CA Mediation Manager and CA Mediation Manager for Infrastructure Management

Administration Guide

CA Mediation Manager Release 2.2.2 / CA Mediation Manager for Infrastructure Management 2.0, Release 2.2.2

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CA Technologies Product References

This document references the following CA Technologies products:

- CA Mediation Manager
- CA Mediation Manager for Infrastructure Management 2.0

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Contents

Chapter 1: Introduction

This guide provides information about the architecture, installation, prerequisites, and requirements for installing CA Mediation Manager.

Note: The information that is presented in this chapter applies to CA Mediation Manager only.

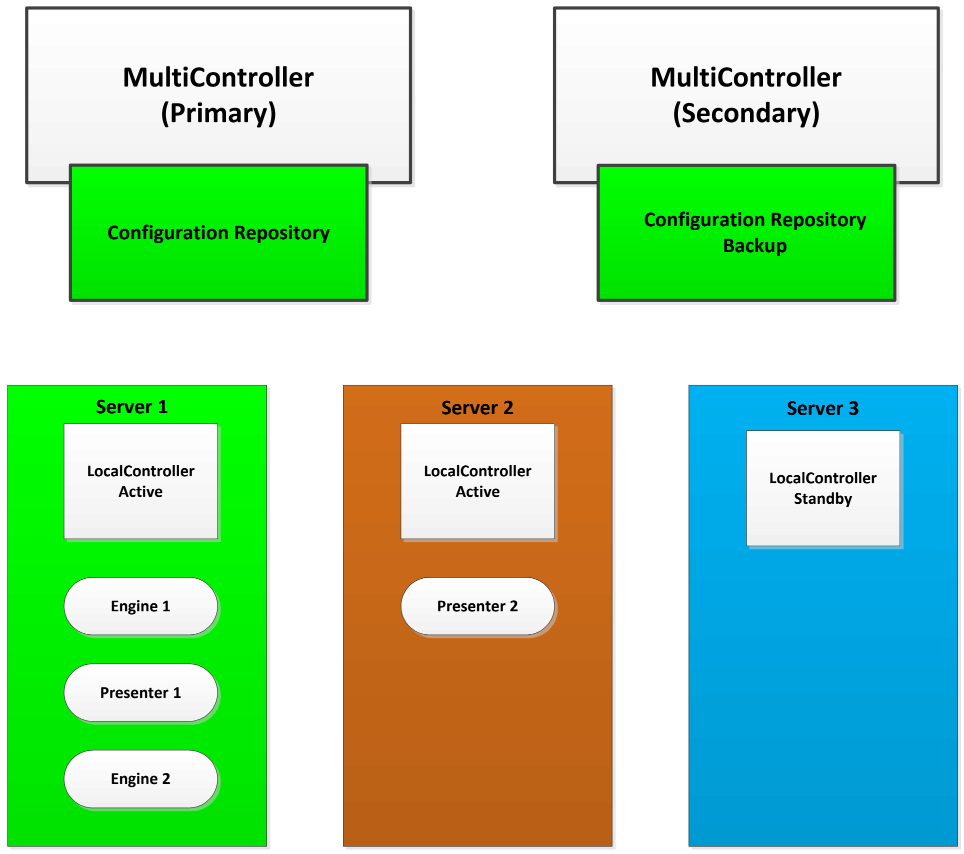
This section contains the following topics:

Architecture

CA Mediation Manager consists of two main components and two subcomponents. The main components are the MultiController (MC) and the LocalController (LC).

The subcomponents are the Engine and the Presenter.

The following diagram describes the general architecture:



The architecture also includes more components named the Generic Executor and the Delivery Service. These components are not shown in the previous diagram, but are described later in this guide.

Chapter 2: Overview

Note: The information that is presented in this chapter applies to CA Mediation Manager only.

This section contains the following topics:

Component Overview

The CA Mediation Manager installation package installs the MultiController, LocalController, and the web components.

The CA Mediation Manager installation package also installs the following components:

- Delivery Service (part of the LocalController)
- Generic Executor (GE)

The Engine and Presenter subcomponents are installed when you install a device pack.

Note: For more installation details for your specific device pack, see the Device Pack Guide in the DpConfig folder under CAMM_HOME. CAMM_HOME is the directory where CA Mediation Manager is installed.

Main Components

CA Mediation Manager has three main components: MultiController, LocalController, and Web.

MultiController

You can deploy up to two MultiControllers in a cluster, one primary and one secondary. Deploy at least one MultiController per cluster. A MultiController performs the following actions in your cluster environment:

- Monitors heartbeat messages from LocalController components that are on remote servers.
- Acts as the centralized licensing server for the cluster.
- Stores centralized configuration files for components in the cluster.

LocalController

Install one LocalController on each physical server in the cluster where a subcomponent (an Engine or a Presenter) resides. A LocalController performs the following actions:

- Provides the communication mechanism for subcomponents that are installed on the server.
- Monitors heartbeat messages for subcomponents on the local server and automatically restarts subcomponents if they fail.
- Uses a delivery service to process output from the Engine subcomponents. This service delivers XML documents in a compressed and encrypted format to a local or remote Presenter subcomponent.

Web

The web component lets you centrally manage device pack deployment using its web-based interface. The interface displays the following information:

- Device packs that are running.
- Status of the LocalControllers on which the device packs are installed.
- Status of the primary and secondary MultiController.

CA Mediation Manager installs two web servers:

- Primary web server
- Secondary web server

The primary web server is installed during the primary MultiController installation, and a secondary web server is installed during the secondary MultiController installation.

- To access the primary web server, launch the CA Mediation Manager Web UI:

  ```
  http://<PrimaryMCMachineIP>:<web-port>/tim-web/index.htm
  ```

  Where <web-port> is the port number that is configured during the CA Mediation Manager installation, and <PrimaryMCMachineIP> is the IP address/hostname of the **primary MultiController** system.

  The secondary web server is started automatically by the secondary MultiController only when it becomes active if the primary MultiController is not responding.

  The secondary web server is stopped automatically by the secondary MultiController only when it becomes passive if the primary MultiController has started responding.

- To access the secondary web server, launch the CA Mediation Manager Web UI:

  ```
  http://<SecondaryMCMachineIP>:<web-port>/tim-web/index.htm
  ```

  Where <web-port> is the port number that is configured during the CA Mediation Manager installation, and <SecondaryMCMachineIP> is the IP address/hostname of the **secondary MultiController** system.

The following sections describe the web component options.

Default Options

The following information describes the default options that are available from the CA Mediation Manager Management tab.

Install/Remove

Installs or removes the device packs from the existing repository. The default path is $CAMM_HOME/MC/repository/device packs. If you used a different path, you can browse for and select your device pack path.

Upgrade

Upgrades the version of the device pack.

Advanced Options

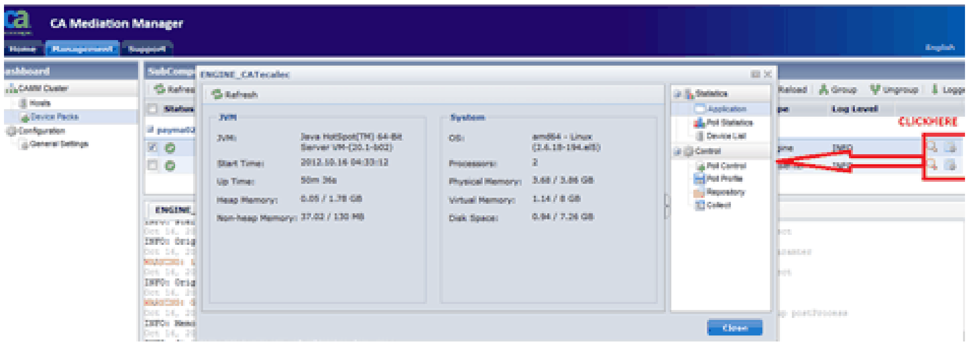
The following information describes the advanced options.

Statistics

Provides the following options to collect and understand statistics:

Application

Provides performance metrics of Java Virtual Machine (JVM) and the system on which the Engine or Presenter is running.



JVM

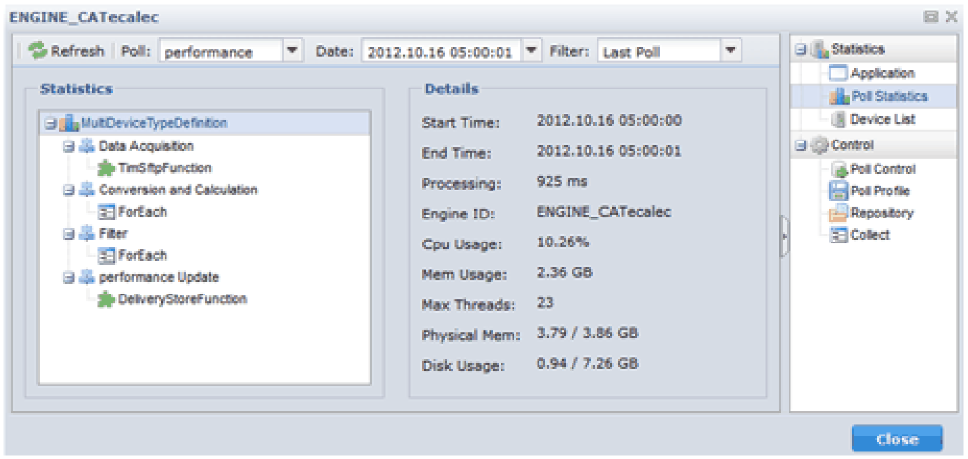
JVM:	Java HotSpot(TM) 64-Bit Server VM-(20.1-b02)
Start Time:	2012.10.16 04:33:12
Up Time:	50m 36s
Heap Memory:	0.05 / 1.78 GB
Non-heap Memory:	37.02 / 130 MB

System

OS:	amd64 - Linux (2.6.18-194.el5)
Processors:	2
Physical Memory:	3.68 / 3.86 GB
Virtual Memory:	1.14 / 8 GB
Disk Space:	0.94 / 7.26 GB

Poll Statistics

Provides inventory poll and performance poll status. Restart the engine to reflect changes.

