

BrightStor® ARCserve® Backup for Windows

CA Xosoft™ WANSync™ Integration Guide
r11.5



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CA Product References

This documentation set references the following CA products:

- Advantage™ Ingres®
- BrightStor® ARCserve® Backup Agent for Novell Open Enterprise Server for Linux
- BrightStor® ARCserve® Backup Agent for Open Files on NetWare
- BrightStor® ARCserve® Backup Agent for Open Files on Windows
- BrightStor® ARCserve® Backup Client Agent for FreeBSD
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- BrightStor® ARCserve® Backup for NetWare Storage Area Network (SAN) Option
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- BrightStor® Portal
- BrightStor® Storage Resource Manager
- BrightStor® VM:Tape®

- CA XOsoft™ Assured Recovery™
- CA XOsoft™ WANSync™
- Common Services™
- eTrust® Antivirus
- eTrust® Firewall
- Unicenter® Network and Systems Management
- Unicenter® Software Delivery
- Unicenter® VM:Operator®

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Chapter 1: Integrating CA XOsoft WANSync with BrightStor ARCserve Backup

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- [WANSync](#) (see page 11)
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- [Capabilities and Benefits](#) (see page 13)
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- [Integration Terms and Definitions](#) (see page 15)
- [How the Integrated Backup Process Works](#) (see page 18)
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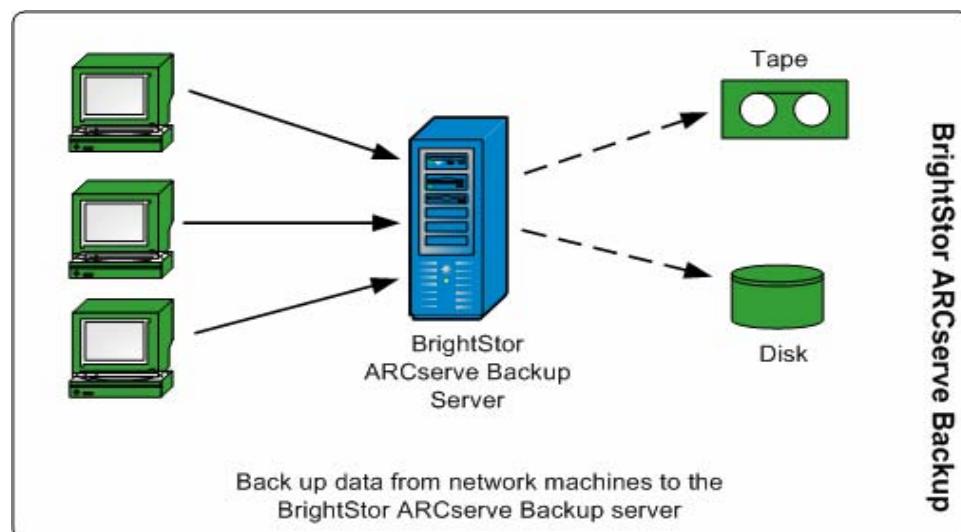
Introduction

BrightStor ARCserve Backup provides you with high-performance disk-to-disk (D2D), disk-to-tape (D2T), disk-to-disk-to-tape (D2D2T), backup encryption and integrated antivirus protection, multiplexing, and snapshot backup and recovery capabilities. The addition of CA XOsoft WANSync (WANSync) complements these capabilities by adding continuous data protection, replication, and automated application failover. Together they provide a complete, 24x7, integrated solution for recovery management, enabling you to better meet evolving compliance, business continuity, and disaster recovery objectives while saving time and resources.

BrightStor ARCserve Backup

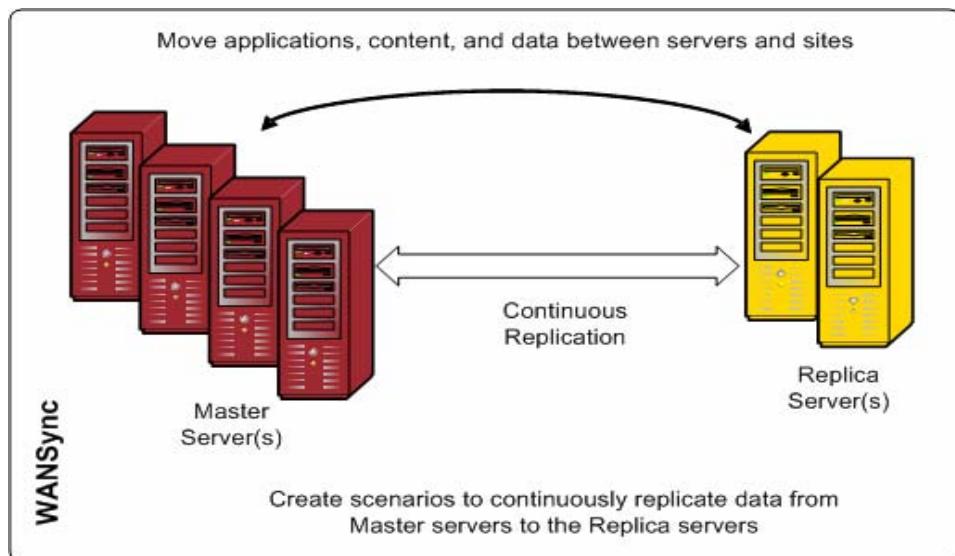
BrightStor ARCserve Backup provides a complete, flexible, and integrated storage and recovery management solution for distributed and multiplatform environments. This application can back up and restore data from all the machines on your network (including machines running Windows, UNIX, NetWare, and Linux) using optional client agents. BrightStor ARCserve Backup also provides media and device management capabilities.

BrightStor ARCserve Backup offers control from one management console and can support small-scale and large-scale enterprise environments comprising of one machine or many, across different platforms and organizations.



