName

Specifies the parameter name of the target computer.

xsd:string installParameterValue

Specifies the new parameter value of the target computer.

Return Values

None

Remarks

None

OpenOSImageList

The OpenOSImageList method fetches the list of all available OS images.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:bool isBootServerNameSupplied

Specifies if the boot server name is entered.

xsd:string bootServerName

Specifies the name of the boot server.

dsm:ArrayOfOSImageFilter

Specifies the [filter on the OS image properties](#) (see page 291).

xsd:bool matchAll

Specifies the condition on the filter properties.

dsm:OSIMAGEPROPERTY sortProperty

Specifies the [OS image property](#) (see page 292) that you want to sort.

xsd:bool ascending

Specifies if the sorting is in ascending order.

Return Values

xsd:long OpenListHandle

Specifies the numeric handle to a list of OS images that can be passed to GetOSImages.

xsd:long totalNoOfImages

Specifies the total number of images in the list returned by the OpenListHandle parameter.

GetOSImages

TheGetOSImages method retrieves the properties of the OS images from OpenOSImageList.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the web service.

xsd:long listHandle

Specifies the numeric handle to a list as returned by a previous call to OpenOSImageList.

xsd:long noOfImages

Specifies the total number of OS images to fetch from the list. This must be less than or equal to the total number in the list as returned by a previous call to OpenOSImageList

Return Values

dsm:ArrayOfOSImageProperties

Displays the list of the [open OS images](#) (see page 292).

Remarks

None

CloseOSImageList

The CloseOSImageList method closes the list handle.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the list handle for the list of OS images.

Return Values

None

Remarks

None

GetBootImageList

The GetBootImageList method fetches all the available boot images.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:bool isBootServerNameSupplied

Specifies if the boot server name is entered.

xsd:string bootServerName

Specifies the name of the boot server.

Return Values

dsm:ArrayOfOSIMImageProperties

[Array of list of boot image properties](#) (see page 292). The array contains the following boot image properties:

- Image name—Name of the image
- Type indicator—Boot image type
- Platform—boot image platform
- Registered at—Date when the boot image was registered at the domain manager
- SD package name—Name of the related SD package
- SD package version—Version of the related SD package
- SD package comment—Comment related with the SD package
- Image support information—Information about the feature support of the image, for example, FIPS 140-2

AssignOSIMTargetsToBootServer

The AssignOSIMTargetsToBootServer method assigns a list of target computers using the MAC address to a boot server.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string bootServerName

Specifies the name of the boot server.

dsm:ArrayOfstring osimTargetMACAddress

Specifies the list of MAC addresses of target computers.

Return Values

None

Remarks

None

AssignOSIMTargetsToBootServerByName

The AssignOSIMTargetsToBootServerByName method assigns a list of target computers using the host names to a boot server.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string bootServerName

Specifies the name of the boot server.

dsm:ArrayOfstring osimTargetLabel

Specifies the list of computer labels of target computers.

Return Values

None

Remarks

None

OpenScalabilityServerList

The OpenScalabilityServerList fetches a list of all scalability servers registered with a domain manager.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ScalabilityServerPropertiesRequired

Specifies the [properties required to fetch a scalability server](#) (see page 290) from the list.

Return Values

xsd:long OpenListHandle

Specifies the numeric handle to a list of servers that is used by GetScalabilityServers.

xsd:long totalNoOfQueries

Specifies the total number of images in the list returned by the OpenListHandle parameter..

Remarks

This method returns the size of the list and a handle to the list that can be used with the [GetScalabilityServers method](#) (see page 266).

GetScalabilityServers

The GetScalabilityServers method retrieves the properties of the scalability servers from scalability server list.

Parameters

xsd:string sessionId

Specifies the session id obtained from the login to the Web Service.

xsd:long listHandle

Specifies the numeric handle to a list, returned by a previous call to OpenScalabilityServerList.

xsd:long noOfServers(m)

Specifies the total number of servers to get from the list. This must be less than or equal to the total number in the list, returned by a previous call to OpenScalabilityServerList

Return Values

dsm:ArrayOfServerProperties GetServerReturn

Specifies an [Array of scalability server properties](#) (see page 291), one for each server.

Remarks

None

CloseScalabilityServerList

The CloseScalabilityServerList closes the list of open scalability servers.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the total number of images in the list returned by the OpenListHandle parameter.

Return Values

None

Remarks

None

SearchComputerProperty

The SearchComputerProperty method checks if a computer with the given property value exists.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string propertyValue

Specifies the computer property value that you want to search for.

dsm:PROPERTY-TYPE propType

Identifies the [type of property](#) (see page 313).

Return Values

None

Remarks

None

GetOSImageParameters

The GetOSImageParameters method fetches the default parameter settings of an OS image.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osImage

Specifies the OS image name. The default parameter settings of the OS image specified will be retrieved.

Return Values

dsm:ArrayOfOSIMPropertiesWithDesc

Array of the [default parameters of the OS image](#) (see page 287).

Remarks

None

GetBootServerList

The GetBootServerList method fetches the list of boot servers registered with the domain manager.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Return Values

dsm:ArrayOfBootServerProperties

Array of [boot server properties](#) (see page 291) registered with the domain manager. The array contains the following boot server properties:

- BootServer Name—Name of the Bootserver
- Access method—Access method configured
- Boot server status—Boot server status
- Last report—Timestamp last report
- Last report requested—Timestamp last report request
- Last response—Timestamp last heard
- MPC status—MPC status
- NFS support—NFS support
- PXE interfaces
- SD agent package (Linux)—SD agent package (Linux)
- SD agent package (Windows)—SD agent package (Windows)
- SD agent package r11 (Windows)—SD agent package r11 (Windows)

Remarks

None

GetOSImageDeployedBootServers

The GetOSImageDeployedBootServers fetches the list of the boot servers where the OS image is registered.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osImage

Specifies the name of the OS image.

Return Values

dsm:ArrayOfBootServerProperties

Array of [boot server properties](#) (see page 291) registered with the domain manager. The array contains the following boot server properties:

- BootServer Name—Name of the Bootserver
- Access method—Access method configured
- Boot server status—Boot server status
- Last report—Timestamp last report
- Last report requested—Timestamp last report request
- Last response—Timestamp last heard
- MPC status—MPC status
- NFS support—NFS support
- PXE interfaces
- SD agent package (Linux)—SD agent package (Linux)
- SD agent package (Windows)—SD agent package (Windows)
- SD agent package r11 (Windows)—SD agent package r11 (Windows)

Remarks

None

GetBootImageDeployedBootServers

The GetBootImageDeployedBootServers method fetches the list of all the boot servers where the Boot image is registered.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string bootImage

Specifies the name of the boot image.

Return Values

dsm:ArrayOfBootServerProperties

Array of [boot server properties](#) (see page 291) registered with the domain manager. The array contains the following boot server properties:

- BootServer Name—Name of the Bootserver
- Access method—Access method configured
- Boot server status—Boot server status
- Last report—Timestamp last report
- Last report requested—Timestamp last report request
- Last response—Timestamp last heard
- MPC status—MPC status
- NFS support—NFS support
- PXE interfaces
- SD agent package (Linux)—SD agent package (Linux)
- SD agent package (Windows)—SD agent package (Windows)
- SD agent package r11 (Windows)—SD agent package r11 (Windows)

Remarks

None

DeRegisterOSImage

The DeRegisterOSImage method deregisters the OS image from the domain manager.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osImage

Specifies the name of the OS image.

Return Values

None

Remarks

None

DeRegisterBootImage

The DeRegisterBootImage method deregisters the boot image from the domain manager.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string bootImage

Specifies the name of the boot image.

Return Values

None

Remarks

None

AssignOSImageToOSIMTargets

The AssignOSImageToOSIMTargets method assigns an OS image to target computers.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osImage

Specifies the name of the OS image.

dsm:ArrayOfstring osimTargetNames

Specifies an array of the list of computer labels for target computers.

Return Values

None

Remarks

None

OpenOSIMTargetList

The OpenOSIMTargetList method lists the handle of the registered OSIM target computers.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:bool isBootServerNameSupplied

Specifies if the boot server name is entered.

xsd:string bootServerName

Specifies the name of the boot server.

dsm:ArrayOfOSImageFilter

Specifies the [filter on the OS image properties](#) (see page 291).

xsd:bool matchAll

Specifies the condition on the filter properties.

dsm:OSIMAGEPROPERTY sortProperty

Specifies the [OS Image property](#) (see page 292) that you want to sort.

xsd:bool ascending

Specifies sorting in an ascending order.

Return Values

None

Remarks

None

GetOSIMTargets

The GetOSIMTargets method fetches the list of OSIM target computers.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the list handle of the list of OS images.

long totalNoOfOSIMTargets

Specifies the number Of OSIM target computers.

Return Values

dsm:ArrayOfTargetProperties arrayofTargetProperties

[Returns an array of target properties](#) (see page 294).

Remarks

None

CloseOSIMTargetList

The CloseOSIMTargetListmethod is used to close the OSIM target computers list handle.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the list handle of the list of OS images.

Return Values

None

Remarks

None

OpenUnitGroupComputerMembersList2

The OpenUnitGroupComputerMembersList2 method fetches a list of the computers that are members of the given unit group.

This method returns the total number of computers in the list and a handle to the list that can be used for further calls to GetUnitGroupComputerMembers2.

Parameters

xsd:string sessionId

Specifies the session identifier.

xsd:string unitGroupId

Specifies the UUID of the unit group member computers to be listed.

dsm:ArrayOfComputerPropertyFilter2 computerPropertyFilters

Specifies an Array of computer property filter definitions to limit the computers returned by the search.

xsd:boolean matchAll

Specifies the condition on the filter properties.

dsm: ComputerProperty2 sortProperty

Specifies the [Computer property](#) (see page 300) on which sorting takes place.

xsd:bool ascending

Specifies sorting in an ascending order.

dsm:ComputerPropertiesRequired2 computerPropertiesRequired (m)

Specifies the [properties required to get a computer](#) (see page 297) from the list.

Return Values

xsd:long OpenListHandle

Specifies the numeric handle to a list of unit groups that can be passed to GetUnitGroupComputerMembers2.

xsd:long totalNoOfComputers

Specifies the total number of computers in the list whose handle has been returned.

Remarks

None

GetUnitGroupComputerMembers2

The GetUnitGroupComputerMembers2 method fetches the computers from a unit groups member list.

Parameters

xsd:string sessionId

Specifies the session identifier.

xsd:long listHandle

Specifies the numeric handle to a list returned by a previous call to OpenUnitGroupComputerMembersList2.

xsd:long noOfComputers

Specifies the total number of computers to fetch from the list. This is less than or equal to the total number in the list returned by a previous call to OpenUnitGroupComputerMembersList2.

Return Values

dsm:ArrayOfComputerProperties2 GetUnitGroupComputerMembersReturn

Specifies an [Array of ComputerProperties](#) (see page 303). One for each computer requested from the list.

Remarks

You can make multiple calls to GetUnitGroupComputerMembers2 to iterate down the list.

GetOSIMTarget

The GetOSIMTarget method fetches the properties of an OSIM Computer based on OSIM ComputerMACAddress

Parameters

xsd:string sessionId (m)

Specifies the session identifier.

xsd:string OSIMTargetMACAddress

Specifies the MAC address of the OSIM computer.

Return Values

dsm:ArrayOfOSIMProperties arrayOfOSIMTargetProperties

Returns an array that includes the following properties for the target computer:

- Name—Name of the Target
- MAC address—MAC Address of the target
- Host name—Host Name of the target
- Network address—Network address of the target
- Created at—Creation date
- Boot status—Boot status of the target
- Name of attached boot server—Name of the boot server the target is associated with
- Name of OS image in the planned installation request—Name of the OS image involved with the planned installation request if there is any
- Name of OS image in the scheduled installation request—Name of the OS image involved with the scheduled installation request if there is any
- The status of the scheduled installation request—Status of the scheduled installation request if there is any scheduled installation

Remarks

None

GetOSIMTargetByName

The GetOSIMTargetByName method fetches the properties of OSIM Computer based on OSIM ComputerLabel.

Parameters

xsd:string sessionId (m)

Specifies the session identifier.

xsd:string OSIMTargetLabel

Specifies the label of the OSIM computer.

Return Values

dsm:ArrayOfOSIMProperties arrayOfOSIMTargetProperties

Returns an array that includes the following properties for the target computer:

- Name—Name of the Target
- MAC address—MAC Address of the target
- Host name—Host Name of the target
- Network address—Network address of the target
- Created at—Creation date
- Boot status—Boot status of the target
- Name of attached boot server—Name of the boot server the target is associated with
- Name of OS image in the planned installation request—Name of the OS image involved with the planned installation request if there is any
- Name of OS image in the scheduled installation request—Name of the OS image involved with the scheduled installation request if there is any
- The status of the scheduled installation request—Status of the scheduled installation request if there is any scheduled installation

Remarks

None

GetOSImages2

The GetOSImages2 method returns a list of OS images from a specified index number. For example, if the complete list of OS images has 10 images (from 0-9) and if you want to read from the fifth position, this method can return a list with images from 5 to 9.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the numeric handle to a list as returned by a previous call to OpenOSImageList.

xsd:long noOfImages

Specifies the number of objects you want to retrieve from the startIndex position. This number must be less than or equal to the total number in the list as returned by a previous call to OpenOSImageList.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

Return Values

dsm:ArrayOfOSImageProperties

Displays an array of OS image properties for the images that are returned from the result set.

Remarks

None

GetOSIMTargets2

The GetOSIMTargets2 method returns a list of OSIM registered computers from a specified index number. For example, if the complete list of OSIM registered computer has 10 computers (from 0-9) and if you want to read from the fifth position, this method can return a list with computers from 5 to 9.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the list handle of the list of OS images.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

Xsd:long noOfTargets

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

dsm:ArrayOfTargetProperties

Array of OSIM target properties, one for each OSIM target computer.

Remarks

None

GetOSIMTargetList

The GetOSIMTargetList method returns the OSIM registered computers.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:bool isBootServerNameSupplied

Specifies whether the boot server name is entered.

xsd:string bootServerName

Specifies the name of the boot server.

dsm:ArrayOfOSIMTargetFilter2 filterArray

Specifies the filter on the OSIM computer properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

dsm:OSIMTARGETPROPERTY2 sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

Xsd:long noOfTargetsRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Xsd:boolean refreshList

Specifies whether you want to recompute the result set for each call.

Return Values**dsm:ArrayOfTargetProperties2 arrayOfOSIMTargets**

Contains an array of OSIM target properties, one for each OSIM target computer.

xsd:long totalNumberOfTargets

Contains the total number of computers matching the filter condition.

Remarks:

Even though the interface contains parameters related to filtering, the method does not support filtering operations.

SetOSInstallationParameter2

The SetOSInstallationParameter2 method changes the OS installation parameters for an array of computers identified by MACAddress.

Parameters**xsd:string sessionId**

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfstring osimTargetMACAddress

Specifies list of MAC addresses of target computers.

xsd:string installParameterName

Specifies the parameter name of the OS installation parameter you want to change.

xsd:string installParameterValue

Specifies the OS installation parameter value you want to change. To update the default value, specify NULL.

Return Values

None

Remarks

None

SetOSInstallationParameterByName2

The SetOSInstallationParameterByName2 method changes the OS installation parameter for an array of computers identified by the host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfstring osimTargetComputerLabel (m)

Specifies the list of computer labels of the target computers.

xsd:string installParameterName

Specifies the parameter name of the OS installation parameter you want to change.

xsd:string installParameterValue

Specifies the OS installation parameter value you want to change. To update the default value, specify NULL.

Return Values

None

Remarks

None

GetOSIMParameterDefaults

The GetOSIMParameterDefaults method returns the supported values for an OS Installation parameter for OSIM Computers identified by MACAddress. For example, some of the OSIM parameters like, Time Zone, Language, and so on, have a set of valid values list for OS Image.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfstring osimTargetMACAddress

Specifies list of MAC addresses of target computers.

xsd:string paramName

Specifies the name of the parameter for which you want to retrieve the valid values.

Return Values

dsm:ArrayOfstring defaults

Returns an array of valid values for the specified parameter.

GetOSIMParameterDefaultsByName

The GetOSIMParameterDefaults method returns the supported values for an OS Installation parameter for OSIM Computers identified by the host name. For example, some of the OSIM parameters like, Time Zone, Language, and so on, have a set of valid values list for OS Image.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfstring osimTargetComputerLabel

Specifies the list of computer labels of target computers.

xsd:string paramName

Specifies the name of the parameter for which you want to retrieve the valid values.

Return Values

dsm:ArrayOfstring defaults

Returns an array of valid values for the specified parameter.

GetBootImageList2

The GetBootImageList2 method fetches all the registered boot images in a domain manager. This method also supports the sort and filter operations.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:bool isBootServerNameSupplied

Specifies if the boot server name is entered.

xsd:string bootServerName

Specifies the name of the boot server.

dsm: ArrayOfBootImageFilter filterArray

Specifies an array of filter conditions on boot image properties.

dsm:BootImageProperty sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long numRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Xsd:boolean refreshList

Specifies whether you want to recompute the result set for each call.

Return Values

xsd:long totalNumImages

Contains the total number of images available for the specified filter condition.

dsm: ArrayOfBootImageProperties biPropsArray

Contains an array of boot image properties.

GetBootServerList2

The GetBootServerList2 method returns the boot servers in the domain manager. This method supports the sort and filter operations also.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm: ArrayOfBootServerFilter filterArray

Specifies an array of filter conditions on boot server properties.

dsm:BootServerProperty sortProperty

Specifies the boot server property based on which you want to sort the servers.

xsd:boolean ascending

Specifies whether you want to sort the boot servers in ascending order. If set to True, the servers are sorted in ascending order based on the sort property you specified.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long numRequired

Specifies the number of boot servers to get from the specified index number.

Xsd:boolean refreshList

Specifies whether you want to recompute the result set for each call.

Return Values

xsd:long totalNumServers

Contains the total number of boot server available for the specified filter condition.

dsm:ArrayOfBootServerProperties biPropsArray

Contains an array of boot server properties.

Sequences

The DSM Web Services uses the sequences listed in the subsequent section for OSIM functionality.

OSIMProperties

Specifies the OSIM properties.

xsd:string propertyName

Specifies the OSIM property name.

xsd:string propertyValue

Specifies the OSIM property value.

ArrayOfOSIMProperties

Contains an array of [OSIMProperties](#) (see page 285).

dsm:OSIMProperties osimProperties

Contains the name and value pairs for each OSIM property.

ArrayOfOSIMTargetProperties

The ArrayOfOSIMTargetProperties sequence includes [ArrayOfOSIMProperties](#) (see page 285).

dsm:ArrayOfOSIMProperties osimPropertiesArray

Includes an array of OSIM properties.

ArrayOfOSIMTargetInstallationRequestsProperties

dsm:ArrayOfOSIMProperties osimPropertiesArray

The ArrayOfOSIMTargetInstallationRequestsProperties sequence includes [ArrayOfOSIMProperties](#) (see page 285).

OSIMparameterDesc

The OSIMparameterDesc includes the OSIM parameter description name and description value.

xsd:string propertyName

Specifies the OSIM property description name.

sd:string propertyValue

Specifies the OSIM property description value.

ArrayOfOSIMparameterDesc

dsm:OSIMparameterDesc osimParameterDesc

The ArrayOfOSIMparameterDesc includes the [OSIMparameterDesc](#) (see page 286) sequence.

OSIMPropertiesWithDesc

The OSIMPropertiesWithDesc includes the OSIM property name, property value, and an array of description of the property name and property value.

xsd:string propertyName

Specifies the OSIM property name.

xsd:string propertyValue

Specifies the OSIM property value.

dsm:ArrayOfOSIMparameterDesc osimparamDescArray

Specifies the Array description for an OSIM property.

ArrayOfOSIMPropertiesWithDesc

dsm:OSIMPropertiesWithDesc osimProperties

The ArrayOfOSIMPropertiesWithDesc includes the [OSIMPropertiesWithDesc](#) (see page 286) sequence which specifies the OSIM property name, property value, and its descriptions.

ArrayOfOSIMIRParametersWithDesc

The ArrayOfOSIMIRParametersWithDesc specifies the configuration state of the installation request and the properties of corresponding installation.

dsm:OSIMPropertiesWithDesc osimProperties

Specifies the properties of Installation request.

dsm:WS_OSIM_CONFIG_STATE configstate

Specifies the configuration state of the installation request.

ArrayOfOSIMTargetPropertiesWithDesc

The ArrayOfOSIMTargetPropertiesWithDesc specifies all the installation request properties for an OSIM computer.

dsm:ArrayOfOSIMIRParametersWithDesc osimIRArray

Specifies the installation request properties Array.

ArrayOfOSIMImageProperties

Specifies the properties of [OS image](#) (see page 285).

dsm:ArrayOfOSIMProperties osimPropertiesArray

ArrayOfOSIMParameters

The ArrayOfOSIMParameters sequence contains the following parameter:

dsm: OSIMParameters params

Specifies an array of installation parameters.

OSIMParameters

The OSIMParameters sequence contains the following parameters:

xsd:string installParameterName

Specifies the OS Installation parameter name.

xsd:string installParameterValue

Specifies the OS Installation parameter value. Specify NULL for default value.

ArrayOfOSIMTargetFilter2

Specifies the array of OSIM computer filter conditions, one for each OSIM target property:

dsm:OSIMTargetFilter2 osimTargetFilterArray

Contains the computer filter conditions.

OSIMTargetFilter2

The OSIMTargetFilter2 sequence specifies a search filter when you are searching or listing OS images.

dsm:OSIMTARGETPROPERTY2 osimTargetProperty

Specifies the search property.

xsd:string searchString

Specifies the value of the search filter to be applied when the search is performed on a string property.

dsm:DateTime2 stateChangedDateTime

Specifies the changed or activated date and time of the target computer.

dsm:DateTime2 createdDateTime

Specifies the created date and time of the target computer.

dsm:FILTERCONDITION condition

Specifies the filter condition to be applied.

dsm:WS-OSIM-CONFIG-STATE configState

Specifies the configuration state of the OSIM target computer.

ScalabilityServerProperties

Specifies the scalability server properties.

xsd:string serverLabel

Specifies the name of the scalability server.

xsd:string serverHostName

Specifies the host name of the scalability server.

xsd:string serverUUID

Specifies the UUID of the scalability server.

xsd:string domainUUID

Specifies the domain UUID of the scalability server.

xsd:string serverDescription

Includes brief information about the server.

xsd:long serverversion

Specifies the version of the scalability server.

dsm:DateTime lastEvaluationDateTime

Identifies the last evaluated registration date and time of the scalability server.

dsm:DateTime creationDateTime

Identifies the date and time of the scalability server registration.

xsd:string creationUser

Specifies the name of the user account that created the scalability server.

dsm:DateTime lastUpdateDateTime

Specifies the last updated date and time of the scalability server.

xsd:string lastUpdateUser

Specifies the name of the user account that last updated the scalability server.

xsd:string sharePath

Specifies the UNC share path of the server.

ScalabilityServerPropertiesRequired

The following sequences of elements specify the properties required to retrieve the scalability server properties.

xsd:boolean serverLabelRequired

Specifies whether the scalability server name is required.

xsd:boolean serverHostNameRequired

Specifies whether the scalability server host name is required.

xsd:boolean serverUUIDRequired

Specifies whether the scalability server UUID is required.

xsd:boolean domainUUIDRequired

Specifies whether the scalability server domain UUID is required.

xsd:boolean serverDescriptionRequired

Specifies whether the scalability server description is required.

xsd:boolean serverVersionRequired

Specifies whether the scalability server version is required.

xsd:boolean lastEvaluationDateTimeRequired

Specifies whether the last date and time of evaluation of the scalability server name is required.

xsd:boolean creationUserRequired

Specifies whether the details about the user who created the scalability server is required.

xsd:boolean creationDateTimeRequired

Specifies whether the date and time of creation of the scalability server is required.

xsd:boolean lastUpdateDateTimeRequired

Specifies whether the date and time of last update of the scalability server is required.

xsd:boolean lastUpdateUserRequired

Specifies whether the details about the user who last updated the scalability server is required.

xsd:boolean sharePathRequired

Specifies whether the scalability server UNC share path is required.

ArrayOfServerProperties

dsm:ScalabilityServerProperties props

Specifies the array of [scalability server properties](#) (see page 289).

ArrayOfBootServerProperties

dsm:ArrayOfOSIMProperties osimPropertiesArray

Specifies the array of [boot server properties](#). (see page 285)

OSImageFilter

The following sequences of elements specify a search filter when you are searching or listing OS images.

dsm:OSIMAGEPROPERTY osImageProperty

Specifies the search property.

xsd:string searchString

Specifies the value of the search filter to be applied when the search is performed on a string property.

dsm:DateTime2 dateTime

Specifies the changed or activated date and time of the target computer.

dsm:FILTERCONDITION condition

Specifies the filtercondition to be applied.

ArrayOfOSImageFilter

Specifies the Array of OS image filter conditions, one for each OS image property.

dsm:OSImageFilter osImageFilterArray

Contains OS image filter conditions.

OSImageProperties

Specifies the OS image properties.

xsd:string imageName

Specifies the name of the OS image.

xsd:string typeIndicator

Specifies OS image type.

xsd:string operatingSystem

Specifies the operating environment of OS image.

dsm:DateTime2 registeredAt

Specifies the date and time of the OS image registration with the domain manager.

xsd:string sdPackageName

Specifies the name of the related SD package.

xsd:string sdPackageVersion

Specifies the version of the related SD package.

xsd:string sdPackageComment

Specifies the comment related with the SD package.

xsd:string sdOSCode

Specifies the SD code of the OS associated with the OS image.

xsd:string sdOSLocale

Specifies the locale of the OS image.

xsd:string string osImageFlags

Specifies the image flags associated with the OS image.

ArrayOfOSImageProperties

Specifies the array of OS image properties, one for each OS image.

dsm:OSImageProperties props

Contains properties of the OS images that are registered at a domain manager.

OSIMTargetFilter

The following sequences of elements specify a search filter when you are searching or listing OS images.

dsm:OSIMTARGETPROPERTY osimTargetProperty

Specifies the search property.

xsd:string searchString

Specifies the value of the search filter to be applied when the search is performed on a string property.

dsm:DateTime2 stateChangedDateTime

Specifies the changed or activated date and time of the target computer.

dsm:FILTERCONDITION condition

Specifies the filtercondition to be applied.

dsm:WS-OSIM-CONFIG-STATE configState

Specifies the configuration state of the OSIM target computer.

ArrayOfOSIMTargetFilter

Specifies the array of OSIM computer filter conditions, one for each OSIM target property:

dsm:OSIMTargetFilter osimTargetFilterArray

Contains the computer filter conditions.

OSIMTargetProperties

The following are the OSIMTargetProperties:

xsd:string targetName

Specifies the name of the target computer.

xsd:string targetMACAddress

Specifies MAC Address of the target computer.

dsm:WS-OSIM-CONFIG-STATE configType

Specifies the configuration state of the target computer.

dsm:DateTime2 stateChangedDateTime

Specifies the changed or activated date and time of the target computer.

xsd:string imageName

Specifies the name of the OS image.

ArrayOfTargetProperties

Specifies the Array of OSIM target properties, one for each target computer

dsm:OSIMTargetProperties props

Contains OSIM target computer properties.

ComputerPropertyFilter2

The following sequences of elements specify a search filter when you are searching or listing computers.

dsm:ComputerProperty2 computerProperty

Specifies the computer property to be searched.

dsm:ComputerFilterCondition filterCondition

Specifies the filter condition.

xsd:string searchString

Specifies the value of the search filter to be applied when the search is performed on a string property.

This field is mandatory if computerProperty is set to one of the following values:

- COMPUTER_UUID
- COMPUTER_LABEL
- COMPUTER_DOMAIN_UUID
- COMPUTER_PRIMARY_NETWORK_ADDRESS
- COMPUTER_HOST_UUID
- COMPUTER_ASSET_SOURCE_UUID
- COMPUTER_HOST_NAME
- COMPUTER_SERIAL_NUMBER
- COMPUTER_DISC_SERIAL_NUMBER

- COMPUTER_PRIMARY_MAC_ADDRESS
- COMPUTER_ASSET_TAG
- COMPUTER_URI
- COMPUTER_SYSTEM_ID
- COMPUTER_VENDOR_NAME
- COMPUTER_DOMAIN_LABEL
- COMPUTER_CREATION_USER
- COMPUTER_LAST_UPDATED_USER
- COMPUTER_AGENT_NAME
- COMPUTER_AGENT_DESCRIPTION
- COMPUTER-USER-DATA1
- COMPUTER-USER-DATA2
- COMPUTER-USER-DATA3
- COMPUTER-USER-DATA4
- COMPUTER-AGENT-SS
- COMPUTER-AGENT-IPADDRESS
- COMPUTER-AGENT-ORIGIN
- COMPUTER-ASSET-TAG

xsd:long searchValue

Specifies the value of the search filter to be applied when the search is performed on a numeric property.

This field is mandatory if computerProperty is set to one of the following values:

- COMPUTER_CLASSID
- COMPUTER_USAGE_LIST
- COMPUTER_VERSION_NUMBER
- COMPUTER-AGENT-TRUSTLEVEL

xsd:dateTime2 dateTime

Specifies the value of the search filter to be applied when the search is performed on date and time.

This field is mandatory if computerProperty is set to one of the following values:

- COMPUTER_CREATION_DATE
- COMPUTER_LAST_UPDATED_DATE
- COMPUTER-AGENT-CREATION-DATETIME
- COMPUTER-AGENT-LASTRUN-DATETIME

xsd:AMAgentStatus amstatus

Specifies the value of the search filter to be applied when the search is performed on AMAgent status.

COMPUTER_AGENT_AM_STATUS

xsd:SDAgentStatus sdstatus

Specifies the value of the search filter to be applied when the search is performed on SDAgent status.

COMPUTER_AGENT_SD_STATUS

xsd:RCAgentStatus amstatus

Specifies the value of the search filter to be applied when the search is performed on RCAgent status.

COMPUTER_AGENT_RC_STATUS

xsd:ProtectionStatus protectionstatus

Specifies the value of the search filter to be applied when the search is performed on Protection status.

COMPUTER_AGENT_PT_STATUS

xsd:ASPStatus amstatus

Specifies the value of the search filter to be applied when the search is performed on Anti-Spyware agent status.

COMPUTER_AGENT_ASP_STATUS

xsd:AVStatus amstatus

Specifies the value of the search filter to be applied when the search is performed on Anti-Virus agent status.

COMPUTER_AGENT_AV_STATUS

xsd:HIPSStatus amstatus

Specifies the value of the search filter to be applied when the search is performed on HIPS status.

COMPUTER_AGENT_HIPS_STATUS**dsm:AgentRestrictions restrictions**

Specifies the value of the search filter to be applied when the search is performed on agent restrictions.

COMPUTER-AGENT-RESTRICTIONS

ArrayOfComputerPropertyFilter2

Specifies the Array of computer filter conditions. One for each computer property.

dsm:ComputerPropertyFilter2 computerPropertyFilterArray

Contains the computer filter conditions, properties, and values.

ComputerPropertiesRequired2

The following sequences of elements specify the properties required when you are retrieving properties of a computer:

xsd:boolean computerUUIDRequired

Specifies whether computer UUID is required

xsd:boolean computerLabelRequired

Specifies whether computer name or label is required

xsd:boolean computerDomainUUIDRequired

Specifies whether computer domain UUID is required.

xsd:boolean computerPrimaryNetworkAddressRequired

Specifies whether computer primary network address is required.

xsd:boolean computerHostUUIDRequired

Specifies whether computer host UUID is required.

xsd:boolean computerAssetSourceUUIDRequired

Specifies whether computer Asset source UUID is required.

xsd:boolean computerHostNameRequired

Specifies whether computer Hostname is required.

xsd:boolean computerSerialNumberRequired

set to true, if computer serial number is required.

xsd:boolean computerDiscSerialNumberRequired

Specifies whether computer Disc serial number is required.

xsd:boolean computerPrimaryMACAddressRequired

Specifies whether computer MAC Address is required.

xsd:boolean computerAssetTagRequired

Specifies whether computer Asset tag is required.

xsd:boolean computerClassIDRequired

Specifies whether computer OS is required.

xsd:boolean computerUsageListRequired

Specifies whether computer usage list is required.

xsd:boolean computerURIRequired

Specifies whether computer URI is required.

xsd:boolean computerSystemIDRequired

Specifies whether computer system ID is required.

xsd:boolean computerVendorNameRequired

Specifies whether computer vendor name is required.

xsd:boolean computerDomainLabelRequired

Specifies whether computer Domain Label is required.

xsd:boolean computerCreationUserRequired

Specifies whether the details about the user who created the computer is required.

xsd:boolean computerCreationDateRequired

Specifies whether computer creation date is required.

xsd:boolean computerLastUpdatedUserRequired

Specifies whether the details about the user who last updated the computer is required.

xsd:boolean computerLastUpdatedDateRequired

Specifies whether computer last updated date time is required.

xsd:boolean computerVersionNumberRequired

Specifies whether computer version number is required.

xsd:boolean agentNameRequired

Specifies whether computer agent name is required.

xsd:boolean agentRestrictionsRequired

Specifies whether agent restrictions is required.

xsd:boolean agentDescriptionRequired

Specifies whether computer Asset description is required.

xsd:boolean userData1Required

Specifies whether computer user defined data1 is required.

xsd:boolean userData2Required

Specifies whether computer user defined data2 is required.

xsd:boolean userData3Required

Specifies whether computer user defined data3 is required.

xsd:boolean userData4Required

Specifies whether computer user defined data4 is required.

xsd:boolean scalabilityServerNameRequired

Specifies whether Agent Scalability server name is required.

xsd:boolean agentCreationDateTimeRequired

Specifies whether agent creation date and time is required.

xsd:boolean lastRunDateTimeRequired

Specifies whether agent last run date and time is required.

xsd:boolean agentIPAddressRequired

Specifies whether agent IP Address is required.

xsd:boolean agentTrustlevelRequired

Specifies whether agent trust level is required.

xsd:boolean agentOriginRequired

Specifies whether agent origin is required.

xsd:boolean amStatusRequired

Specifies whether AM agent status is required.

xsd:boolean sdStatusRequired

Specifies whether SD agent status is required.

xsd:boolean rcStatusRequired

Specifies whether RC agent status is required.

xsd:boolean protectionStatusRequired

Specifies whether Protection agent status is required.

xsd:boolean aspStatusRequired

Specifies whether Anti-Spyware agent status is required

xsd:boolean avStatusRequired

Specifies whether Anti-Virus agent status is required

xsd:boolean hipsStatusRequired

Specifies whether HIPS agent status is required.

