

BrightStor[®] ARCserve[®] Backup for Windows

Agent for IBM Informix Guide

r11.5



Computer Associates*

D01170-1E

This documentation and related computer software program (hereinafter referred to as the "Documentation") is for the end user's informational purposes only and is subject to change or withdrawal by Computer Associates International, Inc. ("CA") at any time.

This documentation may not be copied, transferred, reproduced, disclosed or duplicated, in whole or in part, without the prior written consent of CA. This documentation is proprietary information of CA and protected by the copyright laws of the United States and international treaties.

Notwithstanding the foregoing, licensed users may print a reasonable number of copies of this documentation for their own internal use, provided that all CA copyright notices and legends are affixed to each reproduced copy. Only authorized employees, consultants, or agents of the user who are bound by the confidentiality provisions of the license for the software are permitted to have access to such copies.

This right to print copies is limited to the period during which the license for the product remains in full force and effect. Should the license terminate for any reason, it shall be the user's responsibility to return to CA the reproduced copies or to certify to CA that same have been 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 the end user or any third party for any loss or damage, direct or indirect, from the use of this documentation, including without limitation, lost profits, business interruption, goodwill, or lost data, even if CA is expressly advised of such loss or damage.

The use of any product referenced in this documentation and this documentation is governed by the end user's applicable license agreement.

The manufacturer of this documentation is Computer Associates International, Inc.

Provided with "Restricted Rights" as set forth in 48 C.F.R. Section 12.212, 48 C.F.R. Sections 52.227-19(c)(1) and (2) or DFARS Section 252.227-7013(c)(1)(ii) or applicable successor provisions.

© 2005 Computer Associates International, Inc.

All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

Contents

Chapter 1: Introducing the Agent	5
How the Agent Works	5
Agent Features	6
Remote Procedure Call Service	6
Modify Agent Settings to Customize Agent	6
Full Offline Backups	7
Access Control Lists	7
Chapter 2: Installing the Agent	9
Installation Prerequisites	9
Preinstallation Tasks	9
Modify the Windows Environment for IDS Version 7.3	10
Modify the Windows Environment for ISM Systems on IDS Versions 9.21, 9.30, and 9.40	10
Install the Agent	11
Post Installation Tasks	12
Set the IDS ONCONFIG File	12
Agent Communication with ON-Bar	13
Prepare for Operation	15
Uninstall the Agent	15
Chapter 3: Using the Agent	17
Back Up an IDS Database	17
Backup Functions Not Supported	22
Restore an IDS Database	22
Media Rotation Precautions	27
Restore Functions Not Supported	27
Perform Disaster Recovery	28
Verify IDS Status	29

Appendix A: Troubleshooting	31
Identify the Problem.....	31
Enable Debug Mode.....	32
Verify the Backup File Location.....	32
Problems and Solutions.....	33
Error Messages	35
 Index	 47

Chapter 1: Introducing the Agent

BrightStor® ARCserve® Backup is a comprehensive, distributed storage solution for applications, databases, distributed servers, and file systems. It provides backup and restore capabilities for databases, business-critical applications, and network clients.

Among the agents BrightStor ARCserve Backup offers is the BrightStor® ARCserve® Backup Agent for IBM Informix. This agent provides backup and restore capabilities for the IBM Informix Dynamic Server, referred to as IDS throughout this guide. The types of data that can be backed up include both critical and non-critical dbspaces (primarily chunks, or specific regions of disk space); blobspaces (binary large object spaces); and logical logs (transaction records).

How the Agent Works

The Agent for IBM Informix works in conjunction with ON-Bar, the backup and recovery utility for IDS, to deliver a powerful, easy to use backup and restore solution. The primary job of the agent is to issue requests for the Informix ON-Bar utility on behalf of the Informix Manager. Options set through the Backup Manager interface are translated into ON-Bar command line options, providing an integrated environment. You can also choose to work from the ON-Bar command line to submit jobs directly to the Backup Manager.

The agent connects BrightStor ARCserve Backup and IDS by handling all communication between the two applications, enabling data to be passed back and forth. The agent resides on the same system as IDS.

To perform a database backup, the BrightStor ARCserve Backup Manager converts user entries into one or more requests, which it sends to the agent on the IDS system. The agent communicates this request to ON-Bar, which executes backup and restore requests for IDS. The agent retrieves the specified data objects from IDS and sends them to the Backup Manager, which copies the data to your storage media.

Agent Features

The BrightStor ARCserve Backup Agent for IBM Informix offers the following features.

Remote Procedure Call Service

With Remote Procedure Call (RPC) enabled, the agent operates as a Windows service and can be configured to start automatically through standard Windows setup or the Control Panel Services feature. This configuration allows the agent to run without a user being logged in.

Modify Agent Settings to Customize Agent

You can customize the agent by modifying settings in the Windows registry. Certain settings can be set using the Windows REGEDT32 utility. Agent settings are listed in the HKEY_LOCAL_MACHINE window under the following key:

```
SOFTWARE\ComputerAssociates\BrightStorARCserve Backup\DSAgent\Current  
Version\agent\dbaifmx@ServerName
```

In this example, *ServerName* identifies the IDS instance name.

Several optional settings are provided for the agent under the dbaifmx key:

- **CriticalFileBackupDelay**—This is the current delay, in minutes, to back up critical IDS files located in the Informix\etc directory.
- **dll**—This specifies the location of the agent files.
- **debug**—Normally, you will not modify this field. You should enable this setting (change the default) only when requested to do so by Computer Associates Customer Support. The default value is 0 (FALSE).

Note: The agent includes activity logs that provide information about backup or restore jobs and their status. These logs are located in the agent home directory, and are named dbaifmx.log, dbabatch.log, and xbsa.log. The home directory may also contain files called trace logs, which are created and updated only when debug is enabled. These logs are called dbaifmx.trc, dbabatch.trc, and xbsa.trc. If required during a debug session, you may be asked to check these job logs to help determine the cause of the problem.

Full Offline Backups

You should keep at least one recent offline backup of your IDS databases. When performing a full offline backup, you must select the appropriate directories (in particular, the Informix home directory as well as Informix data files) from the Backup Manager window.

Access Control Lists

Access Control Lists (ACLs) allow you to specify the BrightStor ARCserve Backup servers permitted to back up the IDS database.

In a Windows environment, you can create and edit Informix ACLs from the BrightStor\Agent Admin navigation tab.

For more information about ACLs, see the *BrightStor ARCserve Backup Client Agents Guide* or Online Help.

Chapter 2: Installing the Agent

This chapter describes how to install and configure the Agent for IBM Informix. The chapter also explains other steps you must take before performing backup and restore operations after the agent has been installed.

Installation Prerequisites

Before installing the BrightStor ARCserve Backup Agent for IBM Informix, verify the following prerequisites:

- Your system meets the software requirements needed to install the Agent for IBM Informix. For a list of requirements, see the readme file.
- BrightStor ARCserve Backup is installed and working properly.

Note: You can install the Agent for IBM Informix on the same computer as BrightStor ARCserve Backup (the local computer) or on a separate computer (a remote computer).

- You have administrator privileges or the proper authority to install software on the computers where you will be installing the product.

Note: Contact your administrator to obtain the proper rights if you do not have them.

- If you do not use the default installation path, make a note of the installation path you use for easy reference.
- You have completed the modifications to the Windows environment as described in Preinstallation Tasks in this chapter.

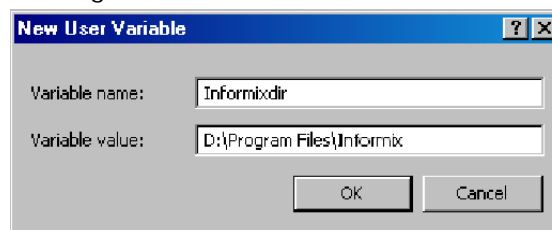
Preinstallation Tasks

Before you install the agent on computers running IDS, you must make modifications to the Windows environment. These modifications are described in the following sections.