WANSync

WANSync is a data protection solution that uses asynchronous real-time replication to provide disaster recovery capabilities. This host-based software provides continuous data replication that transfers changes to application data as they occur to a standby replica server located locally or over the Wide Area Network (WAN). Continuous data replication ensures that the most recent data is always available for restoring purposes. Continuous data protection is based on Data Rewind technology for recovery from data corrupted by virus action, user error, or application error.

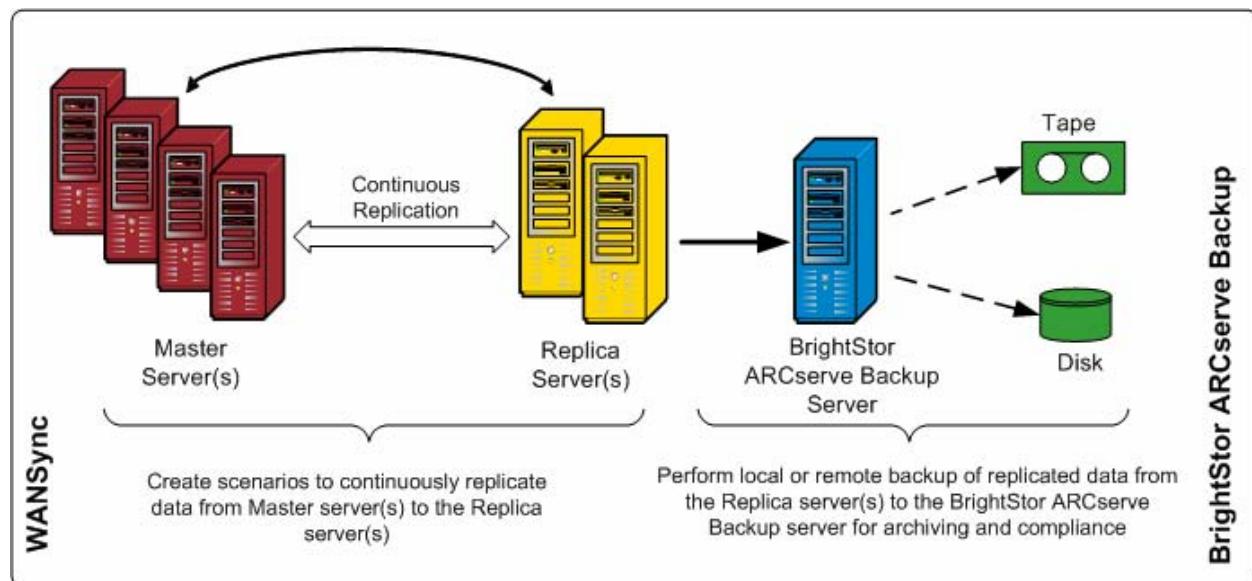


You can also further improve your data protection capabilities by adding application monitoring and fully automated failover and failback. These capabilities are provided through the use of WANSyncHA., which is a high availability solution for true continuous application availability.

WANSyncHA offers a superset of the capabilities of WANSync. In particular, WANSyncHA adds the capability for push-button or automatic failover of clients from the production Master server to a secondary Replica server, without any need to reconfigure clients, as well as the ability to automatically monitor the status of the production server and the applications running on it. After the Master server is restored to its original state, WANSyncHA allows an IT administrator to reinstate the Master server with the push of a button, automatically failing back from the Replica server with no loss of data or application availability.

BrightStor ARCserve Backup and WANSync Integration

The integration between BrightStor ARCserve Backup and WANSync provides the dual benefit of continuous data protection and backup of this protected data. Through this integration, WANSync continues to provide real-time, continuous data replication from the Master server (production server) to the Replica server, while BrightStor ARCserve Backup then backs up this replicated data from the Replica server to the BrightStor ARCserve Backup server for archiving and compliance. By performing the backup operation from the Replica server, no backup window is required and the impact on the Master server is minimized, thereby allowing the Master server to continue working without any performance degradation. In addition, recovery of the backed-up data to either the Master server or to the Replica server can be performed seamlessly using BrightStor ARCserve Backup.



Capabilities and Benefits

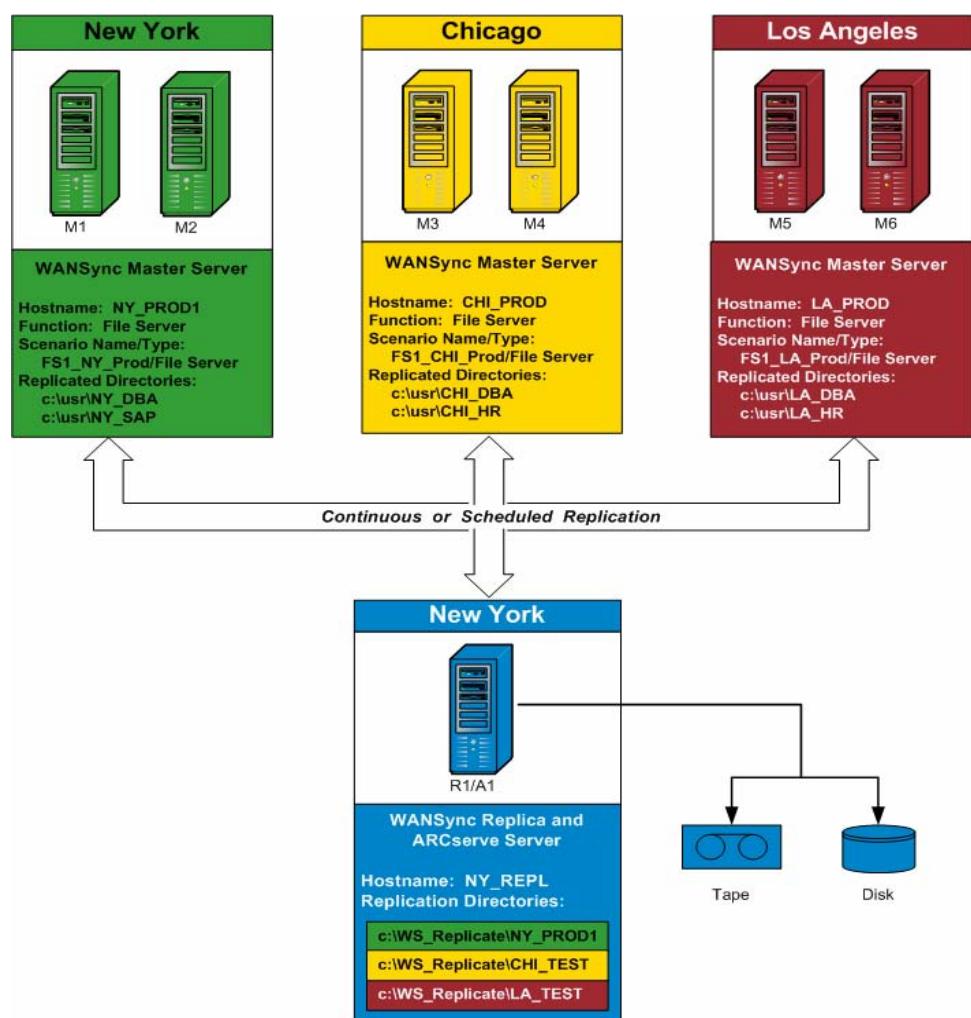
The integration between BrightStor ARCserve Backup and WANSync provides the capability to use replication and continuous protection (using WANSync), and backup (using BrightStor ARCserve Backup) for archiving and compliance.