DateTime2

Specifies the date and time structure.

The following sequence of elements represents the date and time structure:

- xsd:int year
- xsd:int month
- xsd:int dayOfMonth
- xsd:int hour
- xsd:int minute
- xsd:int seconds

ComputerProperties2

The following sequences of elements specify the properties required when you are retrieving the properties of a computer.

xsd:string computerUUID

Specifies the UUID of the computer.

xsd:string computerLabel

Specifies the display name of the computer.

xsd:string computerDomainUUID

Specifies the UUID identifying the CA ITCM domain of the computer.

xsd:string computerPrimaryNetworkAddress

Specifies the IP address of the computer in 0.0.0.0 format.

xsd:string computerHostUUID

Specifies the agent-generated UUID that identifies the computer.

xsd:string computerAssetSourceUUID

Specifies the UUID identifying the common CA asset to which this computer is linked.

xsd:string computerHostName

Specifies the host name of the computer.

xsd:string computerSerialNumber

Specifies the serial number of the computer.

xsd:string computerDiscSerialNumber

Specifies the serial number of the computer disc.

xsd:string computerPrimaryMACAddress

Specifies the MAC address of the computer. The string must have a maximum length of 64 characters.

xsd:string computerAssetTag

Specifies the string value that identifies a computer asset.

xsd:long computerClassID

Specifies the numeric value indicating the class of the computer object. For example, Operating System.

dsm:UsageListMask computerUsageList

Specifies the computer usage list mask.

xsd:string computerURI

Specifies the fully qualified Uniform Resource Identifier of the computer.

xsd:string computerSystemID

Specifies the user-defined identifier for computer.

xsd:string computerVendorName

Specifies the name of the computer vendor.

xsd:string computerDomainLabel

Specifies the display name of the DSM domain to which the computer belongs.

xsd:string computerCreationUser

Specifies the name of the user account that created the computer record.

dsm:DateTime computerCreationDate

Specifies the computer creation date and time.

xsd:string computerLastUpdatedUser

Specifies the name of the user account that last updated the computer properties.

dsm:DateTime computerLastUpdatedDate

Specifies the date and time when the computer properties were last updated.

xsd:long computerVersionNumber

Specifies the version number of the computer record.

Note: The version number is incremented each time a record is updated.

xsd:string agentName

Specifies the agent name of the computer.

xsd:long agentRestrictions

Specifies the agent restrictions.

xsd:string agentDescription

Specifies the agent description.

xsd:string userdata1

Specifies the user defined data1.

xsd:string userdata2

Specifies the user defined data2.

xsd:string userdata3

Specifies the user defined data3.

xsd:string userdata4

Specifies the user defined data4.

xsd:string scalabilityserverName

Specifies the name of the scalability server that the agent is pointing to.

dsm:DateTime2 agentCreationDateTime

Specifies the agent creation data and time.

dsm:DateTime2 lastRunDateTime

Specifies the agent last run date and time.

xsd:string agentIPAddress

Specifies the IP address of the agent.

xsd:long agentTrustlevel

Specifies the trust level of the agent.

xsd:string agentOrigin

Specifies the origin of the agent.

dsm:AMAgentStatus amStatus

Specifies the AM Agent status.

dsm:SDAgentStatus sdStatus

Specifies the SD Agent status.

dsm:RCAgentStatus rcStatus

Specifies the RC Agent status.

dsm:ProtectionStatus protectionStatus

Specifies the Protection Agent status.

dsm:ASPStatus aspStatus

Specifies the ASP status.

dsm:AVStatus avStatus

Specifies the AV status.

dsm:HIPSStatus hipsStatus

Specifies the HIPS status.

ArrayOfComputerProperties2

Defines the Computerproperties2 sequence.

dsm:ComputerProperties2 computerPropertiesArray

Contains computer properties.

CreateOSIMComputerProperties

Specifies the properties required to create an OSIM computer.

The following are the properties:

xsd:string computerLabel

Specifies the name of the computer label to be created.

xsd:string computerHostname

Specifies the name of the host name of the computer to be created.

xsd:boolean computerHostNameSupplied

Specifies if the host name of the computer is specified.

xsd:string computerPrimaryNetworkAddress

Specifies the IP address of the computer to be created.

xsd:string serialNumber

Specifies the serial number of the computer to be created.

xsd:boolean serialNumberSupplied

Specifies if the computer serial number is specified.

xsd:string assetTag

Specifies the asset tag of the computer to be created.

xsd:boolean assetTagSupplied

Specifies if the computer asset tag is specified.

dsm:ComputerType computerType

Specifies the computer type.

xsd:boolean computerTypeSupplied

Specifies if the computer type is specified.

xsd:long operatingSystemType

Specifies the operation system type.

xsd:string scalabilityServerName

Specifies the name of the scalability server of the agent

xsd:boolean scalabilityServerNameSupplied

Specifies if the scalabilityserver name is specified.

dsm:CreateAgentComponents createAgentComponents

Specifies the Agent properties for the computer to be created.

xsd:string description

Specifies the agent description.

xsd:boolean descriptionSupplied

Specifies if the description is specified.

dsm:SDAgentProperties sdAgentProperties

Specifies the SD Agent properties for the computer to be created.

xsd:boolean sdAgentPropertiesSupplied

Specifies if the sdAgentProperties is specified.

xsd:string user

Specifies the user who created the computer.

Default: Blank

xsd:boolean userSupplied

Specifies if the username is specified. The possible values are True or False.

xsd:string phone

Specifies the phone number of user who created the computer.

xsd:boolean phoneSupplied

Specifies if the phone number is specified. The possible values are True or False.

xsd:string location

Specifies the location of user who created the computer.

Default: Blank.

xsd:boolean locationSupplied

Specifies if the location of the user is specified. The possible values are True or False.

xsd:string comment

Specifies the user comments.

xsd:boolean commentSupplied

Specifies if the user comments are available. The possible values are True or False.

xsd:string computerPrimaryMACAddress

Specifies the computer MAC Address.

xsd:boolean computerPrimaryMACAddressSupplied

Specifies if the computer MAC address is specified. The possible values are True or False.

xsd:string osimImage

Specifies the OSIM image.

xsd:string osimBootServerName

Specifies if the boot server name

If the name is not specified, the scalability server name is taken as the OSIM boot server name.

xsd:boolean osimBootServerNameSupplied

Specifies if the boot server name is supplied. The possible values are True or False.

ArrayOfOSImageProperties

Specifies the array of OS image properties, one for each OS image.

dsm:OSImageProperties props

Contains properties of the OS images that are registered at a domain manager.

OSImageProperties

Specifies the OS image properties.

xsd:string imageName

Specifies the name of the OS image.

xsd:string typeIndicator

Specifies OS image type.

xsd:string operatingSystem

Specifies the operating environment of OS image.

dsm:DateTime2 registeredAt

Specifies the date and time of the OS image registration with the domain manager.

xsd:string sdPackageName

Specifies the name of the related SD package.

xsd:string sdPackageVersion

Specifies the version of the related SD package.

xsd:string sdPackageComment

Specifies the comment related with the SD package.

xsd:string sdOSCode

Specifies the SD code of the OS associated with the OS image.

xsd:string sdOSLocale

Specifies the locale of the OS image.

xsd:string string osImageFlags

Specifies the image flags associated with the OS image.

ArrayOfOSIMTargetProperties

The ArrayOfOSIMTargetProperties sequence includes [ArrayOfOSIMProperties](#) (see page 285).

dsm:ArrayOfOSIMProperties osimPropertiesArray

Includes an array of OSIM properties.

ArrayOfOSIMProperties

Contains an array of [OSIMProperties](#) (see page 285).

dsm:OSIMProperties osimProperties

Contains the name and value pairs for each OSIM property.

ArrayOfTargetProperties

Specifies the Array of OSIM target properties, one for each target computer

dsm:OSIMTargetProperties props

Contains OSIM target computer properties.

ArrayOfTargetProperties2

Specifies the array of OSIM target properties, one for each target computer.

dsm:OSIMTargetProperties2 props

Contains OSIM target computer properties.

OSIMTargetProperties2

The OSIMTargetProperties includes the following parameters:

xsd:string targetName

Specifies the name of the target computer.

xsd:string targetMACAddress

Specifies MAC address of the target computer.

dsm:WS-OSIM-CONFIG-STATE configType

Specifies the configuration state of the target computer.

dsm:DateTime2 stateChangedDateTime

Specifies the changed or activated date and time of the target computer.

xsd:string imageName

Specifies the name of the OS image.

Xsd:string createdDateTime

Specifies the created date and time of the target computer.

OSIMTargetProperties

The following are the OSIMTargetProperties:

xsd:string targetName

Specifies the name of the target computer.

xsd:string targetMACAddress

Specifies MAC Address of the target computer.

dsm:WS-OSIM-CONFIG-STATE configType

Specifies the configuration state of the target computer.

dsm:DateTime2 stateChangedDateTime

Specifies the changed or activated date and time of the target computer.

xsd:string imageName

Specifies the name of the OS image.

ArrayOfBootImageFilter

The ArrayOfBootImageFilter sequence contains array of boot image filter conditions, one for each boot image property.

dsm:BootImageFilter filter

Specifies the filter conditions for some of the properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

BootImageFilter

The BootImageFilter sequence specifies a search filter that you can use for searching or listing boot images.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

dsm: BootImageProperty biProperty

Specifies the property you want to filter.

xsd:string searchString

Specifies the string you want to search in the name property.

dsm:DateTime2 dateTime

Specifies the date and time value you want to search in the last modified date property.

ArrayOfBootImageProperties

The ArrayOfBootImageProperties sequence contains an array of boot image properties, one for each boot image.

dsm:BootImageProperties biProps

Contains boot image properties for each image.

BootImageProperties

The BootImageProperties sequence specifies the boot image properties.

xsd:string bootImageName

Specifies the name of the boot image.

Xsd:string typeIndicator

Specifies the type of the boot image.

Xsd:string platform

Specifies the operating system of the boot image.

dsm:DateTime2 registeredDateTime

Specifies the date and time of the boot image registration.

Xsd:string sdPackageName

Specifies the software delivery package associated with the boot image.

Xsd:string sdPackageVersion

Specifies the version of the software delivery package associated with the boot image.

Xsd:string sdPackageComment

Specifies the comment included in the software delivery package associated with the boot image.

Xsd:string imageFlags

Specifies the FIPS image flag associated with the boot image.

ArrayOfBootServerFilter

The ArrayOfBootServerFilter sequence contains array of boot server filter conditions, one for each boot server property.

dsm:BootServerFilter filter

Specifies the filter conditions for some of the properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

BootServerFilter

The BootServerFilter sequence specifies a search filter that you can use for searching or listing boot servers.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

dsm: BootServerProperty biProperty

Specifies the property you want to filter.

xsd:string searchString

Specifies the string you want to search in the name property.

dsm: DateTime2 dateTime

Specifies the date and time value you want to search in the last modified date property.

ArrayOfBootServerProperties

The ArrayOfBootServerProperties sequence contains an array of boot server properties, one for each boot server.

dsm: BootServerProperties bsProps

Contains boot server properties.

BootServerProperties

The BootServerProperties sequence contains the boot server properties.

xsd:string serverName

Specifies the boot server name.

Xsd:string bsStatus

Specifies the boot server status.

Xsd:string platform

Specifies the operating system of the boot server.

Xsd:string nfsSupport

Specifies the NFS support for boot server.

Xsd:string accessMethod

Specifies the access method configured for the boot server.

dsm:DateTime2 lastReport

Specifies the date and time of last boot server report.

dsm:DateTime2 lastResponse

Specifies the date and time of last boot server response.

dsm:DateTime2 lastReportReq

Specifies the date and time when the last boots server was requested.

Xsd:string pxelInterfaces

Specifies the configured PXE interface.

Xsd:string sdPkgWin

Specifies the software delivery package name for Windows.

Xsd:string sdPkgLinux

Specifies the software delivery package name for Linux.

Xsd:string sdPkgR11

Specifies the software delivery package for r11 version.

Enumerations

The following sections describe all the enumerated types (enums) that the DSM Web Services uses. These structures are a mapping of the underlying layer functionality.

WS_OSIM_DEPLOY

Specifies an enumerated list of values. The selected value indicates if the manager must wait for the deployment of the OS images.

You can use one of the following:

WS_OSIM_DO_NOT_WAIT

Specifies that the domain manager must not wait for the OS image to be deployed.

WS_OSIM_WAIT

Specifies that the domain manager must wait for the OS image to be deployed.

WS_OSIM_CONF_TYPE

Specifies the type of installation request.

You can use one of the following:

WS_OSIM_CT_PLANNED

Specifies a planned installation request.

WS_OSIM_CT_SCHEDULED

Specifies a scheduled installation request.

WS_OSIM_CT_CURRENT

Specifies a current installation request.

WS_OSIM_IR_STATUS

Specifies the status of the installation request the OSIM computer.

The following installation requests are possible:

WS_IR_PLANNED

Specifies a planned installation request of the target computer.

WS_IR_SCHEDULED

Specifies a scheduled installation request of the target computer.

WS_OSIM_CONFIG_STATE

Specifies the configuration state of an OSIM Computer

The following states are possible:

WS_OSIM_UNMANAGED

Specifies that the OSIM computer is in an unmanaged state.

WS_OSIM_CURRENT

Specifies that the OSIM computer is in a current state.

WS_OSIM_STOPPED

Specifies that the OSIM computer is in a stopped state.

WS_OSIM_CANCEL_PEND

Specifies that the OSIM computer is in a canceled state.

WS_OSIM_ERROR

Specifies that the OSIM computer is in a failed state.

WS_OSIM_PLANNED

Specifies that the OSIM computer is in a planned state.

WS_OSIM_ACTIVATED

Specifies that the OSIM computer is in an activated state.

WS_OSIM_ANALYZING

Specifies that the OSIM computer is in an analyzing state.

WS_OSIM_PENDING

Specifies that the OSIM computer is in a pending state.

WS_OSIM_INSTALLING

Specifies that the OSIM computer is in an installing state.

Property_Type

Specifies the type of property.

The following are the property types:

COMPUTER_MACADDRESS

Specifies the type of property as MAC address.

COMPUTER_NETWORKADDRESS

Specifies the type of property as network address.

COMPUTER_HOSTNAME

Specifies the type of property as host name.

COMPUTER_SERIAL_NUMBER

Specifies the type of property as computer serial number.

FILTERCONDITION

Specifies the valid filter conditions for different properties.

You can use the following filters:

FILTER_WILDCARD_EQ

Defines the wildcard equal filter.

Note: Use this filter with xsd:string elements.

FILTER_WILDCARD_NE

Defines the wildcard not equal xxx.

Note: Use this filter with xsd:string elements.

FILTER_REGEX

Defines the regular expression filter.

Note: Use this filter with xsd:string elements.

FILTER_EQ

Defines the equal filter.

Note: Use this filter with xsd:long, dsm:DateTime, and enumerations.

FILTER_NE

Defines the not equal filter.

Note: Use this filter with xsd:long, dsm:DateTime, and enumerations.

FILTER_GT

Defines the greater than filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

FILTER_GE

Defines the greater than or equal filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

FILTER_LT

Defines lesser than filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

FILTER_LE

Defines the lesser than or equal filter.

Note: Use this filter with `xsd:long` and `dsm:DateTime` elements.

OSIMAGEPROPERTY

Specifies the OS image properties on which the sort and filter conditions can be applied.

The following are the OS image properties:

IMAGE_NAME

Specifies the name of the OS image.

TYPE_INDICATOR

Specifies the OS type.

OPERATING_SYSTEM

Specifies the operating system of the OS image.

REGISTERED_DATETIME

Specifies the registration date and time of the OS image with the domain manager.

SD_PACKAGE_NAME

Specifies the name of the software delivery package corresponding to the OS image.

SD_PACKAGE_VERSION

Specifies the version of software delivery package corresponding to the OS image.

SD_OS_CODE

Specifies the OS code of the software delivery package corresponding to the OS image.

LOCALE

Specifies the locale of the OS image.

IMAGE_FLAGS

Specifies the FIPS image flags of the OS image.

OSIMTARGETPROPERTY

Specifies the OSIM computer properties on which the sort and filter conditions can be applied.

The following are the OSIM computer properties:

TARGET_NAME

Specifies the name of the OSIM computer.

TARGET_MACADDRESS

Specifies the MAC Address of the OSIM computer.

OSIM_CONFIG_STATE

Specifies the configuration state of the OSIM computer.

STATE_CHANGED_DATETIME

Specifies the changed or activation date and time of the OSIM computer.

OS_IMAGENAME

Specifies the name of the OS image associated with the OSIM computer.

ComputerProperty2

The enumerated list of computer properties that you can use for specifying search filters is as follows:

COMPUTER_UUID

Filters based on computer UUID value.

COMPUTER_LABEL

Filters based on Computer name/label value.

COMPUTER_DOMAIN_UUID

Filters based on Computer Domain UUID value.

COMPUTER_PRIMARY_NETWORK_ADDRESS

Filters based on the Computer Primary network address value.

COMPUTER_HOST_UUID

Filters based on Computer Host UUID value.

COMPUTER_ASSET_SOURCE_UUID

Filters based on Computer Asset Source UUID value.

COMPUTER_HOST_NAME

Filters based on Computer Hostname value.

COMPUTER_SERIAL_NUMBER

Filters based on Computer Serial Number value.

COMPUTER_DISC_SERIAL_NUMBER

Filters based on Computer Disk serial number value.

COMPUTER_PRIMARY_MAC_ADDRESS

Filters based on Computer MAC Address value.

COMPUTER_ASSET_TAG

Filters based on Computer Asset tag value.

COMPUTER_URI

Filters based on Computer URI value.

COMPUTER_SYSTEM_ID

Filters based on Computer System ID value.

COMPUTER_VENDOR_NAME

Filters based on Computer Vendor Name value.

COMPUTER_DOMAIN_LABEL

Filters based on Computer Domain Label value.

COMPUTER_CREATION_USER

Filters based on Computer Creation user value.

COMPUTER_LAST_UPDATED_USER

Filters based on Computer last updated user value.

COMPUTER-AGENT-NAME

Filters based on Computer Agent Name value.

COMPUTER-AGENT-DESCRIPTIONS

Filters based on Computer Agent Descriptions value.

COMPUTER-USER-DATA1

Filters based on Computer User defined data1.

COMPUTER-USER-DATA2

Filters based on Computer User defined data2.

COMPUTER-USER-DATA3

Filters based on Computer User defined data3.

COMPUTER-USER-DATA4

Filters based on Computer User defined data4.

COMPUTER-AGENT-SS

Filters based on Agent Scalability server name

COMPUTER-AGENT-IPADDRESS

Filters based on Agent IP Address

COMPUTER_CLASSID

Filters based on Computer Operation System value.

COMPUTER_USAGE_LIST

Filters based on Computer usage list value.

COMPUTER_CREATION_DATE

Filters based on Computer Creation date time.

COMPUTER_LAST_UPDATED_DATE

Filters based on Computer last updated date time.

COMPUTER_VERSION_NUMBER

Filters based on Computer version number.

COMPUTER-AGENT-TRUSTLEVEL

Filters based on Computer Agent trust level.

COMPUTER-AGENT-CREATION-DATETIME

Filters based on Agent Creation date time.

COMPUTER-AGENT-LASTRUN-DATETIME

Filters based on Agent last run date time.

COMPUTER_AGENT_AM_STATUS

Filters based on AM Agent Status.

COMPUTER_AGENT_SD_STATUS

Filters based on SD Agent Status.

COMPUTER_AGENT_RC_STATUS

Filters based on RC Agent Status.

COMPUTER_AGENT_PT_STATUS

Filters based on Protection Agent Status.

COMPUTER_AGENT_ASP_STATUS

Filters based on Anti Spyware Agent Status.

COMPUTER_AGENT_AV_STATUS

Filters based on Antivirus Agent Status.

COMPUTER_AGENT_HIPS_STATUS

Filters based on HIPS Agent Status.

COMPUTER_AGENT_RESTRICTIONS

Filters based on Agent Restrictions.

ComputerFilterCondition

Specifies the valid filter conditions for different computer properties.

The following are the available filters:

COMPUTER_FILTER_WILDCARD_EQ

Defines the wildcard equal filter.

Note: Use this filter with xsd:string elements.

COMPUTER_FILTER_WILDCARD_NE

Defines the wildcard not equal filter.

Note: Use this filter with xsd:string elements.

COMPUTER_FILTER_EQ

Defines the equal filter.

Note: Use this filter with xsd:long, dsm:DateTime, and enumerations.

COMPUTER_FILTER_NE

Defines the not equal filter.

Note: Use this filter with xsd:long, dsm:DateTime, and enumerations.

COMPUTER_FILTER_GT

Defines the greater than filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

COMPUTER_FILTER_GE

Defines the greater than or equal filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

COMPUTER_FILTER_LT

Defines the lesser than filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

COMPUTER_FILTER_LE

Defines the lesser than or equal filter.

Note: Use this filter with xsd:long and dsm:DateTime elements.

AMAgentStatus

Indicates the AMAgent status on the target computer.

The following are the possible values:

WS_AM_AGENTLESS

Indicates that the computer is collected through the external asset functionality.

WS_AM_ALERT

Indicates that the computer has violated a policy with severity as Alert.

WS_AM_INFORMATION

Indicates that the computer has violated a policy with severity as Information.

WS_AM_WARNING

Indicates that the computer has violated a policy with severity as Warning.

WS_AM_LEGACY

Indicates that the computer has a legacy asset management agent.

WS_AM_NOTINSTALLED

Indicates that the computer does not have the AM Agent plug-in installed.

WS_AM_OPERATIONAL

Indicates that the computer is operational.

WS_AM_PREREGISTERED

Indicates that the computer is preregistered.

SDAgentStatus

Indicates the SDAgent status.

The following are the possible values:

WS_SD_LOCKED_BY_MIGRATION

Indicates that the computer is locked for migration.

WS_SD_LOCKED_BY_MOVE

Indicates that the computer is locked for move operation.

WS_SD_LOCKED_BY_RAC

Indicates that the computer is locked by RAC.

WS_SD_LOCKED_BY_RAC_AND_MOVE

Indicates that the computer is locked by RAC and Move.

WS_SD_LOCKED_BY_RAC_AND_ROAM

Indicates that the computer is locked by RAC and ROAM.

WS_SD_LOCKED_BY_ROAM

Indicates that the computer is locked by ROAM.

WS_SD_NOTINSTALLED

Indicates that the computer does not have the SD Agent plug-in installed.

WS_SD_PREREGISTERED

Indicates that the computer is preregistered.

WS_SD_OPERATIONAL

Indicates that the computer is operational.

RCAgentStatus

Indicates the RCAgent status.

The following are the possible values:

WS_RC_ACTIVE_SESSION

Indicates that the computer has an active session with a viewer.

WS_RC_ACTIVE_LOCAL_SESSION

Indicates that the computer can manage its own security settings and has an active session with a viewer.

WS_RC_LISTENING

Indicates that the computer can accept a request for a remote control session.

WS_RC_LISTENING_LOCAL_SESSION

Indicates that the computer can manage its own security settings and accept a request for a remote control session.

WS_RC_LOCKED

Indicates that the Remote Control application on the computer has been locked. Active sessions have been terminated and no new sessions can be started with the computer.

WS_RC_LOCKED_LOCAL_SESSION

Indicates that the computer can manage its own security settings but the Remote Control application on the computer has been locked. Active sessions have been terminated and no new sessions can be started with the computer.

WS_RC_MIGRATED

Indicates that the computer has migrated Remote Control agents.

WS_RC_NOT_INSTALLED

Indicates that the Remote Control agent has not been installed on the computer.

WS_RC_NOT_LISTENING

Indicates that the computer cannot accept a request for a remote control session, but the agent can be configured.

WS_RC_NOT_LISTENING_LOCAL_SESSION

Indicates that that the computer manages its own security settings and cannot accept a request for a remote control session, but the agent can be configured.

WS_RC_PREREGISTERED

Indicates that the computer is preregistered.

WS_RC_STOPPED

Indicates that that the computer has Remote Control agent installed but is not running.

WS_RC_STOPPED_LOCAL_SESSION

Indicates that that the computer has Remote Control agent installed and manages its own security settings, but remote control is not running.

WS_RC_UNKNOWN

Indicates that the computer has the RC Status as Unknown.

ProtectionAgentStatus

Indicates the ProtectionAgent status.

The following are the possible values:

WS_PT_NOTINSTALLED

Indicates that the state of all three protection applications (CA Anti-Virus, CA Anti-Spyware, and CA HIPS) is "Not Installed" or "Unknown".

WS_PT_PREREGISTERED

Indicates that the computer is preregistered.

WS_PT_NOTPROTECTED

Indicates that protection data has been retrieved and the state of at least one of the protection applications is different from "Operational" or "Not Installed."

WS_PROTECTED

Indicates that at least one protection application is installed and the individual states of all the installed applications are "Operational."

ASPAgentStatus

Indicates the Anti-Spyware agent status.

The following are the possible values:

WS_ASP_UNKNOWN

Indicates that no protection data about ASPAgent is retrieved yet or agent object is preregistered.

WS_ASP_OPERATIONAL

Indicates that ASPAgent is operational.

WS_ASP_NOTOPERATIONAL

Indicates that ASPAgent is installed but not operational.

WS_ASP_NOTINSTALLED

Indicates that ASPAgent is not installed.

AVAgentStatus

Indicates the Anti-Virus agent status.

The following are the possible values:

WS_AV_UNKNOWN

Indicates that no protection data about AVAgent is retrieved yet or agent object is preregistered.

WS_AV_OPERATIONAL

Indicates that AVAgent is operational.

WS_AV_NOTOPERATIONAL

Indicates that AVAgent is installed but not operational.

WS_AV_NOTINSTALLED

Indicates that AVAgent is not installed.

HIPSStatus

Indicates the HIPS status.

The following are the possible values:

WS_HIPS_UNKNOWN

Indicates that no protection data about HIPS agent is retrieved yet or agent object is preregistered.

WS_HIPS_OPERATIONAL

Indicates that HIPS agent is operational.

WS_HIPS_NOTOPERATIONAL

Indicates that HIPS agent is installed but not operational.

WS_HIPS_NOTINSTALLED

Indicates that HIPS agent is not installed.

AgentRestrictions

Specifies the agent restrictions.

The following are the possible values:

JOB-RESTRICTION-NONE

Specifies that there are no agent restrictions.

JOB-RESTRICTION-LOCAL

Identifies the jobs blocked locally.

JOB-RESTRICTION-CENTRAL

Identifies the jobs blocked centrally.

JOB-RESTRICTION-ALL

Identifies the jobs blocked locally and centrally.

WS_OSIM_CONFIG_STATE

Specifies the configuration state of an OSIM Computer

The following states are possible:

WS_OSIM_UNMANAGED

Specifies that the OSIM computer is in an unmanaged state.

WS_OSIM_CURRENT

Specifies that the OSIM computer is in a current state.

WS_OSIM_STOPPED

Specifies that the OSIM computer is in a stopped state.

WS_OSIM_CANCEL_PEND

Specifies that the OSIM computer is in a canceled state.

WS_OSIM_ERROR

Specifies that the OSIM computer is in a failed state.

WS_OSIM_PLANNED

Specifies that the OSIM computer is in a planned state.

WS_OSIM_ACTIVATED

Specifies that the OSIM computer is in an activated state.

WS_OSIM_ANALYZING

Specifies that the OSIM computer is in an analyzing state.

WS_OSIM_PENDING

Specifies that the OSIM computer is in a pending state.

WS_OSIM_INSTALLING

Specifies that the OSIM computer is in an installing state.

BootImageProperty

Specifies the boot image property on which you want to apply the sort and filter conditions.

BI-IMAGE-NAME

Refers to the boot image name.

BI-TYPE-INDICATOR

Refers to the boot image type.

BI-PLATFORM

Refers to the boot image operating system.

BI-REGISTERED-DATETIME

Refers to the date and time of boot image registration.

BI-SD-PACKAGE-NAME

Refers to the software delivery package associated with the boot image.

BI-SD-PACKAGE-VERSION

Refers to the version of the software delivery package associated with the boot image.

BI-SD-PACKAGE-COMMENT

Refers to the comment included in the software delivery package associated with the boot image.

BI-IMAGE-FLAGS

Refers to the FIPS image flag associated with the boot image.

BootServerProperty

Specifies the boot server property on which you want to apply the sort and filter conditions.

BS-NAME

Refers to boot server name.

BS-STATUS

Refers to boot server status.

BS-PLATFORM

Refers to operating system of the boot server.

BS-NFS-SUPPORT

Refers to the NFS support.

BS-ACCESS-METHOD

Refers to the access method.

BS-LASTREPORT

Refers to the date and time of last boot server report.

BS-RESPONSE

Refers to the date and time of last boot server response.

BS-LASTREPORT-REQ

Refers to the date and time when the last boots server was requested.

BS-PXE-INTERFACE

Refers to the configured PXE interface.

BS-SD-PKG-WIN

Refers to the software delivery package name for Windows.

BS-SD-PKG-LINUX

Refers to the software delivery package name for Linux.

BS-SD-PKG-R11

Refers to the software delivery package for r11 version.

Web Services Messages

WSA000394

Invalid parameter 'osimTargetMACAddress'

Reason:

The specified MACAddress is invalid.

Action:

Verify that you have provided the correct MACAddress.

WSA000395

Invalid parameter 'osimTargetLabel'

Reason:

The value specified for the OSIM computer label is invalid.

Action:

Verify that you have provided the correct computer label.

WSA000396

Invalid parameter 'OSImage'

Reason:

The value specified for OSImage is invalid.

Action:

Verify that you have provided the correct OSImage name.

WSA000397

Invalid parameter 'Bootserver'

Reason:

The value specified for Bootserver is invalid.

Action:

Verify that you have provided the correct Bootserver name.

WSA000398

Invalid Filter Condition

Reason:

The values specified for filter properties are invalid.

Action:

Verify that you have specified proper filter conditions, filter properties, and filter values. For more information, see the sequences related to computer filters.

WSA000399

Invalid value for 'seconds' in parameter 'DateTime'. It should be 0 to 59

Reason:

The value specified for seconds is invalid.

Action:

Verify that you have provided the correct seconds in DateTime2 sequence.

Web Services for Asset Script Jobs

The web services for asset script jobs include the methods for managing and executing asset script jobs. The web services are in the CA ITCM Web Service WSDL (webserviceapi.wsdl or webserviceapi_utf8.wsdl), which is in the top level CA ITCM install directory.

Note: For more information about DSM web services, see the chapter "Web Services Tutorial Writing Client Applications" and the topic "Web Services Reference" in the *CA IT Client Manager Web Services Reference Guide*.

Using the web services included in this release, you can perform the following tasks related to asset jobs:

- Create an asset script job
- Schedule an asset script job
- Get and set the properties of an asset script job
- Get the properties of all the available script Jobs
- Link or unlink the jobs from units or groups
- Delete asset script jobs
- Activate asset management and software delivery job checks

Methods

The following sections describe the methods used by asset script job web services.

CreateAssetScriptJob

The CreateAssetScriptJob method is used to create an asset script job.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

dsm:AssetScriptJobProperties assetJobScriptProperties

Specifies the properties required to create an asset script job.

Return Values

dsm:CreateAssetScriptJobResponse

Returns a response with the job ID, UUID, and domain ID if the asset script job is created successfully.

Remarks

None

GetAssetScriptJob

The GetAssetScriptJob method is used to get the properties of an asset script job.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

xsd:long assetjobUID

Specifies the UUID identifying the script job, the properties of which must be retrieved.

dsm:AssetScriptJobPropertiesRequired assetScriptJobPropertiesRequired

Specifies the list of script job properties to be retrieved.

Return Values

dsm:GetAssetScriptJobResponse

Returns a response with the job ID, domain ID, and the value of each property passed in the input parameter AssetScriptJobPropertiesRequired.

Remarks

None

OpenAssetScriptJobList

The OpenAssetScriptJobList is used to open the asset script jobs list.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

dsm:AssetScriptJobPropertiesRequired assetJobPropertiesRequired

Specifies the list of script job properties to be retrieved.

Return Values

dsm:OpenAssetScriptJobListResponse

Returns the list handle to the list opened and the number of jobs in the list.

Remarks

None

GetAssetScriptJobs

The GetAssetScriptJobs is used to get the properties for all the asset script jobs.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

Xsd:long listHandle

Specifies the handle to the asset script job list returned by OpenAssetScriptJobList method.

Xsd:long noOfJobs

Specifies the number of asset jobs returned by OpenAssetJobList method.

Return Values

ArrayOfGetAssetScriptJobsProperties getAssetJobsReponse

Contains the job properties of all the script jobs.

Remarks

None

CloseAssetScriptJobList

The CloseAssetScriptJobList method is used to close the list handle of asset script job list.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

Xsd:long listHandle

Specifies the handle to the asset job list returned by OpenAssetScriptJobList method.

Return Values

None

Remarks

None

SetAssetScriptJob

The SetAssetScriptJob is used to set the properties for an asset script job.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

xsd:long assetjobUID

Specifies the UUID identifying the script job, the properties of which must be retrieved.

dsm:AssetScriptJobProperties assetScriptJobProperties

Specifies asset job properties you want to set.

Return Values

None

Remarks

None

DeleteAssetJobs

The DeleteAssetJobs method is used to delete list of asset jobs.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

dsm:ArrayOfstring assetJobIds

Specifies the array of asset job IDs to delete.

Return Values

None

Remarks

None

LinkAssetJobsToUnit

The LinkAssetJobsToUnit method is used to link a list of asset jobs to a unit.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

xsd:string unitId

Specifies the unit ID to which you want to link the asset jobs.

dsm:UnitObjectType unitObjectType

Specifies the object type of the unit.

dsm:ArrayOfstring *arrayofassetJobIds

Specifies the array of asset job IDs you want to link with unit.

Return Values

None

Remarks

None

More information:

[UnitObjectType](#) (see page 348)

LinkAssetJobsToUnitGroup

The LinkAssetJobsToUnitGroup method is used to link a list of asset jobs to a unit group.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

xsd:string unitGroupId

Specifies the unit group ID to which you want to link the asset jobs.

dsm:ArrayOfstring assetJobIds

Specifies the array of asset job IDs you want to link with the unit group.