Modify the Windows Environment for IDS Version 7.3

To modify the Windows environment for IDS Version 7.3, follow these steps:

1. In the Control Panel, select System.
System Properties dialog appears.
2. Select the Environment tab or the Advanced tab (varies by Windows operating system). If you select the Advanced tab, click Environment Variables.
Environment Variables dialog appears.
3. Click New in the User Variables section.
New User Variable dialog appears.
4. On the New User Variable dialog, enter **Informixdir** in the Variable name field. In the Variable value field, enter the directory location for the Informix program. In the following example, the directory location is D:\Program Files\Informix.



5. Click OK to close New User Variable dialog.
6. Click OK to close the remaining dialog.

Modify the Windows Environment for ISM Systems on IDS Versions 9.21, 9.30, and 9.40

You must make modifications to the Windows environment for computers running Informix Storage Manager (ISM) with IDS Versions 9.21, 9.30, and 9.40. To make these modifications, follow these steps:

1. In the Control Panel, select System.
System Properties dialog appears.
2. Select the Environment tab or the Advanced tab (varies by Windows operating system). If you select the Advanced tab, click Environment Variables.

3. Modify the PATH variable to include the location of the ISM directory path, as shown in the following sample:

```
C:\ism\ver#\bin
```

4. Click OK.
5. Click OK to close the remaining dialog.
6. Locate the sm_versions.std file

Note: The sm_versions.std file is a template for setting up the sm_versions file with storage manager information.

For more information on the sm_versions file, see the Informix user documentation.

7. Rename the existing sm_versions file to exclude the extension .std, as defined in your IDS release notes and as shown in the following example:

```
Informixdir\etc\sm_versions.std
```

to:

```
Informixdir\etc\sm_versions
```

8. Open the sm_versions file with Notepad to make sure it contains the following string:

```
1|1.0.1|ism|1|
```

If the string is not present, enter it at the end of the file and save the file.

9. Close the file.

Install the Agent

The Agent for IBM Informix follows the standard installation procedure for the system components, agents, and options of the BrightStor ARCserve Backup.

For detailed procedures, see the *Getting Started*.

Note: After you complete the installation procedure, be sure to restart your computer when prompted.

Post Installation Tasks

After you install the agent, you must complete several procedures before you can begin operating BrightStor ARCserve Backup with the agent. These procedures are described in the following sections.

Set the IDS ONCONFIG File

The installation program updates the ONCONFIG file in the IBM Informixdir\etc directory so that the agent can operate properly. If you do not update the ONCONFIG file during installation, you will need to use a text editor to manually enter the changes in the ONCONFIG file before you install and deploy the agent in your network.

Skip this procedure if you modified the ONCONFIG file during installation.

To manually modify the ONCONFIG file, follow these steps:

1. Open the ONCONFIG file with Notepad or a similar text editor.
2. For IDS Versions 7.3, 9.21, 9.30, and 9.40, insert the following lines in the ONCONFIG file:

```
BAR_MAX_BACKUP 1 # Informix Backup Agent  
BAR_BSALIB_PATH AGENT_HOME\libbsa.dll #Informix Backup Agent XBSA DLL
```

where *AGENT_HOME* is the home directory path of the agent.

Important! For IDS Versions 9.21, 9.30, and 9.40, if your agent home directory path contains space characters (for example, C:\Program Files\Informix), you must enter the MS-DOS shortened name when you specify the path (for example, C:\progra~1\ Informix). To determine the shortened form of a path name, view the path in an MS DOS command prompt window.

3. For IDS Versions 9.30 and 9.40, replace the following line:

```
LTAPEDEV NULL #Log tape device_path
```

with this line:

```
LTAPEDEV \\.\TAPE1 #Log tape device_path
```

4. Save the file.
5. Stop and restart all IDS instances to apply the changes to the ONCONFIG file.

Note: An IDS *instance* means the concurrent operation of shared memory, processors, databases, and physical devices allocated to IDS, all of which can be monitored by the ONSTAT -p (profile) command.

Agent Communication with ON-Bar

BrightStor ARCserve Backup provides a batch job configuration utility. This feature lets you configure more than one IDS instance at a time. You can use the Backup Agent for IBM Informix Configuration dialog to enable the ON-Bar utility to communicate information about the media and connectivity requirements for backup and restore operations.

Note: If you use the Backup and Restore Managers as your only methods for initiating backup or restore jobs, the batch configuration process is unnecessary.

You can also use the Backup Agent for Informix Configuration dialog to instruct BrightStor ARCserve Backup to submit backup and restore jobs through the ON-Bar command line on the IDS.

Because this feature lets you define multiple unique instances (rather than separate IDS session definitions), it offers a convenient way to configure backup media without using the Backup Manager for each operation.

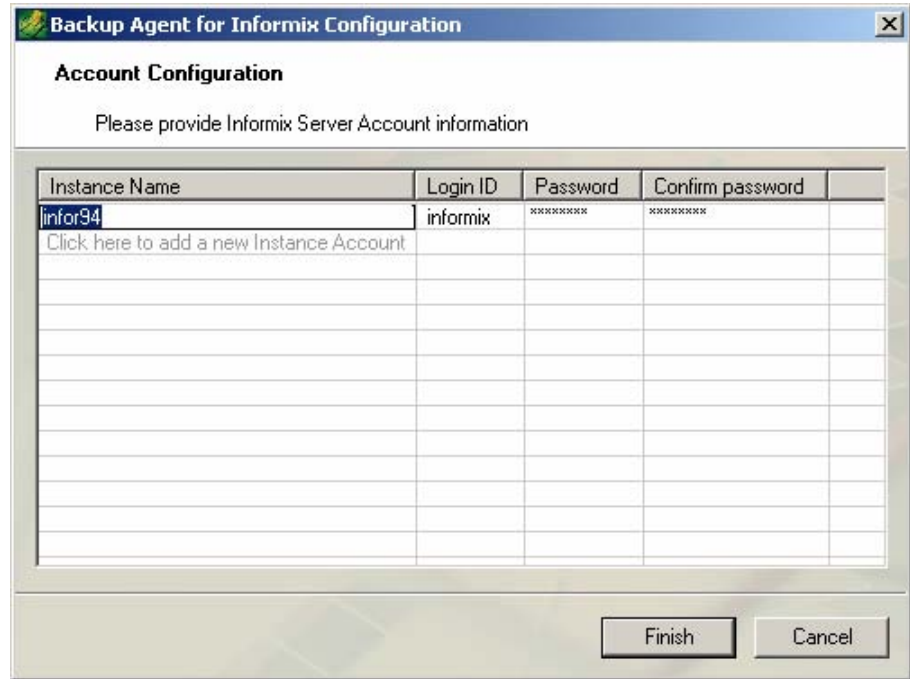
Note: If the server you are installing will be hosting multiple instances of IDS, you will need to reconfigure the agent for each backup or restore job.

Configure the Agent for ON-Bar Interaction

To configure the agent to support backup or restore operations of IDS instances with the Informix ON-Bar utility, follow these steps:

1. Log in as the Windows administrator to the server where IDS is running.
2. Select Start, Programs, Computer Associates, BrightStor, ARCserve Backup Agents, and Informix Agent configuration.

The following dialog appears:



3. Enter the requested information in the fields provided for each unique instance of IDS operation.
4. Click Finish.

The Agent is configured for ON-Bar interaction.

Prepare for Operation

After you install and configure the Agent for IBM Informix, perform the following steps before you run backup and restore jobs for IDS.