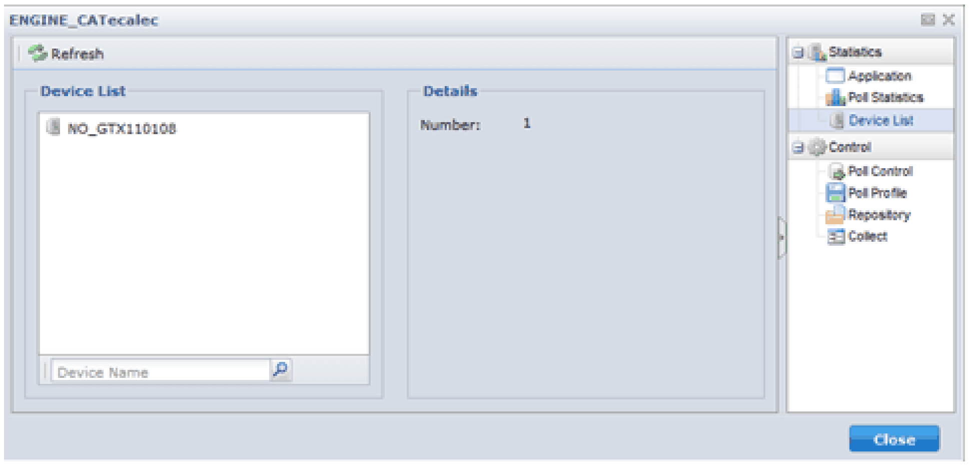


Poll: performance Date: 2012.10.16 05:00:01 Filter: Last Poll

Start Time: 2012.10.16 05:00:00
End Time: 2012.10.16 05:00:01
Processing: 925 ms
Engine ID: ENGINE_CATecalec
Cpu Usage: 10.26%
Mem Usage: 2.36 GB
Max Threads: 23
Physical Mem: 3.79 / 3.86 GB
Disk Usage: 0.94 / 7.26 GB

Device List

Provides the list of devices that are discovered by an inventory poll using the inventory device list file located in the $CAMM_HOME/repository/work folder.



NO_GTX110108

Number: 1

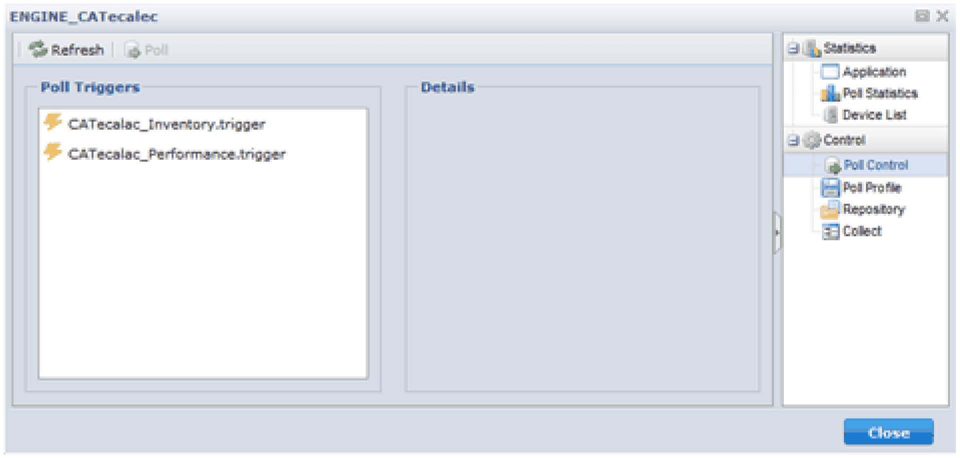
Control

Provides the following interfaces that let you:

- Trigger manual polling
- View and edit external global variables values used by a device pack
- View and edit device pack files
- Collect log files

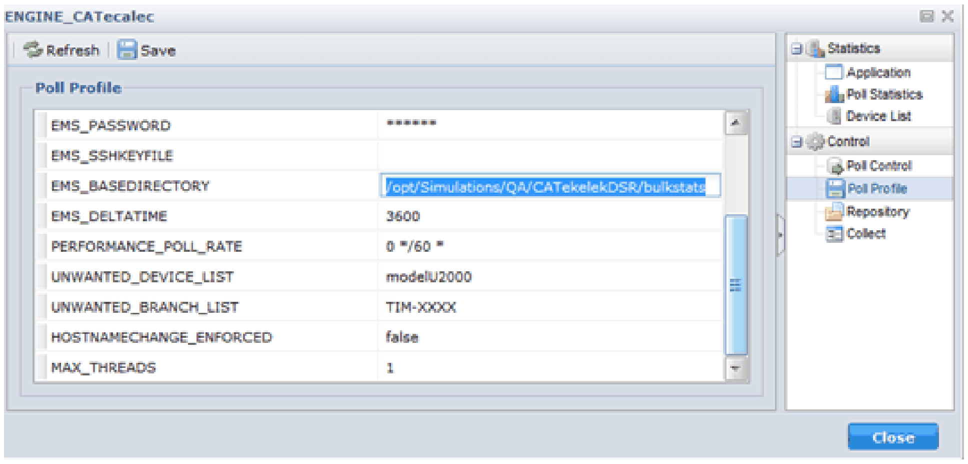
Poll Control

Triggers inventory polling and performance polling.



Poll Profile

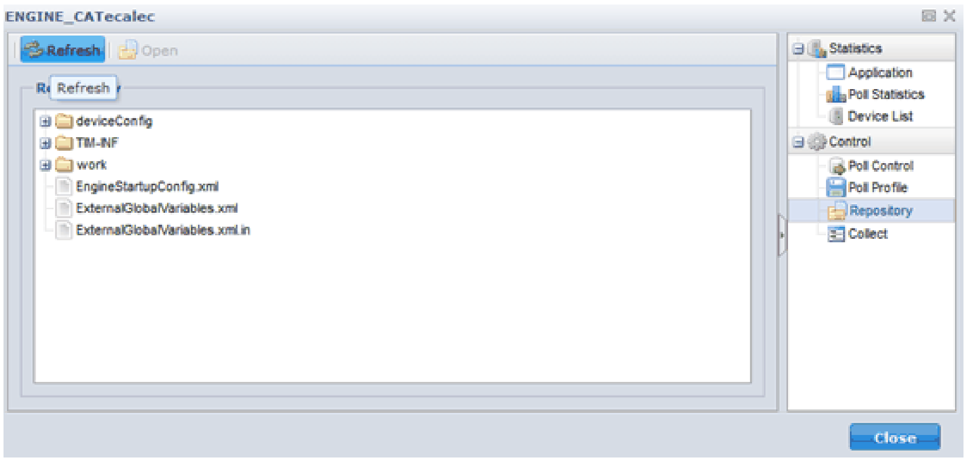
Incorporates the list of external global variables that you modified. Restart the Engine/Presenter to reflect your changes.



EMS_PASSWORD	******
EMS_SSHKEYFILE	
EMS_BASEDIRECTORY	/opt/Simulations/QA/CATekelekDSR/bulkstats
EMS_DELTATIME	3600
PERFORMANCE_POLL_RATE	0 */60 *
UNWANTED_DEVICE_LIST	modelU2000
UNWANTED_BRANCH_LIST	TIM-XXXX
HOSTNAMECHANGE_ENFORCED	false
MAX_THREADS	1

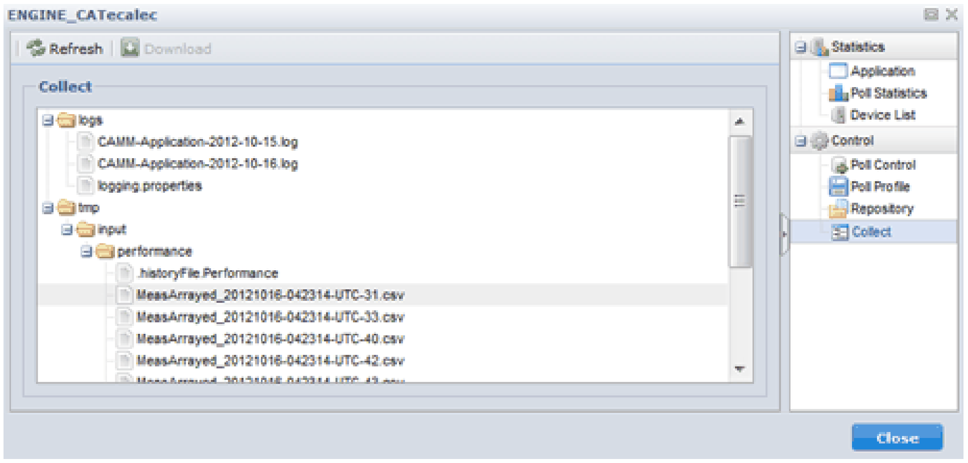
Repository

Lets you view and modify the files of the device pack component in the MultiController. Restart the Engine or Presenter to reflect your changes.