Return Values

None

Remarks

None

UnLinkAssetJobsFromUnit

The UnLinkAssetJobsFromUnit method is used to unlink a list of asset jobs from a unit.

Parameters

xsd:string sessionID

Specifies the session id obtained from the login to the web service.

xsd:string unitId

Specifies the unit ID from which you want to unlink the asset jobs.

dsm:UnitObjectType unitObjectType

Specifies the type of the unit.

dsm:ArrayOfstring assetJobIds

Specifies the array of asset job IDs you want to unlink from the unit.

Return Values

None

Remarks

None

UnLinkAssetJobsFromUnitGroup

The UnLinkAssetJobsFromUnitGroup method is used to unlink a list of asset jobs from a unit group.

Parameters**xsd:string sessionID**

Specifies the session id obtained from the login to the web service.

xsd:string unitGroupId

Specifies the unit group ID from which you want to unlink the asset jobs.

dsm:ArrayOfstring assetJobIds

Specifies the array of asset job IDs you want to unlink from the unit group.

Return Values

None

Remarks

None

ActivateJobCheck

The ActivateJobCheck method is used to trigger the asset or software job check.

Parameters**xsd:string sessionID**

Specifies the session id obtained from the login to the web service.

dsm:ArrayOfTriggerInfo triggerInfoList

Specifies the list of objects to trigger.

dsm:ArrayOfAMExtraCmdParam cmdParams

Specifies the additional parameters for executing asset management job check.

Return Values

None

Remarks

None

Sequences

The following sections describe the sequences used by asset script job web services.

CreateAssetScriptJobResponse

The CreateAssetScriptJobResponse sequence includes the following parameters related to the creation of the asset script job:

xsd:string assetJobUid

Contains the UUID of the new asset job.

xsd:long assetJobID

Contains the ID of the new asset job.

Xsd:long domainId

Contains the domain ID of the new asset job

AssetScriptJobProperties

The AssetScriptJobProperties sequence includes the job properties for the asset script job.

xsd:string jobName

Specifies the job name.

xsd:boolean bJobDescriptionSupplied

Specifies whether the job description is supplied for the job.

xsd:string jobDescription

Specifies the description for the job.

xsd:boolean bJobScriptSupplied

Specifies whether the script is supplied for the job.

xsd:string jobScript

Specifies the script to be executed on the agent for this script job.

xsd:boolean bSchedulingOptionsSupplied

Specifies whether the scheduling options for this job are supplied.

dsm:schedulingOptions scheduleProperties

Specifies the scheduling options for the asset job.

More information:

[SchedulingOptions](#) (see page 337)

SchedulingOptions

The SchedulingOptions sequence is used to schedule a script job to run at specified occasions.

dsm:scheduling scheduling

Specifies the frequency of job execution.

dsm:conditions conditions

Specifies various conditions for executing the job such as the date time range, days of the week, and periodic dependency.

dsm:dependency dependency

Specifies the factors to consider for executing the job at the scheduled time.

dsm:preJob preJob

Specifies the actions to be performed before executing the job.

dsm:postJob postJob

Specifies the actions to be performed after executing the job.

dsm:miscellaneous miscellaneous

Specifies the parameters for unattended execution of the job.

More information:

[Scheduling](#) (see page 338)

[Conditions](#) (see page 338)

[Dependency](#) (see page 339)

[PreJob](#) (see page 340)

[PostJob](#) (see page 340)

[Miscellaneous](#) (see page 340)

Scheduling

The Scheduling sequence is used to specify how frequently you want to execute the job.

xsd:int schedule

This field can have following values.

RUN_ONLY_ONCE

Runs the job only the first time when the asset management agent runs on the computers that are linked with this job.

ALWAYS_RUN_JOB

Runs the job whenever the asset management agent runs on the computers that are linked with this job.

OTHER_SCHEDULING_RUN

Runs the job for specified number of times (at most 99) on the computers linked with this job.

Default: ALWAYS_RUN_JOB

Conditions

The Conditions sequence is a scheduling option used to specify the conditions for executing the job.

dsm:DateTimeRestrictions datetimerestrictions

Specifies date and time range for executing the job.

xsd:boolean bRunOnlyOnTheseDays

Specifies whether the job must be run only on the selected days of a week.

dsm:ArrayOfDayOfTheWeekDependency dayOfTheWeekDependency

Specifies the days in a week when the job must be run. If you set `bRunOnlyOnTheseDays` parameter to true, you must specify the days of the week in this parameter.

xsd:boolean blsPeriodDepen

Specifies whether there is a periodic dependency.

dsm:PeriodicDependency periodicDependency

Specifies the options for periodic dependency.

More information:

[DateTimeRestrictions](#) (see page 341)

[ArrayOfDayOfTheWeekDependency](#) (see page 341)

[DayOfTheWeekDependency](#) (see page 341)

[PeriodicDependency](#) (see page 343)

Dependency

The Dependency sequence is a scheduling options used to specify the dependency factors for executing a job.

xsd:boolean bJobDependency

Specifies whether the execution of the job is dependent on the successful completion of another job.

dsm:JobDependency jobDependency

Specifies the job dependency options.

xsd:boolean bFileDependency

Specifies whether the execution of the job is dependent on the existence of a file.

dsm:FileDependency fileDependency

Specifies file dependency options.

xsd:boolean bJobConLimit

Specifies whether there is any limit to the maximum number of simultaneous executions of an action per scalability server.

xsd:int allowOnlyNumExecutionsAtATime

Specifies the number of simultaneous executions allowed.

More information:

[FileDependency](#) (see page 342)

[JobDependency](#) (see page 342)

PreJob

The PreJob sequence is a scheduling option used to specify the actions to be performed before executing the job.

xsd:boolean bJobExecProperties

Specifies whether you want to provide the job execution properties.

dsm:JobExecProperties jobExecProperties

Specifies the job execution properties.

xsd:boolean bNetWorkDriveInfoSupplied

Specifies whether you want to provide the network drive information.

dsm:NetWorkDrive netWorkDrive

Provides the required information to map network drive before job execution.

More information:

[JobExecProperties](#) (see page 343)

[NetWorkDrive](#) (see page 344)

PostJob

The PostJob sequence is a scheduling option used to specify the actions to be performed after executing the job.

xsd:boolean bpostJobProperties

Specifies whether you want to provide post job execution properties.

dsm:PostJobProperties postJobProperties

Specifies the post job execution options.

xsd:boolean bDeleteJobWhenSucceeded

Specifies whether you want the job to be deleted after the successful execution.

Miscellaneous

The Miscellaneous sequence is a scheduling option used to run the job unattended.

xsd:boolean bJobisallowedtorunattended

Specifies whether you want to run the job unattended, that is, without any user interaction.

DateTimeRestrictions

The `DateTimeRestrictions` sequence is a scheduling option used to specify the date and time restrictions for executing the job.

xsd:boolean bRunOnlywhenwithindatarange

Specifies whether you want to provide the date range for executing the job.

xsd:boolean bRunOnlywhenwithintimerange

Specifies whether you want to provide the time range for executing the job.

dsm:DateTime StartDatetime

Defines the starting date and time for executing the job.

dsm:DateTime EndDatetime

Defines the ending date and time for executing the job.

ArrayOfDayOfTheWeekDependency

The `ArrayOfDayOfTheWeekDependency` sequence is a scheduling option used to specify the days in a week when you want the job to be run.

dsm:DayOfTheWeekDependency dayOfTheWeekDependencyValueArray

Specifies the days in a week when you want the job to be run.

GetAssetScriptJobResponse

The `GetAssetScriptJobResponse` sequence contains the response for the `GetAssetScriptJob` method.

xsd:long assetJobID

Contains the ID of the asset job.

Xsd:long domainId

Contains the domain ID of the new asset job

dsm:AssetScriptJobProperties assetJobProperties

Contains the properties retrieved for a given asset script job.

DayOfTheWeekDependency

The `DayOfTheWeekDependency` sequence is a scheduling option used to specify a week day.

dsm:WeekDay weekdays

Specifies a day in the week.

More information:

[WeekDay](#) (see page 348)

FileDependency

The FileDependency sequence is a scheduling option used to specify the file dependency options for executing a job.

xsd:string filePath

Specifies the path to the file that you want to check.

xsd:boolean bFileExists

Specifies whether you want to perform an action depending on the existence of the selected file. Set this parameter to false to execute an action if the file does not exist.

JobDependency

The JobDependency sequence is a scheduling option used to specify the job dependency options for executing a job.

xsd:long dependentJobDomainId

Defines the domain ID of the dependent job.

xsd:long dependentJobId

Defines the job ID of the dependent job.

Xsd:string dependentJobUid

Defines the UUID of the dependent job.

xsd:boolean bCurrentJobAttachedToRelatedAsset

Specifies whether you want to run the scheduled job only on completion of a dependent job on the related assets. If the scheduled job is linked to a computer, the dependent job must have been executed on the computer before the scheduled job runs. If the scheduled job is linked to a user, the dependent job must have been executed in the user login before the scheduled job runs.

PeriodicDependency

The PeriodicDependency is a scheduling option used to specify the periodic dependency options for executing the job.

dsm:PERIODTYPE periodType

Specifies that you want to Executes an action based on this period type.

xsd:int period

Specifies the period after which the job must be executed. Depending on the period type, this parameter takes the following values:

Day: number of hours

For example, specify 21 to execute the job at 9PM every day.

Week: Day in a week

For example, specify 3 to execute the job on every Wednesday.

Month: Day in a month

For example, specify 12 to execute the job on the day 12 of every month.

JobExecProperties

The JobExecProperties sequence is a scheduling option used to specify the other properties for job execution.

xsd:string PromptMessage

Defines the message text to be shown on the computer before executing the job.

xsd:string messageOK

Displays the Yes button in the message. You can customize this to match your message.

Default: &YES

xsd:string messageCancel

Displays the No button in the message box. You can customize this to match your message.

Default: &NO

xsd:boolean bDefaultMessage

Specifies whether messageOK must be applied by default. If this parameter is set to false, messageCancel is applied.

xsd:boolean bAutoSelect

Specifies whether you want to enable the auto select option.

xsd:boolean bAutoSelectValue

Specifies whether you want to specify the auto select value.

xsd:long autoSelectAfterSecond

Specifies the time after which the auto select value is applied.

xsd:boolean bForceExecutionAfterNumCancellations

Specifies whether you want to force the execution after certain number of cancellations.

xsd:int forceExecutionAfterNumCancellations

Specifies the number of cancellations after which you want to force the execution of the job. This ensures that the user can cancel an action only a limited number of times.

xsd:boolean bForceExecutionAfter

Specifies whether you want to force the execution of the job after a particular date. This ensures that the user can cancel an action only until a particular date.

xsd:dateTime ForceExecutionAfter

Specifies the date when you want to force the execution of the job.

NetWorkDrive

The NetWorkDrive sequence is a scheduling option used to provide the network drive details for executing a job,

xsd:string drive

Specifies the drive letter to which you want to map the share.

xsd:string sharePath

Specifies the name of the share.

Default: \\SERVER\SHARE

xsd:boolean bDisconnectWhenDone

Specifies whether you want to disconnect the temporary drive connection after executing the job.

PostJobProperties

The PostJobProperties sequence is a scheduling option used to specify the post job properties.

xsd:boolean bMessageAndTimeOut

Specifies whether you want to reboot the windows agent computer after executing the job.

xsd:string messageBeforReboot

Specifies the message text to be displayed before the computer restarts.

xsd:int messageTimeout

Defines the number of seconds the message must be visible. Specify 0 to give infinite timeout.

xsd:boolean bRestartOS

Restarts the agent computer.

AssetScriptJobPropertiesRequired

The AssetScriptJobPropertiesRequired sequence is used to retrieve the asset job properties.

xsd:boolean assetJobNameRequired

Specifies whether you want to retrieve the asset script job name.

xsd:boolean assetJobDescriptionRequired

Specifies whether you want to retrieve the asset script job description.

xsd:boolean assetJobScriptRequired

Specifies whether you want to retrieve the asset job script.

xsd:boolean assetJobSchedulingOptionsRequired

Specifies whether you want to retrieve the scheduling options of the asset job.

Dsm:OpenAssetScriptJobListResponse

The OpenAssetScriptJobListResponse sequence includes the following parameters related to asset script job list:

Xsd:long OpenListHandle

Contains the ListHandle to the list opened.

Xsd:long totalNoOfScriptJobs

Contains the total number of script jobs in the list.

ArrayOfGetAssetScriptJobsProperties

The ArrayOfGetAssetScriptJobsProperties sequence contains the array of script job properties.

dsm:GetAssetScriptJobsProperties getAssetScriptJobsPropertiesArray

Contains the array of asset script job properties.

More information:

[GetAssetScriptJobsProperties](#) (see page 346)

GetAssetScriptJobsProperties

The GetAssetScriptJobsProperties sequence contains properties of all the asset script jobs.

xsd:string assetJobUid

Contains the UUID of the asset job.

Xsd:long domainId

Contains the domain ID of the asset job.

xsd:string jobName

Contains asset job script name.

xsd:boolean bJobDescriptionSupplied

Specifies whether the job description is supplied for the job.

xsd:string jobDescription

Contains the description about the job.

xsd:boolean bJobScriptSupplied

Specifies whether the script is supplied for the job.

xsd:string jobScript

Contains the script to be executed on the agent for the script job.

xsd:boolean bSchedulingOptionsSupplied

Specifies whether the scheduling options of this job are supplied

dsm:schedulingOptions scheduleProperties

Contains the scheduling options for the job.

ArrayOfTriggerInfo

The ArrayOfTriggerInfo sequence is used to specify the list of objects to trigger.

dsm:TriggerInfo triggerInfoArray

Specifies the array that contains the job check information.

TriggerInfo

The TriggerInfo sequence is used to specify the information to trigger the asset management and software delivery job check.

int nCFComponentCode

Specifies the [CF component code](#) (see page 349).

CO_TRIGGER_UNIT_TYPE nUnitType

Specifies the unit type.

xsd:string objDbUuid;

Specifies the UUID of the object

BOOL wakeOnLAN

Specifies the whether you want to send the wake-on-LAN request.

More information:

[CO_TRIGGER_UNIT_TYPE](#) (see page 348)

ArrayOfAMExtraCmdParam

The ArrayOfAMExtraCmdParam is used to specify the additional parameters for executing asset management job check.

dsm:AMExtraCmdParam cmdParamsArray

Specifies the array of asset management specific parameters.

More information:

[AMExtraCmdParam](#) (see page 349)

Enumerations

The following sections describe the enumerations used by asset script job web services.

WeekDay

The enumerated list of the possible weekdays that you can specify while scheduling a job is as follows:

- WS-SUNDAY
- WS-MONDAY
- WS-TUESDAY
- WS-WEDNESDAY
- WS-THURSDAY
- WS-FRIDAY
- WS-SATURDAY

PERIODTYPE

The enumerated list of the possible period type you can specify while scheduling a job is as follows:

- WS-NONE
- WS-DAY
- WS-WEEK
- WS-MONTH
- WS-YEAR

CO_TRIGGER_UNIT_TYPE

The enumerated list of the possible unit types is as follows:

- TRIGG-COMPUTER
- TRIGG-USERPROFILE
- TRIGG-DOCKINGDEVICE

UnitObjectType

The enumerated list of the possible unit object types are as follows:

- WS-UNIT-DISCOVERED-COMPUTER
- WS-UNIT-DISCOVERED-USER
- WS-UNIT-ENGINE
- WS-SERVER
- WS-UNIT-DISCOVERED-EXTERNAL
- WS-UNIT-COMPUTER-USER

AMExtraCmdParam

The enumerated list of the possible parameters for executing asset management job check are as follows:

- WS_RESCAN_INVENTORY
- WS_RESCAN_SOFTWARE
- WS_COLLECT

CFComponentCode

The enumerated list of the possible Component codes are as follows:

- WS-SD-AGENT
- WS-AM-AGENT

Web Services Messages

WSA000400

Invalid Asset Job Properties Supplied

Reason:

The asset job properties you have specified are invalid.

Action:

Verify that you have provided the correct values for the properties. For more information, see [AssetScriptJobProperties](#) (see page 336).

WSA000401

Invalid Asset Job UUID or Asset Job Name Supplied

Reason:

The asset job UUID or the job name you have specified is not available in the database.

Action:

Verify that you have provided the correct UUID or asset job name.

WSA000402

Invalid Asset Job Properties required

Reason:

The asset job properties you are trying to retrieve do not exist.

Action:

Verify that you have provided the correct property name; check to see if there is any typo. For more information, see [AssetScriptJobProperties](#) (see page 336).

WSA000403

Number of Asset Script jobs can not be less than or equal to zero

Reason:

The list handle you have specified does not contain any asset jobs.

Action:

Verify that you have opened the asset scripts jobs and have provided the correct list handle. For more information, see [OpenAssetScriptJobList](#) (see page 331) and [GetAssetScriptJobs](#) (see page 331).

WSA000404

Invalid value supplied for periodic dependency condition

Reason:

The value you have specified for periodic dependency is invalid.

Action:

Verify that you have provided correct values for periodic dependency. For more information, see [PeriodicDependency](#) (see page 343).

WSA000405

Invalid value supplied for date time range

Reason:

The date and time range you have specified is invalid.

Action:

Specify the correct date and time range. For more information, see [DateTimeRestrictions](#) (see page 341).

WSA000406

Invalid value supplied for unit type

Reason:

The unit type you have specified does not exist.

Action:

Verify that the value you have provided matches [CO TRIGGER UNIT TYPE](#) (see page 348).

Web Services for Software Delivery

Methods

CreateSoftwareJobContainer4

The CreateSoftwareJobContainer4 method creates a software job container.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:CreateSoftwareJobContainerProperties4 properties (m)

Specifies properties required to create a software job container.

Return Values

xsd:string softwareJobContainerId

Returns the UUID of the new container, if a software job container was successfully created.

IsServiceDeskIntegrationEnabled

The IsServiceDeskIntegrationEnabled method verifies whether CA ITCM and CA Service Desk integration is enabled.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Return Values

xsd:boolean isIntegrationEnabled

Returns a boolean value depending on whether CA Service Desk integration is enabled.

GetServiceDeskRequestURLForContainer

The GetServiceDeskRequestURLForContainer method returns the CA Service Desk request URL for a job container.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string jobContainerId (m)

Specifies the UUID of the software job container.

Return Values

xsd:string requestURL

Contains the CA Service Desk request URL for container.

GetServiceDeskTemplates

The GetServiceDeskTemplates method returns a list of CA Service Desk templates in CA Service Desk Manager. The list is returned based on the index and the number of templates you specify.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long noOfTemplates

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

xsd:long totalNoOfTemplates

Returns the total number of templates in the list.

GetSoftwarePackageList

The GetSoftwarePackageList method returns the registered software packages in a domain manager. This method supports the sort and filter operations also.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string softwarePackageGroupId

Specifies the UUID of the software package group from which the software packages have to be listed. Specify NULL to list all software packages.

dsm:SoftwarePackagePropertiesRequired softwarePackagePropertiesRequired

Specifies the software package properties you want retrieve from the list.

dsm:ArrayOfSoftwarePackageFilter filterArray

Specifies an array of filter conditions on software package properties.

dsm:SoftwarePackageProperty sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long numRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Xsd:boolean refreshList

Specifies whether you want to recompute the result set for each call.

Return Values

xsd:long totalNumPackages

Contains the total number of packages available for the specified filter condition.

dsm:ArrayOfSoftwarePackageProperties2 swPkgArray

Contains an array of software packages properties.

GetComputerSDProperties

The GetComputerSDProperties method returns the software delivery related properties for a particular computer identified by UUID.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string computerUUID

Specifies the UUID of the computer.

Return Values

dsm: SDProperties props

Contains the software delivery properties of the computer.

GetComputerSDPropertiesByName

The GetComputerSDPropertiesByName method returns the software delivery related properties for a particular computer identified by hostname.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string computerName

Specifies the name of the computer.

Return Values

dsm: SDProperties props

Contains the software delivery properties of the computer.

GetManagerProperties

The GetManagerProperties method returns the manager properties like version number, language, and so on.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Return Values

dsm: ManagerProperties props

Contains manager properties.

Sequences

CreateSoftwareJobContainerProperties4

The CreateSoftwareJobContainerProperties4 sequence of elements specifies the job container properties you want initialize when a software job container is created. This sequence is derived from the CreateSoftwareJobContainerProperties3 sequence and includes additional parameters for opening a CA Service Desk ticket when a job fails.

xsd:string parentSoftwareJobContainerId

Specifies the parent software job container ID. If no value is provided, the root “__SD_Jobs” is used as the parent.

xsd:boolean parentSoftwareJobContainerIdSupplied

Specifies true or false depending on whether the parentSoftwareJobContainerId parameter is supplied.

xsd:string name (m)

Specifies the name of the software job container.

xsd:string comment

Specifies the comment for the software job container.

xsd:boolean commentSupplied

Specifies true or false depending on whether the comment parameter is supplied.

xsd:long priority

Specifies the priority that can range from 1 (highest) to 10 (lowest), If no value is provided, the default value, 5, is used.

xsd:long prioritySupplied

Specifies true or false depending on whether the priority parameter is supplied.

SoftwareJobContainerPropertyMask softwareJobContainerPropertyMask

Specifies the mask for the software job container property. If no value is provided, the default value, linkageBatch and Cascade, is used.

xsd:boolean softwareJobContainerPropertyMaskSupplied

Specifies true or false depending on whether the softwareJobContainerPropertyMask parameter is supplied.

xsd:string userMessage

Specifies the custom administrator message.

xsd:int userMessageSupplied

Checks whether or not the custom administrator message is provided.

Xsd:boolean openTicketOnFailure

Specifies whether to create a CA Service Desk ticket on failure of jobs in job container.

Xsd:String templateName

Specifies the name of the CA Service Desk ticket template for creating ServiceDesk requests. Set this parameter only if you have set the openTicketOnFailure parameter to True.

ArrayOfSDTemplateProperties

The ArrayOfSDTemplateProperties sequence includes an array of CA Service Desk template properties, one for each template in the list.

dsm:SDTemplateProperties props

Contains CA Service Desk template properties.

SDTemplateProperties

The SDTemplateProperties sequence includes the properties of CA Service Desk templates.

Xsd:string templateName

Specifies the template Name.

Xsd:string templateId

Specifies the template ID.

ArrayOfSoftwarePackageFilter

The ArrayOfSoftwarePackageFilter sequence contains an array of software package filter conditions, one for each property.

dsm:SoftwarePackageFilter filter

Specifies the filter conditions for some of the properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

SoftwarePackageFilter

The BootServerFilter sequence specifies a search filter that you can use for searching or listing boot servers.

dsm:FILTERCONDITION condition

Specifies the filter condition you want to apply.

dsm:SoftwarePackageProperty biProperty

Specifies the property you want to filter.

xsd:string searchString

Specifies the string you want to search in the name property.

dsm: DateTime2 dateTime

Specifies the date and time value you want to search in the last modified date property.

Xsd:long searchValue

Specifies the search value for xsd:long type properties.

dsm:SoftwarePackagingType pkgType

Specifies the search value for dsm:SoftwarePackagingType type properties.

dsm: PackageFormat format

Specifies the search value for dsm:PackageFormat type properties.

dsm: SoftwarePackageFiledBy filedBy

Specifies the search value for dsm: SoftwarePackageFiledBy type properties.

dsm: ArchivePath archivedAt

Specifies the search value for dsm:ArchivePath type properties.

ArrayOfSoftwarePackageProperties2

The ArrayOfSoftwarePackageProperties2 sequence contains an array of software package properties, one for each package.

dsm:SoftwarePackageProperties2

Contains the software package properties.

SoftwarePackageProperties2

The SoftwarePackageProperties2 sequence contains the software package properties.

xsd:string softwarePackageId

Specifies the UUID identifying the software package.

xsd:string softwarePackageName

Specifies the name of the software package.

xsd:string softwarePackageVersion

Specifies the version of the software package.

xsd:string basedOnSoftwarePackageId

Specifies the UUID of the software package based on which this software package is created or from which this software package is imported. A software package can be created or imported based on another software package.

xsd:string basedOnSoftwarePackageName

Specifies the name of the software package based on which this software package is created or from which this software package is imported. A software package can be created or imported based on another software package.

xsd:string basedOnSoftwarePackageVersion

Specifies the version of the software package based on which this software package is created or from which this software package is imported. A software package can be created or imported based on another software package.

xsd:string supplier

Specifies the vendor of the software package.

xsd:string comment

Specifies the comment for the software package.

xsd:string sourcePath

Specifies the package source path.

dsm:SoftwarePackageType softwarePackageType

Specifies the type of software package.

xsd:boolean userSelectable

Specifies whether the package is selectable from the SD Catalog.

dsm:SourceMedium softwarePackageDataSource

Specifies the source medium for the software package data source.

dsm:SoftwarePackageFiledBy softwarePackageFiledBy

Specifies the user who created the software package.

dsm:DateTime registrationDateTime

Specifies the date and time the software package was created.

dsm:DateTime changeDateTime

Specifies the date and time the software package was last changed.

dsm:SoftwarePackagingType packageType

Specifies the type of the software package. The only type of package you can create is a GENERIC package type.

xsd:long packetSize

Specifies the package size.

xsd:long buildOnSize

Specifies the build on size of the package.

xsd:string archivePath

Specifies the archive path of the package, if the package is archived.

xsd:string archiveComment

Specifies the archive comment, if the package is archived.

xsd:string archivedBy

Specifies the user who performed the archive, if the package is archived.

dsm:ArchivePath archiveFlag

Specifies the archive flag of the package, if the package is archived.

dsm:DateTime archDateTime

Specifies the date and time when the package was archived, if the package is archived.

SDProperties

The SDProperties sequence includes the software delivery properties of a computer.

xsd:string jobCalendar

Specifies the name of the job calendar, if any.

xsd:Boolean softwareManagedSystem

Specifies whether to push only the packages created by CA software packager to the computer.

dsm:RACPolicy racPolicy

Specifies the RAC Policy for the computer.

dsm:DownloadMethod downloadMethod

Specifies the download method configured for the computer.

ManagerProperties

The ManagerProperties sequence includes the manager properties.

xsd:string managerUUID

Specifies the UUID of the manager.

xsd:boolean isEnterprise

Specifies whether the manager is an enterprise manager or domain manager.

xsd:string language

Specifies the installed language on manager.

dsm:ManagerVersion version

Specifies the manager version.

ManagerVersion

The ManagerVersion sequence specifies the different versions of the manager that are retrieved.

xsd:int majorVersion

Specifies the CA ITCM major version on the manager.

xsd:int minorVersion

Specifies the CA ITCM minor version on the manager.

xsd:int buildNumber

Specifies the CA ITCM build number on the manager.

xsd:int patchNumber

Specifies the CA ITCM patch number on the manager.

Enumerations

PackageFormat

An enumerated list of possible software package formats. You can select one of the following xsd:string types:

REGULAR

A software package that contains a regular application

VIRTUAL

A software package that contains a virtual application

SoftwarePackageProperty

Specifies the software package properties on which you want to apply the sort and filter conditions.

SDPKG-NAME

Refers to the name of the software package.

SDPKG-VERSION

Refers to the version of the software package.

SDPKG-TYPE

Refers to the type of software package.

SDPKG-BASEDONPKG-NAME

Refers to the name of the software package based on which this software package is created or from which this software package is imported. A software package can be created or imported based on another software package.

SDPKG-BASEDONPKG-VERSION

Refers to the version of the software package based on which this software package is created or from which this software package is imported. A software package can be created or imported based on another software package.

SDPKG-REGISTERED-DATETIME

Refers to the date and time the software package was created.

SDPKG-FORMAT

Refers to the package format.

SDPKG-SIZE

Refers to the package size.

SDPKG-CHANGED-DATETIME

Refers to the date and time the software package was last changed.

SDPKG-SUPPLIER

Refers to the vendor of the software package.

SDPKG-FILEDBY

Refers to the user who created the software package.

SDPKG-CHECKSUM

Refers to the software package checksum.

SDPKG-USERSELECTABLE

Specifies whether the package is selectable from the SD Catalog.

SDPKG-COMMENT

Refers to the comment for the software package.

SDPKG-ARCHIVED-DATETIME

Specifies the date and time when the package was archived.

SDPKG-ARCHIVEDBY

Refers to the user who performed the archive.

SDPKG-ARCHIVED-AT

Specifies whether the archived path is on the manager or on the DSM Web Services computer.

SDPKG-ARCHIVED-PATH

Refers to the archive path of the package.

SDPKG-ARCHIVED-COMMENT

Refers to the archive comment.

Web Services for Computers, Groups, and Queries

Methods

GetUnitGroupComputerMembers3

The GetUnitGroupComputerMembers3 method fetches the computers in a unit groups member list from a specified index number.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:long listHandle

Specifies the numeric handle to a list returned by a previous call to OpenUnitGroupComputerMembersList2.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long noOfComputers

Specifies the number of objects you want to retrieve from the startIndex position. This number must be less than or equal to the total number in the list returned by a previous call to OpenUnitGroupComputerMembersList2.

Return Values

dsm:ArrayOfComputerProperties2 GetUnitGroupComputerMembersReturn

Specifies an [Array of ComputerProperties](#) (see page 303). One for each computer requested from the list.

Remarks

You can make multiple calls to GetUnitGroupComputerMembers3 to iterate down the list. You must call the CloseUnitGroupComputerMembersList method to close the list.

GetUnitGroupByName

The GetUnitGroupByName method retrieves the properties of a specified unit group, identified by its name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Xsd:string unitGroupName

Specifies the name of the unit group, the properties of which you want to retrieve.

dsm:ObjectPreference objectPreference

Specifies whether the group must be a local or replicated group, or either of the two.

dsm: UnitGroupPropertiesRequired unitGroupPropertiesRequired

Specifies the group properties you want to retrieve.

Return Values

dsm: UnitGroupProperties GetUnitGroupReturn

Contains the unit group properties retrieved.

Remarks

None

GetComputerOSName

The GetComputerOSName method returns the operating system name based on specified OS class ID.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string osClassID

Specifies the class ID for which you want to retrieve the operating system name.

Return Values

xsd:string osName

Contains the operating system name for the specified class ID.

GetComputerByName

The GetComputerByName method retrieves the properties of the computer, identified by the host name specified.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string computerHostName

Specifies the host name of the computer to search for. You can include wildcard characters such as * and ?.

Xsd:long noOfComputers

Specifies the number of computers that must be returned from the search, if more than one match is found.

ComputerPropertiesRequired computerPropertiesRequired

Specifies the computer properties to be retrieved. This parameter is mandatory, if noOfComputers is greater than 0.

Return Values

ArrayOfComputerProperties computerArray

Includes an array of computer properties structures, one for each computer matched by the search. The size of this array is either the number of computers matched by the search or the number of computers specified in the noOfComputers parameter, whichever is the lowest.

xsd:long totalNoOfComputersFound

Includes the total number of computers that were matched by the search. This value indicates that there were more matches found than the requested number of computers.

Remarks

The method supports wildcard pattern matching for the computer hostname. The name is case insensitive. Use FindComputer API to search for computers using compute label. Use GetComputerByName API to search for computers using compute hostname.

GetHardWareModelList

The GetHardWareModelList method returns the distinct hardware models in the CA ITCM environment.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfHWModelFilter filterArray

Specifies the filter properties that are supported.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

Xsd:long numRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

dsm:ArrayOfstring hwModelList

Contains the distinct hardware models list.

GetUnitGroupsXML

The GetUnitGroupsXML method returns the CA ITCM computer groups in an XML tree.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

Xsd:string parentGroup

Specifies the root group for which you need the xml tree. Specify NULL to return all the computer groups.

xsd:string excludeGroupName

Specifies the group name to be excluded from the XML, if any. The subgroups under the specified group are also excluded.

xsd:boolean excludeSystemGroups

Specifies whether you want to exclude system groups such as All Computers, All User Accounts, and All User Profiles.

Return Values

xsd:string groupsXML

Returns the computer groups XML as a string.

GetComputerHWModel

The GetComputeHWModel method returns the hardware model for a list of computers identified by their UUID.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfstring computeUUIDs (m)

Specifies the array of computer UUIDs, the hardware models of which you want to retrieve.

Return Values

dsm:ArrayOfstring hwModels

Contains the hardware models of the specified computers.

GetComputerHWModelByName

The GetComputeHWModelByName method returns the hardware model for a list of computers identified by host name.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfstring computerHostNames (m)

Specifies the array of host names, the hardware models of which you want to retrieve.

Return Values

dsm:ArrayOfstring hwModels

Contains the hardware models of the specified computers.

GetQueryFolderId

The GetQueryFolderId method returns the ID of the specified query folder.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string folderName

Specifies the name of the query folder, the ID of which you want to retrieve.

Xsd:string parentFolderName

Specifies the parent folder name.

Return Values

Xsd:long folderId

Contains the ID of the specified query folder.

GetQueries2

The GetQueries2 method retrieves the queries in a query folder. This method supports the sort and filter operations also.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string folderId

Specifies the ID of the folder from which you want to retrieve the queries. Specify 0 for the All Queries folder.

dsm:ArrayOfQueryFilter filterArray

Specifies an array of filters on query properties.

dsm:QueryProperty sortProperty

Specifies the property based on which you want to sort the results.

xsd:boolean sortAscending

Specifies whether you want to sort the list in ascending order.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long numRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

xsd:long totalNumQueries

Returns the total number of queries available for the specified filter condition.

dsm:ArrayOfQueries queryArray

Contains an array of queries in the specified folder, filtered and sorted as specified.

GetQueryFolders

The "GetQueryFolders" API returns the query folders.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

xsd:string folderId

Specifies the ID of the parent folder from which you want to retrieve the query folders. Specify 0 to retrieve from the Queries root folder.

Xsd:long index

Specifies an index number from which you want the items must be returned from the result set. The index is zero-based.

xsd:long numRequired

Specifies the number of objects you want to retrieve from the startIndex position.

Return Values

xsd:long totalNumFolders

Contains the total number of folders available.

dsm: ArrayOfQueryFolderProperties queryFolderArray

Contains an array of query folder properties inside the specified folder.

GetInstalledComponents3

The GetInstalledComponents3 method returns the status of components installed.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfComponents components

Specifies the array of components for which the status must be retrieved.

Return Values

dsm:ArrayOfComponentStatus getStatus

Includes an array of components and their statuses.

GetManagerConfigurationParameterInt

The GetManagerConfigurationParameterInt method returns the value of the configuration parameters.