1. On the server where IDS is running, start the Remote Procedure Call (RPC) service from the Control Panel Services feature.
2. Log on to Windows with administrator rights for backup. Enter **Informix** as the user name.
3. Synchronize jobs with other administrative tasks.
4. Verify the proper configuration of the server where IDS is running by submitting a test backup; use the ON-Bar command line.

For more information on using the ON-Bar command line, see the *Informix ON-Bar* documentation.

Uninstall the Agent

To uninstall the Agent for IBM Informix, follow these steps:

1. Open the Windows Control Panel.
2. Double-click the Add or Remove Programs icon.
3. Select CA BrightStor ARCserve Backup Agent for IBM Informix.
4. Click the Remove button.

The Add or Remove Programs dialog opens asking whether you want to remove CA BrightStor ARCserve Backup Agent for IBM Informix.

5. Click Yes.

The Agent is uninstalled.

Chapter 3: Using the Agent

You can use the Agent for IBM Informix to back up IDS objects such as dbspaces, blobspaces, and logical logs. Command line options associated with the ON-Bar utility are also available.

For more information about using ON-Bar, see the *Informix ON-Bar* documentation.

Back Up an IDS Database

When you submit a job from the Backup Manager, BrightStor ARCserve Backup validates the jobs in the queue. The agent then converts the job requests to ON-Bar commands, which appear in the activity log for this agent.

ON-Bar evaluates your backup privileges and IDS status, and submits the backup jobs to BrightStor ARCserve Backup. You should expect to see one (or more) job per dbspace, blobspace, or logical log being backed up.

The following important recommendations help to ensure a full restore based on your organization's defined backup schedule:

- Periodically stop IDS services and perform a full offline backup (regular file backup) of the IDS configuration and data files, without the agent. This ensures that restores will be successful if dbspaces or blobspaces are lost. Before the backup, stop all IDS services with the Services feature of the Control Panel (in some versions of Windows, Services is found under Administrative Tools on the Control Panel).
- Back up dbspaces or blobspaces immediately after you create them, and maintain a regular backup schedule to ensure smooth recovery in case of dbspace or media failure. BrightStor ARCserve Backup allows you to set and maintain a regular schedule of automatic backups.
- IDS reuses logical logs. To conserve disk space, IDS limits log size and quantity. When these logs are full, you must back them up to free them for reuse.
- Before submitting jobs using the Backup Manager, ensure that the following BrightStor ARCserve Backup services are running:
 - Job Engine
 - Tape Engine
 - Database Engine

To back up IDS objects, follow these steps:

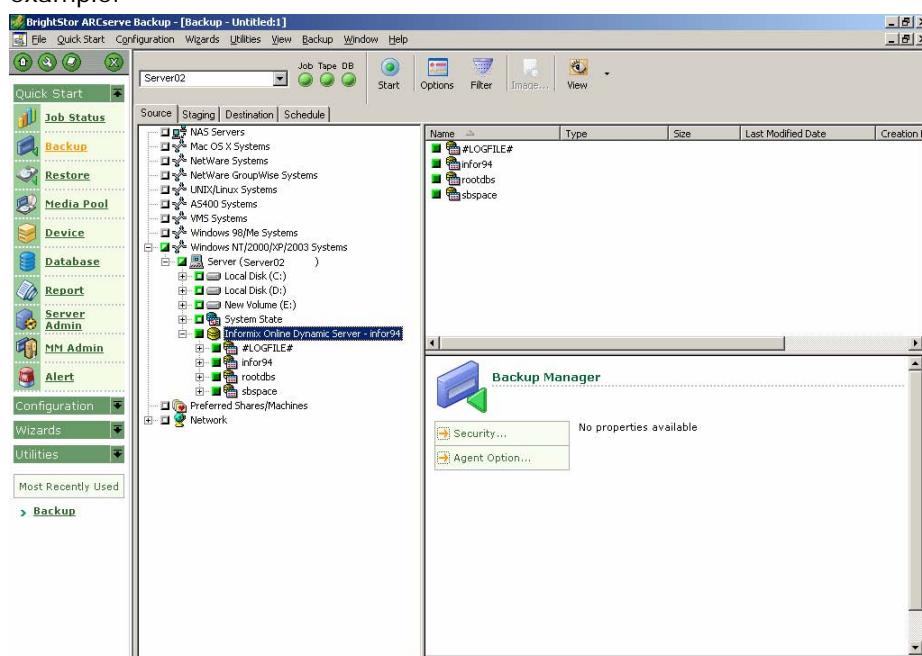
1. Verify that IDS is online. Backups using the Agent for IBM Informix can be performed only while IDS is online.

Note: Be sure to submit the #LOGFILE# backup with each salvage operation while IDS is offline.

2. Start the Backup Manager.

Important! *The agent supports only single, non-concurrent backups and restores. Parallel operations are not supported.*

3. Click the Source tab if it is not already visible. In the Source view, select the Informix server you want to back up as shown in the following example:



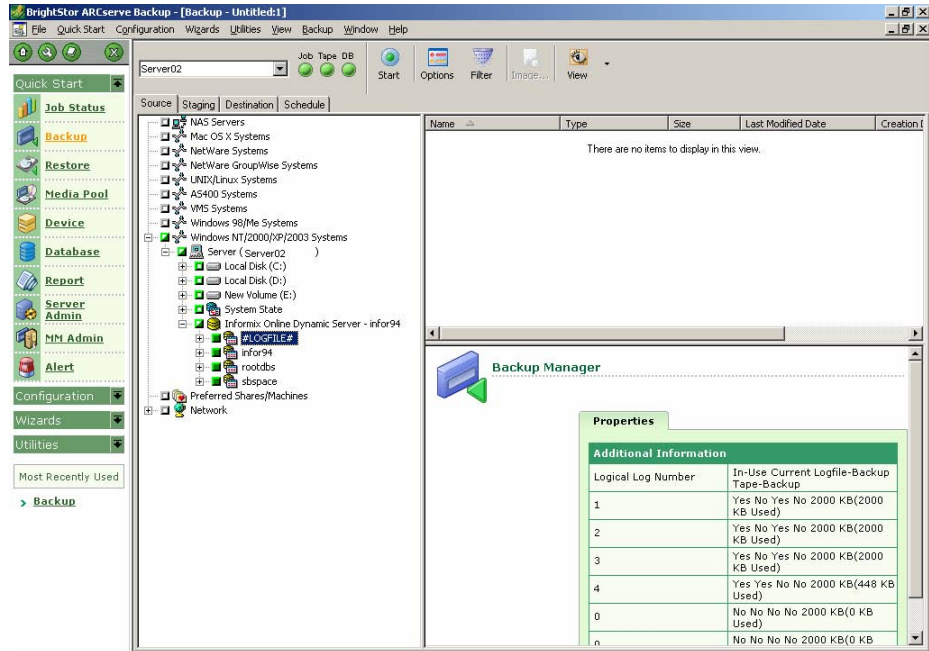
Selecting the server in Backup Manager is equivalent to the following ON-Bar full-backup command:

```
onbar_d -b -w (for Informix 9)
```

Note: When you select a full Informix server backup (that is, one that includes all IDS objects on the server), the system backs up all files located in the \etc directory under the Informix home directory. The \etc directory is expected to contain ONCONFIG, IXBAR, ONCFG, and other critical files. If the \etc directory does not contain these files, modify the Informix environment to ensure the files are there.

Also, the Agent for IBM Informix backs up the files located in the \TAPEINFO directory under the agent directory to ensure the backup of the XBSATAPE.TBL file. The XBSATAPE.TBL file is critical for an IDS restore.

If you select individual dbspaces or blobspaces, the Informix server is automatically selected. The box to the left of the selection is partially shaded even when all objects are selected, as shown in the following example:



The box is partially shaded because dbspaces and the logical logs were individually selected. In this case, a full Informix server-level backup does not occur.