Collect

Collects Engine and Presenter logs.


ENGINE_CATecalec
Refresh
Download
Collect
logs
CAMM-Application-2012-10-15.log
CAMM-Application-2012-10-16.log
logging.properties
tmp
input
performance
.historyFile.Performance
MeasArrayed_20121016-042314-UTC-31.csv
MeasArrayed_20121016-042314-UTC-33.csv
MeasArrayed_20121016-042314-UTC-40.csv
MeasArrayed_20121016-042314-UTC-42.csv
Statistics
Application
Poll Statistics
Device List
Control
Poll Control
Poll Profile
Repository
Collect
Close

General Settings

Use the following options to specify general settings.

Connection

Specifies the default settings for the number of retries and connection intervals between the CA Mediation Manager components.

Logging

Specifies logging options such as refresh rate, buffer size, maximum line number, and syntax highlighting for CA Mediation Manager components.

Subcomponents

There are two subcomponents in CA Mediation Manager: Engine and Presenter.

Engine

The Engine is the main, threaded polling engine in CA Mediation Manager. You can deploy an Engine in either an active or a standby mode. The Engine performs the following actions:

- Gathers information from devices using XML, CSV, Telnet, SSH, and so on, and manipulates the data into a CA Mediation Manager-standard XML document.
- Deploys the CA Mediation Manager-standard XML document into the queue for processing by the Delivery Service.

Presenter

The Presenter subcomponent is a threaded presentation engine that performs the following actions:

- Receives the CA Mediation Manager-standard XML document from the Engine.
- Formats the data into the required output format, such as CSV, XML, SNMP, DDI, and so on.

Other Components

The Generic Executor and the Delivery Service are two other components of CA Mediation Manager. The Generic Executor starts the other components. The Delivery Service sends the XML file output to the Presenter.

Generic Executor

All of the components in a cluster share a common set of functions for communication and execution. The Generic Executor (GE) creates, starts, and assumes the role of the required component.

The Generic Executor starts at system startup and listens on a specific TCP port. When a component like the MultiController needs to start, the CA Mediation Manager Control Utility, cammCtrl, sends a MultiController XML configuration file to the Generic Executor. When the Generic Executor receives this data, it identifies and starts the MultiController component using the information in the configuration file.

Delivery Service

When an Engine finishes its poll cycle, it generates one or more CA Mediation Manager-standard XML documents into a queue directory. The Delivery Service monitors the queue directory independently and distributes the data to one or more local or remote Presenter subcomponents.

If the subcomponent is unavailable, the Delivery Service does not process the queue until the remote subcomponent becomes available.

Chapter 3: Install, Uninstall, and Upgrade CA Mediation Manager

Note: The information that is presented in this chapter applies to CA Mediation Manager only.

This section contains the following topics:

System Requirements

CA Mediation Manager requires the Java Runtime Environment (JRE) version 1.7 or later.

The following table describes the minimum hardware requirements for each supported operating system:

Operating System	Architecture	CPU	Memory	Disk
Solaris 9 or 10	SPARC (64-bit)	1 x 1.4 GHz	4 GB	18 GB
Linux	x86 (64-bit)	1 x 2 GHz	4 GB	18 GB
Windows 2003	x86 (64-bit)	1 x 2 GHz	4 GB	18 GB
Windows 2008	x86 (64-bit)	1 x 2 GHz	4 GB	18 GB

Note: Maintain consistency between the JRE and the operating system architecture. For example, on 64-bit operating systems, the JRE you use to install and run CA Mediation Manager must also be 64-bit. CA Technologies recommends using the latest version of JRE, which you can obtain from the Java download site.

Installation and Upgrade

To install and upgrade CA Mediation Manager and device packs, see the *CA Mediation Manager Installation Guide*.

Starting and Stopping Services

The following information describes starting and stopping services in CA Mediation Manager for UNIX and Windows.

UNIX

You can start or stop CA Mediation Manager using the startall/stopall script. Another script, init.camm, is installed into the UNIX Host init script so that CA Mediation Manager is automatically executed upon system boot, and automatically stops upon system shutdown.

To install the init script, execute the following command as *root* or *sudo su* in the CAMM Home directory:

```
shell# tools/init.camm.install
```

CA Mediation Manager automatically starts on system boot and automatically stops on system shutdown.

The command init.camm.uninstall removes this setting:

```
shell# tools/init.camm.uninstall
```

Windows

During a CA Mediation Manager installation on Windows, the Generic Executor and the Web component are registered as Windows Services. The service names are CAMM-GE-{user}-{port}, and CAMM-tomcat7-8880.

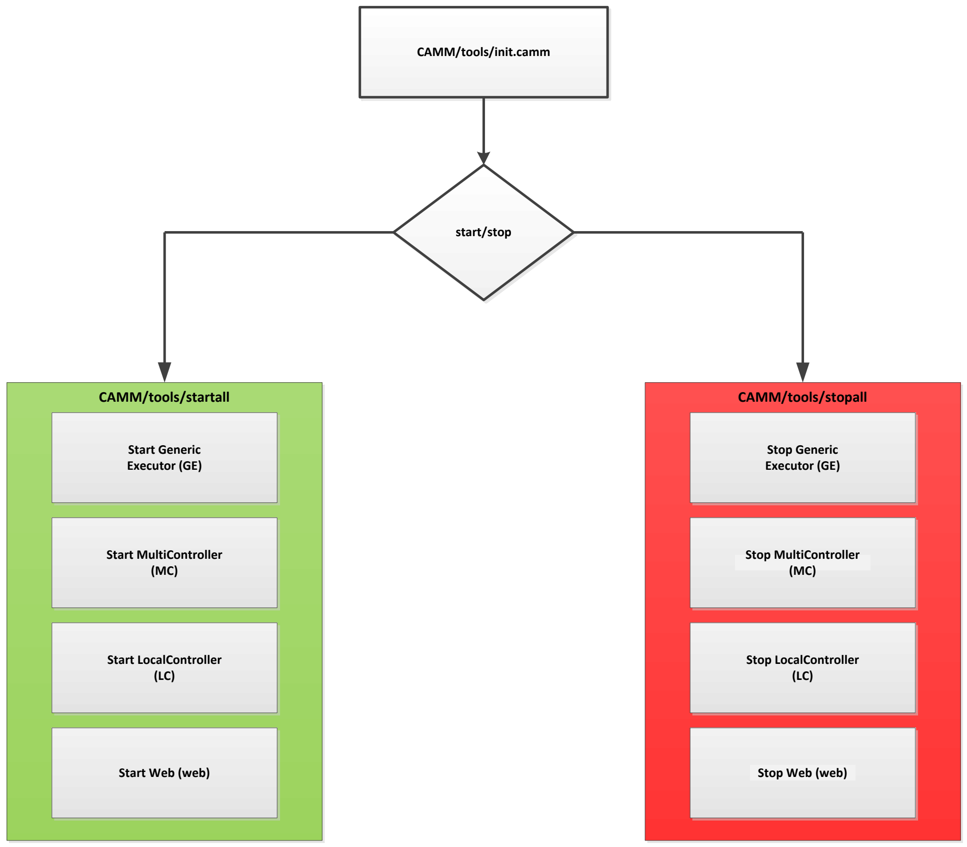
By default, these services are manually started. Similar to Linux, in Windows you can execute init.camm.install.bat so that CA Mediation Manager starts automatically at system startup, and automatically stops at system shutdown:

```
C:/CAMM/tools/init.camm.install.bat
```

The command init.camm.uninstall.bat removes this setting:

```
C:/CAMM/tools/init.camm.uninstall.bat
```

The following diagram illustrates the process flow of starting and stopping services:


CAMM/tools/init.camm
start/stop
CAMM/tools/startall
Start Generic Executor (GE)
Start MultiController (MC)
Start LocalController (LC)
Start Web (web)
CAMM/tools/stopall
Stop Generic Executor (GE)
Stop MultiController (MC)
Stop LocalController (LC)
Stop Web (web)

Chapter 4: Component Configuration

The following sections describe how you configure the components in CA Mediation Manager.

Note: The information that is presented in this chapter applies to CA Mediation Manager only.

This section contains the following topics:

Generic Executor Configuration

The Generic Executor typically requires no configuration after the initial installation. Only one Generic Executor is required per server unless you require the components to run under different user IDs.

The Generic Executor configuration is installed into a directory in CAMM HOME. The configuration is identified using the form GE_<userid> where <userid> is the user name that you specified in the Generic Executor installation.

The Generic Executor directory contains a file named LocalConfig-ge.xml.

When the Generic Executor assumes the role of a component, it executes using the same user ID that is configured in the LocalConfig-ge.xml.