Parameters

xsd:string sessionId

Specifies the session ID obtained from the DSM web services login.

dsm:ArrayOfConfigurationParams params (m)

Specifies an array of configuration parameters for which the values must be retrieved.

Return Values

dsm:ArrayOfConfigurationParamValues configValues

Contains an array of configuration parameters along with their values.

Sequences

ArrayOfComponents

The ArrayOfComponents sequence contains the array of components, one for each component.

dsm:COMPONENTS component

Contains the component value.

ArrayOfComponentStatus

The ArrayOfComponentStatus sequence contains an array of components and their statuses, one for each component.

dsm:COMPONENTS component

Specifies the component value.

dsm:COMPONENT-STATUS status

Specifies the component status.

ArrayOfConfigurationParams

The ArrayOfConfigurationParams contains an array of configuration parameters one for each parameter.

dsm:ConfigurationParams params

Contains the configuration parameter name.

ArrayOfConfigurationParamValues

The ArrayOfConfigurationParamValues sequence contains an array of configuration parameters and its values for each parameter.

dsm:ConfigurationParams params

Contains the configuration parameter name.

xsd:int paramValue

Contains the parameter value.

ArrayOfComputerProperties2

Defines the Computerproperties2 sequence.

dsm:ComputerProperties2 computerPropertiesArray

Contains computer properties.

ComputerProperties2

The following sequences of elements specify the properties required when you are retrieving the properties of a computer.

xsd:string computerUUID

Specifies the UUID of the computer.

xsd:string computerLabel

Specifies the display name of the computer.

xsd:string computerDomainUUID

Specifies the UUID identifying the CA ITCM domain of the computer.

xsd:string computerPrimaryNetworkAddress

Specifies the IP address of the computer in 0.0.0.0 format.

xsd:string computerHostUUID

Specifies the agent-generated UUID that identifies the computer.

xsd:string computerAssetSourceUUID

Specifies the UUID identifying the common CA asset to which this computer is linked.

xsd:string computerHostName

Specifies the host name of the computer.

xsd:string computerSerialNumber

Specifies the serial number of the computer.

xsd:string computerDiscSerialNumber

Specifies the serial number of the computer disc.

xsd:string computerPrimaryMACAddress

Specifies the MAC address of the computer. The string must have a maximum length of 64 characters.

xsd:string computerAssetTag

Specifies the string value that identifies a computer asset.

xsd:long computerClassID

Specifies the numeric value indicating the class of the computer object. For example, Operating System.

dsm:UsageListMask computerUsageList

Specifies the computer usage list mask.

xsd:string computerURI

Specifies the fully qualified Uniform Resource Identifier of the computer.

xsd:string computerSystemID

Specifies the user-defined identifier for computer.

xsd:string computerVendorName

Specifies the name of the computer vendor.

xsd:string computerDomainLabel

Specifies the display name of the DSM domain to which the computer belongs.

xsd:string computerCreationUser

Specifies the name of the user account that created the computer record.

dsm:DateTime computerCreationDate

Specifies the computer creation date and time.

xsd:string computerLastUpdatedUser

Specifies the name of the user account that last updated the computer properties.

dsm:DateTime computerLastUpdatedDate

Specifies the date and time when the computer properties were last updated.

xsd:long computerVersionNumber

Specifies the version number of the computer record.

Note: The version number is incremented each time a record is updated.

xsd:string agentName

Specifies the agent name of the computer.

xsd:long agentRestrictions

Specifies the agent restrictions.

xsd:string agentDescription

Specifies the agent description.

xsd:string userdata1

Specifies the user defined data1.

xsd:string userdata2

Specifies the user defined data2.

xsd:string userdata3

Specifies the user defined data3.

xsd:string userdata4

Specifies the user defined data4.

xsd:string scalabilityserverName

Specifies the name of the scalability server that the agent is pointing to.

dsm:DateTime2 agentCreationDateTime

Specifies the agent creation data and time.

dsm:DateTime2 lastRunDateTime

Specifies the agent last run date and time.

xsd:string agentIPAddress

Specifies the IP address of the agent.

xsd:long agentTrustlevel

Specifies the trust level of the agent.

xsd:string agentOrigin

Specifies the origin of the agent.

dsm:AMAgentStatus amStatus

Specifies the AM Agent status.

dsm:SDAgentStatus sdStatus

Specifies the SD Agent status.

dsm:RCAgentStatus rcStatus

Specifies the RC Agent status.

dsm:ProtectionStatus protectionStatus

Specifies the Protection Agent status.

dsm:ASPStatus aspStatus

Specifies the ASP status.

dsm:AVStatus avStatus

Specifies the AV status.

dsm:HIPSStatus hipsStatus

Specifies the HIPS status.

ArrayOfQueryFilter

The ArrayOfQueryFilter sequence contains an array of query filter conditions, one for each property.

dsm:QueryFilter filter

Specifies the filter conditions for some of the properties.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

QueryFilter

The QueryFilter sequence specifies a search filter that you can use for searching or listing queries.

dsm: QueryFilterCondition filterCondition

Specifies the filter condition you want to apply.

dsm: QueryProperty queryProperty

Specifies the property you want to filter.

xsd:string searchString

Specifies the string you want to search in the name property.

dsm: QueryTargetType targetType

Specifies the query target type.

ArrayOfQueries

The ArrayOfQueries sequence contains query properties, one for each query.

dsm: QueryProperties2 queryProps

Contains query properties for each query.

QueryProperties2

The QueryProperties2 sequence contains the properties of a query.

xsd:string queryUUID

Specifies the UUID of the query.

Xsd:string queryName

Specifies the name of the query.

dsm: QueryTargetType queryType

Specifies the type of the query.

Xsd:boolean replicated

Specifies whether is query is replicated from enterprise manager. If true, it indicates that the query is replicated from enterprise manager.

QueryProperty

The QueryProperty sequence specifies the query properties on which you can apply the sort and filter conditions.

QUERY-LABEL

Specifies the name of the query.

QUERY-TARGET-TYPE

Specifies the target type of the query.

ArrayOfQueryFolderProperties

The ArrayOfQueryFolderProperties sequence contains the array of query folder properties, one for each query folder.

dsm: QueryFolderProperties properties

Contains query folder properties for each folder.

QueryFolderProperties

The QueryFolderProperties sequence contains the properties of a query folder.

Xsd:string folderName

Specifies the name of the query folder.

Xsd: long folderId

Specifies the ID of the query folder.

HWModelFilter

The HWModelFilter sequence specifies a search filter that you can use for searching or listing unique hardware models.

dsm: HWMODEL-FILTER-CONDITION filterCondition

Specifies the filter condition you want to apply.

xsd:string searchString

Specifies the string you want to search in the hardware model name.

ArrayOfHWModelFilter

The ArrayOfHWModelFilter sequence contains an array of Hardware model filter conditions

dsm: HWModelFilter filter

Specifies the filter conditions for hardware models.

xsd:boolean matchall

Specifies whether you want all the filter conditions to be satisfied. Set the parameter to True to perform an AND operation. Set the parameter to False to perform an OR operation.

Enumerations

AMAgentStatus

Indicates the AMAgent status on the target computer.

The following are the possible values:

WS_AM_AGENTLESS

Indicates that the computer is collected through the external asset functionality.

WS_AM_ALERT

Indicates that the computer has violated a policy with severity as Alert.

WS_AM_INFORMATION

Indicates that the computer has violated a policy with severity as Information.

WS_AM_WARNING

Indicates that the computer has violated a policy with severity as Warning.

WS_AM_LEGACY

Indicates that the computer has a legacy asset management agent.

WS_AM_NOTINSTALLED

Indicates that the computer does not have the AM Agent plug-in installed.

WS_AM_OPERATIONAL

Indicates that the computer is operational.

WS_AM_PREREGISTERED

Indicates that the computer is preregistered.

SDAgentStatus

Indicates the SDAgent status.

The following are the possible values:

WS_SD_LOCKED_BY_MIGRATION

Indicates that the computer is locked for migration.

WS_SD_LOCKED_BY_MOVE

Indicates that the computer is locked for move operation.

WS_SD_LOCKED_BY_RAC

Indicates that the computer is locked by RAC.

WS_SD_LOCKED_BY_RAC_AND_MOVE

Indicates that the computer is locked by RAC and Move.

WS_SD_LOCKED_BY_RAC_AND_ROAM

Indicates that the computer is locked by RAC and ROAM.

WS_SD_LOCKED_BY_ROAM

Indicates that the computer is locked by ROAM.

WS_SD_NOTINSTALLED

Indicates that the computer does not have the SD Agent plug-in installed.

WS_SD_PREREGISTERED

Indicates that the computer is preregistered.

WS_SD_OPERATIONAL

Indicates that the computer is operational.

RCAgentStatus

Indicates the RCAgent status.

The following are the possible values:

WS_RC_ACTIVE_SESSION

Indicates that the computer has an active session with a viewer.

WS_RC_ACTIVE_LOCAL_SESSION

Indicates that the computer can manage its own security settings and has an active session with a viewer.

WS_RC_LISTENING

Indicates that the computer can accept a request for a remote control session.

WS_RC_LISTENING_LOCAL_SESSION

Indicates that the computer can manage its own security settings and accept a request for a remote control session.

WS_RC_LOCKED

Indicates that the Remote Control application on the computer has been locked. Active sessions have been terminated and no new sessions can be started with the computer.

WS_RC_LOCKED_LOCAL_SESSION

Indicates that the computer can manage its own security settings but the Remote Control application on the computer has been locked. Active sessions have been terminated and no new sessions can be started with the computer.

WS_RC_MIGRATED

Indicates that the computer has migrated Remote Control agents.

WS_RC_NOT_INSTALLED

Indicates that the Remote Control agent has not been installed on the computer.

WS_RC_NOT_LISTENING

Indicates that the computer cannot accept a request for a remote control session, but the agent can be configured.

WS_RC_NOT_LISTENING_LOCAL_SESSION

Indicates that that the computer manages its own security settings and cannot accept a request for a remote control session, but the agent can be configured.

WS_RC_PREREGISTERED

Indicates that the computer is preregistered.

WS_RC_STOPPED

Indicates that that the computer has Remote Control agent installed but is not running.

WS_RC_STOPPED_LOCAL_SESSION

Indicates that that the computer has Remote Control agent installed and manages its own security settings, but remote control is not running.

WS_RC_UNKNOWN

Indicates that the computer has the RC Status as Unknown.

ProtectionAgentStatus

Indicates the ProtectionAgent status.

The following are the possible values:

WS_PT_NOTINSTALLED

Indicates that the state of all three protection applications (CA Anti-Virus, CA Anti-Spyware, and CA HIPS) is "Not Installed" or "Unknown".

WS_PT_PREREGISTERED

Indicates that the computer is preregistered.

WS_PT_NOTPROTECTED

Indicates that protection data has been retrieved and the state of at least one of the protection applications is different from "Operational" or "Not Installed."

WS_PROTECTED

Indicates that at least one protection application is installed and the individual states of all the installed applications are "Operational."

ASPAgentStatus

Indicates the Anti-Spyware agent status.

The following are the possible values:

WS_ASP_UNKNOWN

Indicates that no protection data about ASPAgent is retrieved yet or agent object is preregistered.

WS_ASP_OPERATIONAL

Indicates that ASPAgent is operational.

WS_ASP_NOTOPERATIONAL

Indicates that ASPAgent is installed but not operational.

WS_ASP_NOTINSTALLED

Indicates that ASPAgent is not installed.

AVAgentStatus

Indicates the Anti-Virus agent status.

The following are the possible values:

WS_AV_UNKNOWN

Indicates that no protection data about AVAgent is retrieved yet or agent object is preregistered.

WS_AV_OPERATIONAL

Indicates that AVAgent is operational.

WS_AV_NOTOPERATIONAL

Indicates that AVAgent is installed but not operational.

WS_AV_NOTINSTALLED

Indicates that AVAgent is not installed.

HIPStatus

Indicates the HIPS status.

The following are the possible values:

WS_HIPS_UNKNOWN

Indicates that no protection data about HIPS agent is retrieved yet or agent object is preregistered.

WS_HIPS_OPERATIONAL

Indicates that HIPS agent is operational.

WS_HIPS_NOTOPERATIONAL

Indicates that HIPS agent is installed but not operational.

WS_HIPS_NOTINSTALLED

Indicates that HIPS agent is not installed.

ObjectPreference

Specifies the object type of the group you want to retrieve.

The following are the possible values:

LOCALLY

Indicates that the group is a local group.

REPLICATE

Indicates that the group is a replicated group.

NO-PREFERENCE

Indicates that there is no preference and both the groups must be retrieved.

QueryTargetType

Indicates the target type of the query.

The following are the possible values:

QUERY-TARGET-TYPE-CUSTOM

Specifies that the target type of the query is custom.

QUERY-TARGET-TYPE-COMPUTERS

Specifies that the target of the query is computers.

QUERY-TARGET-TYPE-USERACCOUNTS

Specifies that the target of the query is user accounts.

QUERY-TARGET-TYPE-USERPROFILES

Specifies that the target of the query is user profiles.

QUERY-TARGET-TYPE-OSIMCOMPUTERS

Specifies that the target of the query is OSIM computers.

QueryFilterCondition

Specifies the filter conditions for query properties.

The following are the available filters:

QUERY-FILTER-WILDCARD-EQ

Applies wildcard characters in the filter condition for string values and filters the queries that match the wildcard pattern.

QUERY-FILTER-WILDCARD-NE

Applies wildcard characters in the filter condition for string values and filters the queries that do not match the wildcard pattern.

QUERY-FILTER-EQ

Specifies a filter condition for enumerations and filters the queries that match the specified enumeration value.

QUERY-FILTER-NE

Specifies a filter condition for enumeration and filters the queries that do not match the specified enumeration value.

HWMODEL-FILTER-CONDITION

Specifies the filter conditions for hardware models.

The following are the available filters:

HWMODEL-WILDCARD-EQ

Applies wildcard characters in the filter condition for string values and filters the queries that match the wildcard pattern.

HWMODEL-WILDCARD-NE

Applies wildcard characters in the filter condition for string values and filters the queries that do not match the wildcard pattern.

COMPONENTS

Specifies the components that are supported.

- ASSET-MANAGER
- SOFTWARE-DELIVERY
- REMOTE-CONTROL
- ASSET-COLLECTOR
- SERVICE-DESK
- OSIM
- DMDEPLOY
- AUTOMATION-SERVICE

COMPONENT-STATUS

Specifies the list of status

- INSTALLED
- NOTINSTALLED
- NOTCOMPATIBLE

ConfigurationParams

Specifies the configuration parameters that are supported:

SD-MAXJOBTIMEOUT

Corresponds to the config param `"/itrm/usd/manager/MaxActivationTime"`.

SD-MINJOBTIMEOUT

Corresponds to the config param `"/itrm/usd/manager/MinActivationTime"`.

SD-JOBCLEANUPTIME

Corresponds to the config param `"/itrm/usd/manager/JobCleanupTime"`.

SD-JOBHISTORYCLEANUPTIME

Corresponds to the config param `"/itrm/usd/manager/JobHistoryCleanupTime"`.

SD-ALREADYINST-OK

Corresponds to the config param `"/itrm/usd/manager/AlreadyInstalledStatus"`.

SD-FAIL-IMPLICIT-SS-DELIVERIES

Corresponds to the config param `"/itrm/usd/manager/ FailImplicitDeliveries"`.

SD-CHECK-TEMPLATE-POLICIES

Corresponds to the config param `"/itrm/usd/manager/ CheckTemplatePolicies"`.

SD-RAC-AUTOMATION

Corresponds to the config param “/itrm/ugd/manager/ RACAutomation”.

SD-JOBCLEANUPINTERVAL

Corresponds to the config param “/itrm/ugd/manager/ JobCleanupInterval”.

SD-FORCED-RESTRICTIONS

Corresponds to the config param “/itrm/ugd/manager/ ForcedRestrictions”.

Web Services Messages

HLA000259

Invalid Query Folder Id. Query folder doesn't exist for the specified folder id.

Reason:

No CA ITCM query folder exists with the specified folder ID.

Action:

Specify a valid folder ID.

HLA000260

Invalid Folder name. Query folder doesn't exist for the specified name.

Reason:

No CA ITCM query folder exists with the specified name.

Action:

Specify a valid query folder name.

WSA000408

Invalid value for List Index.

Reason:

You may have entered a value less than zero.

Action:

Specify a value that is equal to or more than zero.

WSA000409

Invalid Computer classID.

Reason:

The specified class ID does not exist.

Action:

Specify a valid computer class ID.

WSA000410

Invalid value for number of objects required.

Reason:

You may have entered a value equal to or less than zero.

Action:

Specify a value that is more than zero.

Chapter 14: Documentation Changes

DSM Explorer Help

In the Configuration Policy section of the online help, replace the text for the Common Components, CAF, Wake-on-LAN Policy Group topic with the following text. Some policy descriptions are inadvertently missing:

Wake-On-LAN Policy Group

The Wake-On-LAN policy group lets you set policies for remotely and automatically powering up computers in your enterprise. You can modify policy parameter values by double-clicking a policy to display the Setting Properties dialog.

WOL: Broadcast

Indicates the type of wake-on-LAN (WOL) datagram used to wake physical computers. Valid values are Unicast, Broadcast, and Broadcast + Unicast.

Default: Broadcast + Unicast

Enable guest nets

Indicates whether WOL datagrams can be sent to guest networks in addition to the original network where the computer is registered.

Default: False

Guest net address 1 - Guest net address 5

If Enable guest nets is set to True, specifies the network address of each guest net. Up to five guest nets can be specified.

Guest net mask 1 - Guest net mask 5

If Enable guest nets is set to True, specifies the subnet mask of each guest net. Up to five net masks can be specified.

WOL: Port

Specifies the UDP port to which WOL datagrams are to be sent.

LinkComputersToUnitGroupName Method

The description of the LinkComputersToUnitGroupName method must have been corrected to read as follows:

LinkComputersToUnitGroupName Method

The LinkComputersToUnitGroupName API is used for linking array of computers identified by hostnames to a computer group.

Parameters

xsd: string sessionId (m)

Specifies the session id obtained from the login to the web service.

dsm: unitGroupPropertiesByName (m)

Specifies the unit group name to which the given computers need to be linked. It contains two fields: (a) unitGroupName - Used for specifying the name of the computer group to link (b) ObjectPreference - Used for specifying the preference. If set to LOCALLY, this parameter searches for groups that are created locally. If set to REPLICATE, searches for replicated groups. This is applicable when DM is linked with EM.

arrayOfComputerPropertiesByName (m)

An array of computer hostnames that need to be linked to a specified unit group. It contains three fields: (a) computerName - hostname of the computer to be linked to group (b) ObjectPreference (c) domainName - This field is applicable when ObjectPreference is set to REPLICATE.

Return Values

This is a void method that does not expose a return value.

Remarks

None

Chapter 15: Troubleshooting

This section contains the following topics:

- [Deployment of Red Hat Enterprise Linux 5 Update 5 OS Fails](#) (see page 390)
- [SD Agent Does not Start after a CAF Restart](#) (see page 390)
- [Abort Command Fails during Reinstallation of VDI Components](#) (see page 391)
- [CA Asset Intelligence Displays Installation Error](#) (see page 391)
- [CA Asset Intelligence Fails to Launch from Shortcuts](#) (see page 391)
- [DSM Engine Crashes When the Database is Stopped](#) (see page 392)
- [Duplicate Entries Created by Asset Collector](#) (see page 392)
- [Content Download Fails](#) (see page 393)
- [DSM Explorer does not Display Prompt Window in Meeting Mode Connection](#) (see page 393)
- [cfSystray Fails to Start on Redhat 6.0 update1 x86_x64](#) (see page 394)
- [SM Packager Fails to Install on SUSE Linux Enterprise Desktop 11 x86_64](#) (see page 395)
- [Remote Control Session Fails on a RHEL 5 Agent](#) (see page 395)
- [Software Job History Behavior after the Uninstall Job](#) (see page 396)
- [OSIM Samba Shares not Enabled during Boot Server Installation](#) (see page 396)
- [Automation Service URL not Accessible](#) (see page 397)
- [Unattended Installation of SLES 11SP01 with DHCP](#) (see page 397)
- [Assigning a Hostname to Loopback IP](#) (see page 398)
- [Unified Logon from Web Console Fails on Standalone WAC](#) (see page 399)
- [Initialization fails for Migration Jobs](#) (see page 400)
- [Logs in Temp Folder are Deleted](#) (see page 400)
- [Execution of Multiple Instances of DMM Displays Errors](#) (see page 401)
- [Automated Migration Tab Does Not Appear After Installing or Upgrading to SP1](#) (see page 402)
- [Synchronization Error from SQL MDB to Oracle MDB Target](#) (see page 403)
- [Synchronization Error on a Target MDB on Oracle](#) (see page 404)

Deployment of Red Hat Enterprise Linux 5 Update 5 OS Fails

Symptom:

In OS Installation Management, when I deploy Red Hat Enterprise Linux 5 Update 5 with an Image created using CDs media, OS installation fails with the following error:
Red Hat Installation tree in that directory does not match your boot media.

Solution:

Do the following:

- While creating Red Hat Enterprise Linux 5 Update 5 OS Image in Image Prepare System, use DVD as a source media.
- While creating OS Image in Image Prepare System, use the following options:
 - REDHATES50-DVD Red Hat Enterprise Linux 5.x x32 (DVD + syslinux.com)
 - REDHATES50x64-DVD Red Hat Enterprise Linux 5.x x64 (DVD + syslinux.com)

SD Agent Does not Start after a CAF Restart

Valid on Windows and UNIX

Symptom:

When you start CAF, the SD agent does not initiate automatically. Hence, the SD job check does not run on CAF restart.

Solution:

Do the following:

- On the CAF Scheduler, change the default value of the random now time field to 0 seconds.
- Verify that the default value of the CAF: Enable registration on start-up configuration policy is true.

Note: On UNIX, CAF register does not run all the plug-ins. Use the CAF register all command to run all the plug-ins.

Abort Command Fails during Reinstallation of VDI Components

Symptom:

When I use the command line to abort a reinstallation of the VDI components, the abort process does not initiate.

Solution:

You cannot initiate multiples instances of the SD agent at the same time. Abort the reinstallation by using the Abort button on the agent dialog box.

CA Asset Intelligence Displays Installation Error

Symptom:

When I install CA Asset Intelligence, the application displays error 1603.

Solution:

Do the following:

1. Verify if the IIS is functioning normally. If not, reinstall IIS.
2. If the installer still displays an error, check the AssetIntelligencesetup.log in %TEMP% folder for details of the error.

CA Asset Intelligence Fails to Launch from Shortcuts

Symptom:

I cannot launch CA Asset Intelligence from the shortcuts provided with the installation or by using the URL <http://127.0.0.1/caiadmin> or <http://127.0.0.1/cai> from the computer where it is installed.

Solution:

Do the following:

1. Launch AI using the hostname <http://<hostname>/cai> or <http://<hostname>/caiadmin> from the same machine or from a remote machine.
2. Verify whether the test application redirects the URL. If redirection fails, then IIS is unable to interpret and redirect the address to IIS Server of the local computer. In this case, to continue to use <http://127.0.0.1/cai> or <http://127.0.0.1/caiadmin> that is launched from the shortcuts provided with AI installation, reinstall IIS on that computer.

DSM Engine Crashes When the Database is Stopped

Symptom:

When I stop the database for maintenance, for example, to take a backup, the engine processes sometimes crash.

Solution:

Verify that you have stopped all the engine processes before you stop the database for maintenance.

Note: If an engine process crashes during the database maintenance, restart the engine process after you restart the database.

Duplicate Entries Created by Asset Collector

Symptom:

When I reload the same asset with a different MAC address, the Asset Collector creates duplicate entries for agents. The same behavior applies to the NRI assets.

Solution:

Duplicates entries are created because data is processed based on `external_host_key` and `host_uuid`. A new verification has been provided for the serial number to help ensure that duplicate entries are not created.

Do the following:

Run the following command to create the parameter and set the parameter value to 1:

```
ccnfcmda -cmd setparametervalue -ps /itrm/manager/engine -pn  
AssetMatchOnUniqueSerialNumber -v 1
```

This change allows a unique search for the serial number, in addition to the existing search for the `hostuid` (hostname and MAC).

Content Download Fails

Symptom:

If I download content when a CIC process runs in the background and another instance is launched by the engine, a detached CIC instance occurs.

Solution:

Do the following:

1. Terminate the wrapper.exe process.
2. Terminate java.exe that is used by CIC.
3. Delete anchor files and loc files if any from C:\Program Files (x86)\CA\SC\CIC\bin.
4. Initiate the content download job again from Engine tasks.

DSM Explorer does not Display Prompt Window in Meeting Mode Connection

Symptom:

When I open DSM Explorer in a domain manager, right click the agent, and establish a meeting mode connection, the application does not display the prompt window.

Solution:

Verify that the libatk-1.0.so.0 package is installed on the agent.

cfSysTray Fails to Start on Redhat 6.0 update1 x86_x64

Symptom:

When I run cfSysTray, the following error message is displayed:

```
[root@hostname]# cfsysTray show
cfSysTray: error while loading shared libraries: libgtk-x11-2.0.so.0: wrong ELF class:
ELFCLASS64
```

Solution:

DSM is a 32-bit application and requires 32-bit versions of OS libraries. These libraries are not installed on RHEL 6.0 x86_64 (64-bit) by default.

Do the following:

1. Find all of the library files mentioned below and place them in a directory.
Note: All of these files are available on the Red Hat 6.0 Workstation i386 distribution DVD under i386\Disc\1\Packages\directory. These files are not available on the Red Hat x86_64 distribution DVD). You can also download these files from Red Hat Update site.
2. Navigate to a directory that contains all the required .rpm files. If you are using the DVD, go to the Packages sub-directory as below:

```
cd/media/RHEL_6.0\i386\ Disc\1\Packages/
```

3. Execute the following commands:
rpm -Uvh alsa-lib-1.0.21-3.el6.i686.rpm atk-1.28.0-2.el6.i686.rpm
audit-libs-2.0.4-1.el6.i686.rpm avahi-libs-0.6.25-8.el6.i686.rpm
cairo-1.8.8-3.1.el6.i686.rpm cups-libs-1.4.2-35.el6.i686.rpm
dbus-glib-0.86-5.el6.i686.rpm dbus-libs-1.2.24-3.el6.i686.rpm
expat-2.0.1-9.1.el6.i686.rpm fontconfig-2.8.0-3.el6.i686.rpm
freetype-2.3.11-5.el6.i686.rpm gamin-0.1.10-9.el6.i686.rpm
glib2-2.22.5-5.el6.i686.rpm glibc-2.12-1.7.el6.i686.rpm
glibc-common-2.12-1.7.el6.i686.rpm gnutls-2.8.5-4.el6.i686.rpm
gststreamer-0.10.29-1.el6.i686.rpm gtk2-2.18.9-4.el6.i686.rpm
gtk2-engines-2.18.4-5.el6.i686.rpm jasper-libs-1.900.1-15.el6.i686.rpm
keyutils-libs-1.4-1.el6.i686.rpm krb5-libs-1.8.2-3.el6.i686.rpm
libasyncns-0.8-1.1.el6.i686.rpm libcanberra-0.22-1.el6.i686.rpm
libcanberra-gtk2-0.22-1.el6.i686.rpm libcom_err-1.41.12-3.el6.i686.rpm
libgcc-4.4.4-13.el6.i686.rpm libgcrypt-1.4.5-3.el6.i686.rpm
libgpg-error-1.7-3.el6.i686.rpm libICE-1.0.6-1.el6.i686.rpm
libjpeg-6b-46.el6.i686.rpm libogg-1.1.4-2.1.el6.i686.rpm
libpng-1.2.44-1.el6.i686.rpm libselinux-2.0.94-2.el6.i686.rpm
libSM-1.1.0-7.1.el6.i686.rpm libsndfile-1.0.20-3.el6.i686.rpm
libstdc++-4.4.4-13.el6.i686.rpm libtasn1-2.3-3.el6.i686.rpm
libtdb-1.2.1-2.el6.i686.rpm libthai-0.1.12-3.el6.i686.rpm
libtiff-3.9.4-1.el6.i686.rpm libtool-ltdl-2.2.6-15.5.el6.i686.rpm

```
libuuid-2.17.2-6.el6.i686.rpm libvorbis-1.2.3-4.el6.i686.rpm
libX11-1.3-2.el6.i686.rpm libxcb-1.5-1.el6.i686.rpm
libXau-1.0.5-1.el6.i686.rpm libXcomposite-0.4.1-2.el6.i686.rpm
libXcursor-1.1.10-2.el6.i686.rpm libXdamage-1.1.2-1.el6.i686.rpm
libXext-1.1-3.el6.i686.rpm libXfixes-4.0.4-1.el6.i686.rpm
libXft-2.1.13-4.1.el6.i686.rpm libXi-1.3-3.el6.i686.rpm
libXinerama-1.1-1.el6.i686.rpm libxml2-2.7.6-1.el6.i686.rpm
libXrandr-1.3.0-4.el6.i686.rpm libXrender-0.9.5-1.el6.i686.rpm
libXtst-1.0.99.2-3.el6.i686.rpm ncurses-libs-5.7-3.20090208.el6.i686.rpm
nss-softokn-freebl-3.12.7-1.1.el6.i686.rpm
PackageKit-gtk-module-0.5.8-13.el6.i686.rpm pango-1.28.1-3.el6.i686.rpm
pixman-0.16.6-1.el6.i686.rpm pulseaudio-libs-0.9.21-13.el6.i686.rpm
readline-6.0-3.el6.i686.rpm redhat-lsb-graphics-4.0-2.1.el6.i686.rpm
sqlite-3.6.20-1.el6.i686.rpm tcp_wrappers-libs-7.6-56.3.el6.i686.rpm
zlib-1.2.3-25.el6.i686.rpm --nodeps
rpm -ivh gtk2-2.18.9-4.el6.i686.rpm
```

SM Packager Fails to Install on SUSE Linux Enterprise Desktop 11 x86_64

Symptom:

When I install ETPKI, the SM Packager fails to install on SUSE Linux Enterprise Desktop 11 x86_64. This error occurs because the packager fails to obtain the C++ runtime library libstdc++.so.5 during the installation.

Solution:

Do the following:

Install 32bit version of libstdc++.so.5 (for e.g libstdc++33-32bit-3.3.3-7.4.x86_64.rpm) and start the SM Packager installation.

Remote Control Session Fails on a RHEL 5 Agent

Symptom:

When I initiate a secure mode remote control session on an RHEL 5 agent, the following error is displayed:

Esc is already running, but is not responding. To open a new window, you must first close the existing ESC process, or restart the system.

Solution:

Run the following command:

```
yum remove esc
```

Software Job History Behavior after the Uninstall Job

When the time period specified in the Job history cleanup time setting elapses, the software job history of an agent is cleaned up. The cleanup task runs daily at the time specified in the configuration policy Start at Time. Based on the Job history cleanup time setting, the cleanup task checks every day for install jobs that are older than the number of hours specified in the configuration policy. The default period is 4320 hours or 180 days.

The cleanup task attempts to remove all the procedures of a package together. This means that the task searches for the uninstall job history of the package before deleting the install job history. So, even if the install job history is more than 180 days, the task cannot remove the job history until the uninstall job history is available. After you deploy the uninstall procedure, the software job history contains the uninstall job too. When the cleanup task runs at the next scheduled time, it looks for the install jobs that are older than the time specified in the configuration policy and have the corresponding uninstall job in the history. When a match is found, the complete job history of the package (including the install, activate, and uninstall procedures) is deleted from the software job history of the agent. This results in the removal of the history soon after uninstallation.

With the R12.5 SP01 release, the comstore setting is changed such that the software job history is deleted when the uninstall job exceeds the time specified in the configuration policy. For example, if you have set the Job history cleanup time parameter to 10 days, the complete job history of the package upto ten days, from the time the uninstall procedure was installed on the computer, is deleted.

OSIM Samba Shares not Enabled during Boot Server Installation

Symptom:

Sometimes OSIM Samba shares are not enabled on Linux Operating system even the option "Disable use of windows network shares" is deselected during the installation.

Solution:

Use the following commands to enable Samba shares after the boot server installation:

- Use the following command to switch to the tftp mode:
`sdbsswitch -t`
- Use the following command to switch back to the share method that creates the required changes in the Samba configuration file,;
`sddbswitch -s`

Automation Service URL not Accessible

Symptom:

I cannot access the Automation Service URL as mentioned in the automation configuration file.

Solution:

Restart the IIS.

Unattended Installation of SLES 11SP01 with DHCP

Symptom:

When I configure an unattended install of SLES 11SP01 to use DHCP address allocation without an explicitly stated domain name entry in the autoinst.xml file, then the installer discards any supplied host name and selects a randomly generated hostname, similar to linux-6dyj.

Solution:

To allow for a fixed hostname with the DHCP assigned address, modify the OS image-specific autoinst.xml file to include a default domain in the networking/dns section, as follows:

```
<networking>
  <dns>
    <dhcp_hostname config:type="boolean" >>false</dhcp_hostname>
    <dhcp_resolv config:type="boolean" >>true</dhcp_resolv>
    <hostname>${HostName}</hostname>
    <domain>forward.inc.local</domain>
  </dns>
</networking>
```

You can find the autoinst.xml file at the following location:

```
DSM_Install_Folder\server\SDBS\var\managedpc\images\IMAGE_NAME\IMAGE_NAME
\suse
```

Assigning a Hostname to Loopback IP

DSM requires that the hostname is resolvable at all times for internal and external communications. The interactive installer contains an option, Assigned hostname to the loopback IP, which allows for the former option to be set. For unattended installation, set the write_hostname entry to True in the networking or DNS section of autoinst.xml, as follows:

```
<networking>
  <dns>
    <dhcp_hostname config:type="boolean" >false</dhcp_hostname>
    <dhcp_resolv config:type="boolean" >true</dhcp_resolv>
    <hostname>$HostName$</hostname>
    <write_hostname config:type=boolean>true</write_hostname>
  </dns>
</networking>
```

You can find the autoinst.xml file at the following location:

```
DSM_Install_Folder\server\SDBS\var\managedpc\images\IMAGE_NAME\IMAGE_NAME
\suse
```

Unified Logon from Web Console Fails on Standalone WAC

Symptom:

When I access the Unified Logon feature of Web Console from a supported browser on Windows 2008 and above, log in fails and prompts me to perform an explicit logon.