Important! For logical log backup options to work properly, you must select the #LOGFILE# entry.

Selecting the objects in BrightStor ARCserve Backup is equivalent to the following ON-Bar commands for IDS Version 9.21, 9.30, and 9.40:

```
onbar_d -b sbspace rootdb
onbar_d -l
```

4. Right-click the Informix server and choose Backup Agent Options. You must specify the options to complete a backup. The following describes how backup levels are used:
 - **Level 0**—for a full backup
 - **Level 1**—to back up changes since the level 0 backup
 - **Level 2**—to back up changes since the level 1 backup

BrightStor ARCserve Backup Option	ON-Bar Option	Description	IDS Status
Backup Level 0	-L0	Full backup	Online
Backup Level 1	-L1	Incremental backup based on the last Level 0 backup	Online
Backup Level 2	-L2	Incremental backup based on the last Level 1 backup	Online
Backup Current Log Only	-c	Backs up only the current active logical log. Other, full logical logs will not be backed up when selecting this option	Online
Salvage Logs	-s	Backs up all logical logs that reside on the disk	Offline

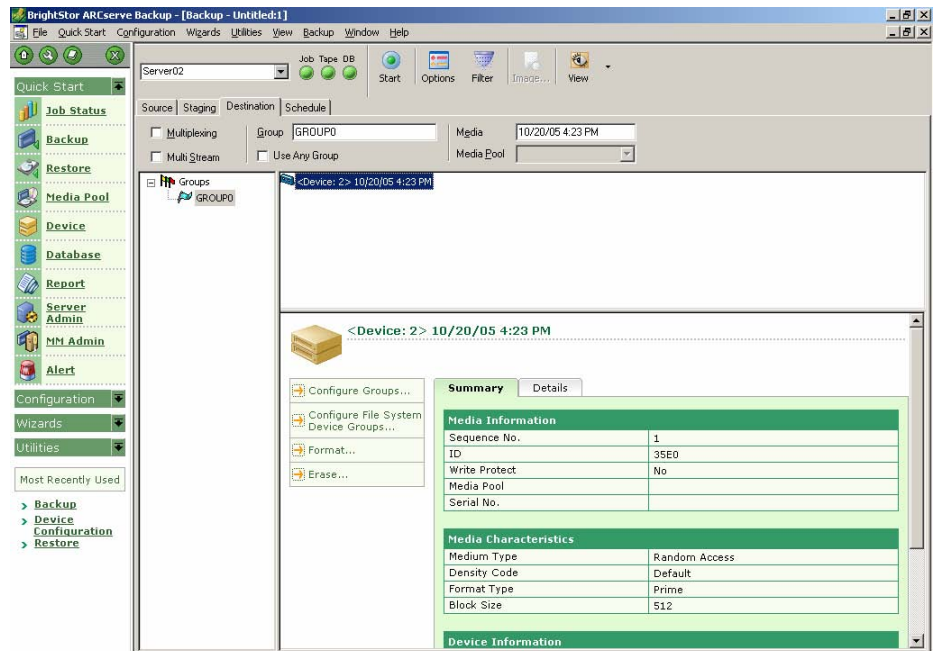
Note: By default, the agent performs a level 0 backup.

Important! *A full offline restore always attempts to salvage logical logs before restoring the root dbspace. If the salvage fails, the restore continues; however, transactions that cannot be salvaged are lost. Therefore, it is important that you keep copies of logical log backups until you are sure that you do not need them to complement a restore from a backup.*

5. Select the media device group and media for the backup job from the Destination view.

- Click the media device for the backup destination.

The name appears in the Media field as shown in the following example.



- Click the Schedule tab to select scheduling options. You can run the backup job at this point or schedule the job to run later.
For a full explanation of scheduling options, see the *BrightStor ARCserve Backup Administrator Guide*.
- After scheduling the backup job, click the Start button on the tool bar to execute the job (or to queue it for later execution, if you schedule it for later).
- Click Security to edit the user name and password fields.
- Enter your security information and click OK.
- When the operation is complete, Backup Operation Successful message appears.

Note: The first job submitted for backup is always a test job, with no actual data. It is used to trigger ON-Bar. If the job is successful, the Backup Operation Successful message appears. This message indicates that ON-Bar was successfully activated. Note, however, that the actual backup process is still in progress. You can track the progress of the job with the Job Status window.

If a backup job fails because of a BrightStor ARCserve Backup or agent environment variable (such as a request for unavailable media) the ON-Bar process may stop responding. Use the Windows Task Manager to determine if ON-Bar is responding. If it is, issue the following command from the agent directory:

```
stopxbsa.exe informix_server_instance_name
```

Backup Functions Not Supported

The Agent for IBM Informix does not support the following file-system-related functions:

- Media verification
- Compare tape to disk
- InoculateIT (eTrust) options
- Grandfather-father-son (GFS) rotation clear archive bit (incremental or differential backup methods)

Restore an IDS Database

Before restoring IDS logical logs, dbspaces, and blobspaces, take note of the following:

- Restores always consist of the complete backed-up set of data. You cannot restore dbspaces and blobspaces individually unless they are damaged and you must perform a disaster recovery restore.
- When performing a disaster recovery, you may need to restore critical IDS files located in the `\etc` directory, under the Informix home directory.

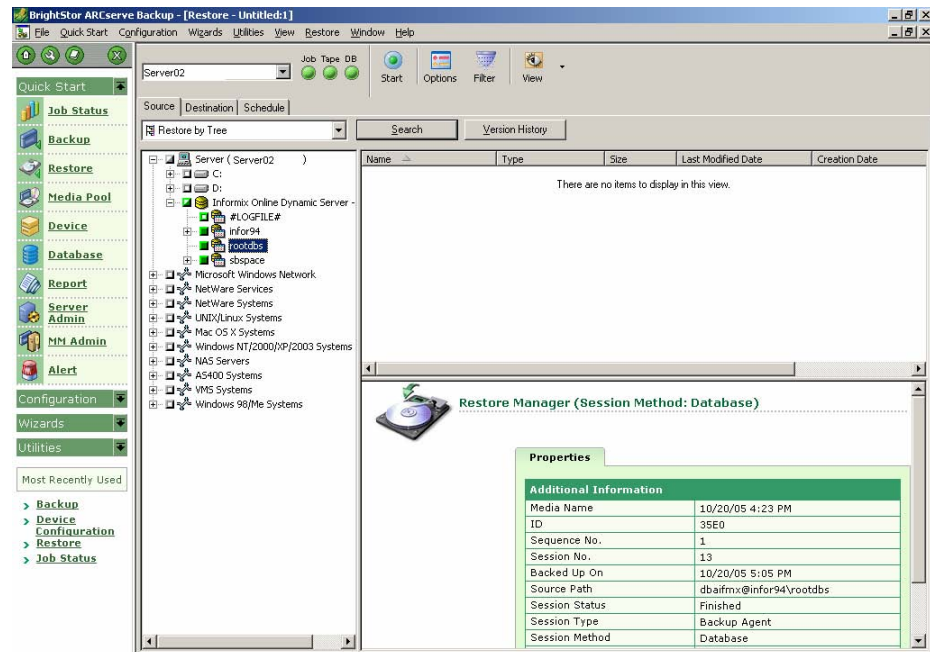
Important! Exercise caution with this procedure; restoring critical files overwrites the current files. To determine when you should restore the critical boot files, see the *Informix* documentation.

- If you are executing a full restore, shut down all IDS services before starting the restore operation. The Restore by Tree view is the supported format.

To restore an IDS object, follow these steps:

1. From the Restore Manager, select the items to be restored. This can be either the entire Informix server or individual dbspaces or blobspaces.