The integration provides the following core capabilities and benefits:

- Use of the familiar BrightStor ARCserve Backup interface for backup job configuration, scheduling, and management.
- High-performance D2D, D2T, and D2D2T backup and snapshots.
- Backup encryption and integrated antivirus protection.
- Built-in device and media management.
- Real-time, continuous replication of files and data as they change to ensure that the most recent data is always available for restore or recovery.
- Backups are done from the Replica server, thereby minimizing the impact on the Master server and providing an unlimited backup window.
- Multiple recovery options:
 - Recovery through WANSync using Failover. Recovery capability of an application to a standby server at another location and push-button failback of the application once the production server is restored.
 - Recovery through WANSync using Data Rewind. Recovery capability to rewind to any previous point in time (rewind points) to recover from corrupted data, thereby providing continuous data protection (CDP).
 - Recovery through BrightStor ARCserve Backup. Recovery capability from tape or other traditional backup media.
- Real-time consolidation of data from multiple remote branch offices (RBO) to a central data center (CDC), thereby providing centralized backup and data consolidation. The replica residing in the central data center can be used for performing centralized backup and reduce the need for IT support at every location.
- Assured Recovery capability to provide non-disruptive, fully automated, in-depth testing of the disaster recovery replica server. This allows recoverability testing of the application on the Replica server without any disruption to the Master server, to the replication process, or to the automated failover protection mechanisms that are in place in case of a disaster.

Remote Branch Offices and Central Data Centers

BrightStor ARCserve Backup together with WANSync allows the creation of backup replicas of remote branch office servers at a central data center (CDC). The backup replica servers located at a CDC provide better disaster recovery and continuous application availability for your branch office servers, as well as centralized and consolidated backups of multiple branch offices at a single facility. This consolidation of backups of remote branch offices (RBO) significantly reduces the need for competent and sophisticated IT support at every location and installing and maintaining multiple servers, storage devices, and applications in many different locations can be expensive. In addition, the backup replica servers at a CDC will also reduce the security risk associated with tape transport and offsets tape media and handling costs.



Integration Terms and Definitions

Prior to understanding the details of the integration between BrightStor ARCserve Backup and WANSync, it is important to be familiar with some of the terms and definitions used by each product.

The integration uses the following terms and definitions:

Scenario

A WANSync scenario is the fundamental basis for managing the operation of the system. A scenario is a structure that describes:

- What applications and data are to be protected
- Where they are located (i.e., the Master server and source directories)
- Where the data is to be replicated (the Replica servers and target directories on them)
- Whether and how automated failover and testing should take place.

Note: A WANSync scenario always includes at least one Master server and one Replica server. In addition, multiple independent scenarios can run on a single server.

Master Server

The Master server is the active or production server. This is the server from which you can actively change (read and write) data. Any changes made at any given time on the Master server are captured continuously in real time and transferred (or replicated) to one or more of the associated Replica servers so that all the Replica servers contain an exact copy of the data on the Master server at all times.

Replica Server

The Replica server is the passive server. This is the server from which data cannot be changed (read only) in any way except through changes replicated from the Master server. There can be multiple Replica servers associated with a single Master server. When synchronizing the replicated data with the Master server, the data between the servers is compared and only the changes made to the Master server are sent to the Replica servers, thereby minimizing WAN traffic.

Continuous Data Protection (CDP)

Continuous data protection (CDP) is the ability to recover data not just to certain isolated previous states captured, for example, in a daily or weekly backup or snapshot, but to recover the data back to any point in time. That way, if a virus occurs at any time, you can recover to a point just minutes before the virus occurred with essentially zero data loss and a very fast recovery time.

Failover

Failover is a feature that detects when the protected application on the Master server fails and switches (either automatically or manually activated) to a designated Replica server with essentially zero loss of data and time. If a Master server fails or must be shut down for maintenance, a synchronized replica (locally or in a remote location) will instantly and automatically take its place.

Data Rewind

Data rewind is a recovery method that allows rewinding files to a point in time (rewind point) before they were corrupted. This built-in rewind technology occurs on the Replica server and any "data rewinding" to a previous state can only be performed on the Replica server.

Rewind Point

A rewind point is a checkpoint in the Rewind log marking an event or operation. The actual information stored includes the operation that will undo the event in case the rewind point is activated. Data recovery uses these rewind points or bookmarks in the Rewind log to reset the current data back to a previous state.