Solution:

Follow these steps:

1. Verify that the Domain Controller is on windows 2008 or above with the following local policy setting:
 - Network access: Sharing and security model for local accounts: Classic
 - Network access: LAN manager authentication level: Send LM and NTLM Responses
 - Network security: Verify that the minimum session security for NTLM SSP based (including secure RPC) clients is set to 'no minimum'
2. Verify that the Domain Manager is on windows 2008 or above and set the local policy as given in step 1.
3. Verify that the Registry of the Domain manager is on windows 2008 or above and disable the loopback check box:

Follow these steps:

- a. Click Start, Run.
 - b. Type regedit. Click OK.
 - c. In Registry Editor, locate and click the following registry key:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa
 - d. Right-click LSA and point to New. Click DWORD Value.
 - e. Type DisableLoopbackCheck. Press ENTER.
 - f. Right-click DisableLoopbackCheck. Click Modify.
 - g. In the Value data box, type 1. Click OK.
4. Verify the settings of the browser (IE or Firefox) on the User's Box.

Note: For more information about browser settings for unified logon, see Configure Browser Settings for Unified Logon topic in the *Web Console Help*.
 5. If the browser is on the server class machine, follow the local policy settings given in step 1.

Initialization fails for Migration Jobs

Symptom:

When I perform a migration job on a computer and when I enable the proxy settings for Patch Manager hosted on the same computer, I see the status as Initialization Failed.

Solution:

Do the following:

1. Navigate to UPM Administrator, Proxies, No Proxy For list.
2. Add the IT PAM IP used for Automated Migration to the No Proxy For list.

Logs in Temp Folder are Deleted

Symptom:

When I install CA ITCM on the computer where Remote Desktop Services are configured, the logs in the temp folder are deleted after the user logs off or when the machine is restarted.

Solution:

Do the following:

- Navigate to Computer Settings, Administrative TermGroup Policy Management Console plates, Windows Components, Remote Desktop Services, Remote Desktop Session Host, Do not delete temp folder upon exit.
 - If the status is set to Enabled, temporary folders per session of the user are retained when the user logs off from a session.
 - If the status is set to Disabled, temporary folders are deleted when a user logs off, even if the administrator specifies otherwise in the Remote Desktop Session Host Configuration tool.
 - If the status is set to Not Configured, Remote Desktop Services deletes the temporary folders from the remote computer at log-off, unless specified otherwise by the server administrator.

Execution of Multiple Instances of DMM Displays Errors

Symptom:

When I set multiple instances of DMM to execute on multiple machines from the network share and if the network bandwidth is limited, the application displays errors such as:

- Failed to find required components.
- Runtime error: This application has requested the runtime to terminate in an unusual way.

Solution:

Do the following:

Override the default value and assign an appropriate value to the Software Delivery configuration setting, Job Check: Wait between triggering jobs. This action helps ensure that each DMM instance gets the required bandwidth. We recommend that you use a delay of 10 seconds per 30 DMM running instances.

Automated Migration Tab Does Not Appear After Installing or Upgrading to SP1

Symptom:

You installed or upgraded to CA ITCM r12.5 SP01 and selected the Automated Migration option during installation or upgrade. One of the following problems occurs:

- The installer prompts a warning message that the Automation Services were not deployed.
- Although the installation or upgrade was successful, you do not see the Automated Migration tab in Web Console.

Solution:

Perform the following manual steps to resolve this issue.

Follow these steps:

1. Access the following URL on the DSM manager that you installed or upgraded.

`http://<hostname>/axis/services`

hostname

Specifies the fully qualified domain name of the host computer. For a cluster setup, use the cluster name as host name. If the action fails while using cluster name, use the node name and re-execute the same commands.

A list of all Web Services API deployed appears. Look for the services automationService and assessmentService. If these services are listed, contact CA Technical Support for further assistance. If the services are not listed, perform the following steps to deploy the automation services:

- a. Execute the following command in the command line of the DSM manager computer:

Set

```
classpath=<PATH>\axis.jar;<PATH>\axis-ant.jar;<PATH>\commons-discovery.jar;  
<PATH>\commons-logging.jar;<PATH>\jaxrpc.jar;<PATH>\log4j-1.2.8.jar;<PA  
TH>\saaj.jar;<PATH>\wsdl4j-1.6.2.jar;<PATH>\activation.jar;<PATH>\mailapi  
.jar;
```

PATH

Specifies the location of the jar files. The jar files are located in <DSM_INSTALLED_FOLDER>\Web Console\webapps\wac\WEB-INF\lib.

The command sets the class path environment variable.

- b. Execute the following command:

```
"<DSM_INSTALLED_FOLDER>\SC\JRE\1.6.0_16\bin\java"
org.apache.axis.client.AdminClient
"<AUTOHOME>\AutomationService_wsdd\deploy.wsdd" -l
http://<hostname>/axis/services/automationService
```

DSM_INSTALLED_FOLDER

Displays the path where ITCM is installed.

AUTOHOME

Specifies the Automation Services Folder path. Environment variable AUTOHOME refers to the Automation Services Folder path.

- c. Execute the following command:

```
"<DSM_INSTALLED_FOLDER>\SC\JRE\1.6.0_16\bin\java"
org.apache.axis.client.AdminClient
"<AUTOHOME>\AssessmentService_wsdd\deploy.wsdd" -l
http://<hostname>/axis/services/assessmentService
```

The command deploys the automation services.

- d. Restart tomcat.
e. Log in to Web Console and verify that the Automated Migration tab is visible now.

Synchronization Error from SQL MDB to Oracle MDB Target

Symptom:

When I perform synchronization from a source with MDB on SQL server to a target with MDB on Oracle 11g, the following error is displayed in the engine logs for ITCM R12.5 SP1:

```
Reclmpl_Ado |Reclmpl_Ado.cpp |001371|ERROR | FieldLng encounters an undefined
VT type =5 for 14
```

```
Reclmpl_Ado |Reclmpl_Ado.cpp |001373|ERROR | FieldLng encounters an undefined
VT type =0
```

Solution:

Apply the testfix RO43621. Follow the instructions the testfix readme.

Synchronization Error on a Target MDB on Oracle

Symptom:

When I perform synchronization with a target MDB that is on Oracle, the following error message is displayed in the engine log file:

```
ERROR | ERROR:OCIStmtExecute() failed
```

Solution:

Apply the testfix RO43619. Follow the instructions the testfix readme.

Appendix B: Automation Service Configuration File

The automation service configuration file contains configuration parameters that automated migration uses for various tasks. Although all the parameters are described in this section, some parameters are only informational. We recommend that you do not change the parameters that are only informational.

Note: An integer value in the automation.config file must not contain or be surrounded by spaces. When you specify an integer value in the automation.config file, verify that there is no space, within and around the value. Any space in the integer value can result in the malfunctioning of the automation service.

AssessmentServiceEPR

Defines the end point URL of assessment service. This parameter is only informational.

ITCMEPR

Defines the end point URL of CA ITCM web service. This parameter is only informational.

ITPAMEPR

Defines the end point URL of CA IT PAM web service. This parameter is only informational.

AutomationServiceEPR

Defines the end point URL of automation service. This parameter is only informational.

JNI_BIN_PATH

Defines the JNI path to get comstore values. This parameter is only informational.

DEFAULT_MANAGER

Defines the name of the default manager for Web Console and CA ITCM web services. This parameter is only informational.

WipeAndReloadProcess

Defines the path to CA IT PAM process definition for Wipe and Reload migration. Change this parameter only if you have customized the process definition.

MachineReplacementProcess

Defines the path to CA IT PAM process definition for Machine Replacement migration. Change this parameter only if you have customized the process definition.

MaxNumberOfTPAMInstances

Defines the maximum number of CA IT PAM instances that automation service can run concurrently. Depending on load your CA IT PAM server can handle, you change this value.

Note: Automation service creates one CA IT PAM instance per computer in the migration job.

ProcessLaunchInterval

Defines the time interval (in seconds) between the creation of CA IT PAM instances.

TimeOutForOSIMJobs

Defines the timeout period (in seconds) before which the computer must start the OSIM job. After the timeout period, the OSIM jobs are canceled and OS migration job fails for the computer.

WaitForBootServer

Specifies that the activation of the OS installation waits until a boot server picks up the target and reports to the domain manager.

WaitForOSImage

Specifies that the activation of the OS installation waits until the required OS and Boot image is available on the assigned boot server.

WakeOnLAN

Specifies whether the boot server must wake up the target computer before OS installation.

Reboot

Specifies whether the boot server must force the reboot on the target computer before activating installation, if set to true.

ContainerPriority

Defines the priority for software job containers created for migration job.

DeliveryCalendar

Specifies the name of the delivery calendar you want to use. Leave this parameter blank, if you do not want to use a delivery calendar.

IgnoreJobCalendarsOnTargetComputers

Specifies whether the job option, Ignore job calendars on target computers, must be set when a RAC container is created. If this policy is set to False, calendars are not ignored at target computers. If True, calendars are ignored at target computers.

JobsTriggerSS

Specifies that the scalability server must initiate and execute the job at the scheduled time.

RemoveInstallationHistory

Specifies that the existing installation records will be deleted, thus preventing the job from failing with a status of Already Installed, before the install process is activated.

RunFromSS

Specifies whether the job check program of the target computer must release communication with the server during execution of the job. When the job has finished, the agent reconnects to the server to report job status.

TimesRelativeToEM

Specifies that the activation time specified must be interpreted as universal time. The time deviation configured on each domain manager is considered for converting the time received into the local system time.

UseDeliveryCalender

Specifies whether to use the delivery calendar for the job.

SoftwareBlackList

Defines the list of software packages that are used to exclude computers from OS migration job. The computers that have any of these software packages installed are automatically excluded from OS migration.

MaximumDelayOfJobContainer

Defines the time for which the job container waits for additional computers after adding the first computer before it seals the container. Additional containers are automatically created, if necessary.

MaxNumberOfTargetsPerJobContainer

Defines the maximum number of target computers per job container. After the job container reaches this limit, the container is closed and a new job container is created for remaining computers.

LastTargetInContainerOptimization

Specifies whether to activate the job container immediately, when there are no targets left in the migration job. The container is activated immediately even if the targets in the container is less than the number specified in MaxNumberOfTargetsPerJobContainer and without waiting for MaximumDelayOfJobContainer time. This parameter is only informational.

Default: True

RenamePackageName

Defines the rename software package used for renaming the computers. This parameter is only informational.

RenamePackageVersion

Defines the version of the rename software package used for renaming the computers. This parameter is only informational.

RenameProcedure

Defines the rename software package procedure used for renaming the computers. This parameter is only informational.

AutomationJobScheduleInterval

Defines the time delay (in seconds) for which the automation services waits before scheduling the next automation job.

AutomationJobSchedulerBatchSize

Defines the number of targets scheduled by automation service before checking the ITPAM instance status for the scheduled targets and updates the status as Migration Successful or Migration Failed. Depending on the load on the CA IT PAM server and how frequently you want to update the status of the target, you can change this value.

Log4j Properties

Defines the following log4j properties:

- log4j.rootLogger
- log4j.appender.A1
- log4j.appender.A1.layout
- log4j.appender.A1.layout.ConversionPattern
- log4j.appender.A1.MaxFileSize
- log4j.appender.A1.MaxBackupIndex

For example, you can change the following parameters to change the log level, the file size, or the number of log files created:

```
log4j.rootLogger=ERROR, A1
```

Note: Change this value to DEBUG or INFO to change the log level accordingly.

```
log4j.appender.A1.MaxFileSize=5000KB
```

```
log4j.appender.A1.MaxBackupIndex=1
```

Note: For more information about the Log4j properties, see the documentation of org.apache.log4j.PropertyConfigurator.

Appendix C: Customizing the Migration Process in CA IT PAM

This section contains the following topics:

[Modify the Migration Process](#) (see page 409)

[Add and Configure the Wait Operator](#) (see page 410)

[Create Software Job Data Definitions](#) (see page 412)

[Configure the Run Software Install Generic Job Operator](#) (see page 413)

Modify the Migration Process

The Wipe and Reload and Machine Replacement migration processes that are shipped with CA ITCM are adequate to perform OS migration. However, you can customize the migration processes to run some additional generic software jobs. The generic software jobs are executed on all the computers that are part of the migration jobs. For example, you want to install Microsoft Office on all the computers in your enterprise during OS migration, irrespective of their group or earlier installation history.

Note: You must have the working knowledge of CA IT PAM to customize the process definitions.

To customize the migration process in CA IT PAM

1. Open CA IT PAM Client.

The CA IT Process Automation Manager window opens.

2. Click File, Open Library Browser, Default Environment, Orchestrator.

The default environment opens.

3. Navigate to the DsmAutomatedMigration folder. DsmAutomatedMigration is the default folder location. If you have specified a different name as the Import Location when you installed this patch, the folder name is created with that name.

The automation processes, WipeAndReload and MachineReplacement are displayed in the list.

4. Duplicate the process that you want to customize by copying and pasting the process.
5. Open the duplicate process and click CA ITCM module in the left pane.

Note: If the module is not visible, click End User Preferences in the left pane and select CA ITCM.

The CA ITCM operators are displayed in the left pane.

6. Add the Run Software Install Generic Job operator to the workflow.
The generic software jobs operator is added.
7. Configure the Run Software Install Generic Job operator with the required parameters. For more information, see [Configure the Run Software Install Generic Job Operator](#) (see page 413).
8. Add and configure Wait for Job Finish operator. For more information, see [Add and Configure the Wait Operator](#) (see page 410).
9. Save the process and update the following parameters in the Automation Configuration file with the path to the modified process definition:

WipeAndReloadProcess
MachineReplacementProcess

CA ITCM uses the modified workflow to perform migration jobs scheduled after this point.

Add and Configure the Wait Operator

A wait operator waits for the job to finish and takes the workflow to different tasks depending on whether the job is successful. You must add a wait operator for the generic software jobs operator manually.

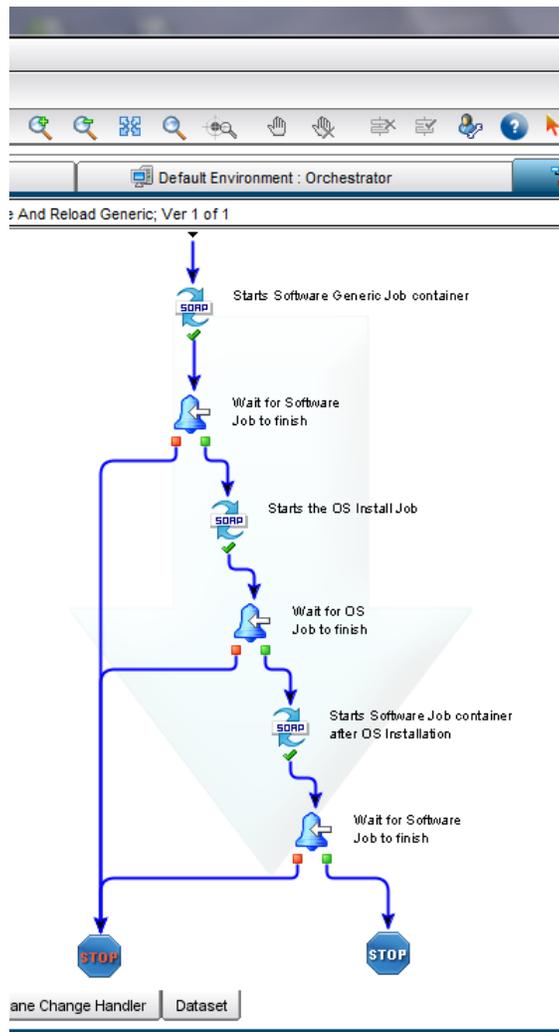
To add the wait operator

1. Open the migration process that you modified.
2. Add the Wait for Finish operator after the Software Generic Job container.
The operator is added with two default results, Completed and Failed.
3. Remove the default results.
4. Right-click the wait operator and select Custom Result.
The Custom Port dialog opens.
5. Specify a name for the success result and enter the following in the Expression field:
`Process[OpName].JobStatus == "SUCCESS"`
6. Right-click the wait operator again and select Custom Result.
7. Specify a name for the failure result and enter the following in the Expression field:
`Process[OpName].JobStatus == "FAIL"`
8. Double-click the wait operator.
The Properties for the wait operator opens.
9. Specify the following values in the fields displayed in Wait For Finish section:
MachineUUID: Process.MachineUUID

Job ID: Process.genericJobID

Event Name: SWDeployJobFinish

- 10. Link the success result to the next valid operator in the process definition and the failure result to abnormal exit as shown in the following screenshot:



The wait operator is configured.

Create Software Job Data Definitions

To be able to run generic software jobs, you must create the software job data definitions in XML format. You use the contents of the XML file for the SoftwareJobData parameter when [configuring the Run Software Install Generic Job operator](#) (see page 413). Following is a sample software job data definition in XML format:

```
<softwareJobData>
<activationTime>2011-03-26T13:14:27.370Z</activationTime>
<allowCancellation>true</allowCancellation>
<bootLevelAfterExec>0</bootLevelAfterExec>
<bootLevelPriorExec>0</bootLevelPriorExec>
<deliveryCalendar></deliveryCalendar>
<deliveryTime>2011-03-26T13:14:27.370Z</deliveryTime>
<executeOnPromptTimeout>true</executeOnPromptTimeout>
<ignoreJobCalendarsOnTargetComputers>false</ignoreJobCalendarsOnTa
rgetComputers>
<isActivationTimeSupplied>true</isActivationTimeSupplied>
<isAllowCancellationSupplied>true</isAllowCancellationSupplied>
<isBootLevelAfterExecSupplied>true</isBootLevelAfterExecSupplied>
<isBootLevelPriorExecSupplied>true</isBootLevelPriorExecSupplied>
<isDeliveryCalendarSupplied>false</isDeliveryCalendarSupplied>
<isDeliveryTimeSupplied>true</isDeliveryTimeSupplied>
<isExecuteOnPromptTimeoutSupplied>true</isExecuteOnPromptTimeoutSu
plied>
<isIgnoreJobCalendarsOnTargetComputersSupplied>true</isIgnoreJobCa
lendarsOnTargetComputersSupplied>
<isJobTimeOutHoursSupplied>true</isJobTimeOutHoursSupplied>
<isJobsTriggerSSSupplied>true</isJobsTriggerSSSupplied>
<isLogonShieldSupplied>true</isLogonShieldSupplied>
<isNameSupplied>true</isNameSupplied>
<isPromptTimeOutHoursSupplied>true</isPromptTimeOutHoursSupplied>
<isPromptUserSupplied>true</isPromptUserSupplied>
<isRemoveInstallationHistorySupplied>true</isRemoveInstallationHis
torySupplied>
<isResolveQueryGroupsSupplied>true</isResolveQueryGroupsSupplied>
<isRunAtShutdownSupplied>true</isRunAtShutdownSupplied>
<isRunofflineFromSSSupplied>true</isRunofflineFromSSSupplied>
<isStorePackageAtSSLibrarySupplied>true</isStorePackageAtSSLibrary
Supplied>
<isTimesRelativeToEMSupplied>true</isTimesRelativeToEMSupplied>
<isUseDeliveryCalenderSupplied>true</isUseDeliveryCalenderSupplied
>
<isUserParametersSupplied>true</isUserParametersSupplied>
<jobTimeOutHours>52</jobTimeOutHours>
<jobsTriggerSS>true</jobsTriggerSS>
<logonShield>false</logonShield>
<name>j1</name>
```

```
<promptTimeOutHours>68</promptTimeOutHours>
<promptUser>false</promptUser>
<removeInstallationHistory>false</removeInstallationHistory>
<resolveQueryGroups>false</resolveQueryGroups>
<runAtShutdown>false</runAtShutdown>
<runOfflineFromSS>true</runOfflineFromSS>
<softwarePackage>
<packageName>Notepad</packageName>
<procedureName>run_notepad</procedureName>
<versionNumber>1</versionNumber>
</softwarePackage>
<storePackageAtSSLibrary>false</storePackageAtSSLibrary>
<timesRelativeToEM>false</timesRelativeToEM>
<useDeliveryCalender>false</useDeliveryCalender>
<userParameters>User Parameters set by User1</userParameters>
</softwareJobData>
```

Configure the Run Software Install Generic Job Operator

You must configure the Run Software Install Generic Job operator in CA IT PAM to add parameter definitions that CA ITCM requires to run software jobs.

To configure generic software job operator

1. Open the process that you modified.
2. Click the Dataset tab in the bottom pane.
3. Add the following parameters under Process Inputs in the left pane:

BatchMode

Specifies whether you want to execute the jobs in batch mode. If set to false, the jobs will execute in No Linkage mode.

Data Type: Boolean

Possible Values: true, false

IsBatchModeSupplied

Specifies true or false depending on whether the BatchMode parameter is supplied.

Data Type: Boolean

Possible Values: true, false

IsPrioritySupplied

Specifies true or false depending on whether the Priority parameter is supplied.

Data Type: Boolean

Possible Values: true, false

Name

Specifies the name of the software job container.

Data Type: String

Possible Values: Any valid string

Priority

Specifies the priority that can range from 1 (highest) to 10 (lowest), If no value is provided, the default value, 5, is used.

Data Type: Integer

Possible Values: 1 to 10

UserMessage

Specifies the custom administrator message.

Data Type: String

Possible Values: Any valid string

SoftwareJobData

Data Type: String

Possible Values: XML string with software job data

Note: Copy and paste the contents of the XML file you created with the [software job data definitions](#) (see page 412).

IsUserMessageSupplied

Data Type: Boolean

Possible Values: true, false

4. Add the following parameter under Process Outputs in the left pane:

genericJobID

Stores a generic Job ID that the automation process returns after executing the job.

Data Type: String

Possible Values: Generic software job ID

5. Right-click the Run Software Install Generic Job operator you added to the process and select Properties.

The Properties dialog for Run Software Install Generic Job is displayed.

- Specify the details of the parameters you created in the Dataset as shown in the following screenshot:

Properties of 'runSoftwareGenericJobContainer'

Run Software Install Generic Job

*Automation Task UUID
Process.AutomationTaskUUID

*Machine UUID
Process.MachineUUID

*Software Job Data
Process.SoftwareJobData

*Batch Mode
Process.BatchMode

*Is Batch Mode Supplied
Process.IsBatchModeSupplied

*Is Priority Supplied
Process.IsPrioritySupplied

*Is User Message Supplied
Process.IsUserMessageSupplied

*Name
Process.Name

*Priority
Process.Priority

*User Message
Process.UserMessage

Connection Parameters

- Click Execution Settings pane in the Properties dialog and click the Post-execution code link.

- Enter the following in the Post-execution dialog:

```
Process.genericJobID = Process[OpName].swJobID;
```

The Run Software Install Generic Job operator is configured with the parameters required for running generic software jobs.

Appendix D: Supported MDB Object Types

The following table includes the MDB objects that MDB Admin Console supports:

MDB object type	Title	Notes
BoAreaDef	Area Definitions	On import, Area Definitions are not linked to Security Profiles. This means that the relationship between the Area Definitions and Security Profiles is not imported into the target MDB.
BoSecurityProfile	Security Profiles	Export includes the corresponding security class permissions for each security profile
BoQueryDef	Queries	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>The reference of the Query to its parent Query folder is maintained in the target database with the import. This requires that the parent Query folder already exist in the target database.</p> <p>You must manually create the Query folder. The import operation does not create this folder.</p>
BoGroupDef	Asset Groups	<p>Export includes the corresponding object permissions and group member permissions with respect to the security profiles. In case the security profiles exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>In case of a dynamic group, the relationship to the query is maintained in the target database with the import. However, this requires that a query with the same name already exists in the target database.</p> <p>The reference of the Group to its parent Groups is maintained in the target database with the import. This requires that the parent Groups already exist in the target database.</p>

MDB object type	Title	Notes
BoPolicyQuery Based	Query-based Policies	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles do exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>The relationship of the Query-based Policy to the query is maintained in the target database with the import. However, this requires that a query with the same name already exists in the target database.</p> <p>The relationship of the Query-based Policy to an Action is not maintained by the export/import.</p> <p>Subfolders of the Query-based Policy folder are not maintained.</p>
BoPolicyEvent Based	Event-based Policies	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles do exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>The relationship of the Event-based Policy to an Action is not maintained by the export/import.</p> <p>Subfolders of the Event-based Policy folder are not maintained.</p>
BoPolicySoftware	Software-based Policies	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>The relationship of the Software-based Policy to the Software Delivery Jobs is maintained in the target database with the import. However, this requires that the respective Software Delivery packages and procedures already exists in the target database.</p> <p>Software Delivery Library packages referenced by the Software-based Policies of the source MDB should be made available in the target MDB prior to the import. Software Delivery Library packages can be exported and imported using the corresponding methods which the EGC GUI provides or using the CADSMCMD command line interface.</p> <p>The reference of the Software-based Policy to Asset Groups is maintained in the target database with the import. However, this requires that the respective Asset Groups already exist in the target database.</p>

MDB object type	Title	Notes
BoSoftware Group	Software Groups	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>The reference of the Software Group to its parent Groups is maintained in the target database with the import.</p> <p>This requires that the parent Groups already exist in the target database.</p>
BoProcedure Group	Procedure Groups	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles do exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>The reference of the Procedure Group to its parent Groups is maintained in the target database with the import. This requires that the parent Groups already exist in the target database.</p>

MDB object type	Title	Notes
BoSoftwareDef	Software Definitions	<p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>Export includes the Software Definitions but not the related data like software signatures, manufacturer information, and categories. You must use the Content Utility, which is available with the CA ITCM releases r11.2 SP4, r12, and r12 SP01 in combination with the MDB Admin Console to export and import all of this data.</p> <p>Note: Only user-defined Software Definitions are supported with the export operation.</p> <p>You must first use the Content Utility to export data from the source MDB and import it into the target MDB. Then use the MDB Admin Console for the Software Definitions. The MDB Admin Console export includes the corresponding object permissions with respect to the security profiles. In case the security profiles do exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>Note: Software Definitions can only be exported and imported between MDB databases of the same CA ITCM release. For example, you can export data from an r11.2 SP4 MDB and import this data into an r11.2 SP4 MDB. Also, you can export data from an r12 or r12 SP01 MDB and import this data into an r12 or r12 SP01 MDB.</p>
BoPolicy Computer	Configuration Policies	<p>For the export of configuration policies, you must install the MDB Admin Console on the DSM manager machine where you plan to run the export. This is because MDB Admin Console uses the functionality which is available on the manager.</p> <p>Export includes the corresponding object permissions with respect to the security profiles. In case the security profiles exist in the target MDB, the import applies these permissions to the imported objects.</p> <p>Note: Export and import of configuration policies is supported only if you are using CA ITCM r12 and r12 SP01 managers. Although import allows creating new policies, it does not allow updating an already existing policy.</p>

Appendix E: Rules for MDB Object Comparison

The following table includes the rules that the compare method uses to compare two MDB objects:

MDB object type	Title	Attributes being compared
BoAreaDef	Area Definitions	Security Area Name
BoSecurityProfile	Security Profiles	<ul style="list-style-type: none">■ Security Profile Name■ Security Profile Type
BoQueryDef	Queries	<ul style="list-style-type: none">■ Query Name■ Query Type
BoGroupDef	Asset Groups	<ul style="list-style-type: none">■ Group Name■ Members inherit permissions■ Group Type
BoPolicyQuery Based	Query-based Policies	<ul style="list-style-type: none">■ Policy Name■ Policy Description■ Policy Severity
BoPolicyEvent Based	Event-based Policies	<ul style="list-style-type: none">■ Policy Name■ Policy Area■ Policy Severity
BoPolicySoftware	Software-based Policies	<ul style="list-style-type: none">■ Software Policy Name■ Priority■ Type
BoSoftware Group	Software Groups	<ul style="list-style-type: none">■ Software Group Name■ Type■ Security Group
BoProcedure Group	Procedure Groups	<ul style="list-style-type: none">■ Procedure Group Name■ Type■ Security Group

MDB object type	Title	Attributes being compared
BoSoftwareDef	Software Definitions	<ul style="list-style-type: none">■ Name■ Language■ SW version label■ SW version number■ Software type id■ Source type id■ Lang code■ Class id
BoPolicy Computer	Configuration Policies	Policy Name Note: The parameters and parameter values of the policy are not subject to the comparison.

Appendix F: Accessibility Features

CA Technologies is committed to ensuring that all customers, regardless of ability, can successfully use its products and supporting documentation to accomplish vital business tasks. This section outlines the accessibility features that are part of *CA ITCM*.

This section contains the following topics:

[Product Enhancements](#) (see page 423)

[Workarounds and Limitations](#) (see page 426)

Product Enhancements

CA ITCM offers accessibility enhancements in the following areas:

- Display
- Sound
- Keyboard
- Mouse

Note: The following information applies to Windows-based and Macintosh-based applications. Java applications run on many host operating systems, some of which already have assistive technologies available to them. For these existing assistive technologies to provide access to programs written in JPL, they need a bridge between themselves in their native environments and the Java Accessibility support that is available from within the Java virtual machine (VM). This bridge has one end in the Java VM and the other on the native platform, so it is slightly different for each platform it bridges to. Sun is currently developing both the JPL and the Win32 sides of this bridge.

Display

To increase visibility on your computer display, you can adjust the following options:

Font style, color, and size of items

Lets you select font color, size, and other visual combinations.

Screen resolution

Lets you change the pixel count to enlarge objects on the screen.

Cursor width and blink rate

Lets you make the cursor easier to find or minimize its blinking.

Icon size

Lets you make icons larger for visibility or smaller for increased screen space.

High contrast schemes

Lets you select color combinations that are easier to see.

Note: If you want to enable the separated user interface for operating systems prior to Windows Vista instead of using the in-process GUI, apply the The Software Delivery, Agent, Always display GUI for logged on user configuration policy.

Note: To enable the assistive technologies (AT) to read the text from the SD job check window in operating systems prior to Windows Vista, apply the Software Delivery, Agent, Always display GUI for logged on user configuration policy to the agent.

Sound

Use sound as a visual alternative or to make computer sounds easier to hear or distinguish by adjusting the following options:

Volume

Lets you turn the computer sound up or down.

Text-to-Speech

Lets you hear command options and text read aloud.

Warnings

Lets you display visual warnings.

Notices

Gives you aural or visual cues when accessibility features are turned on or off.

Schemes

Lets you associate computer sounds with specific system events.

Captions

Lets you display captions for speech and sounds.

Keyboard

You can make the following keyboard adjustments:

Repeat Rate

Lets you set how quickly a character repeats when a key is struck.

Tones

Lets you hear tones when pressing certain keys.

Sticky Keys

Lets those users who type with one hand or finger select alternative keyboard layouts.

Keyboard Shortcuts

The following table lists the keyboard shortcuts that CA ITCM supports:

Keyboard	Description
Ctrl+X	Cut
Ctrl+C	Copy
Ctrl+K	Find Next
Ctrl+F	Find and Replace
Ctrl+V	Paste
Ctrl+S	Save
Ctrl+Shift+S	Save All
Ctrl+D	Delete Line
Ctrl+Right	Next Word
Ctrl+Down	Scroll Line Down
End	Line End

Note: We have added a hot key, F6, in this feature pack to enhance product accessibility. With F6, navigation between panes of the SD Catalog and the Remote Control viewer is easier.

Mouse

You can use the following options to make your mouse faster and easier to use:

Click Speed

Lets you select how fast to click the mouse button to make a selection.

Click Lock

Lets you highlight or drag without holding down the mouse button.

Reverse Action

Lets you reverse the functions controlled by the left and right mouse keys.

Blink Rate

Lets you select how fast the cursor blinks or if it blinks at all.

Pointer Options

Let you do the following:

- Hide the pointer while typing

- Show the location of the pointer
- Set the speed that the pointer moves on the screen
- Select the size and color of the pointer, for increased visibility
- Move the pointer to a default location in a dialog

Workarounds and Limitations

This section describes accessibility workarounds and limitations.

Truncated Text in the Remote Control Viewer

When you change display settings to High Contrast in the Remote Control viewer, some text can be truncated. Alternate (ALT) text is provided as a workaround.

Link List Contents May Change Depending on Focus

For the Remote Control viewer, all links are not displayed in the Links List window with Ins+F7. Link list contents can change depending on the focus because there are two HTML views on the Remote Control viewer page.

The links of the HTML view having focus appear in the Links List window. Use the F6 hot key to switch between HTML views. This hotkey is useful for the screen reader for reading out information displayed on the screen, as the screen reader behavior depends on the focus on HTML view. As there are two HTML views on the Remote Control viewer page, the screen reader reads the HTML view having focus.

Using the JAWS Screen Reader in the Remote Control Viewer and Replayer

There is a known problem with the JAWS® Screen Reading Software when reading windows composed of more than one HTML view. After continued use, keyboard navigation and link activation can become unpredictable.

To improve consistency, we recommend that you disable the "as Web Page" option in the Remote Control viewer or replayer using the View, Current menu. Also, hide the Tutorial Bar whenever it is not in use.

You can also experience better results with the Remote Control viewer by disabling the Virtual PC Cursor using the JAWS+Z key combination.

Remote Sessions Limitation

In the case of the Remote Control viewer, the screen reader and any changes to the display settings do not work for remote sessions.

High-Contrast Mode Features

In high-contrast mode, the Remote Control viewer automatically makes some visual changes to enhance the visibility of the user interface. If high-contrast mode is enabled or disabled dynamically while the Remote Control viewer is in use, refresh the GUI, for example, by switching to a different node, to display the high-contrast changes.

Note: To refresh the RC Viewer Tutorial page, you can click any link in the tutorial.

Appendix G: Third-Party Acknowledgements

As you apply Feature Pack 1 enhancements as a patch to CA ITCM r12.5 SP1, this feature pack shares the same third-party software shipped with CA ITCM r12.5 SP1. For more information, refer to the "Acknowledgements" appendix of the *CA ITCM r12.5 SP1 Release Notes*.

This appendix includes any additional acknowledgements for this feature pack.