A sample Restore list is shown in the following example:



Note: Do not restore the #LOGFILE#. The Informix server restores the logical logs automatically when a logical restore is performed.

2. Right-click the Informix server from the Source tab.

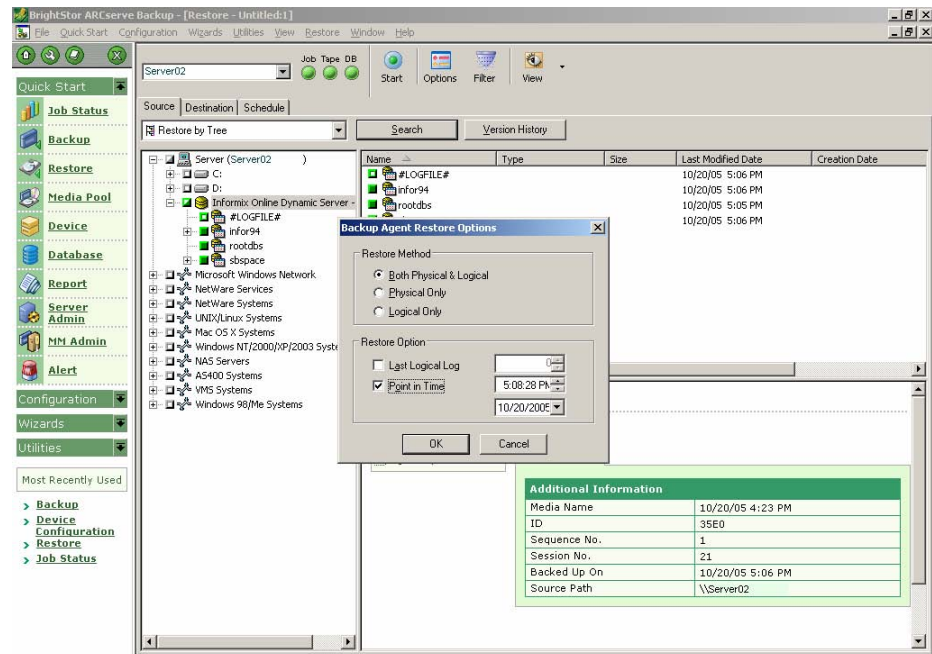
The Restore Options dialog appears.

BrightStor ARCserve Backup Option	ON-Bar Option	Description
Restore Methods	Physical and Logical	-r Restores all dbspaces, blobspaces, and logical logs.
	Physical Only	-p Restores all dbspaces and blobspaces.
	Logical Only	-l Restores logs only.
Restore Options	Last Logical	-n log The number of the last log to be restored. If any logs exist after this one, they are not restored.
	Point in Time	-t time The point in time at which to stop the restore.

Important! *The Point in Time option is for Informix server-level restores and cannot be combined with any individual dbspace or blobspace restore job. Do not select the Logical Only restore method and the Point in Time restore option at the same time. If the Logical Only method is combined with any dbspaces or blobspaces, IDS ignores the objects and executes an Informix server-level logical restore.*

For information about the different options and requirements available for performing cold restores, warm restores, physical restores, and logical restores, see the ON-Bar documentation.

The Backup Agent Restore Options dialog is illustrated in the following example:

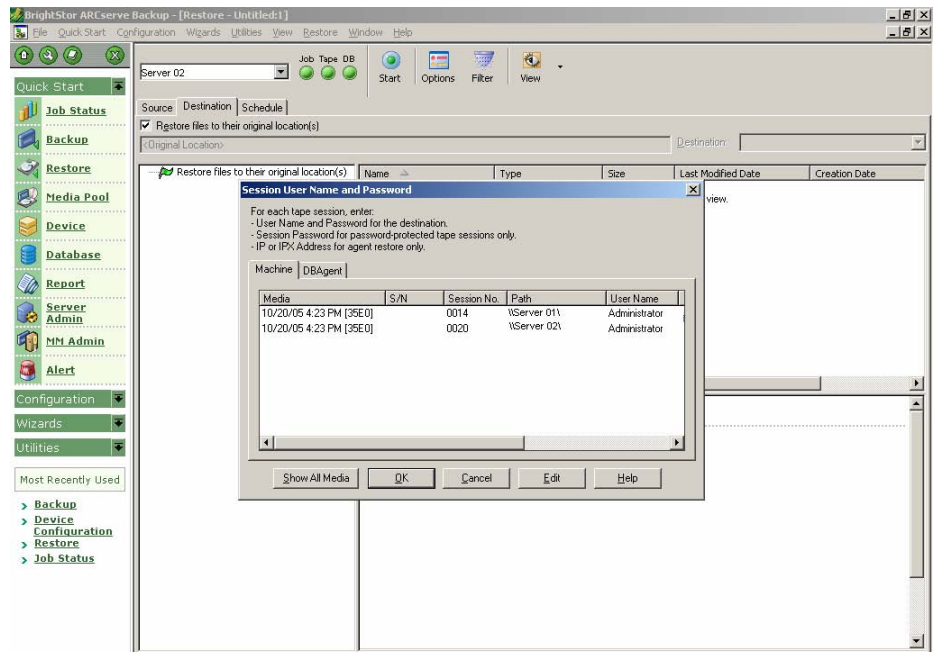


3. Click the Destination tab.
4. The destination must be the original location. Select the option **Restore Files to their Original Locations**.
5. When the Security dialog appears, enter the Informix server user name and password with restore privileges, and click OK.
6. Select the preferred restore method and options. Click OK.

BrightStor ARCserve Backup restore options are equivalent to the following ON-Bar options:

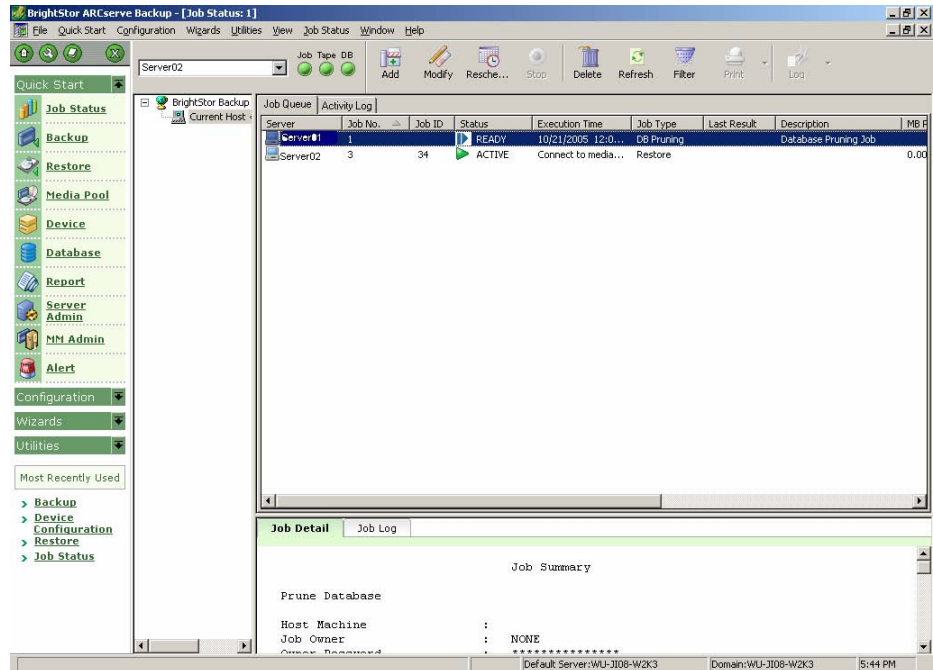
```
onbar_d -r -t 2003-9-5 13:31:17
```


- The Session User Name and Password dialog opens. Verify the user name and password for the computer to which the files are being restored. If the restore session needs to access media or another computer that requires a different user name and password from those used for IDS or BrightStor ARCserve Backup, that user name and password should be listed here. Click OK.