Assured Recovery

Assured Recovery allows you to perform a real test of your disaster recovery server by actually running the application, including modifying data, without impacting your production environment in any way and without impacting your previously replicated data.

Through the use of Assured Recovery, you can perform transparent, non-disruptive testing of a replicated data snapshot. This allows you to start up application services and perform all operations necessary to verify the integrity of the data on the Replica server. Assured Recovery provides this functionality without ever leaving your production systems vulnerable during testing, without disrupting production application availability in any way, and without need for data resynchronization after testing is complete.

Suspend Mode

The Suspend mode temporarily ceases delivering changes to the suspended Replica server. Changes will continue to be recorded in a spool until replication is resumed so that re-synchronization is not required. After replication is resumed, the accumulated changes are then transferred and applied without any need to perform a full resynchronization data.

When you back up a scenario with Assured Recovery configured, the backup would be application consistent and require no application recovery after restore. However, when you back up a scenario with the Suspend mode enabled (no Assured Recovery configured), the backup may require application recovery after restore, depending upon the state of the application at the time of the backup.

Synchronization

Synchronization is the process of bringing the data on the Replica server in sync with the data on the Master server. In order to properly synchronize the Master server and the Replica server, a comparison is made of their two file structures in order to determine what content (files and folders) on the Master server is missing or is different from that on the Replica server.

- File-level synchronization involves replicating an entire file when a change occurs. This is used for smaller files and copies the entire set of data and sends it to the Replica server (if no part of it exists on the Replica server).
- Block-level synchronization involves determining what has changed and sending only the changes to the Replica server (in order to minimize the bandwidth and time required). This is used for replicating large data sets such as databases.

Replication

Replication is a process that maintains identical copies of files and databases by real-time capture of byte-level changes in files on the Master server. These captured changes are asynchronously transmitted to the Replica servers. Because replication continuously updates the source data to another machine, a Replica server always contains the same data as in the Master server. To avoid the possibility of attempting to restore files that are in use, the application needs to be not running (offline).

Entity

Defines the granular level of detail for a WANSync scenario for backup and restore purposes. The level of granularity for an entity is dependent upon the type of scenario.

File Server Entity

For a file server scenario, an entity represents all of the files and directories belonging to the same volume on a Master server.

For example, on a Master server the contents of the C-drive would constitute one entity, while the contents of the D-drive would be a separate entity.

SQL Server Entity

For a SQL Server scenario, an entity represents a SQL database.

For example, on a Master server the contents of the Company A Employees database would constitute one entity, while the contents of the Company B Employees database would be a separate entity.

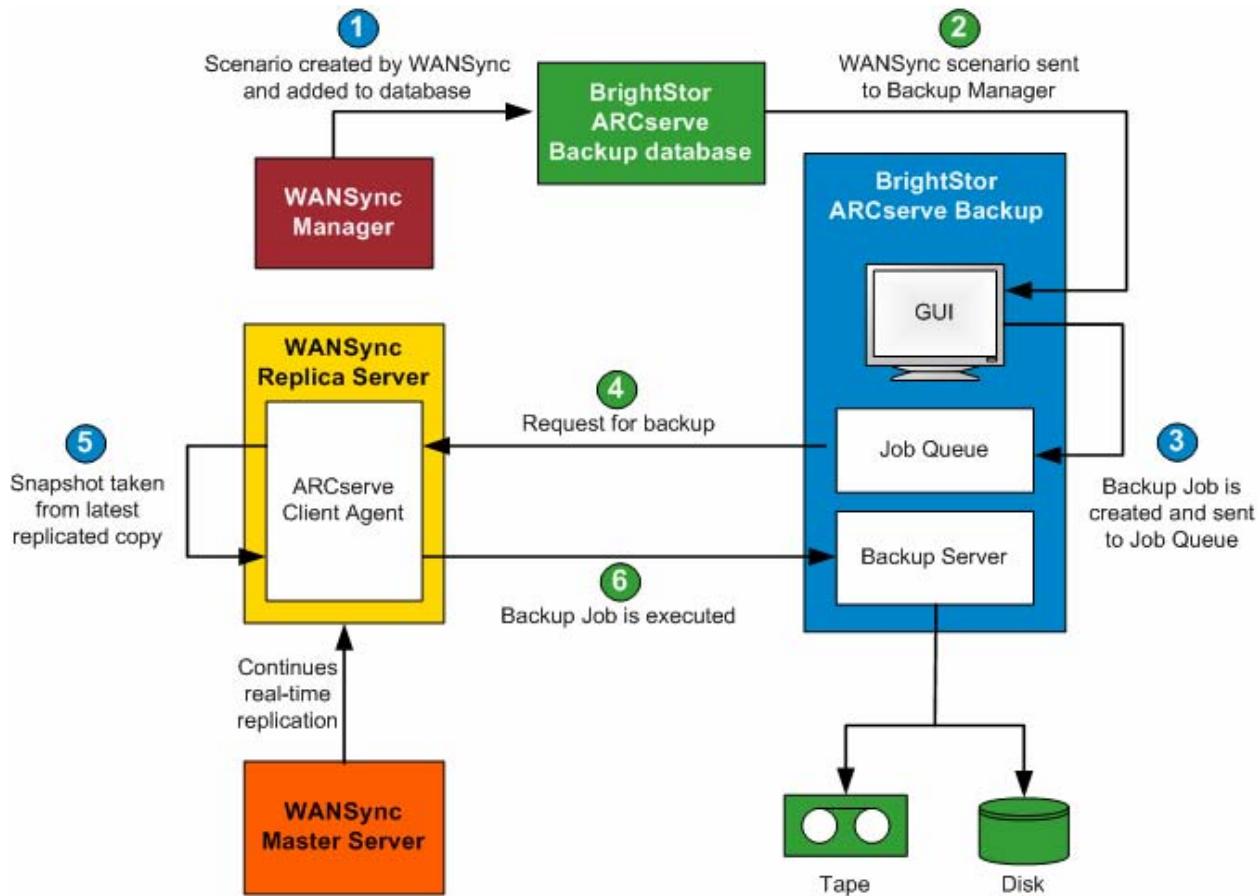
MS Exchange Entity

For an Exchange scenario, an entity represents an MS Exchange Storage Group. The entity name will be the MS Exchange Storage Group name.