This section contains the following topics:

- [Apache CXF 2.2.9](#) (see page 430)
- [Apache log4j](#) (see page 444)
- [Apache Log4j 1.2.8](#) (see page 444)
- [Apache Log4j 1.2.15](#) (see page 449)
- [Commons Codec](#) (see page 454)
- [Commons Logging](#) (see page 557)
- [EclipseLink 2.1.1](#) (see page 563)
- [Google Web Toolkit 2.0.4](#) (see page 581)
- [gwt-log 2.6.2](#) (see page 586)
- [httpcore](#) (see page 591)
- [httpclient](#) (see page 600)
- [InstallCert.java](#) (see page 608)
- [Oracle 11G JDBC driver 11.1.0.6.0](#) (see page 610)
- [Oracle 11G JDBC Driver](#) (see page 616)
- [Oracle JRE 1.6.0_21](#) (see page 617)
- [Ovaldi v.5.8.2](#) (see page 621)
- [spring framework 3.0.4](#) (see page 630)
- [Expat 2.0.1](#) (see page 638)
- [ICU4C 3.4](#) (see page 639)
- [libcurl 7.18.2](#) (see page 639)
- [libxml 2.6.7](#) (see page 640)
- [OpenLDAP 2.1](#) (see page 641)
- [ZThread 2.3.2](#) (see page 643)

Apache CXF 2.2.9

"This product includes Apache CXF 2.2.9, which was obtained from the Apache Software Foundation under various licenses set forth below, and is distributed by CA for use with this CA product in unmodified, object code form, under the CA license agreement.

The following information sets out certain notices, attributions and/or other information CA is required to provide to you by the third party licensors of this component. The terms contained in the CA license agreement are offered by CA and not by the third party licensors.

The contents set forth below are for informational purposes only and do not modify the terms of the license agreement between you and CA.

The third party licensors of these components provide them on an AS IS BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE, and disclaim liability for any claim or loss, including, without limitation, direct, indirect, special, punitive, exemplary or consequential damages.

CA makes the source code for certain components contained in Apache CXF 2.2.9 available at http://opensrcd.ca.com/ips/07746_9/ under the terms of their respective open source licenses. Apache CXF 2.2.9 is distributed in accordance with the following:"

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each

Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License.

You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.

Apache CXF includes a number of components and libraries with separate copyright notices and license terms. Your use of those components are subject to the terms and conditions of the following licenses.

AntLR Parser Generator (<http://wwwantlr.org/>) antlr:antlr:jar:2.7.7

License: BSD License (<http://wwwantlr.org/license.html>)

Copyright (c) 2010 Terence Parr

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the author nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

AOP alliance (<http://aopalliance.sourceforge.net>) aopalliance:aopalliance:jar:1.0

License: Public Domain

ASM (<http://asm.objectweb.org/asm/asm>) asm:asm:jar:2.2.3:compile

License: BSD (<http://asm.ow2.org/license.html>)

Copyright (c) 2000-2005 INRIA, France Telecom

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Sun JAXB Reference Implementation Runtime (<https://jaxb.dev.java.net/jaxb-impl>)
com.sun.xml.bind:jaxb-impl:jar:2.1.13:compile

License: COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 (<http://www.sun.com/cddl/cddl.html>)

Sun JAXB Reference Implementation Tools (<https://jaxb.dev.java.net/jaxb-xjc>)
com.sun.xml.bind:jaxb-xjc:jar:2.1.13:compile

License: COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 (<http://www.sun.com/cddl/cddl.html>)

Sun SAAJ Reference Implementation com.sun.xml.messaging.saaj:saaj-impl:jar:1.3.2:compile

License: COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 (<http://www.sun.com/cddl/cddl.html>)

JSR 311 API (<https://jsr311.dev.java.net/>) javax.ws.rs:jsr311-api:jar:1.0:compile

License: COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 (<http://www.sun.com/cddl/cddl.html>)

Java Architecture for XML Binding (JAXB API) javax.xml.bind:jaxb-api:jar:2.1:compile

License: COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 (<http://www.sun.com/cddl/cddl.html>)

Sun SAAJ API (<http://java.sun.com/webservices/saaj/index.jsp/saaj-api>)
javax.xml.soap:saaj-api:jar:1.3:compile

License: COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 (<http://www.sun.com/cddl/cddl.html>)

Jaxen (<http://jaxen.codehaus.org/jaxen>) jaxen:jaxen:jar:1.1.1:compile

License: BSD (<http://jaxen.codehaus.org/license.html>)

/*

\$Id: LICENSE.txt,v 1.5 2006/02/05 21:49:04 elharo Exp \$

Copyright 2003-2006 The Werken Company. All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Jaxen Project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

*/

Bouncy Castle Provider (<http://www.bouncycastle.org/java.html>)
org.bouncycastle:bcprov-jdk15:jar:1.43

License: Bouncy Castle Licence (<http://www.bouncycastle.org/licence.html>)

LICENSE

Copyright (c) 2000 - 2006 The Legion Of The Bouncy Castle
(<http://www.bouncycastle.org>)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Jetty Server (<http://www.eclipse.org/jetty/jetty-parent/project/modules/jetty>)
org.mortbay.jetty:jetty:jar:6.1.21

License: Apache Software License - Version
2.0 (<http://www.apache.org/licenses/LICENSE-2.0>)

Jetty Server (<http://www.eclipse.org/jetty/jetty-parent/project/modules/jetty>)
org.mortbay.jetty:jetty:jar:6.1.21

License: Eclipse Public License - Version
1.0 (<http://www.eclipse.org/org/documents/epl-v10.php>)

Jetty Utilities (<http://www.eclipse.org/jetty/jetty-parent/project/jetty-util>)
org.mortbay.jetty:jetty-util:jar:6.1.21

License: Apache Software License - Version
2.0 (<http://www.apache.org/licenses/LICENSE-2.0>)

Jetty Utilities (<http://www.eclipse.org/jetty/jetty-parent/project/jetty-util>)
org.mortbay.jetty:jetty-util:jar:6.1.21

License: Eclipse Public License - Version
1.0 (<http://www.eclipse.org/org/documents/epl-v10.php>)

Simple Logging Facade for Java - API (<http://www.slf4j.org/slf4j-api>)
org.slf4j:slf4j-api:jar:1.5.8:compile

License: MIT License (<http://www.slf4j.org/license.html>)

Simple Logging Facade for Java - JDK Logging (<http://www.slf4j.org/slf4j-jdk14>)
org.slf4j:slf4j-jdk14:jar:1.5.8:compile

License: MIT License (<http://www.slf4j.org/license.html>)

Copyright (c) 2004-2007 QOS.ch

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Rhino (<http://www.mozilla.org/rhino/>) rhino:js:jar:1.7R1

License: Mozilla Public License version
1.1 (<http://www.mozilla.org/MPL/MPL-1.1.html>)

WSDL4J (<http://sf.net/projects/wsdl4j>) wsdl4j:wsdl4j:jar:1.6.2

License: CPL (<http://www.opensource.org/licenses/cpl1.0.txt>)

Copyright 2001 - 2005, International Business Machines Corporation and Microsoft Corporation

All Rights Reserved

License for WSDL Schema Files

The Authors grant permission to copy and distribute the WSDL Schema Files in any medium without fee or royalty as long as this notice and license are distributed with them. The originals of these files can be located at:

<http://schemas.xmlsoap.org/wsdl/2003-02-11.xsd>

THESE SCHEMA FILES ARE PROVIDED "AS IS," AND THE AUTHORS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, REGARDING THESE FILES, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OR TITLE. THE AUTHORS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATING TO ANY USE OR DISTRIBUTION OF THESE FILES.

The name and trademarks of the Authors may NOT be used in any manner, including advertising or publicity pertaining to these files or any program or service that uses these files, written prior permission. Title to copyright in these files will at all times remain with the Authors.

No other rights are granted by implication, estoppel or otherwise.

Ruby

Copyright (c) 2005-2006 David Heinemeier Hansson

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Oasis

OASIS takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on OASIS's procedures with respect to rights in OASIS specifications can be found at the OASIS website. Copies of claims of rights made available for publication and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementors or users of this specification, can be obtained from the OASIS Executive Director.

OASIS invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights which may cover technology that may be required to implement this specification. Please address the information to the OASIS Executive Director.

Copyright © OASIS Open 2002-2004. All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself does not be modified in any way, such as by removing the copyright notice or references to OASIS, except as needed for the purpose of developing OASIS specifications, in which case the procedures for copyrights defined in the OASIS Intellectual Property Rights document must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by OASIS or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and OASIS DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

WS-Policy Specification

(c) 2001-2006 BEA Systems Inc., International Business Machines Corporation, Microsoft Corporation, Inc., SAP AG, Sonic Software, and VeriSign, Inc. All rights reserved.

Permission to copy and display the WS-Policy Specification (the "Specification", which includes WSDL and schema documents), in any medium without fee or royalty is hereby granted, provided that you include the following on ALL copies of the WS-Policy Specification, that you make:

1. A link or URL to the WS-Policy Specification at one of the Authors' websites
2. The copyright notice as shown in the WS-Policy Specification.

BEA Systems, IBM, Microsoft, SAP, Sonic Software, and VeriSign (collectively, the "Authors") each agree to grant you a license, under royalty-free and otherwise reasonable, non-discriminatory terms and conditions, to their respective essential patent claims that they deem necessary to implement the WS-Policy Specification.

THE WS-POLICY SPECIFICATION IS PROVIDED "AS IS," AND THE AUTHORS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR TITLE; THAT THE CONTENTS OF THE WS-POLICY SPECIFICATION ARE SUITABLE FOR ANY PURPOSE; NOR THAT THE IMPLEMENTATION OF SUCH CONTENTS WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

THE AUTHORS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATING TO ANY USE OR DISTRIBUTION OF THE WS-POLICY SPECIFICATION.

The name and trademarks of the Authors may NOT be used in any manner, including advertising or publicity pertaining to the WS-Policy Specification or its contents without specific, written prior permission. Title to copyright in the WS-Policy Specification will at all times remain with the Authors.

No other rights are granted by implication, estoppel or otherwise.

WSA

Copyright © 2002-2004 BEA Systems Inc., International Business Machines Corporation, Microsoft Corporation, Inc, SAP AG, and Sun Microsystems, Inc.. All rights reserved.

Permission to copy, display, perform, modify and distribute the WS-Addressing Specification, and to authorize others to do the foregoing, in any medium without fee or royalty is hereby granted for the purpose of developing and evaluating the WS-Addressing Specification.

BEA, IBM, Microsoft, SAP AG, and Sun Microsystems (collectively, the "Authors") each agree to grant a license to third parties, under royalty-free and otherwise reasonable, non-discriminatory terms and conditions, to their respective essential patent claims that they deem necessary to implement the WS-Addressing Specification.

DISCLAIMERS:

THE WS-Addressing Specification IS PROVIDED "AS IS", AND THE AUTHORS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR TITLE; THAT THE CONTENTS OF THE WS-Addressing Specification IS SUITABLE FOR ANY PURPOSE; NOR THAT THE IMPLEMENTATION OF SUCH CONTENTS WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

THE AUTHORS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE WS-Addressing Specification OR THE PERFORMANCE OR IMPLEMENTATION OF THE CONTENTS THEREOF.

You may remove these disclaimers from your modified versions of the WS-Addressing Specification provided that you effectively disclaim all warranties and liabilities on behalf of all copyright holders in the copies of any such modified versions you distribute.

The name and trademarks of the Authors may NOT be used in any manner, including advertising or publicity pertaining to the WS-Addressing Specification or its contents without specific, written prior permission. Title to copyright in the WS-Addressing Specification will at all times remain with the Authors.

No other rights are granted by implication, estoppel or otherwise.

JDOM

/*--

\$Id: LICENSE.txt,v 1.11 2004/02/06 09:32:57 jhunter Exp \$

Copyright (C) 2000-2004 Jason Hunter & Brett McLaughlin.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions, and the disclaimer that follows these conditions in the documentation and/or other materials provided with the distribution.
3. The name "JDOM" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact <request_AT_jdom_DOT_org>.
4. Products derived from this software may not be called "JDOM", nor may "JDOM" appear in their name, without prior written permission from the JDOM Project Management <request_AT_jdom_DOT_org>.

In addition, we request (but do not require) that you include in the end-user documentation provided with the redistribution and/or in the software itself an acknowledgement equivalent to the following:

"This product includes software developed by the JDOM Project (<http://www.jdom.org/>)."

Alternatively, the acknowledgment may be graphical using the logos available at <http://www.jdom.org/images/logos>.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE JDOM AUTHORS OR THE PROJECT CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software consists of voluntary contributions made by many individuals on behalf of the JDOM Project and was originally created by Jason Hunter <jhunter_AT_jdom_DOT_org> and Brett McLaughlin <brett_AT_jdom_DOT_org>. For more information on the JDOM Project, please see <<http://www.jdom.org/>>.

*/

Apache log4j

(1) The Apache Software License v.2.0 must be displayed in an Acknowledgments section in the CA product user documentation in accordance with the Tech Pub guidelines. Please precede the text of the license agreement with: "This product includes Apache log4j 1.2.15 and is distributed in accordance with the following license agreement:"

(2) If Apache log4j 1.2.15 includes a "NOTICE" text file as part of its distribution, then the CA software must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that pertain to Apache log4j 1.2.15 not used by or included in the CA software. The attribution notices should be included either (a) in a NOTICE.txt file distributed as part of the CA software, or (b) within a display generated by the CA software, if and wherever such third-party notices normally appear.

Apache Log4j 1.2.8

Portions of this product include software developed by the Apache Software Foundation. The Apache software is distributed in accordance with the following license agreement.

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

Apache Log4j 1.2.15

This product includes Log4j 1.2.15 which was developed by the Apache Software Foundation. This Apache software is distributed in accordance with the following license agreement:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - a. You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - b. You must cause any modified files to carry prominent notices stating that You changed the files; and
 - c. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - d. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.

Commons Codec

This product includes Apache Commons Codec 1.4 which is distributed in accordance with the following license agreement:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or

Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

```
#####  
#  
## ADDITIONAL SOURCE LICENSES          ##  
#####  
#
```

The ASN1 codec implementation in the geronimo-util module was
developed by the Bouncy Castle project. (<http://www.bouncycastle.org/>).
Use of the source code, thus licensed, and the resultant binary are
subject to the terms and conditions of the following license.

```
=====  
=  
== Bouncy Castle License (ASN1 codec in geronimo-util) ==  
=====  
=
```

The Bouncy Castle License

Copyright (c) 2000-2005 The Legion Of The Bouncy Castle
(<http://www.bouncycastle.org>)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

```
#####  
#  
  
## APACHE GERONIMO DEPENDENCIES ##  
  
#####  
#
```

A binary distribution of Apache Geronimo, or an Apache Geronimo server which is built from source, includes a number of dependent packages with separate copyright notices and license terms. Your use of these dependent packages is subject to the terms and conditions of the following licenses.

```
=====
=
== Annogen License ==
=====
=
```

Annogen is licensed under the Apache License Version 2.0.

```
=====
=
== ANTLR License ==
=====
=
```

ANTLR 2 License

We reserve no legal rights to the ANTLR--it is fully in the public domain. An individual or company may do whatever they wish with source code distributed with ANTLR or the code generated by ANTLR, including

the incorporation of ANTLR, or its output, into commercial software.

We encourage users to develop software with ANTLR. However, we do ask that credit is given to us for developing ANTLR. By "credit", we mean that if you use ANTLR or incorporate any source code into one of your programs (commercial product, research project, or otherwise) that you acknowledge this fact somewhere in the documentation, research report, etc... If you like ANTLR and have developed a nice tool with the output, please mention that you developed it using ANTLR. In addition, we ask that the headers remain intact in our source code. As long as these guidelines are kept, we expect to continue enhancing this system and expect to make other tools available as they are completed.

```
=====
=
== Apache ActiveMQ License ==
=====
=
```

Apache ActiveMQ is licensed under the Apache License, Version 2.0.

```
=====
=
== Apache Axiom License ==
```

```
=====  
=
```

Apache Axiom is licensed under the Apache License, Version 2.0.

```
=====  
=
```

```
== Apache Axis License ==
```

```
=====  
=
```

Apache Axis is licensed under the Apache License, Version 2.0.

```
=====  
=
```

```
== Apache Axis2 License ==
```

```
=====  
=
```

Apache Axis is licensed under the Apache License, Version 2.0.

```
=====  
=
```

```
== Apache BCEL License ==
```

=====
=

Apache BCEL is licensed under the Apache License, Version 2.0.

=====
=

== Apache Commons BeanUtils License ==

=====
=

The Apache Software License, Version 1.1

Copyright (c) 1999-2003 The Apache Software Foundation. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in

the documentation and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution, if any, must include the following acknowledgement:

"This product includes software developed by the Apache Software Foundation (<http://www.apache.org/>)."

Alternately, this acknowledgement may appear in the software itself, if and wherever such third-party acknowledgements normally appear.

4. The names "The Jakarta Project", "Commons", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.

5. Products derived from this software may not be called "Apache" nor may "Apache" appear in their names without prior written permission of the Apache Group.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====

This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <<http://www.apache.org/>>.

=====

=

== Apache Commons CLI License ==

=====

=

The Apache Software License, Version 1.1

Copyright (c) 1999-2001 The Apache Software Foundation. All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgement:

"This product includes software developed by the

Apache Software Foundation (<http://www.apache.org/>)."

Alternately, this acknowledgement may appear in the software itself, if and wherever such third-party acknowledgements normally appear.
4. The names "The Jakarta Project", "Commons", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.
5. Products derived from this software may not be called "Apache" nor may "Apache" appear in their names without prior written

permission of the Apache Group.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====

This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <<http://www.apache.org/>>.

=====

=

== Apache Codec License

==

=====
=

Apache Codec is licensed under the Apache License, Version 2.0.

=====
=

== Apache Commons License ==
== Codec, Collections, Digester, Discovery, File Upload, HTTP Client, ==
== IO, JEXL, Logging, Primitives ==

=====
=

These Apache Commons libraries are licensed under the Apache License,
Version 2.0.

=====
=

== Apache Commons Lang ==

=====
=

The Apache Software License, Version 1.1

Copyright (c) 2002-2003 The Apache Software Foundation. All rights

reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution, if any, must include the following acknowledgement:

"This product includes software developed by the
Apache Software Foundation (<http://www.apache.org/>)."

Alternately, this acknowledgement may appear in the software itself, if and wherever such third-party acknowledgements normally appear.

4. The names "The Jakarta Project", "Commons", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.

5. Products derived from this software may not be called "Apache" nor may "Apache" appear in their names without prior written permission of the Apache Software Foundation.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====

This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

```
=====
=
== Apache Commons Logging ==
=====
=
```

Apache Commons Logging is licensed under the Apache License, Version 2.0.

```
=====
=
== Apache Commons Resolver (included in xercesImpl) ==
=====
=
```

The Apache Software License, Version 1.1

Copyright (c) 2001-2003 The Apache Software Foundation. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution, if any, must include the following acknowledgement:

"This product includes software developed by the

Apache Software Foundation (<http://www.apache.org/>)."

Alternately, this acknowledgement may appear in the software itself, if and wherever such third-party acknowledgements normally appear.

4. The names "The Jakarta Project", "Commons", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.

5. Products derived from this software may not be called "Apache" nor may "Apache" appear in their names without prior written permission of the Apache Group.

THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR

ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF
USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND
ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT
OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

=====

This software consists of voluntary contributions made by many
individuals on behalf of the Apache Software Foundation. For more
information on the Apache Software Foundation, please see
<<http://www.apache.org/>>.

=====

=

== Apache CXF License ==

=====

=

Apache CXF source code is licensed under the Apache License
Version 2.0.

```
=====
=
== Apache Derby License ==
=====
=
```

Apache Derby is licensed under the Apache License Version 2.0.

```
=====
=
== Apache HttpComponents License ==
=====
=
```

Apache HttpComponents is licensed under the Apache License Version 2.0.

```
=====
=
== Apache Jakarta Regexp License ==
=====
=
```

The Apache Software License, Version 1.1

Copyright (c) 1999-2002 The Apache Software Foundation. All rights

reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgement:

"This product includes software developed by the
Apache Software Foundation (<http://www.apache.org/>)."

Alternately, this acknowledgement may appear in the software itself, if and wherever such third-party acknowledgements normally appear.
4. The names "The Jakarta Project", "Jakarta-Regex", and "Apache Software Foundation" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.

5. Products derived from this software may not be called "Apache" nor may "Apache" appear in their names without prior written permission of the Apache Group.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====

This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <http://www.apache.org/>.

```
=====  
=  
== Apache MyFaces License ==  
=====  
=
```

Apache MyFaces source code is licensed under the Apache License
Version 2.0.

License Copyright 1994-2005 Sun Microsystems, Inc. All Rights
Reserved. Redistribution and use in source and binary forms, with or
without modification, are permitted provided that the following
conditions are met:

- * Redistribution of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

- * Redistribution in binary form must reproduce the above copyright
notice, this list of conditions and the following disclaimer in
the documentation and/or other materials provided with the
distribution.

Neither the name of Sun Microsystems, Inc. or the names of
contributors may be used to endorse or promote products derived from

this software without specific prior written permission.

This software is provided "AS IS," without a warranty of any kind. ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE HEREBY EXCLUDED. SUN MICROSYSTEMS, INC. ("SUN") AND ITS LICENSORS SHALL NOT BE LIABLE FOR ANY DAMAGES SUFFERED BY LICENSEE AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THIS SOFTWARE OR ITS DERIVATIVES. IN NO EVENT WILL SUN OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR DIRECT, INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF THE USE OF OR INABILITY TO USE THIS SOFTWARE, EVEN IF SUN HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

You acknowledge that this software is not designed, licensed or intended for use in the design, construction, operation or maintenance of any nuclear facility.

```
=====
=
== Apache Neethi License ==
=====
=
```

Apache Neethi is licensed under the Apache License Version 2.0.

```
=====  
=  
== Apache OpenEJB License ==  
=====  
=
```

Apache OpenEJB is licensed under the Apache License Version 2.0.

```
=====  
=  
== Apache OpenJPA License ==  
=====  
=
```

Apache OpenJPA source code is licensed under the Apache License
Version 2.0. Also, the openjpa-all jar file contains two files
orm-xsd.rsrc and persistence-xsd.rsrc which are licensed under
CDDL Version 1.0.

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

- 1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.
- 1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.
- 1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.
- 1.4. Executable means the Covered Software in any form other than Source Code.
- 1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.
- 1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.
- 1.7. License means this document.
- 1.8. Licensable means having the right to grant, to the maximum extent

possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code means (a) the common form of computer software code

in which modifications are made and (b) associated documentation included in or with such code.

1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license: (a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and (b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale,

and/or otherwise dispose of the Original Software (or portions thereof). (c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License. (d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license: (a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and (b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version

(or portions of such combination). (c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party. (d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) a third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices. You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms. You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every

Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions. You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works. You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions. Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version

of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect

beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTYS NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a commercial item, as that term is defined in 48áC.F.R.á2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. á252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48áC.F.R.á12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all

U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance

with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) The GlassFish code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

=====
=
== Apache Jakarta ORO License ==

=====
=

The Apache Software License, Version 1.1

Copyright (c) 2000-2002 The Apache Software Foundation. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment:
"This product includes software developed by the
Apache Software Foundation (<http://www.apache.org/>)."
Alternately, this acknowledgment may appear in the software itself,

if and wherever such third-party acknowledgments normally appear.

4. The names "Apache" and "Apache Software Foundation", "Jakarta-Oro" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact apache@apache.org.

5. Products derived from this software may not be called "Apache" or "Jakarta-Oro", nor may "Apache" or "Jakarta-Oro" appear in their name, without prior written permission of the Apache Software Foundation.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====

This software consists of voluntary contributions made by many individuals on behalf of the Apache Software Foundation. For more information on the Apache Software Foundation, please see <<http://www.apache.org/>>.

```
=====  
=  
== Apache Pluto License ==  
=====  
=
```

Apache Pluto is licensed under the Apache License Version 2.0.

```
=====  
=  
== Apache Tomcat License ==  
=====  
=
```

Apache Tomcat is licensed under the Apache License Version 2.0.

```
=====  
=  
== Apache Yoko License ==
```

=====
=

Apache Yoko is licensed under the Apache License Version 2.0. Apache
Yoko also contains elements covered by the following license:

THIS PRODUCT ALSO INCLUDES THIRD PARTY SOFTWARE REDISTRIBUTED UNDER THE
FOLLOWING LICENSES:

Object Management Group (OMG) classes

/***** Copyright (c) 1999 Object Management Group. Unlimited rights to
duplicate and use this code are hereby granted provided that this
copyright notice is included.

*****/

=====
=

== ASM License ==

=====
=

Copyright (c) 2000-2005 INRIA, France Telecom

All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF

THE POSSIBILITY OF SUCH DAMAGE.

```
=====
=
== Backport-Util-Concurrent ==
=====
=
```

Copyright-Only Dedication (based on United States law) or Public Domain Certification

The person or persons who have associated work with this document (the "Dedicator" or "Certifier") hereby either (a) certifies that, to the best of his knowledge, the work of authorship identified is in the public domain of the country from which the work is published, or (b) hereby dedicates whatever copyright the dedicators holds in the work of authorship identified below (the "Work") to the public domain. A certifier, moreover, dedicates any copyright interest he may have in the associated work, and for these purposes, is described as a "dedicator" below.

A certifier has taken reasonable steps to verify the copyright status of this work. Certifier recognizes that his good faith efforts may not shield him from liability if in fact the work certified is not in the public domain.

Dedicator makes this dedication for the benefit of the public at large and to the detriment of the Dedicator's heirs and successors. Dedicator intends this dedication to be an overt act of relinquishment in perpetuity of all present and future rights under copyright law, whether vested or contingent, in the Work. Dedicator understands that such relinquishment of all rights includes the relinquishment of all rights to enforce (by lawsuit or otherwise) those copyrights in the Work.

Dedicator recognizes that, once placed in the public domain, the Work may be freely reproduced, distributed, transmitted, used, modified, built upon, or otherwise exploited by anyone for any purpose, commercial or non-commercial, and in any way, including by methods that have not yet been invented or conceived.

```
=====
=
== Castor License ==
=====
=
```

New Apache-style license

As of release 0.9.7, any new code artifacts should carry a new, Apache 2.0-style license. This shall include files that have been changed substantially through

e.g. refactoring.

Copyright 2004-2005 Werner Guttman

Licensed under the Apache License, Version 2.0 (the "License");

you may not use this file except in compliance with the License.

You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,

WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and

limitations under the License.

Original Intalio license

The code of this project is released under a BSD-like license [license.txt]:

Copyright 1999-2004 (C) Intalio Inc., and others. All Rights

Reserved. Redistribution and use of this software and

associated documentation ("Software"), with or without

modification, are permitted provided that the following

conditions are met:

1. Redistributions of source code must retain copyright statements and notices. Redistributions must also contain a copy of this document.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name "ExoLab" must not be used to endorse or promote products derived from this Software without prior written permission of Intalio Inc. For written permission, please contact info@exolab.org.
4. Products derived from this Software may not be called "Castor" nor may "Castor" appear in their names without prior written permission of Intalio Inc. Exolab, Castor and Intalio are trademarks of Intalio Inc.
5. Due credit should be given to the ExoLab Project (<http://www.exolab.org/>).

THIS SOFTWARE IS PROVIDED BY INTALIO AND CONTRIBUTORS ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTALIO OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
=====  
=  
== CGLIB License ==  
=====  
=
```

CGLIB is licensed under the Apache License 2.0.

```
=====
=
== DWR License ==
=====
=
```

DWR is licensed under the Apache License 2.0.

```
=====
=
== Dojo License ==
=====
=
```

Copyright (c) 2005, The Dojo Foundation

All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this
list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice,
this list of conditions and the following disclaimer in the documentation
and/or other materials provided with the distribution.
- * Neither the name of the Dojo Foundation nor the names of its contributors

may be used to endorse or promote products derived from this software
without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS"
AND

ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE
IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE
LIABLE

FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL

DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
OR

SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER

CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,

OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE
USE

OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====

=

== HOWL License

==

=====

=

Copyright (c) 2004, Bull S.A.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
=====
=
== Jaxen License                               ==
=====
=
```

Copyright 2003-2006 The Werken Company. All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of the Jaxen Project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED

TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
=====
=
== JDBM License ==
=====
=
```

JDBM LICENSE v1.00

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain copyright statements and notices. Redistributions must also contain a copy of this document.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name "JDBM" must not be used to endorse or promote products derived from this Software without prior written permission of Cees de Groot. For written permission, please contact cg@cdegroot.com.

4. Products derived from this Software may not be called "JDBM" nor may "JDBM" appear in their names without prior written permission of Cees de Groot.

5. Due credit should be given to the JDBM Project (<http://jdbm.sourceforge.net/>).

THIS SOFTWARE IS PROVIDED BY THE JDBM PROJECT AND CONTRIBUTORS ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL CEES DE GROOT OR ANY CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)

HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED
OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright 2000 (C) Cees de Groot. All Rights Reserved.

Contributions are Copyright (C) 2000 by their associated contributors.

=====
=

== Jetty License ==

=====
=

Jetty is licensed under the Apache License 2.0.

=====
=

== JDOM License ==

=====
=

Copyright (C) 2000-2004 Jason Hunter & Brett McLaughlin.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions, and the disclaimer that follows these conditions in the documentation and/or other materials provided with the distribution.
3. The name "JDOM" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact <request_AT_jdom_DOT_org>.
4. Products derived from this software may not be called "JDOM", nor may "JDOM" appear in their name, without prior written permission from the JDOM Project Management <request_AT_jdom_DOT_org>.

In addition, we request (but do not require) that you include in the end-user documentation provided with the redistribution and/or in the software itself an acknowledgement equivalent to the following:

"This product includes software developed by the
JDOM Project (<http://www.jdom.org/>)."

Alternatively, the acknowledgment may be graphical using the logos available at <http://www.jdom.org/images/logos>.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE JDOM AUTHORS OR THE PROJECT CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software consists of voluntary contributions made by many individuals on behalf of the JDOM Project and was originally created by Jason Hunter <jhunter_AT_jdom_DOT_org> and Brett McLaughlin <brett_AT_jdom_DOT_org>. For more information on the JDOM Project, please see <<http://www.jdom.org/>>.

=====
=

== JLine License

==

=====
=

Copyright (c) 2002-2006, Marc Prud'hommeaux <mwp1@cornell.edu>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of JLine nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,

BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
=====  
=  
== log4j License ==  
=====
```

log4j is licensed under the Apache License, Version 2.0.

```
=====  
=  
== juddi License ==  
=====
```

juddi is licensed under the Apache License, Version 2.0.

```
=====
=
== OGNL License ==
=====
=
```

The OpenSymphony Software License, Version 1.1

(this license is derived and fully compatible with the Apache Software License - see <http://www.apache.org/LICENSE.txt>)

Copyright (c) 2001-2004 The OpenSymphony Group. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in

the documentation and/or other materials provided with the distribution.

3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment:

"This product includes software developed by the OpenSymphony Group (<http://www.opensymphony.com/>)."

Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear.

4. The names "OpenSymphony" and "The OpenSymphony Group" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact license@opensymphony.com.

5. Products derived from this software may not be called "OpenSymphony" or "OGNL", nor may "OpenSymphony" or "OGNL" appear in their name, without prior written permission of the OpenSymphony Group.

THIS SOFTWARE IS PROVIDED ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE APACHE SOFTWARE FOUNDATION OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT

LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
=====
=
== Serp License ==
=====
=
```

Copyright (c) 2002, A. Abram White

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- * Neither the name of 'serp' nor the names of its contributors may

be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND

ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED

WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE

DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR

ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES

(INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;

LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON

ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS

SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

=====
=

== SL4J License ==

=====
=

SLF4J License

SLF4J source code and binaries are distributed under the following license.

Copyright (c) 2004-2007 QOS.ch All rights reserved. Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

These terms are identical to those of the MIT License, also called the X License or the X11 License, X11 License, which is a simple, permissive non-copyleft free software license. It is deemed compatible with virtually all types of licenses, commercial or otherwise. In particular, the Free Software Foundation has declared it compatible

with GNU GPL. It is also known to be approved by the Apache Software Foundation as compatible with Apache Software License.

```
=====
=
== Sun CDDL License ==
== JAXB, JAXWS, JSTL, SAAJ ==
=====
=
```

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0

1. Definitions.

1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable means the Covered Software in any form other than Source Code.

1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License means this document.

1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications means the Source Code and Executable form of any of the following:

A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications;

B. Any new file that contains any part of the Original Software or

previous Modification; or

C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the

outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license: (a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and (b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof). (c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License. (d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant. Conditioned upon Your compliance with Section

3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license: (a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and (b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1)áModifications made by that Contributor (or portions thereof); and (2)áthe combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination). (c) The licenses granted in Sectionsá2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party. (d) Notwithstanding Sectioná2.2(b) above, no patent license is granted: (1)áfor any code that Contributor has deleted from the Contributor Version; (2)áfor infringements caused by: (i)áthird party modifications of Contributor Version, or (ii)áthe combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3)áunder Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code.

Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications.

The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices. You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or

trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms. You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions. You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this

License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works. You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions. Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions.

You may always continue to use, distribute or otherwise make the

Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions.

When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY.

COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR

NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if

the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY.

UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH

DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS.

The Covered Software is a commercial item, as that term is defined in 48 C.F.R. § 2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. § 252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48 C.F.R. § 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS.

This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent

necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS.

As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or

shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) The GlassFish code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

```
=====
=  
== Swizzle License ==  
=====
=
```

Swizzle is licensed under the Apache License 2.0.

```
=====
=  
== Spring License ==  
=====
=
```

Spring is licensed under the Apache License 2.0.

```
=====  
=  
== TranQL License ==  
=====  
=
```

TranQL is licensed under the Apache License 2.0.

```
=====  
=  
== WADI License ==  
=====  
=
```

WADI is licensed under the Apache License 2.0.

```
=====  
=  
== Woodstox License ==  
=====  
=
```

Woodstox is licensed under the Apache License 2.0.