Example of a LocalConfig-ge.xml file for UNIX

```
<?xml version="1.0" encoding="UTF-8"?>
<AppDaemon>
    <Names>
    </Names>
    <Paths>
        <Path name="tim.base">/opt/CA/CAMM</Path>
        <Path name="appHome">${tim.base}/GE_camm</Path>
        <Path name="configBase">${appHome}/tmp</Path>
    </Paths>
    <Binding>
        CA Portal29560</Port>
        <UserId>camm</UserId>
    </Binding>

</AppDaemon>
```

Example of a LocalConfig-ge.xml file for Windows

For a Windows user, the primary Generic Executor configuration file is slightly different:

```
<?xml version="1.0" encoding="UTF-8"?>
<AppDaemon>
    <Names>
    </Names>
    <Paths>
        <Path name="tim.base">/opt/CA/CAMM</Path>
        <Path name="appHome">${tim.base}/GE_camm</Path>
        <Path name="configBase">${appHome}/tmp</Path>
    </Paths>
    <Binding>
        CA Portal29560</Port>
        <UserId>camm</UserId>
    </Binding>
    <CompanyItems>
```

```
        <Item>
                <Name>MC</Name>
                <Config>${tim.base}/MC/LocalConfig-mc.xml</Config>
                CA Portal29599</Port>
        </Item>
        <Item>
                <Name>LC</Name>
                <Config>${tim.base}/LC/LocalConfig-lc.xml</Config>
                CA Portal29598</Port>
        </Item>
    </CompanyItems>
</AppDaemon>
```

The <CompanyItems> section added into the Generic Executor configuration file defines the locations and service ports for MultiController and LocalController. With <CompanyItems> defined, the Generic Executor checks these items every one minute and if they are not running, the Generic Executor starts them automatically. This configuration enables the MultiController and the LocalController to start without external intervention.

The <CompanyItems> feature is disabled after installation by default. You can execute the camm.init.install command to enable it.

Note: Only the primary Generic Executor requires the <CompanyItems> section. Other Generic Executors, other than the primary Generic Executor that are on the same server, must not contain this section.

How the Generic Executor Works

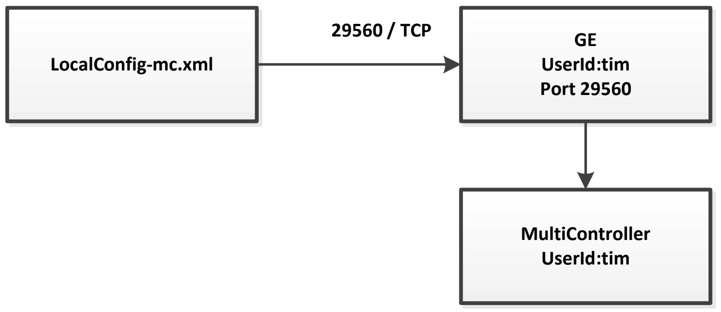
The Generic Executor is a reusable entity that is the foundation of CA Mediation Manager components. When a server starts, it is mandatory that at least one Generic Executor component exists and is started.

By default, the LocalConfig-ge.xml file contains the User ID of the CAMM_USER (the user used to install CA Mediation Manager) and the TCP Port (the default port is 29560).

Even though this information is hidden by the installation package, it is important to understand how it works.

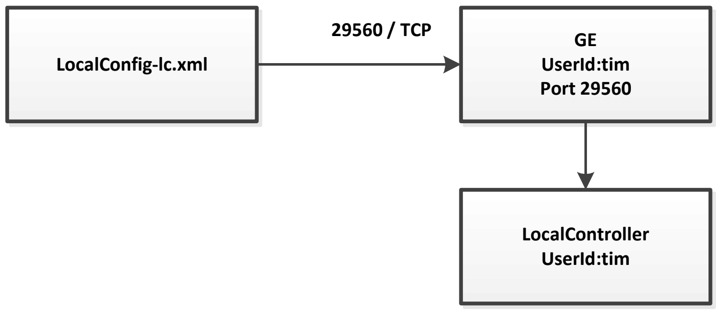
If you require a MultiController to run on this server, you need a LocalConfig-mc.xml configuration file for the MultiController and the TCP port for the Generic Executor.

The following diagram illustrates how the LocalConfig-mc.xml file is sent to the Generic Executor on TCP port 29560, and then the Generic Executor starts a new process for the MultiController:



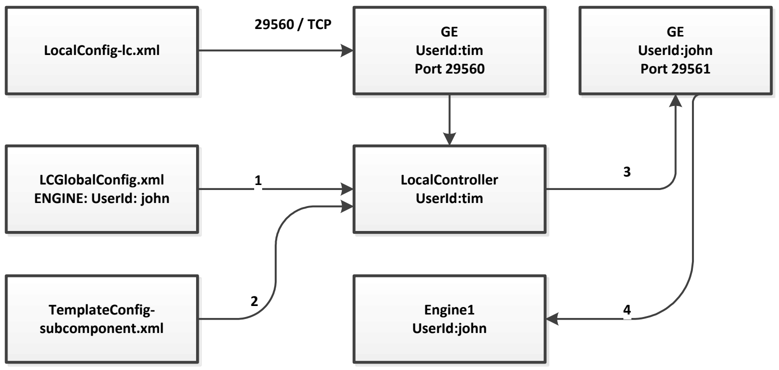
If a LocalController needs to run on this server, only a LocalConfig-lc.xml configuration file for the LocalController and the TCP port for the Generic Executor are required.

The following diagram illustrates how the LocalConfig-lc.xml file is sent to the Generic Executor on TCP port 29560, and that the Generic Executor starts a new process for the LocalController:



When the LocalController starts, it reads the LCGlobalConfig.xml file from its repository. This file contains the subcomponents that you must start, and the user ID to use for executing these subcomponents.

If an Engine is required to run on this server, the LocalController uses the LCGlobalConfig.xml file to determine which user ID it needs to run as. In the LocalController directory, the LocalController looks up the ExecutorMap.xml file. This action allows the LocalController to locate a Generic Executor that is running as the required user ID. The TemplateConfig-subcomponent.xml file is then combined with the specific configuration from the LCGlobalConfig.xml file. The combination is sent the TCP port of the Generic Executor.



Generic Executor Configuration Options

The Paths tim.base, appHome, and configBase are required and are configured by the installer.

tim.base

Specifies the base directory of CA Mediation Manager.

appHome

Specifies the base directory of this CA Mediation Manager Generic Executor.

configBase

Specifies the temporary directory for storing configurations of components that the Generic Executor is currently executing.

Port

Specifies the TCP port on which the Generic Executor listens.

Default: TCP 29560

UserId

Specifies the User Id that owns the Generic Executor process and its subprocesses.

Generic Executor Startup Sequence

You can manually start the Generic Executor process (or service on Windows) using the startall/startall.bat script. However, if camm.init.install is executed, the Generic Executor starts automatically on system startup.

Add Another Generic Executor (UNIX)

Add another Generic Executor if you require a component to execute as a different User ID.

Follow these steps:

1. Add a new user to the LocalController that requires the additional user ID. The new user must be a member of the same group that owns the CAMM_HOME directory.

   Note: Repeat this procedure for any standby LocalControllers.

2. Log in as the new user.

3. Execute the following command to add the new Generic Executor:

   ```
   shell# /opt/CA/CAMM/tools/camm.ge.install
   ```

   The additional Generic Executor is added.

   Note: A configuration file in the LocalController directory named ExecutorMap.xml is modified to provide a map between the required User ID and the TCP port.

When the Engine subcomponent is started, the LocalController references the User ID provided in the LCGobalConfig for that component. If the User ID is not the default User ID, the ExecutorMap is referenced and the TCP port for the alternative Generic Executor is used to start the subcomponent.

This reference is useful when the Engine needs to SFTP/SCP the information using user- or host-based RSA key authentication.

MultiController Configuration

The MultiController is the most essential part of the cluster. It contains the centralized license file and maintains a heartbeat with the components in the cluster.

The configuration for LocalControllers, Engines, and Presenters in the cluster are also located in the repository of the MultiController.

The MultiController listens for heartbeat operations from cluster members on TCP port number 29599.

During the GUI installation, you can configure only the mandatory options required to install a basic MultiController. However, you can manually edit the MC/LocalConfig-mc.xml file.