How the Integrated Backup Process Works

The backup process will back up everything that is part of a scenario. The backup job will create a session for each entity that constitutes a scenario. The supported scenarios are SQL Server, MS Exchange, and File Server.

The integrated backup process for BrightStor ARCserve Backup and WANSync consists of three basic functions; Scenario Creation, Job Creation, and Job Execution.



Scenario Creation:

From the WANSync Manager, a scenario is created and the related information is inserted into the BrightStor ARCserve Backup database. BrightStor ARCserve Backup then queries the database, becomes aware that the scenario exists, and presents the scenario to the user via the Backup Manager GUI. The WANSync scenarios are listed in the source tab of the Backup Manager. When a scenario is selected from the Backup Manager, some corresponding properties are displayed to provide additional information about the selected scenario. These displayed properties include Scenario Name, Scenario Type, and other relevant information about the Master server and Replica servers.

Note: A WANSync scenario always includes at least one Master server and one Replica server. In addition, multiple independent scenarios can run on a single server.

Job Creation:

From BrightStor ARCserve Backup, a backup job is created with the user specifying the source, destination, and any other typical backup options. When an attempt to submit the backup job is initiated, the user will be prompted to provide two sets of security credentials (user name and password). One set of credentials will allow the BrightStor ARCserve Backup server to access and communicate with the agent on the Replica server and the other set of credentials will allow BrightStor ARCserve Backup to log in to the Master server to prepare for the backup. After the required security credentials are entered, the backup job is submitted to the job queue to be executed at the scheduled time.

Job Execution:

At the scheduled time, BrightStor ARCserve Backup connects to the agent running on the Replica server and asks WANSync to create snapshots of the volumes that are hosting the replicated data for the scenario being backed up. When the request is received, the continuous real-time replication of the scenario is temporarily suspended to facilitate the creation of the snapshot. After the snapshot is created, the Replica server resumes performing real-time replication and the agent running on the Replica server proceeds to perform the backup from the snapshot. The BrightStor ARCserve Backup server can either be installed on the Replica server or it can be a separate dedicated server.

For SQL Server and Exchange scenarios, when the backup is complete, the snapshot will be preserved and only removed if the maximum number of retained snapshots is reached. By default, WANSync creates and preserves 10 snapshots and then begins replacing the oldest snapshots with newer ones. You can change the setting for the number of snapshots preserved using the Number of Snapshots Set To Keep property on the WANSync Manager. For more information on setting the number of snapshots to be kept, see the *CA XOsoft WANSync User Guide*.

For File Server scenarios, when the backup is complete, the snapshot will be preserved and not removed at all.

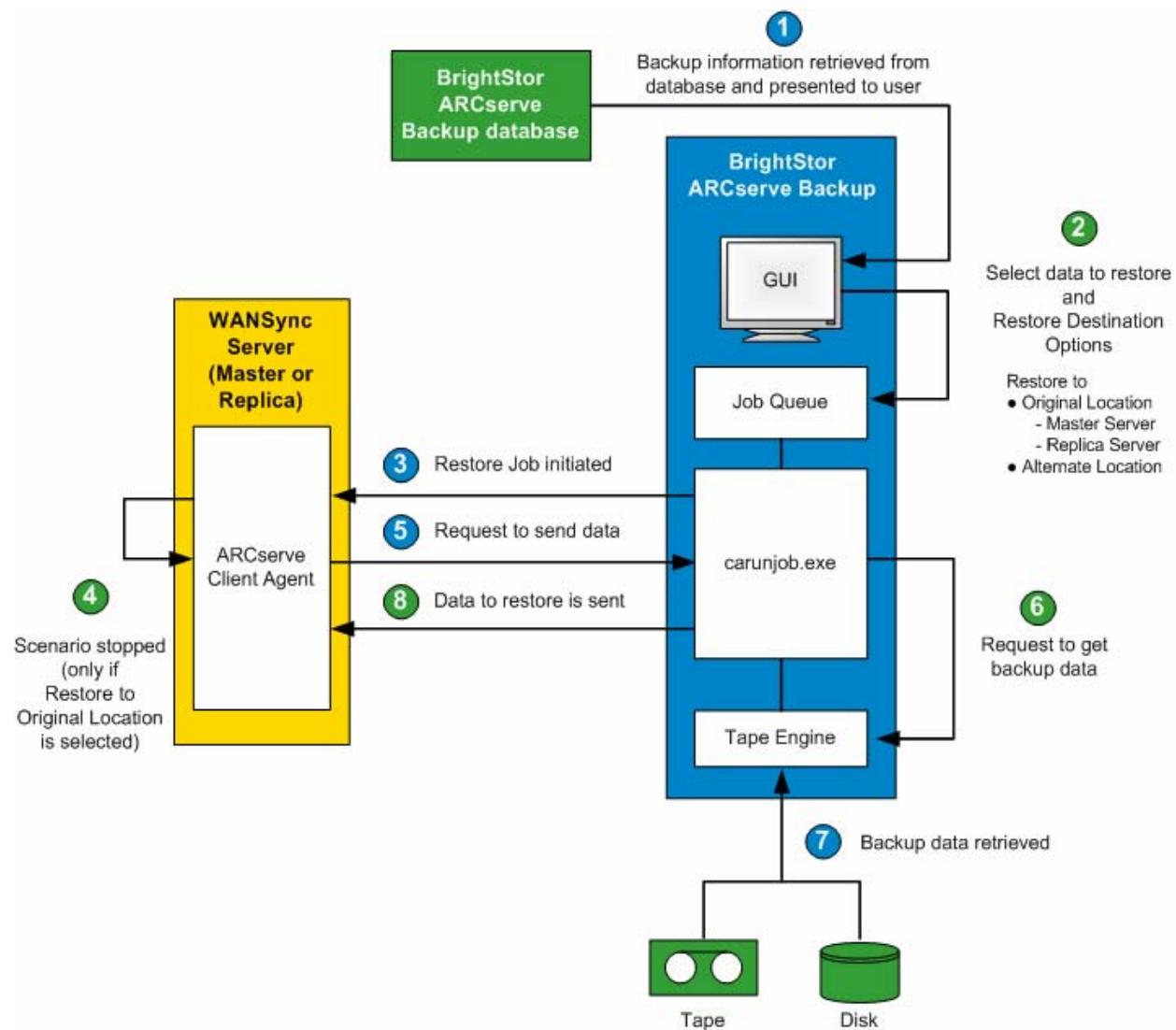
When you back up a scenario with Assured Recovery configured, the backup would be application consistent and require no application recovery after restore. When you back up a scenario with Suspend enabled (no Assured Recovery configured), the backup may require application recovery after restore, depending upon the state of the application at the time of the backup.