```
=====
=
== WSDL4J License ==
=====
=
```

Common Public License - v 1.0

THE ACCOMPANYING PROGRAM IS PROVIDED UNDER THE TERMS OF THIS COMMON PUBLIC LICENSE ("AGREEMENT"). ANY USE, REPRODUCTION OR DISTRIBUTION OF THE PROGRAM CONSTITUTES RECIPIENT'S ACCEPTANCE OF THIS AGREEMENT.

1. DEFINITIONS

"Contribution" means:

a) in the case of the initial Contributor, the initial code and documentation distributed under this Agreement, and

b) in the case of each subsequent Contributor:

i) changes to the Program, and

ii) additions to the Program;

where such changes and/or additions to the Program originate from and are distributed by that particular Contributor. A Contribution 'originates' from a Contributor if it was added to the Program by such Contributor itself or anyone acting on such Contributor's behalf. Contributions do not include additions to the Program which: (i) are separate modules of software distributed in conjunction with the Program under their own license agreement, and (ii) are not derivative works of the Program.

"Contributor" means any person or entity that distributes the Program.

"Licensed Patents " mean patent claims licensable by a Contributor which are necessarily infringed by the use or sale of its Contribution alone or when combined with the Program.

"Program" means the Contributions distributed in accordance with this Agreement.

"Recipient" means anyone who receives the Program under this Agreement, including all Contributors.

2. GRANT OF RIGHTS

a) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, distribute and sublicense the Contribution of such Contributor, if any, and such derivative works, in source code and object code form.

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in source code and object code form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

c) Recipient understands that although each Contributor grants the licenses to its Contributions set forth herein, no assurances are provided by any Contributor that the Program does not infringe the patent or other intellectual property rights of any other entity. Each Contributor disclaims any liability to Recipient for claims brought by any other entity based on

infringement of intellectual property rights or otherwise. As a condition to exercising the rights and licenses granted hereunder, each Recipient hereby assumes sole responsibility to secure any other intellectual property rights needed, if any. For example, if a third party patent license is required to allow Recipient to distribute the Program, it is Recipient's responsibility to acquire that license before distributing the Program.

d) Each Contributor represents that to its knowledge it has sufficient copyright rights in its Contribution, if any, to grant the copyright license set forth in this Agreement.

3. REQUIREMENTS

A Contributor may choose to distribute the Program in object code form under its own license agreement, provided that:

a) it complies with the terms and conditions of this Agreement; and

b) its license agreement:

i) effectively disclaims on behalf of all Contributors all warranties and conditions, express and implied, including warranties or conditions of title and non-infringement, and implied warranties or conditions of merchantability and fitness for a particular purpose;

ii) effectively excludes on behalf of all Contributors all liability for damages, including direct, indirect, special, incidental and consequential damages, such as lost profits;

iii) states that any provisions which differ from this Agreement are offered by that Contributor alone and not by any other party; and

iv) states that source code for the Program is available from such Contributor, and informs licensees how to obtain it in a reasonable manner on or through a medium customarily used for software exchange.

When the Program is made available in source code form:

a) it must be made available under this Agreement; and

b) a copy of this Agreement must be included with each copy of the Program.

Contributors may not remove or alter any copyright notices contained within the Program.

Each Contributor must identify itself as the originator of its Contribution, if any, in a manner that reasonably allows subsequent Recipients to identify the originator of the Contribution.

4. COMMERCIAL DISTRIBUTION

Commercial distributors of software may accept certain responsibilities with respect to end users, business partners and the like. While this license is intended to facilitate the commercial use of the Program, the Contributor who includes the Program in a commercial product offering should do so in a manner which does not create potential liability for other Contributors. Therefore, if a Contributor includes the Program in a commercial product offering, such Contributor ("Commercial Contributor") hereby agrees to defend and indemnify every other Contributor ("Indemnified Contributor") against any losses, damages and costs (collectively "Losses") arising from claims, lawsuits and other legal actions brought by a third party against the Indemnified Contributor to the extent caused by the acts or omissions of such Commercial Contributor in connection with its distribution of the Program in a commercial product offering. The obligations in this section do not apply to any claims or Losses relating to any actual or alleged intellectual property infringement. In order to qualify, an Indemnified Contributor must: a) promptly notify the Commercial Contributor in writing of such claim, and b) allow the Commercial Contributor to control, and cooperate with the Commercial Contributor in, the defense and any related settlement negotiations. The Indemnified Contributor may participate in any such claim at its own expense.

For example, a Contributor might include the Program in a commercial

product offering, Product X. That Contributor is then a Commercial Contributor. If that Commercial Contributor then makes performance claims, or offers warranties related to Product X, those performance claims and warranties are such Commercial Contributor's responsibility alone. Under this section, the Commercial Contributor would have to defend claims against the other Contributors related to those performance claims and warranties, and if a court requires any other Contributor to pay any damages as a result, the Commercial Contributor must pay those damages.

5. NO WARRANTY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, THE PROGRAM IS PROVIDED ON AN "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, EITHER EXPRESS OR IMPLIED INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OR CONDITIONS OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Each Recipient is solely responsible for determining the appropriateness of using and distributing the Program and assumes all risks associated with its exercise of rights under this Agreement, including but not limited to the risks and costs of program errors, compliance with applicable laws, damage to or loss of data, programs or equipment, and unavailability or interruption of operations.

6. DISCLAIMER OF LIABILITY

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER RECIPIENT NOR ANY CONTRIBUTORS SHALL HAVE ANY LIABILITY FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION LOST PROFITS), HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OR DISTRIBUTION OF THE PROGRAM OR THE EXERCISE OF ANY RIGHTS GRANTED HEREUNDER, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. GENERAL

If any provision of this Agreement is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this Agreement, and without further action by the parties hereto, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

If Recipient institutes patent litigation against a Contributor with respect to a patent applicable to software (including a cross-claim or counterclaim in a lawsuit), then any patent licenses granted by that Contributor to such Recipient under this Agreement shall terminate as

of the date such litigation is filed. In addition, if Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

All Recipient's rights under this Agreement shall terminate if it fails to comply with any of the material terms or conditions of this Agreement and does not cure such failure in a reasonable period of time after becoming aware of such noncompliance. If all Recipient's rights under this Agreement terminate, Recipient agrees to cease use and distribution of the Program as soon as reasonably practicable. However, Recipient's obligations under this Agreement and any licenses granted by Recipient relating to the Program shall continue and survive.

Everyone is permitted to copy and distribute copies of this Agreement, but in order to avoid inconsistency the Agreement is copyrighted and may only be modified in the following manner. The Agreement Steward reserves the right to publish new versions (including revisions) of this Agreement from time to time. No one other than the Agreement Steward has the right to modify this Agreement. IBM is the initial Agreement Steward. IBM may assign the responsibility to serve as the Agreement Steward to a suitable

separate entity. Each new version of the Agreement will be given a distinguishing version number. The Program (including Contributions) may always be distributed subject to the version of the Agreement under which it was received. In addition, after a new version of the Agreement is published, Contributor may elect to distribute the Program (including its Contributions) under the new version. Except as expressly stated in Sections 2(a) and 2(b) above, Recipient receives no rights or licenses to the intellectual property of any Contributor under this Agreement, whether expressly, by implication, estoppel or otherwise. All rights in the Program not expressly granted under this Agreement are reserved.

This Agreement is governed by the laws of the State of New York and the intellectual property laws of the United States of America. No party to this Agreement will bring a legal action under this Agreement more than one year after the cause of action arose. Each party waives its rights to a jury trial in any resulting litigation.

```
=====
=
== W3C Document Object Model License (xercesImpl) ==
=====
=
```

Document Object Model Level 2 Core is a platform and language-neutral

interface that allows programs and scripts to dynamically access and update the content and structure of documents. The Document Object Model Level 2 Core builds on the Document Object Model Level 1 Core.

The DOM Level 2 Core is made of a set of core interfaces to create and manipulate the structure and contents of a document. The Core also contains specialized interfaces dedicated to XML.

W3C IPR SOFTWARE NOTICE

Copyright (c) 2000 World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved.

The DOM bindings are published under the W3C Software Copyright Notice and License. The software license requires "Notice of any changes or modifications to the W3C files, including the date changes were made." Consequently, modified versions of the DOM bindings must document that they do not conform to the W3C standard; in the case of the IDL binding, the pragma prefix can no longer be 'w3c.org!'; in the case of the Java binding, the package names can no longer be in the 'org.w3c' package.

Note: The original version of the W3C Software Copyright Notice and License could be found at

<http://www.w3.org/Consortium/Legal/copyright-software-19980720>

Copyright (c) 1994-2000 World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>

This W3C work (including software, documents, or other related items) is being provided by the copyright holders under the following license. By obtaining, using and/or copying this work, you (the licensee) agree that you have read, understood, and will comply with the following terms and conditions:

Permission to use, copy, and modify this software and its documentation, with or without modification, for any purpose and without fee or royalty is hereby granted, provided that you include the following on ALL copies of the software and documentation or portions thereof, including modifications, that you make:

The full text of this NOTICE in a location viewable to users of the redistributed or derivative work. Any pre-existing intellectual property disclaimers, notices, or terms and conditions. If none exist, a short notice of the following form (hypertext is preferred, text is permitted) should be used within the body of any redistributed or derivative code: "Copyright (c) [\$date-of-software] World Wide Web

Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>" Notice of any changes or modifications to the W3C files, including the date changes were made. (We recommend you provide URIs to the location from which the code is derived.) THIS SOFTWARE AND DOCUMENTATION IS PROVIDED "AS IS," AND COPYRIGHT HOLDERS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENTATION.

The name and trademarks of copyright holders may NOT be used in advertising or publicity pertaining to the software without specific, written prior permission. Title to copyright in this software and any associated documentation will at all times remain with copyright holders.

=====
=

== W3C Software License (xercesImpl and xmlParserAPIs) ==

=====
=

W3C (c) SOFTWARE NOTICE AND LICENSE

Copyright (c) 1994-2002 World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>

This W3C work (including software, documents, or other related items) is being provided by the copyright holders under the following license. By obtaining, using and/or copying this work, you (the licensee) agree that you have read, understood, and will comply with the following terms and conditions:

Permission to use, copy, modify, and distribute this software and its documentation, with or without modification, for any purpose and without fee or royalty is hereby granted, provided that you include the following on ALL copies of the software and documentation or portions thereof, including modifications, that you make:

The full text of this NOTICE in a location viewable to users of the redistributed or derivative work. Any pre-existing intellectual

property disclaimers, notices, or terms and conditions. If none exist, a short notice of the following form (hypertext is preferred, text is permitted) should be used within the body of any redistributed or derivative code: "Copyright (c) [\$date-of-software] World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>" Notice of any changes or modifications to the W3C files, including the date changes were made. (We recommend you provide URIs to the location from which the code is derived.) THIS SOFTWARE AND DOCUMENTATION IS PROVIDED "AS IS," AND COPYRIGHT HOLDERS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENTATION.

The name and trademarks of copyright holders may NOT be used in advertising or publicity pertaining to the software without specific, written prior permission. Title to copyright in this software and any associated documentation will at all times remain with copyright holders.

This formulation of W3C's notice and license became active on August 14 1998 so as to improve compatibility with GPL. This version ensures that W3C software licensing terms are no more restrictive than GPL and consequently W3C software may be distributed in GPL packages. See the older formulation for the policy prior to this date. Please see our Copyright FAQ for common questions about using materials from our site, including specific terms and conditions for packages like libwww, Amaya, and Jigsaw. Other questions about this notice can be directed to site-policy@w3.org.

```
=====
=
== xpp3 License ==
=====
=
```

Indiana University Extreme! Lab Software License

Version 1.1.1

Copyright (c) 2002 Extreme! Lab, Indiana University. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The end-user documentation included with the redistribution, if any, must include the following acknowledgment:

"This product includes software developed by the Indiana University Extreme! Lab (<http://www.extreme.indiana.edu/>)."

Alternately, this acknowledgment may appear in the software itself, if and wherever such third-party acknowledgments normally appear.

4. The names "Indiana Univeristy" and "Indiana Univeristy Extreme! Lab" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact <http://www.extreme.indiana.edu/>.

5. Products derived from this software may not use "Indiana Univeristy" name nor may "Indiana Univeristy" appear in their name, without prior written permission of the Indiana University.

THIS SOFTWARE IS PROVIDED "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS, COPYRIGHT HOLDERS OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

```
=====
=
== XStream License ==
=====
=
```

Copyright (c) 2003-2006, Joe Walnes
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of XStream nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Commons Logging

This product includes Apache Commons Logging 1.1.1 which is distributed in accordance with the following license agreement:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

EclipseLink 2.1.1

This product includes EclipseLink 2.1.1, which was obtained from the Eclipse Foundation under the Eclipse Distribution License Version 1.0 and under various licenses set forth below, and is distributed by CA for use with this CA product in unmodified, object code form, under the CA license agreement. The following information sets out certain notices, attributions and/or other information CA is required to provide to you by the third party licensors of this component. The terms contained in the CA license agreement are offered by CA and not by the third party licensors. The contents set forth below are for informational purposes only and do not modify the terms of the license agreement between you and CA. The third party licensors of these components provide them on an "AS-IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE, and disclaim liability for any claim or loss, including, without limitation, direct, indirect, special, punitive, exemplary or consequential damages. Source code for EclipseLink may be obtained from <http://www.eclipse.org/eclipselink/>. In addition, CA makes the source code for certain components contained in EclipseLink 2.1.1 available at http://opensrcd.ca.com/ips/07746_1/ under the terms of their respective open source licenses. EclipseLink 2.1.1 is distributed in accordance with the following:

Eclipse Distribution License Version 1.0

Copyright (c) 2007, Eclipse Foundation, Inc. and its licensors.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the Eclipse Foundation, Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

ASM

Copyright (c) 2000-2005 INRIA, France Telecom, All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- 1.Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- 2.Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- 3.Neither the name of the copyright holders nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

ANTLR

ANTLR 3 License

[The BSD License]

Copyright (c) 2010 Terence Parr

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

Neither the name of the author nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

JAXB

Java Persistence (JPA) 1.0 - EJB 3.0

JavaMail

Java Activation Framework v1.1

Streaming API for XML (StAX)

Java Connector

COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) Version 1.0 1.

Definitions.

1.1. Contributor means each individual or entity that creates or contributes to the creation of Modifications.

1.2. Contributor Version means the combination of the Original Software, prior Modifications used by a Contributor (if any), and the Modifications made by that particular Contributor.

1.3. Covered Software means (a) the Original Software, or (b) Modifications, or (c) the combination of files containing Original Software with files containing Modifications, in each case including portions thereof.

1.4. Executable means the Covered Software in any form other than Source Code.

1.5. Initial Developer means the individual or entity that first makes Original Software available under this License.

1.6. Larger Work means a work which combines Covered Software or portions thereof with code not governed by the terms of this License.

1.7. License means this document.

1.8. Licensable means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. Modifications means the Source Code and Executable form of any of the following:
A. Any file that results from an addition to, deletion from or modification of the contents of a file containing Original Software or previous Modifications; B. Any new file that contains any part of the Original Software or previous Modification; or C. Any new file that is contributed or otherwise made available under the terms of this License.

1.10. Original Software means the Source Code and Executable form of computer software code that is originally released under this License.

1.11. Patent Claims means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.12. Source Code means (a) the common form of computer software code in which modifications are made and (b) associated documentation included in or with such code.

1.13. You (or Your) means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License. For legal entities, You includes any entity which controls, is controlled by, or is under common control with You. For purposes of this definition, control means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants.

2.1. The Initial Developer Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, the Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer, to use, reproduce, modify, display, perform, sublicense and distribute the Original Software (or portions thereof), with or without Modifications, and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using or selling of Original Software, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Software (or portions thereof);

(c) The licenses granted in Sections 2.1(a) and (b) are effective on the date Initial Developer first distributes or otherwise makes the Original Software available to a third party under the terms of this License;

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: (1) for code that You delete from the Original Software, or (2) for infringements caused by: (i) the modification of the Original Software, or (ii) the combination of the Original Software with other software or devices.

2.2. Contributor Grant. Conditioned upon Your compliance with Section 3.1 below and subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof), either on an unmodified basis, with other Modifications, as Covered Software and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: (1) Modifications made by that Contributor (or portions thereof); and (2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) The licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first distributes or otherwise makes the Modifications available to a third party.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: (1) for any code that Contributor has deleted from the Contributor Version; (2) for infringements caused by: (i) third party modifications of Contributor Version, or (ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or (3) under Patent Claims infringed by Covered Software in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Availability of Source Code. Any Covered Software that You distribute or otherwise make available in Executable form must also be made available in Source Code form and that Source Code form must be distributed only under the terms of this License. You must include a copy of this License with every copy of the Source Code form of the Covered Software You distribute or otherwise make available. You must inform recipients of any such Covered Software in Executable form as to how they can obtain such Covered Software in Source Code form in a reasonable manner on or through a medium customarily used for software exchange.

3.2. Modifications. The Modifications that You create or to which You contribute are governed by the terms of this License. You represent that You believe Your Modifications are Your original creation(s) and/or You have sufficient rights to grant the rights conveyed by this License.

3.3. Required Notices. You must include a notice in each of Your Modifications that identifies You as the Contributor of the Modification. You may not remove or alter any copyright, patent or trademark notices contained within the Covered Software, or any notices of licensing or any descriptive text giving attribution to any Contributor or the Initial Developer.

3.4. Application of Additional Terms. You may not offer or impose any terms on any Covered Software in Source Code form that alters or restricts the applicable version of this License or the recipients rights hereunder. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, you may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor. You must make it absolutely clear that any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of warranty, support, indemnity or liability terms You offer.

3.5. Distribution of Executable Versions. You may distribute the Executable form of the Covered Software under the terms of this License or under the terms of a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable form does not attempt to limit or alter the recipients rights in the Source Code form from the rights set forth in this License. If You distribute the Covered Software in Executable form under a different license, You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.6. Larger Works. You may create a Larger Work by combining Covered Software with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Software.

4. Versions of the License.

4.1. New Versions. Sun Microsystems, Inc. is the initial license steward and may publish revised and/or new versions of this License from time to time. Each version will be given a distinguishing version number. Except as provided in Section 4.3, no one other than the license steward has the right to modify this License.

4.2. Effect of New Versions. You may always continue to use, distribute or otherwise make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. If the Initial Developer includes a notice in the Original Software prohibiting it from being distributed or otherwise made available under any subsequent version of the License, You must distribute and make the Covered Software available under the terms of the version of the License under which You originally received the Covered Software. Otherwise, You may also choose to use, distribute or otherwise make the Covered Software available under the terms of any subsequent version of the License published by the license steward.

4.3. Modified Versions. When You are an Initial Developer and You want to create a new license for Your Original Software, You may create and use a modified version of this License if You: (a) rename the license and remove any references to the name of the license steward (except to note that the license differs from this License); and (b) otherwise make it clear that the license contains terms which differ from this License.

5. DISCLAIMER OF WARRANTY. COVERED SOFTWARE IS PROVIDED UNDER THIS LICENSE ON AN AS IS BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED SOFTWARE IS FREE OF DEFECTS, MERCHANTABILITY, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED SOFTWARE IS WITH YOU. SHOULD ANY COVERED SOFTWARE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED SOFTWARE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

6. TERMINATION.

6.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

6.2. If You assert a patent infringement claim (excluding declaratory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You assert such claim is referred to as Participant) alleging that the Participant Software (meaning the Contributor Version where the Participant is a Contributor or the Original Software where the Participant is the Initial Developer) directly or indirectly infringes any patent, then any and all rights granted directly or indirectly to You by such Participant, the Initial Developer (if the Initial Developer is not the Participant) and all Contributors under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively and automatically at the expiration of such 60 day notice period, unless if within such 60 day period You withdraw Your claim with respect to the Participant Software against such Participant either unilaterally or pursuant to a written agreement with Participant.

6.3. In the event of termination under Sections 6.1 or 6.2 above, all end user licenses that have been validly granted by You or any distributor hereunder prior to termination (excluding licenses granted to You by any distributor) shall survive termination.

7. LIMITATION OF LIABILITY. UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED SOFTWARE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTYS NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

8. U.S. GOVERNMENT END USERS. The Covered Software is a commercial item, as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of commercial computer software (as that term is defined at 48 C.F.R. 252.227-7014(a)(1)) and commercial computer software documentation as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Software with only those rights set forth herein. This U.S. Government Rights clause is in lieu of, and supersedes, any other FAR, DFAR, or other clause or provision that addresses Government rights in computer software under this License.

9. MISCELLANEOUS. This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by the law of the jurisdiction specified in a notice contained within the Original Software (except to the extent applicable law, if any, provides otherwise), excluding such jurisdictions conflict-of-law provisions. Any litigation relating to this License shall be subject to the jurisdiction of the courts located in the jurisdiction and venue specified in a notice contained within the Original Software, with the losing party responsible for costs, including, without limitation, court costs and reasonable attorneys fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License. You agree that You alone are responsible for compliance with the United States export administration regulations (and the export control laws and regulation of any other countries) when You use, distribute or otherwise make available any Covered Software.

10. RESPONSIBILITY FOR CLAIMS. As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

NOTICE PURSUANT TO SECTION 9 OF THE COMMON DEVELOPMENT AND DISTRIBUTION LICENSE (CDDL) The code released under the CDDL shall be governed by the laws of the State of California (excluding conflict-of-law provisions). Any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California and the state courts of the State of California, with venue lying in Santa Clara County, California.

Service Data Objects (SDO)

License for the Service Data Objects JavaDoc and Interface Definition files.

The Service Data Objects JavaDoc and Interface Definition files are

being provided by the copyright holders under the following license. By using and/or copying this work, you agree that you have read, understood and will comply with the following terms and conditions:

Permission to copy, display, make derivative works of and distribute the Service Data Objects JavaDoc and Interface Definition files (the "Artifacts") in any medium without fee or royalty is hereby granted, provided that you include the following on ALL copies of the Artifacts, or portions thereof, that you make:

1. A link or URL to the Artifacts at this location:

<http://www.osoa.org/display/Main/Service+Data+Objects+Specifications>

2. The full text of this copyright notice as shown in the Artifacts.

THE ARTIFACTS ARE PROVIDED "AS IS" AND THE AUTHORS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE ARTIFACTS AND THE IMPLEMENTATION OF THEIR CONTENTS, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OR TITLE.

THE AUTHORS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATING TO ANY USE OR DISTRIBUTION OF THE ARTIFACTS.

The name and trademarks of the Authors may NOT be used in any manner, including advertising or publicity pertaining to the Service Data Objects Specification or its contents without specific, written prior permission. Title to copyright in the Service Data Objects Specification will at all times remain with the Authors.

No other rights are granted by implication, estoppel or otherwise.

Revision level 1.1, last updated on 2007/11/19

Xerces

Java Servlet

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and

You must cause any modified files to carry prominent notices stating that You changed the files; and

You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

Google Web Toolkit 2.0.4

This product includes Google Web Toolkit 2.0.4, which is distributed in accordance with the following license agreement:

Google Web Toolkit License Information

March 3, 2008

The Google Web Toolkit software and sample code developed by Google is licensed under the Apache License, v. 2.0. Other software included in this distribution is provided under other licenses, as listed in the Included Software and Licenses section at the bottom of this page. Source code for software included in this distribution is available from the Google Web Toolkit project or as otherwise indicated at the bottom of this page.

Please note that the executable version of the Google Web Toolkit distributed by Google will communicate with Google's servers to check for available updates. If updates are available, you will receive the option to install them.

Apache License, Version 2.0

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

a. You must give any other recipients of the Work or Derivative Works a copy of this License; and

b. You must cause any modified files to carry prominent notices stating that You changed the files; and

c. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

d. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

gwt-log 2.6.2

This product includes gwt-log v.2.6.2 which is distributed in accordance with the following license agreement:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

1. You must give any other recipients of the Work or Derivative Works a copy of this License; and

2. You must cause any modified files to carry prominent notices stating that You changed the files; and

3. You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

4. If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

httpcore

This product includes Apache HttpComponents HttpCore 4.1 which is distributed in accordance with the following license agreement:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

httpclient

This product includes Apache httpclient 4.1.1 which is distributed in accordance with the following license agreements

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity

exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including

the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of

this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and

may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A

PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason

of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

This project contains annotations derived from JCIP-ANNOTATIONS

Copyright (c) 2005 Brian Goetz and Tim Peierls.

See <http://www.jcip.net> and the Creative Commons Attribution License

(<http://creativecommons.org/licenses/by/2.5>)

InstallCert.java

This product includes InstallCert.java, which is distributed in accordance with the following terms:

```
/*  
  
* Copyright 2006 Sun Microsystems, Inc. All Rights Reserved.  
  
*  
  
* Redistribution and use in source and binary forms, with or without  
* modification, are permitted provided that the following conditions  
* are met:  
  
*  
* - Redistributions of source code must retain the above copyright  
* notice, this list of conditions and the following disclaimer.  
  
*  
* - Redistributions in binary form must reproduce the above copyright  
* notice, this list of conditions and the following disclaimer in the  
* documentation and/or other materials provided with the distribution.  
  
*  
* - Neither the name of Sun Microsystems nor the names of its  
* contributors may be used to endorse or promote products derived  
* from this software without specific prior written permission.  
  