Sample LocalConfig-mc.xml file (basic configuration)

```
<?xml version="1.0" encoding="UTF-8"?>
<LocalConfig>
      <Description>Configuration for Multi Controller</Description>
      <Names>
            <Name name="mainClass">com.torokina.tim.mc.Main</Name>
            <Name name="appName">CAMM-Multi-Controller</Name>
            <Name name="appShortName">MC</Name>
            <Name name="primaryMcAddress">127.0.0.1</Name>
            <Name name="secondaryMcAddress"></Name>
            <Name name="primaryMcPort">29599</Name>
            <Name name="secondaryMcPort">-1</Name><
            <Name name="myMode">primary</Name>
            <Name name="myAddress">127.0.0.1</Name>
            <Name name="mcPort">29599</Name>
            <Name name="otherMcAddress"></Name>
            <Name name="otherMcPort">-1</Name>
            <Name name="heartbeatFrequency">15</Name>
            <Name name="heartbeatTimeout">180</Name>
            <Name name="repositoryFrequency">15</Name>
      </Names>
      <Paths>
            <Path name="license">${tim.base}/license.lic</Path>
      </Paths>
<LocalConfig>
```

Sample LocalConfig-mc.xml file (hidden logging and cleanups configuration)

```
    <Logging>
        <LogLevel>INFO</LogLevel>
        <LogDirectory>${logbase}</LogDirectory>
        <ObjectLogging>
          <ObjectToLog>
            <ObjectName>com.torokina.tim.config</ObjectName>
            <ObjectLogLevel>TRACE</ObjectLogLevel>
          </ObjectToLog>
        </ObjectLogging>
    </Logging>
    <CleanUps>
        <CleanUp>
            <CleanUpName>clean-temporary-directory</CleanUpName>
            <CleanUpAction>delete</CleanUpAction>
            <CleanUpTarget>${tmp}</CleanUpTarget>
            <Parameter>
                <ParameterName>expire</ParameterName>
                <ParameterValue>3d</ParameterValue>
            </Parameter>
        </CleanUp>
        <CleanUp>
            <CleanUpName>archive-log-directory</CleanUpName>
            <CleanUpAction>archive</CleanUpAction>
            <CleanUpTarget>${logbase}</CleanUpTarget>
            <Parameter>
                <ParameterName>expire</ParameterName>
                <ParameterValue>3d</ParameterValue>
            </Parameter>
        </CleanUp>
        <CleanUp>
            <CleanUpName>clean-log-directory</CleanUpName>
            <CleanUpAction>delete</CleanUpAction>
            <CleanUpTarget>${logbase}</CleanUpTarget>
            <Parameter>
                <ParameterName>expire</ParameterName>
                <ParameterValue>7d</ParameterValue>
            </Parameter>
        </CleanUp>
    </CleanUps>
```

Specifying any of these fields in the correct XML structure in the LocalConfig-mc.xml file overwrites the default content. For example, the following configuration changes the default log level to FINEST.

Changing the default log level to FINEST

```
<?xml version="1.0" encoding="UTF-8"?>
<LocalConfig>
      ... ...
      <Logging>
        <LogLevel>FINEST</LogLevel>
        <LogDirectory>${logbase}</LogDirectory>
      </Logging>
      ... ...
</LocalConfig>
```

Sample LocalConfig-mc.xml (MultiController runtime) file

```
<?xml version="1.0" encoding="UTF-8"?>
<Runtime>
   <Names>
      <Name name="mainClass">com.torokina.tim.mc.Main</Name>
      <Name name="appName">CAMM-Multi-Controller</Name>
      <Name name="appShortName">MC</Name>
      <Name name="primaryMcAddress">127.0.0.1</Name>
      <Name name="secondaryMcAddress"/>
      <Name name="primaryMcPort">29599</Name>
      <Name name="secondaryMcPort">-1</Name>
      <Name name="myMode">primary</Name>
      <Name name="myAddress">127.0.0.1</Name>
      <Name name="mcPort">29599</Name>
      <Name name="otherMcAddress"/>
      <Name name="otherMcPort">-1</Name>
      <Name name="heartbeatFrequency">15</Name>
      <Name name="heartbeatTimeout">180</Name>
      <Name name="repositoryFrequency">15</Name>
      <Name name="lcPort">29598</Name>
      <Name name="manageable">469</Name>
   </Names>
   <Paths>
      <Path name="license">${tim.base}/license.lic</Path>
      <Path name="apphome">${tim.base}/${appShortName}</Path>
      <Path name="runtimeConfig">${apphome}/runtime.xml</Path>
      <Path name="tmp">${apphome}/tmp</Path>
      <Path name="logbase">${apphome}/logs</Path>
      <Path name="basedir">${tim.base}</Path>
   </Paths>
</Runtime>
```

The runtime.xml file is merged with the hidden configuration and then used to start the MultiController component.

MultiController Configuration Options

The following information describes the options that you can use to configure the MultiController.

Path

Lets you specify path information for the following items:

basedir

Specifies the CA Mediation Manager base directory.

apphome

Specifies the CA Mediation Manager MultiController application home directory.

tmp

Specifies the CA Mediation Manager MultiController temporary files directory.

logbase

Specifies the CA Mediation Manager MultiController log directory.

runtimeConfig

Specifies the CA Mediation Manager MultiController runtime XML configuration that is provided by the Generic Executor.

Java

Lets you specify options for using Java.

CommandPath

Specifies the full path to the Java executer that the Generic Executor calls to start the MultiController.

ClassPath/JarBase

Lets you create a list with one or more entries to add to ClassPath.

Options

Specifies the command line options that are parsed to Java.

Environment

Specifies the environment variables that execute the MultiController component.

MainClass/Class

Specifies the main Java class to execute.

MainClass/Args

Specifies the arguments parsed to the Java class.

Runtime

Lets you specify runtime options.

Binding/BindAddress

Specifies the IP address to which the MultiController component binds.

Value: Use IP address 0.0.0.0 for all MultiController components. For two or more IP addresses use a comma-separated list.

The MultiController binds to TCP port 29599.

Binding/MyAddress

Specifies the IP address that the MultiController uses to identify itself.

Note: The IP address must be a valid IP address on this host.

MultiControllerConfig/Mode

Specifies the operating mode of the MultiController.

Value: Specify either Primary or Secondary.

MultiControllerConfig/MCAddresses/Other

Specifies the IP address of the other MultiControllers in the cluster.

MultiControllerConfig/Heartbeat/ParameterName == frequency

Specifies the frequency of heartbeat messages that are sent to other MultiControllers.

MultiControllerConfig/Heartbeat/ParameterName == timeout

Specifies the period of time that this MultiController waits for heart beats from LocalController components. If the MultiController does not receive a heartbeat from a LocalController for 180 seconds, the MultiController triggers a failover to the first available LocalController.

Logging

Lets you specify logging options.

LogLevel

Specifies the logging level that is provided in the output log files.

Value: Specify DEBUG, TRACE, INFO, WARNING, or ERROR.

LogDirectory

Specifies the logging level that is provided in the output log files.

Value: Specify DEBUG, TRACE, INFO, WARNING, or ERROR.

ObjectLogging/ObjectToLog/ObjectName

Specifies the Java class name on which to enable logging.

ObjectLogging/ObjectToLog/ObjectLogLevel

Specifies the logging level required for a Java class.

Cleanup

Lets you specify cleanup options.

CleanUpName

Specifies the descriptive name of the cleanup.

CleanUpAction

Specifies the cleanup action.

Value: Specify Delete or Archive.

CleanupTarget

Specifies the directory to clean up.

Value: Can specify using a CA Mediation Manager variable such as ${camm.variable}.

Parameter/ParameterName – Parameter/ParameterValue

Specifies a parameter to expire and its expiration time in the format of <n><unit>. For example:

10d = 10 days

10h = 10 hours

10m = 10 minutes

Start and Stop the MultiController Manually

The init.camm script automatically starts the MultiController process. You can use the cammCtrl utility to manually stop or start the MultiController component independently.

Follow these steps:

1. Log in as the CAMM_USER and go to the CAMM home directory.
2. Execute the following command to start the MultiController:

   ```
   /opt/CA/CAMM# tools/startall -c mc
   ```

3. Execute the following command to stop the MultiController:

   ```
   /opt/CA/CAMM # tools/stopall –c mc
   ```

LocalController Configuration

The LocalController is an essential service that is installed on each server in the cluster.

The LocalController performs the following key functions:

- Facilitates communication between subcomponents running on the local server and the remote MultiControllers.
- Monitors the performance and availability of Engines and Presenters and restarts any failed components.
- Listens for heartbeat operations from cluster members. By default, the LocalController listens on port 29598/TCP.
- Sends heartbeat information to the MultiControllers.
- Starts, stops, and restarts local Engines and Presenters.

During the GUI installation, you can configure only the mandatory options required to install a basic LocalController. However, may manually edit the LC/LocalConfig-lc.xml file.

Sample LocalConfig-lc.xml file (basic configuration)

```
<LocalConfig>
      <Names>
            <Name name="mainClass">com.torokina.tim.lc.Main</Name>
            <Name name="primaryMcAddress">127.0.0.1</Name>
            <Name name="secondaryMcAddress"></Name>
            <Name name="primaryMcPort">29599</Name>
            <Name name="secondaryMcPort">-1</Name>
            <Name name="myAddress">127.0.0.1</Name>
            <Name name="appName">CAMM-Local-Controller</Name>
            <Name name="appShortName">LC</Name>
            <Name name="lcPort">29598</Name>
            <Name name="heartbeatFrequency">15</Name>
            <Name name="heartbeatTimeout">180</Name>
      </Names>
      <Paths>
            <Path name="dsLocalConfig">${basedir}/DS/LocalConfig-ds.xml</Path>
      </Paths>
</LocalConfig>
```