8. The Submit Job dialog displays the job details. Click OK.

The job is submitted to the BrightStor ARCserve Backup queue. You can verify the restore process from the BrightStor ARCserve Backup Job Status window as shown in the following example:



9. When the job is complete, a message appears indicating that the restore was successful. The first restore message results from the creation of the ON-Bar process. Depending on the progress of the restore procedure, other messages from actual (not test) restore jobs will follow.

Note: Do not interrupt the restore procedure by browsing IDS objects from the Backup Manager, or attempt to stop the restore. Wait until the BAR_INFORMIX SERVER.log shows that the restore is complete.

Media Rotation Precautions

Both BrightStor ARCserve Backup and IDS maintain backup histories of the media used, and other session information associated with dbspaces and blobspaces. However, during a restore operation, ON-Bar uses the IDS backup history, not the backup history maintained by BrightStor ARCserve Backup.

IDS decides which backup session to restore. Depending on its backup history, ON-Bar may ask for BrightStor ARCserve Backup media that is no longer in your media rotation scheme. In this case you may experience a failed restore job. Computer Associates recommends that you keep all the IDS log backup sessions after a full Informix server backup until you complete another full backup.

Note: It is extremely important that you plan a practical backup media rotation scheme, based on a realistic IDS restore scenario. See the *BrightStor ARCserve Backup Administrator Guide* for information regarding media rotation. In general, you can rotate current media after backing up Informix server-related physical files while IDS is offline.

Restore Functions Not Supported

The Agent for IBM Informix does not support the following file system-related functions:

- Global restore options:
 - Create empty path for the root
 - Pre- or post-execution
- Session or tape view for dbspace or blobspace restores
- Filter options
- Destination options
 - Directory structure
 - File conflict resolution
 - Restore to different locations

For additional information about restore functions, see the *BrightStor ARCserve Backup Administrator Guide*.

Perform Disaster Recovery

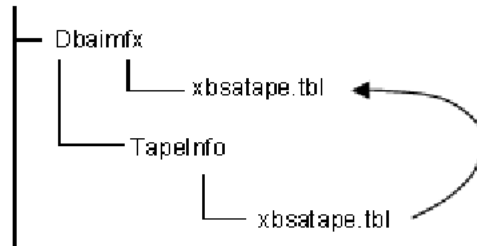
To recover IDS after a disaster, such as a hard disk failure, you need backups of the following:

- The most recent cold (full offline) backup of all Informix files.
- One or more copies of a full Informix server hot backup (an online backup) made since the cold backup.
- The latest copy of the Informix critical boot files and XBSATAPE.TBL file in the agent directory.

To recover IDS, follow these steps:

1. Reinstall IDS, if necessary.
Note: If you reinstall IDS, be sure to use the same account name, password, and directory structures used in the previous IDS installation.
2. Stop all Informix services:
 - a. From the Windows Start menu, choose Settings, Control Panel.
The Control Panel dialog appears.
 - b. Depending on the Windows operating system you are using, carry out one of the following actions on the Control Panel:
 - Click Services
 - Click Administrative Tools, then click Services
 - c. On the Services dialog, locate the Informix services.
 - d. To start or stop a service, right-click it and choose Start or Stop from the pop-up menu.
3. Restore the cold (offline) backup Informix system and data files from BrightStor ARCserve Backup.
4. Reinstall the Agent for IBM Informix.
Note: You should use the same account name and password as IDS and the directory structures used in the previous agent install.
5. Restore the latest \tapeinfo directory located in the agent home directory, if necessary.

6. Compare the xbsatape.tbl file in the agent home directory under \tapeinfo. If the agent home directory has an old version of the file, copy the xbsatape.tbl from the \tapeinfo directory to the agent home directory (one level up), as shown in the following diagram:



7. Compare and carefully restore the critical files under \etc in the Informix home directory from BrightStor ARCserve Backup.
8. Select and restore the full Informix server from BrightStor ARCserve Backup.

Note: ON-Bar takes time to determine the objects to restore. This process should not be interrupted. However, you can check BAR_INFORMIX SERVER NAME.LOG to see the ON-Bar restore activity.

9. ON-Bar handles the restore jobs from this point.

Verify IDS Status

Verify IDS status by using the onstat.exe utility with the following commands:

Onstat Command	Definition
-?	Display the definition of command options.
-l	Display the current logical log status.
-d	Display current dbspace or blobspace information.

Appendix A: Troubleshooting

The Agent for IBM Informix provides logs for examining backup activities and enables you to modify settings if any trouble is encountered.

Identify the Problem

If the BrightStor ARCserve Backup Job Status window displays an incomplete backup or restore, do the following to get helpful information:

- Monitor activity logs:
 - XBSA.LOG, DBAIFMX.LOG, and DBABATCH.LOG for BrightStor ARCserve Backup Agent for IBM Informix activity (located in the agent home directory)
 - BAR_informix server name.LOG for ON-Bar activity (located in the Informix home directory)
- Enable debug mode (only when instructed to do so by a Computer Associates Technical Support representative) to trace all agent activity found in these files:
 - XBSA.TRC
 - DBABATCH.TRC
 - DBAIFMX.TRC
- Verify the backup location.

Enable Debug Mode

To receive debug information, you must enable the debug mode. You can set the debug mode in the Windows registry using the Regedt32 editor. By default, the debug mode is disabled.

1. Run WINNT\SYSTEM32\REGEDT32.exe.
2. In the HKEY_LOCAL_MACHINE window, open:
`SOFTWARE\ComputerAssociates\BRIGHTSTOR ARCserve
BACKUP\DSAGENT\CURRENTVERSION\AGENT\dbaifmx@ Informix Server`
3. Double-click debug. The DWORD editor opens.
4. Change the debug mode value as follows:
From: REG_DWORD:0 (disable debug, the default mode)
To: REG_DWORD:1 (enable debug)

Important! *Be sure to set the key entry back to 0 (disabled) when you have finished troubleshooting to prevent the needless consumption of disk space and CPU time.*

Verify the Backup File Location

The DLL that defines the location of the agent files is located in the same key as the debug setting. This location is defined during installation.

Important! *Do not change this path manually. Change it only through the agent setup program.*

To examine the location, follow these steps:

1. Run WINNT\SYSTEM32\REGEDT32.exe.
2. In the HKEY_LOCAL_MACHINE window, open:
`SOFTWARE\ComputerAssociates\BRIGHTSTOR ARCserve
BACKUP\DSAgent\CurrentVersion\Agent\dbaifmx@ Informix Server`
You will see a statement similar to the following:
`dll:REG_SZ:C:\Program Files\CA\BrightStor ARCserve Backup Agent for
Informix\dbaifmx.dll`

Problems and Solutions

This section describes a few samples of common problems that agent users encounter.

A backup job was reported as successful but nothing happens.

Reason:

The Informix server has problems and cannot handle the job.

Action:

Check the BAR_INFORMIX SERVER.LOG in the Informix home directory to see if ON-Bar returned any error.

A backup job is submitted, but the job has stopped running.

Reason:

The previous backup job has not been cleared on the Informix server side.

Action:

Execute STOPXBSA.EXE INFORMIX Server from the agent home directory.

If the problem continues, check the value of the LastObject field in the Registry:

```
HKEY_LOCAL_MACHINE\SOFTWARE\COMPUTERASSOCIATES\BRIGHTSTOR_ARCserve  
BACKUP\DSAGENT\CURRENTVERSION\AGENT\DBAIFMX@INFORMIX_SERVER
```

Clear remaining strings.

A backup and restore job is submitted from the ON-Bar utility of Informix, but nothing happens.