*  
* THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS  
* IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,  
* THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR  
* PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR
```

* CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
* EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
* PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
* PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF
* LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING
* NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
* SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
*/

Oracle 11G JDBC driver 11.1.0.6.0

This Product is distributed with Oracle 11G JDBC Driver version 11.1.0.6.0 from Oracle USA, Inc. ("Oracle")

The following additional terms and conditions apply to your use of the Oracle software product ("Oracle Product"):

(1) you may only use the Oracle Product to run the CA Product; (2) to the extent permitted by applicable law, Oracle disclaims liability for any damages, whether direct, indirect, incidental, or consequential, arising from your use of the Oracle Product; (3) at the termination of this Agreement, you must discontinue use and destroy or return to CA all copies of the Product; (4) Oracle is not obligated to provide technical support, phone support, or updates to the Oracle Product hereunder; (5) CA reserves the right to audit your use of the Oracle Product and report such use to Oracle or to assign this right to audit your use of the Oracle Product to Oracle; (6) Oracle shall be a third party beneficiary of this Agreement.

Oracle Technology Network Development and Distribution License Terms

Export Controls on the Programs

Selecting the "Accept License Agreement" button is a confirmation of your agreement that you comply, now and during the trial term, with each of the following statements:

-You are not a citizen, national, or resident of, and are not under control of, the government of Cuba, Iran, Sudan, Libya, North Korea, Syria, nor any country to which the United States has prohibited export.

-You will not download or otherwise export or re-export the Programs, directly or indirectly, to the above mentioned countries nor to citizens, nationals or residents of those countries.

-You are not listed on the United States Department of Treasury lists of Specially Designated Nationals, Specially Designated Terrorists, and Specially Designated Narcotic Traffickers, nor are you listed on the United States Department of Commerce Table of Denial Orders.

You will not download or otherwise export or re-export the Programs, directly or indirectly, to persons on the above mentioned lists.

You will not use the Programs for, and will not allow the Programs to be used for, any purposes prohibited by United States law, including, without limitation, for the development, design, manufacture or production of nuclear, chemical or biological weapons of mass destruction.

EXPORT RESTRICTIONS

You agree that U.S. export control laws and other applicable export and import laws govern your use of the programs, including technical data; additional information can be found on Oracle's Global Trade Compliance web site (<http://www.oracle.com/products/export>).

You agree that neither the programs nor any direct product thereof will be exported, directly, or indirectly, in violation of these laws, or will be used for any purpose prohibited by these laws including, without limitation, nuclear, chemical, or biological weapons proliferation.

Oracle Employees: Under no circumstances are Oracle Employees authorized to download software for the purpose of distributing it to customers. Oracle products are available to employees for internal use or demonstration purposes only. In keeping with Oracle's trade compliance obligations under U.S. and applicable multilateral law, failure to comply with this policy could result in disciplinary action up to and including termination.

Note: You are bound by the Oracle Technology Network ("OTN") License Agreement terms. The OTN License Agreement terms also apply to all updates you receive under your Technology Track subscription.

The OTN License Agreement terms below supercede any shrinkwrap license on the OTN Technology Track software CDs and previous OTN License terms (including the Oracle Program License as modified by the OTN Program Use Certificate).

Oracle Technology Network Development and Distribution License Agreement

"We," "us," and "our" refers to Oracle USA, Inc., for and on behalf of itself and its subsidiaries and affiliates under common control. "You" and "your" refers to the individual or entity that wishes to use the programs from Oracle. "Programs" refers to the software product you wish to download and use and program documentation. "License" refers to your right to use the programs under the terms of this agreement. This agreement is governed by the substantive and procedural laws of California. You and Oracle agree to submit to the exclusive jurisdiction of, and venue in, the courts of San Francisco, San Mateo, or Santa Clara counties in California in any dispute arising out of or relating to this agreement.

We are willing to license the programs to you only upon the condition that you accept all of the terms contained in this agreement. Read the terms carefully and select the "Accept" button at the bottom of the page to confirm your acceptance. If you are not willing to be bound by these terms, select the "Do Not Accept" button and the registration process will not continue.

License Rights

We grant you a nonexclusive, nontransferable limited license to use the programs for purposes of developing your applications. You may also distribute the programs with your applications to your customers. If you want to use the programs for any purpose other than as expressly permitted under this agreement you must contact us, or an Oracle reseller, to obtain the appropriate license. We may audit your use of the programs. Program documentation is either shipped with the programs, or documentation may accessed online at <http://otn.oracle.com/docs>.

Ownership and Restrictions

We retain all ownership and intellectual property rights in the programs. You may make a sufficient number of copies of the programs for the licensed use and one copy of the programs for backup purposes.

You may not:

- use the programs for any purpose other than as provided above;
- distribute the programs unless accompanied with your applications;
- charge your end users for use of the programs;

- remove or modify any program markings or any notice of our proprietary rights;
- use the programs to provide third party training on the content and/or functionality of the programs, except for training your licensed users;
- assign this agreement or give the programs, program access or an interest in the programs to any individual or entity except as provided under this agreement;
- cause or permit reverse engineering (unless required by law for interoperability), disassembly or decompilation of the programs;
- disclose results of any program benchmark tests without our prior consent; or,
- use any Oracle name, trademark or logo.

Program Distribution

We grant you a nonexclusive, nontransferable right to copy and distribute the programs to your end users provided that you do not charge your end users for use of the programs and provided your end users may only use the programs to run your applications for their business operations. Prior to distributing the programs you shall require your end users to execute an agreement binding them to terms consistent with those contained in this section and the sections of this agreement entitled "License Rights," "Ownership and Restrictions," "Export," "Disclaimer of Warranties and Exclusive Remedies," "No Technical Support," "End of Agreement," "Relationship Between the Parties," and "Open Source." You must also include a provision stating that your end users shall have no right to distribute the programs, and a provision specifying us as a third party beneficiary of the agreement. You are responsible for obtaining these agreements with your end users.

You agree to: (a) defend and indemnify us against all claims and damages caused by your distribution of the programs in breach of this agreements and/or failure to include the required contractual provisions in your end user agreement as stated above; (b) keep executed end user agreements and records of end user information including name, address, date of distribution and identity of programs distributed; (c) allow us to inspect your end user agreements and records upon request; and, (d) enforce the terms of your end user agreements so as to effect a timely cure of any end user breach, and to notify us of any breach of the terms.

Export

You agree that U.S. export control laws and other applicable export and import laws govern your use of the programs, including technical data; additional information can be found on Oracle's Global Trade Compliance web site located at <http://www.oracle.com/products/export/index.html?content.html>. You agree that neither the programs nor any direct product thereof will be exported, directly, or indirectly, in violation of these laws, or will be used for any purpose prohibited by these laws including, without limitation, nuclear, chemical, or biological weapons proliferation.

Disclaimer of Warranty and Exclusive Remedies

THE PROGRAMS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. WE FURTHER DISCLAIM ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NONINFRINGEMENT.

IN NO EVENT SHALL WE BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, OR DAMAGES FOR LOSS OF PROFITS, REVENUE, DATA OR DATA USE, INCURRED BY YOU OR ANY THIRD PARTY, WHETHER IN AN ACTION IN CONTRACT OR TORT, EVEN IF WE HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. OUR ENTIRE LIABILITY FOR DAMAGES HEREUNDER SHALL IN NO EVENT EXCEED ONE THOUSAND DOLLARS (U.S. \$1,000).

No Technical Support

Our technical support organization will not provide technical support, phone support, or updates to you for the programs licensed under this agreement.

Restricted Rights

If you distribute a license to the United States government, the programs, including documentation, shall be considered commercial computer software and you will place a legend, in addition to applicable copyright notices, on the documentation, and on the media label, substantially similar to the following:

NOTICE OF RESTRICTED RIGHTS

"Programs delivered subject to the DOD FAR Supplement are 'commercial computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement. Otherwise, programs delivered subject to the Federal Acquisition Regulations are 'restricted computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the restrictions in FAR 52.227-19, Commercial Computer Software-Restricted Rights (June 1987). Oracle USA, Inc., 500 Oracle Parkway, Redwood City, CA 94065."

End of Agreement

You may terminate this agreement by destroying all copies of the programs. We have the right to terminate your right to use the programs if you fail to comply with any of the terms of this agreement, in which case you shall destroy all copies of the programs.

Relationship Between the Parties

The relationship between you and us is that of licensee/licensor. Neither party will represent that it has any authority to assume or create any obligation, express or implied, on behalf of the other party, nor to represent the other party as agent, employee, franchisee, or in any other capacity. Nothing in this agreement shall be construed to limit either party's right to independently develop or distribute software that is functionally similar to the other party's products, so long as proprietary information of the other party is not included in such software.

Open Source

"Open Source" software - software available without charge for use, modification and distribution - is often licensed under terms that require the user to make the user's modifications to the Open Source software or any software that the user 'combines' with the Open Source software freely available in source code form. If you use Open Source software in conjunction with the programs, you must ensure that your use does not: (i) create, or purport to create, obligations of us with respect to the Oracle programs; or (ii) grant, or purport to grant, to any third party any rights to or immunities under our intellectual property or proprietary rights in the Oracle programs. For example, you may not develop a software program using an Oracle program and an Open Source program where such use results in a program file(s) that contains code from both the Oracle program and the Open Source program (including without limitation libraries) if the Open Source program is licensed under a license that requires any "modifications" be made freely available. You also may not combine the Oracle program with programs licensed under the GNU General Public License ("GPL") in any manner that could cause, or could be interpreted or asserted to cause, the Oracle program or any modifications thereto to become subject to the terms of the GPL.

Entire Agreement

You agree that this agreement is the complete agreement for the programs and licenses, and this agreement supersedes all prior or contemporaneous agreements or representations. If any term of this agreement is found to be invalid or unenforceable, the remaining provisions will remain effective.

Last updated: 03/09/05

Should you have any questions concerning this License Agreement, or if you desire to contact Oracle for any reason, please write:

Oracle USA, Inc.

500 Oracle Parkway,

Redwood City, CA 94065

Oracle may contact you to ask if you had a satisfactory experience installing and using this OTN software download.

Oracle 11G JDBC Driver

This Product is distributed with Oracle 11G JDBC Driver version 11.1.0.6.0 from Oracle USA, Inc. ("Oracle")

The following additional terms and conditions apply to your use of the Oracle software product ("Oracle Product"):

(1) you may only use the Oracle Product to run the CA Product; (2) to the extent permitted by applicable law, Oracle disclaims liability for any damages, whether direct, indirect, incidental, or consequential, arising from your use of the Oracle Product; (3) at the termination of this Agreement, you must discontinue use and destroy or return to CA all copies of the Product; (4) Oracle is not obligated to provide technical support, phone support, or updates to the Oracle Product hereunder; (5) CA reserves the right to audit your use of the Oracle Product and report such use to Oracle or to assign this right to audit your use of the Oracle Product to Oracle; (6) Oracle shall be a third party beneficiary of this Agreement.

Oracle JRE 1.6.0_21

This Product is distributed with Oracle JRE 1.6.0_21 (JAVA SE RUNTIME ENVIRONMENT(JRE), VERSION 6) (JRE). The JRE is distributed in accordance with the Oracle Corporation (Oracle) Binary Code License Agreement set forth below. As noted in Section E of the Supplemental License Terms of this license, Oracle has provided additional copyright notices and license terms that may be applicable to portions of the JRE in the THIRDPARTYLICENSEREADME.txt file that accompanies the JRE.

ORACLE CORPORATION ("ORACLE") IS WILLING TO LICENSE THE SOFTWARE IDENTIFIED BELOW TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS BINARY CODE LICENSE AGREEMENT AND SUPPLEMENTAL LICENSE TERMS (COLLECTIVELY "AGREEMENT"). PLEASE READ THE AGREEMENT CAREFULLY. BY USING THE SOFTWARE YOU ACKNOWLEDGE THAT YOU HAVE READ THE TERMS AND AGREE TO THEM. IF YOU ARE AGREEING TO THESE TERMS ON BEHALF OF A COMPANY OR OTHER LEGAL ENTITY, YOU REPRESENT THAT YOU HAVE THE LEGAL AUTHORITY TO BIND THE LEGAL ENTITY TO THESE TERMS. IF YOU DO NOT HAVE SUCH AUTHORITY, OR IF YOU DO NOT WISH TO BE BOUND BY THE TERMS, THEN YOU MUST NOT USE THE SOFTWARE ON THIS SITE OR ANY OTHER MEDIA ON WHICH THE SOFTWARE IS CONTAINED.

1. DEFINITIONS. "Software" means the identified above in binary form, any other machine readable materials (including, but not limited to, libraries, source files, header files, and data files), any updates or error corrections provided by Oracle, and any user manuals, programming guides and other documentation provided to you by Oracle under this Agreement. "General Purpose Desktop Computers and Servers" means computers, including desktop and laptop computers, or servers, used for general computing functions under end user control (such as but not specifically limited to email, general purpose Internet browsing, and office suite productivity tools). The use of Software in systems and solutions that provide dedicated functionality (other than as mentioned above) or designed for use in embedded or function-specific software applications, for example but not limited to: Software embedded in or bundled with industrial control systems, wireless mobile telephones, wireless handheld devices, netbooks, kiosks, TV/STB, Blu-ray Disc devices, telematics and network control switching equipment, printers and storage management systems, and other related systems are excluded from this definition and not licensed under this Agreement. "Programs" means (a) Java technology applets and applications intended to run on the Java Platform Standard Edition (Java SE) platform on Java-enabled General Purpose Desktop Computers and Servers, and (b) JavaFX technology applications intended to run on the JavaFX Runtime on JavaFX-enabled General Purpose Desktop Computers and Servers.

2. LICENSE TO USE. Subject to the terms and conditions of this Agreement, including, but not limited to the Java Technology Restrictions of the Supplemental License Terms, Oracle grants you a non-exclusive, non-transferable, limited license without license fees to reproduce and use internally Software complete and unmodified for the sole purpose of running Programs. Additional licenses for developers and/or publishers are granted in the Supplemental License Terms.

3.RESTRICTIONS. Software is confidential and copyrighted. Title to Software and all associated intellectual property rights is retained by Oracle and/or its licensors. Unless enforcement is prohibited by applicable law, you may not modify, decompile, or reverse engineer Software. You acknowledge that Licensed Software is not designed or intended for use in the design, construction, operation or maintenance of any nuclear facility. Oracle Corporation disclaims any express or implied warranty of fitness for such uses. No right, title or interest in or to any trademark, service mark, logo or trade name of Oracle or its licensors is granted under this Agreement. Additional restrictions for developers and/or publishers licenses are set forth in the Supplemental License Terms.

4.LIMITED WARRANTY. Oracle warrants to you that for a period of ninety (90) days from the date of purchase, as evidenced by a copy of the receipt, the media on which Software is furnished (if any) will be free of defects in materials and workmanship under normal use. Except for the foregoing, Software is provided "AS IS". Your exclusive remedy and Oracle's entire liability under this limited warranty will be at Oracle's option to replace Software media or refund the fee paid for Software. Any implied warranties on the Software are limited to 90 days. Some states do not allow limitations on duration of an implied warranty, so the above may not apply to you. This limited warranty gives you specific legal rights. You may have others, which vary from state to state.

5.DISCLAIMER OF WARRANTY. UNLESS SPECIFIED IN THIS AGREEMENT, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT THESE DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

6.LIMITATION OF LIABILITY. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL ORACLE OR ITS LICENSORS BE LIABLE FOR ANY LOST REVENUE, PROFIT OR DATA, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE SOFTWARE, EVEN IF ORACLE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. In no event will Oracle's liability to you, whether in contract, tort (including negligence), or otherwise, exceed the amount paid by you for Software under this Agreement. The foregoing limitations will apply even if the above stated warranty fails of its essential purpose. Some states do not allow the exclusion of incidental or consequential damages, so some of the terms above may not be applicable to you.

7.TERMINATION. This Agreement is effective until terminated. You may terminate this Agreement at any time by destroying all copies of Software. This Agreement will terminate immediately without notice from Oracle if you fail to comply with any provision of this Agreement. Either party may terminate this Agreement immediately should any Software become, or in either party's opinion be likely to become, the subject of a claim of infringement of any intellectual property right. Upon Termination, you must destroy all copies of Software.

8. EXPORT REGULATIONS. All Software and technical data delivered under this Agreement are subject to US export control laws and may be subject to export or import regulations in other countries. You agree to comply strictly with all such laws and regulations and acknowledge that you have the responsibility to obtain such licenses to export, re-export, or import as may be required after delivery to you.

9. TRADEMARKS AND LOGOS. You acknowledge and agree as between you and Oracle that Oracle owns the ORACLE, SUN, SOLARIS, JAVA, JINI, FORTE, and iPLANET trademarks and all ORACLE, SOLARIS, JAVA, JINI, FORTE, and iPLANET-related trademarks, service marks, logos and other brand designations ("Oracle Marks"), and you agree to comply with the Third Party Usage Guidelines currently located at <http://www.oracle.com/html/3party.html> Any use you make of the Oracle Marks inures to Oracle's benefit.

10. U.S. GOVERNMENT RESTRICTED RIGHTS. If Software is being acquired by or on behalf of the U.S. Government or by a U.S. Government prime contractor or subcontractor (at any tier), then the Government's rights in Software and accompanying documentation will be only as set forth in this Agreement; this is in accordance with 48 CFR 227.7201 through 227.7202-4 (for Department of Defense (DOD) acquisitions) and with 48 CFR 2.101 and 12.212 (for non-DOD acquisitions).

11. GOVERNING LAW. Any action related to this Agreement will be governed by California law and controlling U.S. federal law. No choice of law rules of any jurisdiction will apply. Any action related to this Agreement will be governed by California law and controlling U.S. federal law. No choice of law rules of any jurisdiction will apply.

12. SEVERABILITY. If any provision of this Agreement is held to be unenforceable, this Agreement will remain in effect with the provision omitted, unless omission would frustrate the intent of the parties, in which case this Agreement will immediately terminate. If any provision of this Agreement is held to be unenforceable, this Agreement will remain in effect with the provision omitted, unless omission would frustrate the intent of the parties, in which case this Agreement will immediately terminate.

13. INTEGRATION. This Agreement is the entire agreement between you and Oracle relating to its subject matter. It supersedes all prior or contemporaneous oral or written communications, proposals, representations and warranties and prevails over any conflicting or additional terms of any quote, order, acknowledgment, or other communication between the parties relating to its subject matter during the term of this Agreement. No modification of this Agreement will be binding, unless in writing and signed by an authorized representative of each party.

SUPPLEMENTAL LICENSE TERMS

These Supplemental License Terms add to or modify the terms of the Binary Code License Agreement. Capitalized terms not defined in these Supplemental Terms shall have the same meanings ascribed to them in the Binary Code License Agreement. These Supplemental Terms shall supersede any inconsistent or conflicting terms in the Binary Code License Agreement, or in any license contained within the Software.

A. Software Internal Use and Development License Grant. Subject to the terms and conditions of this Agreement and restrictions and exceptions set forth in the Software "README" file incorporated herein by reference, including, but not limited to the Java Technology Restrictions of these Supplemental Terms, Oracle grants you a non-exclusive, non-transferable, limited license without fees to reproduce internally and use internally the Software complete and unmodified for the purpose of designing, developing, and testing your Programs.

B. License to Distribute Software. Subject to the terms and conditions of this Agreement and restrictions and exceptions set forth in the Software README file, including, but not limited to the Java Technology Restrictions of these Supplemental Terms, Oracle grants you a non-exclusive, non-transferable, limited license without fees to reproduce and distribute the Software (except for the JavaFX Runtime), provided that (i) you distribute the Software complete and unmodified and only bundled as part of, and for the sole purpose of running, your Programs, (ii) the Programs add significant and primary functionality to the Software, (iii) you do not distribute additional software intended to replace any component(s) of the Software, (iv) you do not remove or alter any proprietary legends or notices contained in the Software, (v) you only distribute the Software subject to a license agreement that protects Oracle's interests consistent with the terms contained in this Agreement, and (vi) you agree to defend and indemnify Oracle and its licensors from and against any damages, costs, liabilities, settlement amounts and/or expenses (including attorneys' fees) incurred in connection with any claim, lawsuit or action by any third party that arises or results from the use or distribution of any and all Programs and/or Software.

C. Java Technology Restrictions. You may not create, modify, or change the behavior of, or authorize your licensees to create, modify, or change the behavior of, classes, interfaces, or subpackages that are in any way identified as "java", "javax", "sun" or similar convention as specified by Oracle in any naming convention designation.

D. Source Code. Software may contain source code that, unless expressly licensed for other purposes, is provided solely for reference purposes pursuant to the terms of this Agreement. Source code may not be redistributed unless expressly provided for in this Agreement.

E. Third Party Code. Additional copyright notices and license terms applicable to portions of the Software are set forth in the THIRDPARTYLICENSEREADME.txt file. In addition to any terms and conditions of any third party opensource/freeware license identified in the THIRDPARTYLICENSEREADME.txt file, the disclaimer of warranty and limitation of liability provisions in paragraphs 5 and 6 of the Binary Code License Agreement shall apply to all Software in this distribution.

F. Termination for Infringement. Either party may terminate this Agreement immediately should any Software become, or in either party's opinion be likely to become, the subject of a claim of infringement of any intellectual property right.

G. Installation and Auto-Update. The Software's installation and auto-update processes transmit a limited amount of data to Oracle (or its service provider) about those specific processes to help Oracle understand and optimize them. Oracle does not associate the data with personally identifiable information. You can find more information about the data Oracle collects at <http://java.com/data/>.

For inquiries please contact: Oracle Corporation, 500 Oracle Parkway, Redwood Shores, California 94065, USA.

Ovaldi v.5.8.2

This product contains Ovaldi v.5.8.2 as well as the Ovaldi v.5.8.2 subcomponents set forth below. Ovaldi v.5.8.2 and such subcomponents are distributed in accordance with the following terms:

1. License for Ovaldi

Copyright (c) 2002-2010, The MITRE Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of The MITRE Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

2. License for PCRE

PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax and semantics are as close as possible to those of the Perl 5 language.

Release 8 of PCRE is distributed under the terms of the "BSD" licence, as specified below. The documentation for PCRE, supplied in the "doc" directory, is distributed under the same terms as the software itself.

The basic library functions are written in C and are freestanding. Also included in the distribution is a set of C++ wrapper functions.

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel

Email local part: ph10

Email domain: cam.ac.uk

University of Cambridge Computing Service, Cambridge, England.

Copyright (c) 1997-2010 University of Cambridge

All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007-2010, Google Inc.

All rights reserved.

THE "BSD" LICENCE

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the University of Cambridge nor the name of Google Inc. nor the names of their contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

End

3. License for Xerces

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License.

You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

W3C® SOFTWARE NOTICE AND LICENSE

Copyright © 1994-2002 World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>

This W3C work (including software, documents, or other related items) is being provided by the copyright holders under the following license. By obtaining, using and/or copying this work, you (the licensee) agree that you have read, understood, and will comply with the following terms and conditions:

Permission to use, copy, modify, and distribute this software and its documentation, with or without modification, for any purpose and without fee or royalty is hereby granted, provided that you include the following on ALL copies of the software and documentation or portions thereof, including modifications, that you make:

1. The full text of this NOTICE in a location viewable to users of the redistributed or derivative work.
2. Any pre-existing intellectual property disclaimers, notices, or terms and conditions. If none exist, a short notice of the following form (hypertext is preferred, text is permitted) should be used within the body of any redistributed or derivative code: "Copyright © [date-of-software] World Wide Web Consortium, (Massachusetts Institute of Technology, Institut National de Recherche en Informatique et en Automatique, Keio University). All Rights Reserved. <http://www.w3.org/Consortium/Legal/>"
3. Notice of any changes or modifications to the W3C files, including the date changes were made. (We recommend you provide URIs to the location from which the code is derived.)

THIS SOFTWARE AND DOCUMENTATION IS PROVIDED "AS IS," AND COPYRIGHT HOLDERS MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE OR DOCUMENTATION WILL NOT INFRINGE ANY THIRD PARTY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

COPYRIGHT HOLDERS WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY USE OF THE SOFTWARE OR DOCUMENTATION.

The name and trademarks of copyright holders may NOT be used in advertising or publicity pertaining to the software without specific, written prior permission. Title to copyright in this software and any associated documentation will at all times remain with copyright holders.

This formulation of W3C's notice and license became active on August 14 1998 so as to improve compatibility with GPL. This version ensures that W3C software licensing terms are no more restrictive than GPL and consequently W3C software may be distributed in GPL packages. See the older formulation for the policy prior to this date. Please see our Copyright FAQ for common questions about using materials from our site, including specific terms and conditions for packages like libwww, Amaya, and Jigsaw. Other questions about this notice can be directed to site-policy@w3.org.

spring framework 3.0.4

This product includes spring framework 3.0.4 and is distributed in accordance with the following license agreement:

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices

stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works

that You distribute, all copyright, patent, trademark, and

attribution notices from the Source form of the Work,

excluding those notices that do not pertain to any part of

the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must

include a readable copy of the attribution notices contained

within such NOTICE file, excluding those notices that do not

pertain to any part of the Derivative Works, in at least one

of the following places: within a NOTICE text file distributed

as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or,

within a display generated by the Derivative Works, if and

wherever such third-party notices normally appear. The contents

of the NOTICE file are for informational purposes only and

do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside

or as an addendum to the NOTICE text from the Work, provided

that such additional attribution notices cannot be construed

as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions.

Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions

of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability

incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.

You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software

distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Expat 2.0.1

This software was obtained under the following terms:

Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper

Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006 Expat maintainers.

Permission is hereby granted, free of charge, to any person obtaining
a copy of this software and associated documentation files (the
"Software"), to deal in the Software without restriction, including
without limitation the rights to use, copy, modify, merge, publish,
distribute, sublicense, and/or sell copies of the Software, and to
permit persons to whom the Software is furnished to do so, subject to
the following conditions:

The above copyright notice and this permission notice shall be included
in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,
EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY
CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT,
TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE
SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

ICU4C 3.4

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2009 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

libcurl 7.18.2

This product includes libcurl 7.18.2, the use of which is governed by the following terms:

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2009 International Business Machines Corporation and others

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

libxml 2.6.7

Portions of this product include software developed by the Daniel Veillard. The libxml2 software is distributed in accordance with the following license agreement.

Copyright (C) 1998-2002 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE DANIEL VEILLARD BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

OpenLDAP 2.1

This product includes software developed by The OpenLDAP Foundation. The software is distributed in accordance with the following license agreement.

The OpenLDAP Public License Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation

("Software"), with or without modification, are permitted provided

that the following conditions are met:

1. Redistributions in source form must retain copyright statements and notices,
2. Redistributions in binary form must reproduce applicable copyright statements and notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution, and
3. Redistributions must contain a verbatim copy of this document.

The OpenLDAP Foundation may revise this license from time to time.

Each revision is distinguished by a version number. You may use this Software under terms of this license revision or under the terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS CONTRIBUTORS "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR(S) OR OWNER(S) OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,

BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in advertising or otherwise to promote the sale, use or other dealing in this Software without specific, written prior permission. Title to copyright in this Software shall at all times remain with copyright holders.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City, California, USA. All Rights Reserved. Permission to copy and distribute verbatim copies of this document is granted.

ZThread 2.3.2

Portions of this product include software developed by Eric Crahen. The ZThread software is distributed in accordance with the following license agreement.

Copyright (c) 2005, Eric Crahen

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Glossary

application

An *application* is a piece of software, for example, Microsoft Word or CA Workflow.

application virtualization

Application virtualization is the encapsulation of an application, separating it from the underlying operating system on which it is executed. At runtime the application is tricked into acting as if it were directly interfacing with the original operating system and all the resources managed by it, but in reality it is not.

centrally managed environment

A *centrally managed environment* is one where the remote control domain manager controls the host settings through computer policies, global address book (GAB) items, licensing of the host agent on the domain, and user permissions. This is the default setting for CA IT Client Manager.

centrally managed host environment

A *centrally managed host environment* is one where either a remote control enterprise or domain manager is responsible for the configuration of the hosts and the authentication of viewer connections. It also manages the address book that users use to find hosts.

Common Configuration Enumeration (CCE)

Common Configuration Enumeration (CCE) is one of the SCAP standards. It contains Standard identifiers and dictionary for system configuration issues related to security. A rule definition in an SCAP data stream can contain references to one or more CCE identifiers, indicating that the rule is a representation of a specific CCE configuration guidance statement or configuration control. For more information, go to <http://cce.mitre.org/>.

Common Platform Enumeration (CPE)

Common Platform Enumeration (CPE) is one of the SCAP standards. It contains standard identifiers and dictionary for platform or product naming. For example, some elements in XCCDF files can be restricted to only apply to certain platforms and this is done using CPE identifiers. For more information, go to <http://cpe.mitre.org/>.

Common Vulnerabilities and Exposures (CVE)

Common Vulnerabilities and Exposures (CVE) is a dictionary of common names (that is, CVE Identifiers) for publicly known information security vulnerabilities. These identifiers make it easier to share data across separate network security databases and tools. CVE is one of the components used in SCAP. See <http://cve.mitre.org/> for details.

Common Vulnerability Scoring System (CVSS)

Common Vulnerability Scoring System (CVSS) is one of the SCAP standards. It contains standards for conveying and scoring the impact of vulnerabilities. For more information, go to <http://www.first.org/cvss/index.html>.

configuration view

A *configuration view* is a customized Windows-only user interface that lets you edit configuration policies that are related to specific components or functionality. Configuration views summarize the relevant policies for a component or function independent of where they are actually located in the hierarchy and the DSM Explorer tree.

connectors

CA Catalyst *connectors* are the links from products that consume connector data to external products, or *domain managers*. Each connector retrieves information from its domain manager and transmits the information through the connector framework to the consuming product for visualization and analysis. Connectors can also enact inbound operations on data in the source domain manager, such as object creation. CA Catalyst connectors use a unified connector framework to enable integration with multiple consuming products.

desktop recompose

Desktop recompose is the process of assigning a new golden template to the virtual desktop. Operating systems and applications have to be maintained during their lifetime to fix problems resolved by hot fixes or service packs or to provide new features by new versions. For linked clones, this means the master image, or golden template, has to be updated. Once the updates are completed, the linked clone is recomposed and becomes active. During the recompose operation the related linked clones are linked to this new golden template and are refreshed.

desktop refresh

Desktop refresh is the process of resetting the virtual desktop to its original state. Linked clones track changes to the virtual machine with the clone. To control the storage allocations with the clone, VMware View offers the refresh operation that resets the clone to its baseline and releases all deltas provided for tracking changes. This means that all information stored to the system drive since the creation of clone or its last refresh or recompose is lost. Unlike desktop recompose, the same golden template continues to be used as before the refresh operation.

eXtensible Configuration Checklist Description Format (XCCDF)

eXtensible Configuration Checklist Description Format (XCCDF) is a specification language for writing security checklists, benchmarks, and related kinds of documents. An XCCDF document represents a structured collection of security configuration rules for some set of target computers. The specification is designed to support information interchange, document generation, organizational and situational tailoring, automated compliance testing, and compliance scoring. For more information, go to <http://nvd.nist.gov/xccdf.cfm>.

Federal Information Processing Standard (FIPS)

Federal Information Processing Standard (FIPS) is a security standard that is issued and approved by NIST. It specifies the security requirements that must be satisfied by a cryptographic module utilized within a security system protecting sensitive but unclassified information.

FIPS-certified cryptography module

FIPS-certified cryptography module refer to RSA CryptoC BSAFE module, which is FIPS 140-2 certified.

FIPS-Compliant Cryptography

FIPS-compliant cryptography refers to the use of FIPS 140-2 certified modules, FIPS-approved, and FIPS-allowed techniques and algorithms for cryptography.

FIPS-only

FIPS-only is a mode of operation for CA ITCM wherein only FIPS-compliant cryptography is allowed. In this mode, CA ITCM is not backward compatible with the previous releases of CA ITCM.

FIPS-preferred

FIPS-preferred is a mode of operation for CA ITCM wherein bulk of cryptographic operations are FIPS-compliant, leaving few encryptions in legacy format. In this mode, CA ITCM is backward-compatible with the previous releases of CA ITCM.

golden template

In CA ITCM terminology, the *golden template* is the virtual machine from which virtual desktops are cloned.

guest

A *guest* in generic platform virtualization terminology is the virtual machine and the guest operating system.

guest operating system

The *guest operating system* is the operating system running inside a virtual machine.

host

A *host* in generic platform virtualization terminology is the physical machine, the host operating system, and the hypervisor.

host cluster

The *host cluster* is the aggregate computing and memory resources of a group of hosts sharing some or all of the same network and storage.

host operating system

The *host operating system* is the operating system running on a physical machine.

hosted virtual environment

A *hosted virtual environment* is the virtualization software that runs on top of a host operating system, that is, the physical machine, host OS, and the hypervisor.

hypervisor

The *hypervisor* is the virtualization software layer simulating physical hardware on behalf of the guest operating system. This term is synonymous with Virtual Machine Monitor (VMM).

instance software state database

The *instance software state database* is a part of the software state database that contains the history of all software jobs executed by the agent running on a non-golden template system, that is, any clones of the golden template.

linked clones

In VMware View, *linked clones* of a master or golden image only refer to the master or golden image but do not include it. Changes to the system during user sessions are not stored to the master image but are kept in delta files with the clone.

master target device

In Citrix XenDesktop, a *master target device* is the base desktop with the OS and required set of applications from which a vDisk is generated.

master vDisk

In Citrix XenDesktop, a *master vDisk* is the initial vDisk generated from the golden template machine.

MITRE

The *MITRE Corporation* is a not-for-profit organization chartered to work in the public interest. MITRE offers the interpreters, source code, schemas, and data files at no cost so that individuals and organizations can build and expand upon them. OVALDI is one such interpreter that is freely available.

National Institute of Standards and Technology (NIST)

National Institute of Standards and Technology (NIST) is a non-regulatory federal agency within the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. The United States (U.S.) National Vulnerability Database (NVD), operated by the NIST, provides a repository and data feeds of content that utilize the SCAP standards. It is also the repository for certain official SCAP standards data. Thus, NIST defines open standards within the SCAP context and defines the mappings between the SCAP enumeration standards.

native virtual environment

A *native virtual environment* is the virtualization software that runs directly on the physical machine, becoming or acting as a host operating system (often minimal), that is, the physical machine and the hypervisor. A synonymous term is "bare metal environment."

non-linked clones

In VMware View, *non-linked clones*, or full clones, are full copies of a master or golden image. The clone includes a copy of the image and all changes to the system during user sessions are stored to this copy.

nonpersistent clones

Nonpersistent clones are virtual desktops from the nonpersistent pool of VMware View user data that are transient out-of-the-box. Once a user logs off, the clone is refreshed and all user data at the system disk are lost.

nonpersistent linked clone virtual desktop

A *nonpersistent linked clone virtual desktop* is a virtual machine that is refreshed or recomposed every time the user logs on, with no persistence for custom installed applications, personalization, and so on.

Offline RAC

Offline RAC is a reinstall after crash (RAC) task that is driven by the agent rather than by the manager. Virtual desktops are *recomposed* frequently, that is, whenever the golden template is updated and the disk is reset, any changes to the virtual desktop since the previous reset are effectively voided. For virtual desktops, the agent and not the manager is responsible for the creation of the RAC job container. When the disk reset occurs, the agent initiates an Offline RAC to restore any software that has been deployed to the agent.

Open Vulnerability and Assessment Language (OVAL)

Open Vulnerability and Assessment Language (OVAL) is one of the SCAP standards. It contains standard XML for testing procedures for security related software flaws, configuration issues, and patches as well as for reporting the results of the tests. All the rule checks in the checklists take the form of references to OVAL definitions contained in OVAL files from the SCAP data stream. For more information, go to <http://oval.mitre.org/>.

Ovaldi

Ovaldi is an OVAL Interpreter developed by the MITRE Corporation. It is a freely available reference implementation created to show how information can be collected from a computer for testing to evaluate and carry out the OVAL definitions for that platform, and to report the results of the tests. The interpreter demonstrates the usability of OVAL Definitions and ensures correct syntax and adherence to the OVAL Schemas.

package format

The *package format* is a property of a software package. Formats include regular and virtual.

package type

The *package type* is a property of a software package. Current types include Generic, MSI, SXP, PIF, and PKG. Package type is not used or altered for the purpose of supporting virtual application packages.

partition

A *partition* is an isolated instance of a host operating system. Partitions do not usually use guest operating systems because they all share the host's operating system.

partitioned virtual environment

A *partitioned virtual environment* is one where multiple instances of the host operating system can run in isolation on the same physical machine. This is not strictly a virtualization technology, but is used to solve the same type of problems.

persistent clones

Persistent clones are virtual desktops from the persistent pool that survive as they are after the user has logged off until they are refreshed or recomposed. VMware View offers out-of-the-box separate devices for system and user data with the persistent clones. Information stored to the user data device survives any refresh or recompose action while changes to the system disk are lost.

persistent linked clone virtual desktop

A *persistent linked clone virtual desktop* is a virtual machine that is dedicated to a specific user, and the user can request specific software to be added, customize settings, and so on. At each logon the user's customized environment is restored. This persists until the virtual desktop is refreshed or recomposed. At that point, all the software products installed on system drive are lost.

persistent non-linked clone virtual desktop

A *persistent non-linked clone virtual desktop* is a virtual machine that is dedicated to a specific user and is presented to that user at each logon with their custom installed applications, user settings, data, and so on.

platform virtualization

Platform virtualization is the encapsulation of computers or operating systems, hiding their physical characteristics from users and emulating the computing platform at runtime.

provisioned application

A *provisioned application* is an application (regular or virtual) that has been made available for execution on a target computer. The application need not be "installed" locally in order to treat it as provisioned.

regular application

A *regular application* is application software that has not been virtualized and can be installed and executed in a traditional fashion. When talking about releases, patches, and suites, regular applications are implied.

sandbox

A *sandbox* is an application runtime environment that isolates the application from the computer's operating system and resources and also from other applications on the computer. The degree of isolation is usually set to allow the application some access to the operating system resources, such as the documents folder.

scalability server

A *scalability server* is the central server to enable geographical scalability for management tasks. It is a distributed process that is the primary interface for agents.

SCAP data stream

SCAP data stream consists of security checklist data represented in automated XML formats, vulnerability and product name related enumerations, and mappings between the enumerations. An SCAP data stream consists of the XML following files:

- An XCCDF file
- One or more OVAL files
- (Optional) A CPE dictionary file

schema map

A *schema map* is a mapping of the attribute names associated with data objects, such as users, computers, and groups, used in an external directory to those attribute names used by corresponding CA ITCM objects. The fixed and standard set of DSM attribute names is used for querying directories and for formulating complex queries and reports.

Security Content Automation Protocol (SCAP)

The *Security Content Automation Protocol (SCAP)*, pronounced "S Cap", is a method for using the standards such as XCCDF, CCE, CVE, CVSS, CPE, and OVAL to enable automated vulnerability management, measurement, and policy compliance evaluation (e.g., FISMA compliance). More specifically, SCAP is a suite of selected open standards that enumerate software flaws, security related configuration issues, and product names; measure systems to determine the presence of vulnerabilities; and provide mechanisms to rank (score) the results of these measurements in order to evaluate the impact of the discovered security issues. SCAP defines how these standards are combined. The National Vulnerability Database provides a repository and data feeds of content that use the SCAP standards. For more information, go to <http://nvd.nist.gov/>.

software signature

A *software signature* defines the attributes of a software application, such as the main executable file name, other associated files, size range, version range, creation, and modification dates of the software. All these attributes of a software signature uniquely identify a software application. Software signatures in asset management are created as software definitions. You can create software definitions for a product, release, patch, suite, suite component, or virtual application image. By default, asset management provides predefined software signatures covering the most widely used software in the IT industry.

software type

The *software type* is a property of a software definition. Current types include suite, product, release, patch, and virtual application image.

staged virtual application image

A *staged virtual application image* is a virtual application image that has been discovered in the file system of a computer.

stand-alone environment

A *stand-alone environment* is one where the users of the host and viewer computers locally manage all settings, properties, and licensing of the CA ITCM remote control component. It is set by a Standalone Agent installation. To install it manually, the RC agent setup needs to be called directly.

standalone virtual application

A *standalone virtual application* is a virtual application that has been provisioned in a way where the virtual application image used as the source resides on the system to which it has been provisioned.

streamed virtual application

A *streamed virtual application* is a virtual application that has been provisioned in a way where the virtual application image used as the source resides on a remote system that is different from the system to which it has been provisioned.

streamed virtual application image

A *streamed virtual application image* is a virtual application image that has been discovered to be accessible through the network from a computer. Discovery of streamed virtual application images will usually only be possible if the virtual applications residing inside of the image have been provisioned.

vDisk

In Citrix XenDesktop, a *vDisk*, or virtual disk, is basically an image file with the OS and the required set of applications.

virtual application (VA)

A *virtual application* is software that has been virtualized.

virtual application image

A *virtual application image* contains one or more virtual applications stored inside a file, possibly with a set of supporting metadata files.

virtual application image definition

A *virtual application image definition* describes the "footprint" for discovering a virtual application image. To discover an image containing one or more included virtual applications (stored inside), regular software signatures must be associated with the virtual application image definition.

virtual application package (VAP)

A virtual application image packaged inside of one or more software delivery packages is referred to as a *virtual application package*. These packages are used to provision computers with virtual applications.

virtual application staging package

A *virtual application staging package* is a virtual application package used to stage the virtual application image.

virtual application standalone package

A *virtual application standalone package* is a virtual application package used to provision a virtual application in standalone mode.

virtual application streaming package

A *virtual application streaming package* is a virtual application package used to provision a virtual application in streaming mode.

virtual disk

A *virtual disk* is a set of files that forms a file system that appears as a physical disk to the guest operating system.

virtual image

A *virtual image* is a file or set of files containing the complete definition of a virtual machine, including its hardware specifications and virtual disks. It is the host's file system representation of a guest. A virtual image can be online or offline depending on the running state of the virtual machine it captures.

virtual machine (VM)

A *virtual machine* is an isolated virtualized environment simulating a physical machine. The virtual machine does by definition not include the guest operating system.

virtual patch

A *virtual patch* is the virtual equivalent of a regular patch and has the same basic meaning. The term is used when reporting software inventory for virtual applications (not virtual application images).

virtual release

A *virtual release* is the virtual equivalent of the regular release and has the same basic meaning. The term is used when reporting software inventory for virtual applications (not virtual application images). Note that a provisioned virtual application can use either a staged or streamed virtual application image as source. The virtual applications contained within the virtual application image can themselves be seen as staged but not yet provisioned.

XCCDF profile

An *XCCDF profile* is a policy that is applied to the target computer or compared to the configuration of the target computer. The XCCDF file for each SCAP data stream defines the list of profiles supported. The XCCDF file must have at least one XCCDF profile, which specifies the rules to be used for checking a particular type of system. You can create separate XCCDF profiles for each applicable operational environment in which a system may be deployed.

Index

B

Blowfish encryption utility • 63

C

CA Catalyst connectors • 157
cmengine.exe • 66
collect tasks • 110, 111, 115
command line arguments • 136
connector integration • 157

D

decryption, passwords • 63
Device Compliance Scanner (DCS) • 151

E

encryption, passwords • 63
export data across MDB platforms • 132, 137, 138

F

FDCC checklists • 151
filtering options • 126, 160, 162, 291, 293, 294, 297,
314, 319, 328

I

import data across MDB platforms • 132, 137, 139
integration scenarios, CA ITCM connector • 157

M

Management Database (MDB)
 export data across MDB platforms • 132, 137,
 138
 import data across MDB platforms • 132, 137,
 139
 Oracle 11g installation • 58
MDB Admin Console
 command line arguments • 136
 configure database connections • 134
 error logging • 145
 export data across MDB platforms • 132, 137,
 138
 import data across MDB platforms • 132, 137,
 139
 MDB object comparison rules • 140, 421

MDB object types • 417
 mdbac.bat • 133
 methods • 137, 138, 139, 140, 141, 142, 144, 145
 overview • 131
 rules properties file • 142

MDB object comparison rules • 140, 421
MDB object types • 417
MDB PIF package • 55
mdbac.bat • 133

O

Oracle 11g installation • 58

P

policy groups • 120

R

registration policy group • 120
response files • 63
rules properties file • 142

S

SCAP standards
 CCE • 154
 CPE • 154
 CVE • 153
 CVSS • 155
 implementation • 151
 OVAL • 156
 SCAP • 152
 XCCDF • 155

T

TNS service names • 61

U

USGCB checklists • 151