Sample LocalConfig-lc.xml file (hidden logging and cleanups configuration)

```
    <Logging>
        <LogLevel>INFO</LogLevel>
        <LogDirectory>${logbase}</LogDirectory>
        <ObjectLogging>
          <ObjectToLog>
            <ObjectName>com.torokina.tim.config</ObjectName>
            <ObjectLogLevel>TRACE</ObjectLogLevel>
        </ObjectToLog>
        </ObjectLogging>
    </Logging>
    <CleanUps>
        <CleanUp>
            <CleanUpName>clean-temporary-directory</CleanUpName>
            <CleanUpAction>delete</CleanUpAction>
            <CleanUpTarget>${tmp}</CleanUpTarget>
            <Parameter>
                <ParameterName>expire</ParameterName>
                <ParameterValue>3d</ParameterValue>
            </Parameter>
        </CleanUp>
        <CleanUp>
            <CleanUpName>archive-log-directory</CleanUpName>
            <CleanUpAction>archive</CleanUpAction>
            <CleanUpTarget>${logbase}</CleanUpTarget>
            <Parameter>
                <ParameterName>expire</ParameterName>
                <ParameterValue>3d</ParameterValue>
            </Parameter>
        </CleanUp>
        <CleanUp>
            <CleanUpName>clean-log-directory</CleanUpName>
            <CleanUpAction>delete</CleanUpAction>
            <CleanUpTarget>${logbase}</CleanUpTarget>
            <Parameter>
                <ParameterName>expire</ParameterName>
                <ParameterValue>7d</ParameterValue>
            </Parameter>
        </CleanUp>
    </CleanUps>
```

Sample LocalConfig-lc.xml file (LocalController runtime)

```
<?xml version="1.0" encoding="UTF-8"?>
<Runtime>
   <Names>
      <Name name="mainClass">com.torokina.tim.lc.Main</Name>
      <Name name="primaryMcAddress">127.0.0.1</Name>
      <Name name="secondaryMcAddress"/>
      <Name name="primaryMcPort">29599</Name>
      <Name name="secondaryMcPort">-1</Name>
      <Name name="myAddress">127.0.0.1</Name>
      <Name name="appName">CAMM-Local-Controller</Name>
      <Name name="appShortName">LC</Name>
      <Name name="lcPort">29598</Name>
      <Name name="heartbeatFrequency">15</Name>
      <Name name="heartbeatTimeout">180</Name>
      <Name name="mcPort">29599</Name>
      <Name name="manageable">996</Name>
   </Names>
   <Paths>
      <Path name="dsLocalConfig">${basedir}/DS/LocalConfig-ds.xml</Path>
      <Path name="apphome">${tim.base}/${appShortName}</Path>
      <Path name="runtimeConfig">${apphome}/runtime.xml</Path>
      <Path name="tmp">${apphome}/tmp</Path>
      <Path name="logbase">${apphome}/logs</Path>
      <Path name="basedir">${tim.base}</Path>
   </Paths>
</Runtime>
```

LocalController Configuration Options

The following information describes the options that you can use to configure the LocalController.

Path

Lets you specify path information for the following items:

basedir

Specifies the CA Mediation Manager base directory.

apphome

Specifies the CA Mediation Manager LocalController application home directory.

tmp

Specifies the CA Mediation Manager LocalController temporary files directory.

logbase

Specifies the CA Mediation Manager LocalController log directory.

runtimeConfig

Specifies the CA Mediation Manager LocalController runtime XML configuration that is provided by the Generic Executor.

Java

Lets you specify options for using Java.

CommandPath

Specifies the full path to the Java executer that the Generic Executor calls to start the LocalController.

ClassPath/JarBase

Lets you create a list with one or more entries to add to ClassPath.

Options

Specifies the command line options that are parsed to Java.

Environment

Specifies the environment variables that execute the MultiController component.

MainClass/Class

Specifies the main Java class to execute.

MainClass/Args

Specifies the arguments that are parsed to the Java class.

Runtime

Lets you specify runtime options.

Binding/BindAddress

Specifies the IP address to which the LocalController component binds.

Value: Use IP address 0.0.0.0 for all LocalController components. For two or more IP addresses use a comma-separated list.

Binding/MyAddress

Specifies the IP address that the LocalController uses to identify itself.

Note: This IP address must be a valid IP address on this host.

Binding/BindPort

Specifies the IP address that the LocalController uses to identify itself.

Note: This IP address must be a valid IP address on this host. By default, the LocalController binds to TCP port 29598.

LocalControllerConfig/Mode

Specifies the operating mode of the LocalController.

Value: Specify either Active or Standby.

LocalControllerConfig/MCAddresses/Primary

Specifies the IP address of the primary MultiController in the cluster.

LocalControllerConfig/MCAddresses/Secondary

Specifies the IP address of the secondary MultiController in the cluster.

LocalControllerConfig/Heartbeat/ParameterName == frequency

Specifies the frequency of the heartbeat messages that are sent to the MultiController.

LocalControllerConfig/Heartbeat/ParameterName == timeout

Specifies how long this LocalController waits for heart beats from subcomponents (Engines and Presenters). If the LocalController does not receive a heartbeat from a subcomponent for 180 seconds, the LocalController restarts.

Logging

Lets you specify logging options.

LogLevel

Specifies the logging level that is provided in the output log files.

Value: Specify DEBUG, TRACE, INFO, WARNING, or ERROR.

LogDirectory

Specifies the logging level that is provided in the output log files.

Value: Specify DEBUG, TRACE, INFO, WARNING, or ERROR.

ObjectLogging/ObjectToLog/ObjectName

Specifies the Java class name on which to enable logging.

ObjectLogging/ObjectToLog/ObjectLogLevel

Specifies the logging level required for a Java class.

Cleanup

Lets you specify cleanup options.

CleanUpName

Specifies the descriptive name of the cleanup.

CleanUpAction

Specifies the cleanup action.

Value: Specify Delete or Archive.

CleanupTarget

Specifies the directory to clean up.

Value: Can specify using a CA Mediation Manager variable such as ${camm.variable}.

Parameter/ParameterName – Parameter/ParameterValue

Specifies a parameter to expire and its expiration time in the format of <n><unit>. For example:

10d = 10 days

10h = 10 hours

10m = 10 minutes

Start and Stop the LocalController Manually

The init.camm script automatically starts the LocalController process. You can use the cammCtrl utility to manually stop or start the LocalController component independently.

Follow these steps:

1. Log in as the CAMM_USER and go to the CAMM home directory.
2. Execute the following command to start the LocalController:

   ```
   /opt/CA/CAMM# tools/startall –c lc
   ```
3. Execute the following command to stop the LocalController:

   ```
   /opt/CA/CAMM # tools/stopall –c lc
   ```

Engine and Presenter Configuration

The Installation and configuration of the Engine and the Presenter is achieved using the Device Pack installation program provided with each device pack.

Failover Operation

A MultiController operates in one of two modes: Primary or Secondary.

The MultiController has three main communication functions:

- Heartbeat
- Name service lookup
- Repository synchronization

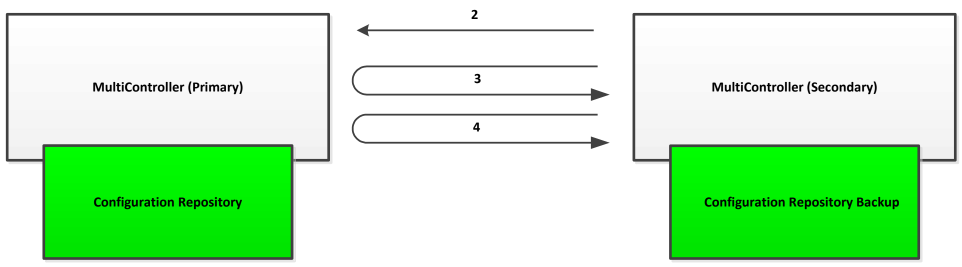
MultiController Failure

The following information describes how CA Mediation Manager manages MultiController failure.

MultiController Communication

The following diagram shows how the Secondary MultiController communicates with the Primary.

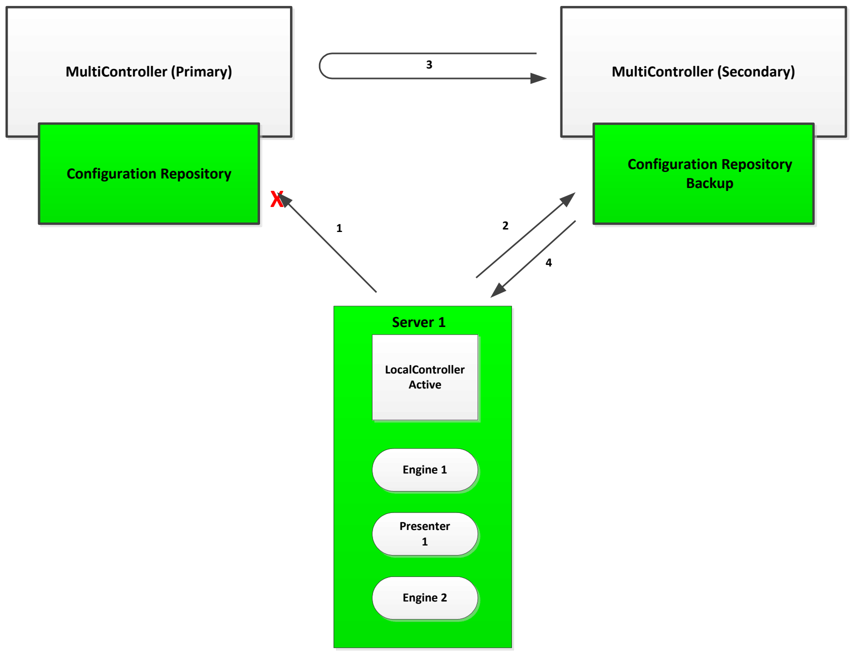
There is a watchdog on the Primary that also notices if the Secondary becomes unavailable. When the Secondary becomes unavailable, an alert is created in the log file.