By performing the backup on the Replica server, it allows the Master server to continue working without any interruptions or performance degradation. In addition, all backup catalog information is recorded as if the backup was performed on the Master server, ensuring that the restore view of the data will always be the same as if the backup was taken directly from the Master server. Recovery of the backed-up data to either the Master server or to the Replica server can be performed using BrightStor ARCserve Backup.

In addition, for multistreaming backup jobs, each WANSync scenario will be backed-up as a child job. If one node contains multiple scenarios, the master job will split them so that each child job will back up one scenario.

How the Integrated Restore Process Works

The restore process will recover data that was replicated from the Master server and then backed up using BrightStor ARCserve Backup. For SQL Server scenarios and MS Exchange scenarios, the restore process supports only full scenario restores. For File Server scenarios, the restore process supports either full scenario restores or granular restores of files, directories, and volumes.



From BrightStor ARCserve Backup, a list of machines that were backed up is retrieved from the database and displayed via the source tab of the Restore Manager GUI. When a source is selected from the Restore Manager, some corresponding properties are also displayed to provide additional information about the selected source. After a source is selected, the destination for the restore also needs to be selected. The available destination options are to restore the data to its original location or to an alternate location. If the restore to original location option is selected (default), you will then need to further select whether to restore to a Master server or a Replica server for that location. If the restore to original location option is not selected, you will need to browse to locate the alternate location for the destination.

When restoring to a Replica server, ensure that the corresponding application is not running. This avoids any attempt to restore files that are currently in use. When restoring to the Master server, ensure that the BrightStor ARCserve Backup Client Agent is installed and running.

For SQL Server and MS Exchange, if the corresponding application is running and you restore a WANSync scenario to the original location, the restored files are temporarily created with a .TMP extension. After the restore job is successful, you will be prompted to reboot the server to overwrite and replace the existing active files. When the server is rebooted, the restored files will be merged into the original database. If the corresponding application is not running, temporary files will not be created during the restore to original location process and you will not need to reboot the server.

For SQL Server installed on a Cluster environment, rebooting is not feasible, therefore you need to stop the application resource prior to performing a restore to the original location.

When a restore job is submitted, you will be prompted to provide security credentials (user name and password).

- If you selected to restore to the original location, depending on the restore option specified, you will need to provide either one set of credentials to allow BrightStor ARCserve Backup to communicate with the agent on the Master server (restore to master) or two sets of credentials to communicate with both the Master server and Replica server (restore to replica).
- If you selected to restore to an alternate location, you will need to provide only one set of credentials to login to the agent on the machine where the restore will be performed.

After the required security credentials are entered, the restore job is submitted to the job queue to be executed at the scheduled time.

At the scheduled time, BrightStor ARCserve Backup connects to the agent running on the WANSync server (master or replica, as specified) to initiate the request for data. If the restore to original location option was selected, the continuous replication of the scenario is temporarily suspended prior to requesting the data. Suspending the scenario replication provides the opportunity to ensure data consistency between the Master server and the Replica server. The data on the Master server could be different from the restored data on the Replica server and possibly corrupted. In this case, if the continuous replication process was not suspended, the newly restored data on the Replica server would then be overwritten with the corrupted data from the Master server. If the scenario replication cannot be stopped, the restore job will fail. If necessary, you can select a Restore Manager Global Option to continue the restore job even when the scenario cannot be stopped.

When the agent running on the WANSync server contacts BrightStor ARCserve Backup and requests the data to be sent, the data is retrieved from wherever it was stored (tape or disk) and sent to the specified destination. This process of requesting and sending data is repeated as many times as necessary until all the data from the backup is restored. After the restoration is complete, the data on the Replica server can then be restored back to the Master server.

Chapter 2: Installing and Configuring WanSync with BrightStor ARCserve Backup

This section contains the following topics:

- [Installation](#) (see page 25)
- [Integration Configurations](#) (see page 26)
- [Remote Branch Office \(RBO\) Configurations](#) (see page 29)

Installation

The procedure for installing BrightStor ARCserve Backup and CA XOsoft WANSync does not change for the integrated products.

- Perform the usual BrightStor ARCserve Backup installation on the server designated as the BrightStor ARCserve Backup server. For more information about installing BrightStor ARCserve Backup, see the *BrightStor ARCserve Backup Getting Started*.
- Perform the usual CA XOsoft WANSync installation on the servers designated as the Master server and replica server.

In order to perform backups the following configurations must exist:

- The Replica server must be a Windows 2003 server.
- The Master server must be a Windows server.