Reason:

The system's environment may not be set properly, or your agent configuration is not set properly.

Action:

Use the Informix Agent Batch Job Configuration utility to set the current BrightStor ARCserve Backup configuration-like media name and user information. Verify that your local BrightStor ARCserve Backup server is running (examine the Admin Job, Database, and Tape Engine).

During an Informix restore, BrightStor ARCserve Backup asks for media that no longer exists.

Reason:

Informix keeps backup history in its critical file. During restore, Informix may ask for specific media that may not exist.

Action:

Find a proper restore scenario based upon your available backup media.

A job from the Informix Backup or Restore Utility is in the job queue, but nothing is happening.

Reason:

BrightStor ARCserve Backup engine services are not running.

Action:

Using the Server Admin feature, start the BrightStor ARCserve Backup engine services: Database, Tape, and Job engines. If you start the engines from any other location, be sure to **start the Database engine first**.

If the Database engine service is not started first, media information may not merge correctly.

A rescheduled backup or restore job stops responding.

Reason:

The rescheduled backup or restore job may be from ON-Bar. ON-Bar backup or restore jobs cannot be modified. You can identify an ON-Bar job if it was submitted by dbabatch.

Action:

Identify whether the job was submitted by dbabatch from information in the description field of each job in the BrightStor ARCserve Backup Job Status window.

Submit a new job instead of rescheduling.

Restore job from BrightStor ARCserve Backup failed but BAR_<INFORMIX SERVER>.LOG on the Informix Server said it was successful.

Reason:

In rare cases, ON-Bar does not need the entire backup image to accomplish its restore, and terminates the restore process in the middle of its operation. From the point of view of the agent, the restore finished before reaching the end of the data.

Action:

Ignore the BrightStor ARCserve Backup failure message. The Informix restore was completed successfully.

Cannot find the Backup Agent home subdirectory \TAPEINFO from the BrightStor ARCserve Backup Restore Manager Tree View.

Reason:

Your last backup job did not back up the agent home subdirectory \TAPEINFO. Tree View only shows the latest backup objects.

Action:

To restore Informix-related physical files (such as critical boot files, and XBSATAPE.TBL) use the BrightStor ARCserve Backup Restore Manager Session View.

Error Messages

This section contains a list of error messages produced by the agent with a brief description of each error and a possible solution.

A backup job returned the error (123)

Cannot start onbar utility

Reason:

The agent could not start ONBAR_D.EXE.

Action:

Check your system environment to see if INFORMIXDIR is defined. Also, verify that the path is valid.

A backup job returned the error (128)

Invalid object name to handle

Reason:

The agent cannot process the Informix object.

Action:

Verify that you are using BrightStor ARCserve Backup. If necessary, generate a trace log and contact Customer Support at <http://ca.com/support>.

A backup job returned the error (129)

Cannot get session ID and tape ID from the client

Reason:

The agent cannot process the Informix object.

Action:

Verify you are using BrightStor ARCserve Backup. If necessary, generate a trace log and contact Customer Support at <http://ca.com/support>.

A backup or restore job returned the error (130)

Cannot write to XBSA named pipe

Reason:

The agent cannot communicate with the XBSA ON-Bar component.

Action:

Check the BAR_INFORMIX SERVER.LOG to see if ON-Bar generated an error message.

If necessary, check the XBSA.LOG. Reschedule the job. If the problem persists, contact Customer Support at <http://ca.com/support>.

A backup job returned the error (131)

Cannot handle the tape ID information

Reason:

The agent cannot process the job.

Action:

Verify you are using BrightStor ARCserve Backup. If necessary, generate a trace log and contact Customer Support at <http://ca.com/support>.

A backup job returned the error (132)

Cannot logon as the user requested

Reason:

The agent cannot log on using the information provided by the user.

Action:

Check the current BrightStor ARCserve Backup user, Windows user, and agent user privileges. You can modify user information on your job submission.

A backup job returned the error (133)

Cannot impersonate to the user

Reason:

The agent cannot impersonate the Informix user.

Action:

Check the current Windows and BrightStor ARCserve Backup user privileges to determine if you can impersonate to the Informix user. If not, you have no authority to submit a backup job. Otherwise, provide all the security information on your job submission and reschedule the job.

A backup job returned the error (134)

Cannot find proper Informix environment. Please check Informix Server

Reason:

The agent failed to retrieve the Informix environment. The agent requires the same environment as the Informix superuser.

Action:

Open a command prompt and check the current user's environment using the DOS "set" command. If information about INFORMIXDIR, PATH, USERNAME, or INFORMIXSERVER is absent or incorrect, update the information using the Informix utility "setnet32" and the Windows System utility (in Control Panel).

A backup job returned the error (135)

Informix user name is invalid

Reason:

The agent cannot connect to the Informix server using the user name and password provided from BrightStor ARCserve Backup.

Action:

Verify that you provided the proper Informix user name and password when submitting the job. Typically, Informix backup or restore jobs require a user called informix.

A backup job returned the error (136)

Error: no backup/restore option is set

Reason:

Backup and restore options, needed by the agent to execute the process, were not sent from BrightStor ARCserve Backup.

Action:

In BrightStor ARCserve Backup, right-click the Informix server. Provide detailed backup or restore options before submitting your job.

A backup job returned the error (137)

Cannot get dbspace names from Informix Server

Reason:

The agent is unable to receive all the dbspace names from the Informix server.

Action:

Verify your Informix server is online.

Open a command prompt and check the current user's environment using the DOS "set" command. (See the solution for error message 134.)

A backup job returned the error (138)

Cannot get file names from Informix Server

Reason:

The agent is unable to receive dbspace file names from the Informix server.

Action:

See the solution for error message 137.

A backup job returned the error (139)

Cannot get dbspace size information from Informix Server

Reason:

The agent is unable to receive dbspace size from the Informix server.

Action:

See the solution for error message 137.

A backup job returned the error (140)

Cannot get log information from Informix Server

Reason:

The agent is unable to receive logical log information from the Informix server.

Action:

See the solution for error message 137.

A backup job returned the error (141)

Cannot get current domain name

Reason:

The agent cannot get the local domain name.

Action:

Verify your machine has its own domain. If the problem continues, generate a trace log and contact Customer Support at <http://ca.com/support>.

A restore job returned the error (142)

Informix is online. Cannot submit full/rootdbs restore job

Reason:

The Informix server level restore and rootdbs restore requires the Informix server to be offline.

Action:

Shut down your Informix server and resubmit the job.

A restore job returned the error (143)

No restore option is set. Please set proper restore option on Restore Manager. And make sure to use Tree View from the Restore Manager when you submit a job

Reason:

The agent expects to receive restore options but no options are set.

Action:

Resubmit the restore job after setting the DBAgent option in the BrightStor ARCserve Backup Restore Manager.

A backup or restore job returned the error (144)

Invalid Job Type

Reason:

The agent cannot interpret the job type.

Action:

Verify you are using BrightStor ARCserve Backup. If necessary, generate a trace log and contact Customer Support at <http://ca.com/support>.

A restore job returned the error (145)

Cannot restore any specific Informix log. Logs will be automatically restored when you do logical restore on Informix Server level

Reason:

The agent does not let the user submit the #LOGFILE# object with the ON-Bar restore command.

Action:

Informix logs are restored, if necessary, during the Informix logical restore. To specify an additional logical restore, choose the Informix server and select the Logical Restore Only option for your restore job.

A restore job returned the error (146)

Cannot log on to Windows as User Informix

Reason:

The agent failed to log on to the Windows machine with the user name provided.

Action:

Verify you have correctly entered your Windows Informix user name and password.

A restore job returned the error (147)

Restore option from BrightStor ARCserve Backup is invalid

Reason:

The agent cannot process the restore option you selected in BrightStor ARCserve Backup.