2
3
4
MultiController (Primary)
Configuration Repository
MultiController (Secondary)
Configuration Repository Backup

1. The MultiController Secondary starts.
2. The MultiController Secondary sends the first heartbeat to the Primary to register as alive.
3. The MultiController Secondary periodically sends a heartbeat to the Primary.
4. The MultiController Secondary periodically synchronizes the repository.

Primary MultiController Failure

The following diagram shows how a failure of the Primary MultiController is handled by the Secondary. During this process, the Secondary MultiController takes over heartbeat, name service and configuration repository requests until the Primary MultiController becomes available again.



1. The LocalController sends a heartbeat to a Primary, and it fails.
2. The LocalController sends a heartbeat to a Secondary MultiController.
3. As the Secondary MultiController believes the Primary is still available, it proxies the request to the Primary MultiController.
4. The Primary responds to the heartbeat back through the Secondary MultiController to the LocalController.

MultiController Proxy Capability

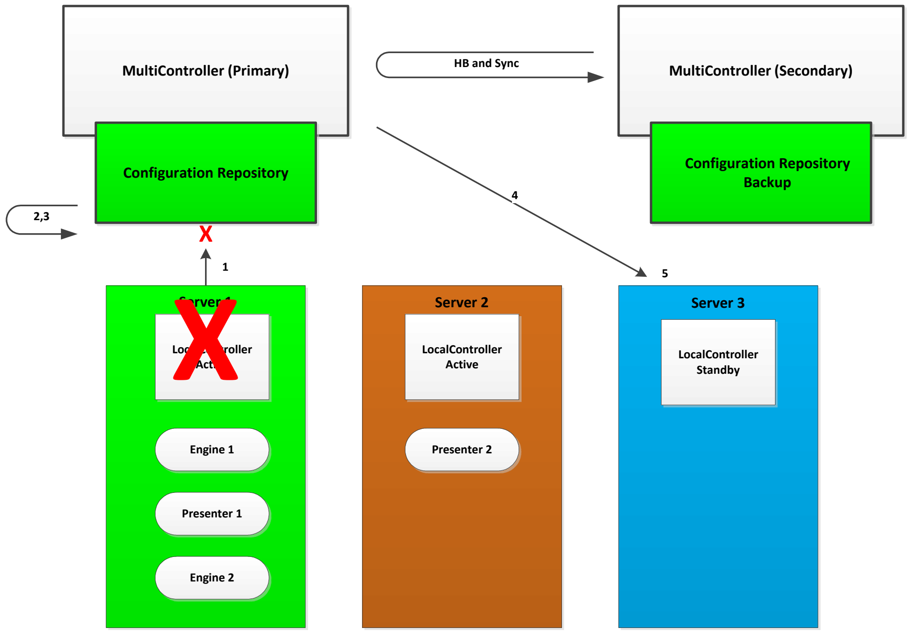
Under certain network circumstances, the LocalController cannot directly contact the Primary MultiController. For this reason, the Secondary MultiController has a proxy capability and attempts to send a heartbeat or name sService request to the Primary MultiController.

However, configuration repository requests sent to the Secondary MultiController are handled by the Secondary MultiController so that the configuration repositories are synchronized.

LocalController Failure

All LocalController components send heartbeat information to the MultiControllers. If the active MultiController detects that it did not receive a heartbeat from the LocalController, it logs a missed heartbeat. If this time exceeds the timeout period, then the MultiController triggers a failover to the first available standby LocalController using the process described in the following diagram.

Failback is a manual process. To achieve failover, force a failure on the LocalController on Server 3.



1. The MultiController is aware that a heartbeat has not been received for a time exceeding the timeout period.
2. The MultiController moves the configuration repository for all Engine subcomponents from Server 1 to Server 3.
3. If Server 1 does not have any subcomponents installed, the MultiController marks the configuration of Server 1 to standby.
4. The MultiController sends a message to the LocalController on Server 3 to restart and reread its configuration.
5. The LocalController on Server 3 becomes active.

Subcomponent Failure

The LocalController component monitors its running subcomponents (Engines and Presenters). If a subcomponent fails, the subcomponent is immediately restarted.

High Availability Configuration

The following sections describe how to configure CA Mediation Manager for high availability.

Configure the Primary MultiController

During the primary MultiController installation, configure the primary MultiController for high availability.

Follow these steps:

1. In the MultiController Configuration panel, select the *Will the other MC exist in the Cluster* check box.
2. Provide the primary MultiController IP address and click Next.
3. In the Other MultiController Configuration panel, provide the IP address of the secondary MultiController.
4. Click Next and complete the installation.

Configure the Secondary MultiController

During the secondary MultiController installation, configure the secondary MultiController for high availability.

Follow these steps:

1. In the MultiController Configuration panel, select Secondary from the MultiController dropdown.
2. Provide the secondary MultiController IP address.
3. Select the *Will the other MC exist in the Cluster* check box and click Next.
4. In the Other MultiController Configuration panel, provide the IP address of the primary MultiController.
5. Click Next and complete the installation.

Configure the LocalController

During the LocalController installation, configure the LocalController for high availability.

Follow these steps:

1. In the LocalController Configuration panel, provide the IP address for both the primary MultiController and the secondary MultiController.
2. Click Next and complete the installation.
3. Repeat these steps for each LocalController installation.

Log Files Configuration

The following sections describe how to configure log files in CA Mediation Manager.

Configure the logging properties for all the CA Mediation Manager components using the logging.properties file, which is created in the default log directory when the component is started. The logging.properties file is preconfigured to generate log files in the default log directory. However, you can edit the logging.properties file to redirect the log files in to another directory. Once the logging.properties file is modified, restart the component to load the modified logging properties. All logs (application logs and STD-ERROR/STD-OUTPUT logs) are generated in the directory that is specified in the logging.properties file.

logging.properties File - Examples by Component

The following examples describe the different logging.properties files:

MultiController example logging.properties file

```
com.torokina.common.logging.apache.FileHandler.directory=/opt/CA/C
AMM/MC/logs

handlers=com.torokina.common.logging.apache.FileHandler

com.torokina.common.logging.apache.FileHandler.level=INFO

.level=INFO

com.torokina.common.logging.apache.FileHandler.prefix=CAMM-Multi-C
ontroller-
```

LocalController example logging.properties file

```
com.torokina.common.logging.apache.FileHandler.directory=/opt/CA/C
AMM/LC/logs

handlers=com.torokina.common.logging.apache.FileHandler

com.torokina.common.logging.apache.FileHandler.level=INFO

.level=INFO

com.torokina.common.logging.apache.FileHandler.prefix=CAMM-Local-C
ontroller-
```

Delivery System example logging.properties file

```
com.torokina.common.logging.apache.FileHandler.directory=/opt/CA/C
AMM/DS/logs

handlers=com.torokina.common.logging.apache.FileHandler

com.torokina.common.logging.apache.FileHandler.level=INFO

.level=INFO

com.torokina.common.logging.apache.FileHandler.prefix=CAMM-Deliver
y-System-
```

ENGINE_CAMM example logging.properties file

```
com.torokina.common.logging.apache.FileHandler.directory=/opt/CA/C
AMM/COMPONENTS/ENGINE_CAMM/logs

handlers=com.torokina.common.logging.apache.FileHandler

com.torokina.common.logging.apache.FileHandler.level=INFO
```

```
.level=INFO

com.torokina.common.logging.apache.FileHandler.prefix=CAMM-ENGINE_
CAMM-
```

Generic Executor example logging.properties file

By default the Generic Executor does not create a logging.properties file in its log directory. All logs are generated in the ~GE/logs directory. The following example shows how you can create the logging.properties file in the logs directory to redirect the Generic Executor logs (non-Windows platforms only):

```
#Properties for Logger

#Tue May 07 04:08:45 EDT 2013

com.torokina.common.logging.apache.FileHandler.directory=/opt/CA/C
AMM/GE/logs

handlers=com.torokina.common.logging.apache.FileHandler

com.torokina.common.logging.apache.FileHandler.level=INFO

.level=INFO

com.torokina.common.logging.apache.FileHandler.prefix=CAMM-Generic
-Executor-
```

Configuring Log File Cleanup

By default the cleanup action for each component is configured to run on the *logbase* directory. If the log files are redirected to another directory, modify the cleanup configuration for successful *Archive* or *Delete* actions.

Define cleanup actions in the *LocalConfig* xml-element in the configuration files. For all CAMM components, define the cleanup actions in the respective configuration files:

- **MultiController:** LocalConfig-mc.xml
- **LocalController:** LocalConfig-lc.xml
- **Delivery Service:** LocalConfig-ds.xml
- **Subcomponents (ENGINE/PRESENTER):** TemplateConfig-subcomponent.xml

  Note: You can find the TemplateConfig-subcomponent.xml file in the <camm.base>/LC directory.

The following examples describe two sample cleanup configurations.

Example: Cleanup configuration file (*Delete* action) for the Delivery Service component

```
<LocalConfig>

<Description>Configuration for Delivery Module</Description>

      …

      …

      <CleanUps>

            <!-- SAMPLE  DELETE  ACTION -->

            <CleanUp>

                  <CleanUpName>Delete</CleanUpName>

                  <CleanUpAction>delete</CleanUpAction>


      <CleanUpTarget>${apphome}/.local</CleanUpTarget> <!--
Directory Name -->

                  <Parameter>

                        <ParameterName>expire</ParameterName>

                        <ParameterValue>7d</ParameterValue> <!--
1y0m3d1h -->

                  </Parameter>

                  <Parameter>


      <ParameterName>includeDir</ParameterName>


      <ParameterValue>true</ParameterValue><!-- true/false -->

                  </Parameter>

                  <Parameter>


      <ParameterName>recursive</ParameterName>


      <ParameterValue>true</ParameterValue><!-- true/false -->

                  </Parameter>
```

```
                    <Parameter>
                          <ParameterName>match</ParameterName>

        <ParameterValue>^[\d]+\.xml$</ParameterValue>
                          <!-- Regular Pattern -->
                    </Parameter>
              </CleanUp>
```

Example: Cleanup configuration file (*Archive* action) for the Delivery Service component

```
             <!-- SAMPLE  ARCHIVE  ACTION -->

             <CleanUp>

                    <CleanUpName>Archive</CleanUpName>

                    <CleanUpAction>archive</CleanUpAction>

                    <CleanUpTarget>${logbase}</CleanUpTarget> <!--
Directory Name -->

                    <Parameter>

                           <ParameterName>expire</ParameterName>

                           <ParameterValue>7d</ParameterValue> <!--
1y0m3d1h -->

                    </Parameter>

                    <Parameter>


       <ParameterName>includeDir</ParameterName>


       <ParameterValue>true</ParameterValue><!-- true/false -->

                    </Parameter>

                    <Parameter>


       <ParameterName>recursive</ParameterName>


       <ParameterValue>true</ParameterValue><!-- true/false -->

                    </Parameter>

                    <Parameter>

                           <ParameterName>match</ParameterName>


       <ParameterValue>CAMM-.*\.log</ParameterValue>

                           <!-- Regular Pattern -->

                    </Parameter>

                    <Parameter>
```

```
      <ParameterName>achiveHome</ParameterName>

      <ParameterValue>${logbase}</ParameterValue> <!-- folder path
-->
                    </Parameter>
                    <Parameter>

      <ParameterName>achivePrefix</ParameterName>

      <ParameterValue>Archive-</ParameterValue> <!-- prefix string
-->
                    </Parameter>
                    <Parameter>

      <ParameterName>achiveSuffix</ParameterName>
                              <ParameterValue>.zip</ParameterValue>
<!-- suffix string -->
                    </Parameter>
              </CleanUp>
      </CleanUps>
<LocalConfig>
```

You can include any of the cleanup actions in the component configuration file. The Generic Executor performs all the cleanup actions. The Generic Executor stores cleanup files in the {camm.base }/GE_<User>/cleanup directory, where camm.base is the CA Mediation Manager installation directory. Once the component configuration file is modified, restart the related component so that the modified configurations can take effect.

Chapter 5: Using EMS Profiles for CA Mediation Manager for Infrastructure Management 2.0, Release 2.2.2

Note: The information that is presented in this chapter applies to CA Mediation Manager for Infrastructure Management 2.0 only.

This section contains the following topics:

EMS Integration Profiles

EMS integration profiles specify how EMS inventory discovery operates in your Data Aggregator environment.

With EMS integration profiles, you specify the status, data collector, device pack, EMS IP, and Backup EMS IP. Specify one IP domain for each EMS integration profile you create. The IP domain that you specify is for the target EMS server, which manages multiple devices (typically 1,000 devices at a time). Data Aggregator processes the inventory data from the EMS server constantly and all at once. (With SNMP or ICMP, polling is done device-by-device.)

Keep in mind the following considerations:

- The EMS Integration Profiles option becomes visible in the user interface after the device pack is installed.
- Adding the same EMS integration profile more than once for same Data Collector is not recommended.

Add EMS Integration Profiles

You can create EMS integration profiles to specify how EMS inventory discovery operates in your Data Aggregator environment.

Note: You must be logged in as an administrator to perform this task.

Creating EMS integration profiles without first setting the scope to a tenant puts the profile in the global space, accessible by all tenants. Running a discovery using a profile in the global space lets anyone see the discovery results, whether they set the scope to a tenant.

Therefore, set the scope to a tenant *before* you create an EMS integration profile to make that profile accessible to a specific tenant only. After you set the scope to a tenant, the tenant indicator appears at the top right of the page. You can then synchronize the tenant with CA Infrastructure Management manually, or wait for the automatic synchronization to occur. You cannot create the EMS integration profile until the tenant is synchronized with Data Aggregator.

Note: For more information about setting the scope to a tenant and synchronizing a tenant, see the *CA Performance Center Administrator Guide*.

Follow these steps:

1. Select Admin, Data Source Settings, and click a Data Aggregator data source in the CA Performance Center user interface.
2. Click EMS Integration Profiles from the Monitoring Configuration menu.

   The EMS Integration Profiles page opens, displaying a list of available discovery profiles.
3. Click New.

   The Add EMS Discovery Profile dialog opens.
4. Enter the required information in the fields. The configuration fields that display depend on the device pack you select. Each device pack has unique global variables that you configure.

   Note: For information about unique global variables for each product, see the CA Support site.
5. Click Save.

   The EMS integration profile is created.

   The inventory discovery does *not* run automatically when you click Save and the Enabled option is selected. The inventory discovery only runs when one of the following conditions is met:

   - The inventory poll schedule is reached.
   - You manually start the EMS Integration Profile.

More Information:

View EMS Discovery Results (see page 58)
Start EMS Discovery Manually (see page 57)

Start EMS Discovery Manually

EMS Integration Profiles are used to discover devices and their components in your network. You can manually start an EMS Integration profile to begin discovery.

Note: Alternatively, you can wait until the inventory poll schedule is reached for discovery to begin automatically.

Follow these steps:

1. Select Admin, Data Source Settings, and click a Data Aggregator data source in the CA Performance Center user interface.
2. Click EMS Integration Profiles from the Monitoring Configuration menu.

   The EMS Integration Profiles page opens, displaying a list of available discovery profiles.
3. Select one or more EMS integration profiles that you want to run a discovery on, and click Start.

   Note: You can only run a discovery on an EMS integration profile that has a status of 'READY'.

   A confirmation dialog opens.
4. Click Yes.

   The Discovery starts. The Status column for the selected Discovery profiles indicates 'Started'.

   A confirmation dialog opens.
5. Click OK.

   Devices and all of their associated interfaces are discovered and polling begins. You are returned to the EMS Integration Profiles page.

   If discovery hangs for more than 10 minutes, Data Aggregator stops it. Data Aggregator considers a discovery to be hanging when no new devices are discovered within 10 minutes *and* the state for the selected discovery profiles have not changed within 10 minutes. An audit event is generated on the discovery instance item. If no devices were discovered successfully, the Status column for the selected discovery profiles indicates 'FAILURE'. If at least one device but not all devices were discovered successfully, the Status column indicates 'PARTIAL_FAILURE'.

   The discovered devices and components can take up to 5 minutes to synchronize with CA Performance Center. When the synchronization is complete, the discovered devices and components appear in the Inventory tab in CA Performance Center.

More Information:

View EMS Discovery Results (see page 58)

View EMS Discovery Results

You can view a summary of the number of all manageable EMS devices that were discovered.

Follow these steps:

1. Select Admin, Data Source Settings, and click a Data Aggregator data source in the CA Performance Center user interface.
2. Click EMS Integration Profiles from the Monitoring Configuration menu.

   The EMS Integration Profiles page opens, displaying a list of available discovery profiles.
3. Select an EMS integration profile instance for which you want to view discovery results, and click the History button.

   The EMS History results display as follows:

   - The Device table shows the monitored devices and time of creation for each.
   - The Element table shows the monitored interfaces and time of creation for each.

Start or Stop EMS Discovery Services

"Start" services are used for discovery on EMS servers to review the inventory continuously. Although discovery can be scheduled, you can manually start, stop, or restart services on demand. For example, you can restart discovery after an EMS server has been down and brought back up, or after upgrading a device pack installation.

Stopping a service deletes any inactive data poll but waits for any active data polling to complete without any interruption. No EMS files are deleted. This action also disables any new polling from occurring as long as it is in a Stopped state. The service remains in a stopped state until you start it again.

Restarting Data Collector has no effect on the status of any EMS integration profile.

Note: You must be logged in as an administrator to perform this task.

Follow these steps:

1. Select Admin, Data Source Settings, and click a Data Aggregator data source in the CA Performance Center user interface.
2. Click EMS Integration Profiles from the Monitoring Configuration menu.

   The EMS Integration Profiles page opens, displaying a list of available discovery profiles.

3. Select a profile, and click Start or Stop.

   A confirmation dialog opens.

4. Click Yes to confirm the action.

   The service starts or stops, depending on your choice. This service remains in the started or stopped state until you change it manually.

Add Event Rules

Event rules can be added using the Data Aggregator monitoring profiles dialog.

Note: For more information, see the *Data Aggregator Administrator Guide* or online help.