Action:

Check your restore option before submitting jobs.

A backup job returned the error (148)

Cannot submit log backup job with salvage log option. Informix Server should be in offline mode

Reason:

The agent detected that Informix is online. Log salvage must be done while the Informix server is offline.

Action:

Shut down your Informix server and resubmit the job.

A backup or restore job returned the error (149)

Informix Server returned error. Connection failed

Reason:

The agent failed to connect with the Informix server.

Action:

Check the client connection environment of your Informix server. If the error persists, generate a trace log and contact Customer Support at <http://ca.com/support>.

A restore job returned the error (150)

Cannot create thread

Reason:

The agent failed to create a thread.

Action:

Generate a trace log and contact Customer Support at <http://ca.com/support>.

A restore job returned the error (151)

Cannot connect to Informix Server

Reason:

The agent failed to connect with the Informix server.

Action:

Check the client connection environment of your Informix server. If the error persists, generate a trace log and contact Customer Support at <http://ca.com/support>.

A restore job returned the error (152)

Informix Server error. Check Informix log for detail information

Reason:

The agent received an Informix error during its operation.

Action:

Check the BAR_INFORMIX SERVER.LOG to fix the problem.

A restore job returned the error (154)

Cannot get logical log space information

Reason:

The agent was unable to receive the logical log size information.

Action:

Check the BAR_INFORMIX SERVER.LOG to fix the problem.

A backup job returned the error (160)

Cannot submit backup job. Informix Server should be in Online mode

Reason:

The agent was unable to connect with the Informix server for the backup job.

Action:

Load the Informix server. Otherwise, back up your Informix files as regular files.

A restore job returned the error (164)

Previous onbar job was not successful or another job is going on. Please check BAR_<INFORMIX SERVER>.log. If the ON-Bar job was not successful before, you should run STOPXBSA.EXE <INFORMIX SERVER> or kill the ON-Bar before submitting another ON-Bar job. If there is another ON-Bar job, you should wait until it is finished

Reason:

The message is self-explanatory.

Action:

Follow the instructions in the message.

A restore job returned the error (165)

Restore job has failed due to expiration of named pipe wait time. Please make sure your restore job had not been submitted from dbabatch (onbar)

Reason:

The agent handles two kinds of restore jobs; one from BrightStor ARCserve Backup (user) and another from dbabatch (ON-Bar). Users cannot reschedule dbabatch jobs, even though they appear in the BrightStor ARCserve Backup job queue.

Action:

Use the BrightStor ARCserve Backup Restore Manager to submit a new restore job.

Check if any previous ON-Bar jobs have stopped responding.

A backup job returned the error (166)

Backup job has failed due to expiration of named pipe wait time. Please make sure your original backup job had not been created by dbabatch (onbar)

Reason:

The agent handles two kinds of backup jobs; one from BrightStor ARCserve Backup (user) and another from dbabatch (ON-Bar). Users cannot reschedule dbabatch jobs, even though they appear in the BrightStor ARCserve Backup job queue.

Action:

Use the BrightStor ARCserve Backup Manager to submit your backup job.
Check if any previous ON-Bar jobs have stopped responding.

A backup job returned the error (167)

Cannot submit log backup job when Informix Server is down. Use salvage logs option in this case

Reason:

The agent detected that the Informix server is offline during the logical log backup.

Action:

Select the Salvage Log and then submit the backup job.

A backup job returned the error (168)

Cannot handle Tape Name (*). Please choose a proper media from Backup Manager

Reason:

The agent needs a specific media name for Informix backup. The wild card character provided by the current job is not acceptable.

Action:

Select your backup media and submit the backup job again.

A restore job returned the error (169)

Cannot submit point-in-time restore with dbspace name. Point-in-time restore works only with Physical Logical or Physical Only on Informix Server level

Reason:

The message is self-explanatory.

Action:

Select the Physical & Logical or Physical Only restore option. You should restore the entire Informix server, not specific dbspaces or blobspaces, using this option.

A restore job returned the error (170)

Cannot submit Logical Point-in-time Restore Job with dbspace name. Point-in-time Restore works only with Physical & Logical or Physical Only on Informix Server level

Reason:

The message is self-explanatory.

Action:

Select the Physical & Logical or Physical Only option for your restore job. You should restore the entire Informix server, not specific dbspaces or blobspaces, using this option.

A restore job returned the error (171)

Cannot submit Logical Point-in-time Restore Job on Informix Server level. Point-in-time Restore option works only with Physical & Logical or Physical only on Informix Server level

Reason:

The logical-only and Point-in-time restore options cannot be chosen together.

Action:

Select the Physical & Logical or Physical Only option for your restore job. You should restore the entire Informix server, not specific dbspaces or blobspaces, using this option.

To restore the logical log, do not select the point-in-time option for your restore job.

Index

A

- Access Control Lists (ACLs) • 7
- agent
 - file location • 32
 - ON-Bar utility
 - configuration • 13
 - settings, modifying • 6
 - spaces in home directory path • 12
 - unsupported functions
 - for backups • 22

B

- backing up the Informix server • 17
- backup
 - levels, defined • 17
 - options • 17
 - unsupported functions • 22
- Backup Manager, browsing limitations • 23
- batch job configuration utility • 13
- blobspace
 - backing up • 17
 - display status • 30
 - restoring • 23
- browsing limitations • 23
- build version • 6

C

- configuration utility • 13
- critical files backup delay • 6

D

- database engine • 17
 - starting first • 32
- dbspace
 - backing up • 17
 - display status • 30
 - restoring • 23
- debug setting • 6, 32
- disaster recovery • 23, 29

E

- engines, starting before backup • 17, 32
- environment variables, setting • 10

F

- file location, agent files • 32
- functions
 - unsupported for backups • 22

H

- hard disk failure • 29

I

- Informix services, starting and stopping • 29
- Informix Storage Manager (ISM), modifications
 - for • 10
- installation
 - preinstallation tasks • 9
- instance
 - configuring for use with ON-Bar • 14
 - defined • 12
 - multiple • 13

J

- job engine • 17

L

- levels of backup, defined • 17
- location of agent files • 32
- logical log
 - backing up • 17
 - display status • 30
 - restoring • 23

M

- media rotation precaution • 28
- multiple IDS instances and ON-Bar • 13

O

- ON-Bar utility
 - agent configuration for • 13
 - commands • 17
 - multiple IDS instances • 13
 - options
 - restore • 23
- ONCONFIG file, manually modifying • 12
- onstat.exe utility • 30

options
 backup • 17
 equivalent ON-Bar commands • 23
overwriting critical files • 23

P

password, setting for restores • 23
PATH variable, modifying • 10
preinstallation tasks • 9

R

recovering IDS • 29
registry entries • 6
Remote Procedure Call • 6, 15
restores
 full offline • 17
 methods • 23
 ON-Bar equivalent commands • 23
 options • 23
 performing • 23
 setting the password • 23
 setting user name • 23
restoring the Informix server • 23
RPC operation • 6

S

sm_versions.std file, modifying • 10
spaces in agent home directory path • 12
starting Informix services • 29
status, of IDS objects • 30
stopping Informix services • 29

T

tape engine • 17
tape rotation • 28
tapeinfo directory • 29
test backup, running • 15, 17
troubleshooting
 backup agent file location • 32
 identifying the problem • 31
 symptoms and solutions • 32

U

uninstalling the option • 15
unsupported functions
 backups • 22
user name, specifying for restores • 23
user variable, defining • 10

V

variables, defining • 10
verifying IDS object status • 30
version setting • 6

W

Windows environment, modifying
 for IDS Version 7.3 • 10
 for ISM on IDS 9.21, 9.30, 9.40 • 10
Windows registry entries • 6

X

xbsatape.tbl file • 29