For more information about installing CA XOsoft WANSync, see the *CA XOsoft WANSync User Guide*.

Integration Configurations

There are two integration setups that should be considered, depending on where the BrightStor ARCserve Backup server is installed. One setup configuration involves the BrightStor ARCserve Backup server being installed on the Replica server, while the other setup configuration involves having the BrightStor ARCserve Backup server as a separate standalone server. The benefits of each of these configurations are described in the corresponding paragraphs.

In addition, another consideration is whether or not you will install the BrightStor ARCserve Backup Client Agent on the Master server.

The benefits of installing the Client Agent on the Master server are as follows:

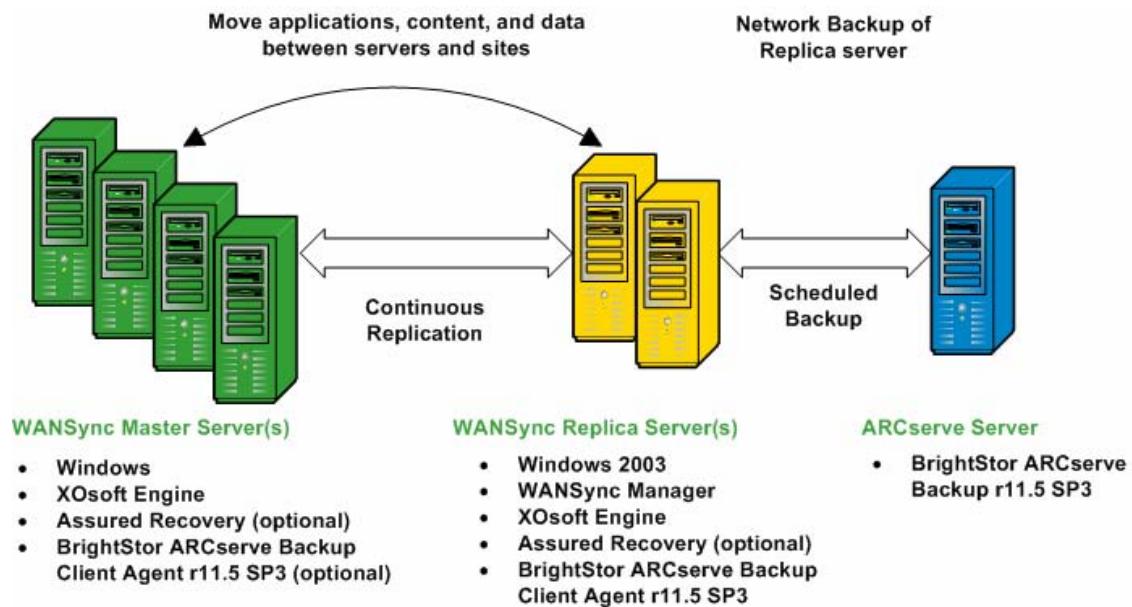
- Direct restores from the BrightStor ARCserve Backup server to the Master server.
If the Client Agent is not installed on the Master server, it would be necessary to restore the Replica server and then have to perform a WANSync "reverse replication" (from Replica to Master) to ensure that the Master server is fully up-to-date when you switch back to it.
- Bare-metal recovery, which allows the Master server to be rebuilt from scratch, including complete recovery of the server, along with its applications and data, after a catastrophic failure or disaster.

Configuration with a Standalone ARCserve Server

This setup involves a configuration where the BrightStor ARCserve Backup server is installed on a separate standalone machine from the Replica server. The benefits of this configuration are as follows:

- Backups do not affect the functionality of the Replica server.
- Replication is quicker because the BrightStor ARCserve Backup processes are running on a separate machine.
- Meets the requirements for performing centralized backups for multiple remote branch offices (RBO).

The following diagram shows the requirements of this configuration:

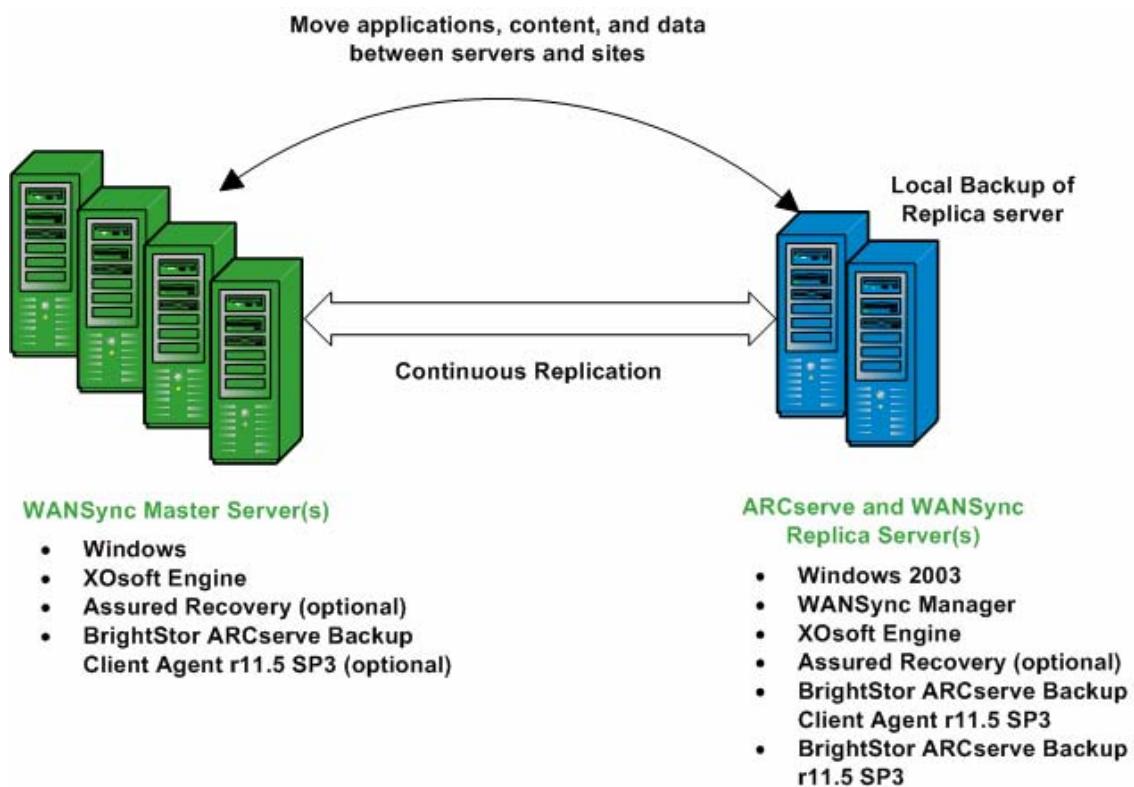


Configuration with a BrightStor ARCserve Backup Server Installed on a Replica Server

This setup involves a configuration where the BrightStor ARCserve Backup server is installed on the same machine as the Replica server. The benefits of this configuration are as follows:

- Backups and restores are performed quicker because they are local to the Replica server.

The following diagram shows the requirements of this configuration:



Remote Branch Office (RBO) Configurations

BrightStor ARCserve Backup together with WANSync lets you replicate and back up data from remote branch office (RBO) servers to a central data center (CDC). These RBO servers can be externally connected via a WAN or a LAN. T

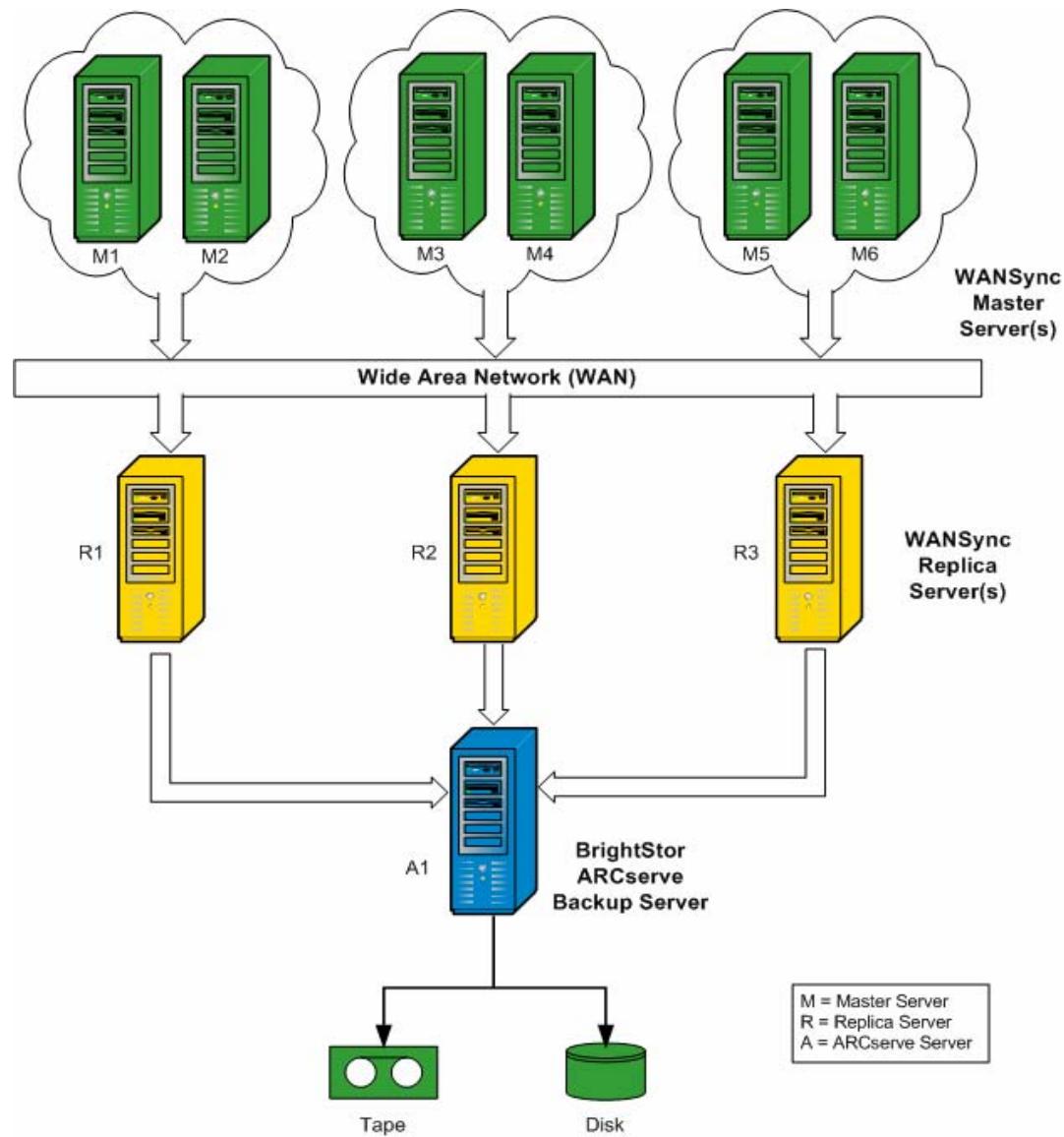
The advantages of remote branch offices utilizing a CDC are:

- Better disaster recovery and continuous application availability for your branch office servers
- Centralized and consolidated backups of multiple branch offices at a single facility
- Reduced need for competent and sophisticated IT support at every location
- Reduced cost associated with installing and maintaining multiple servers, storage devices, and applications in many different locations
- Reduced the security risk associated with tape transport and offsets tape media and handling costs.

Remote branch offices can be set up for replication and backup in a variety of configurations, depending upon your requirements and capabilities. The following diagrams provide a few examples of RBO configurations:

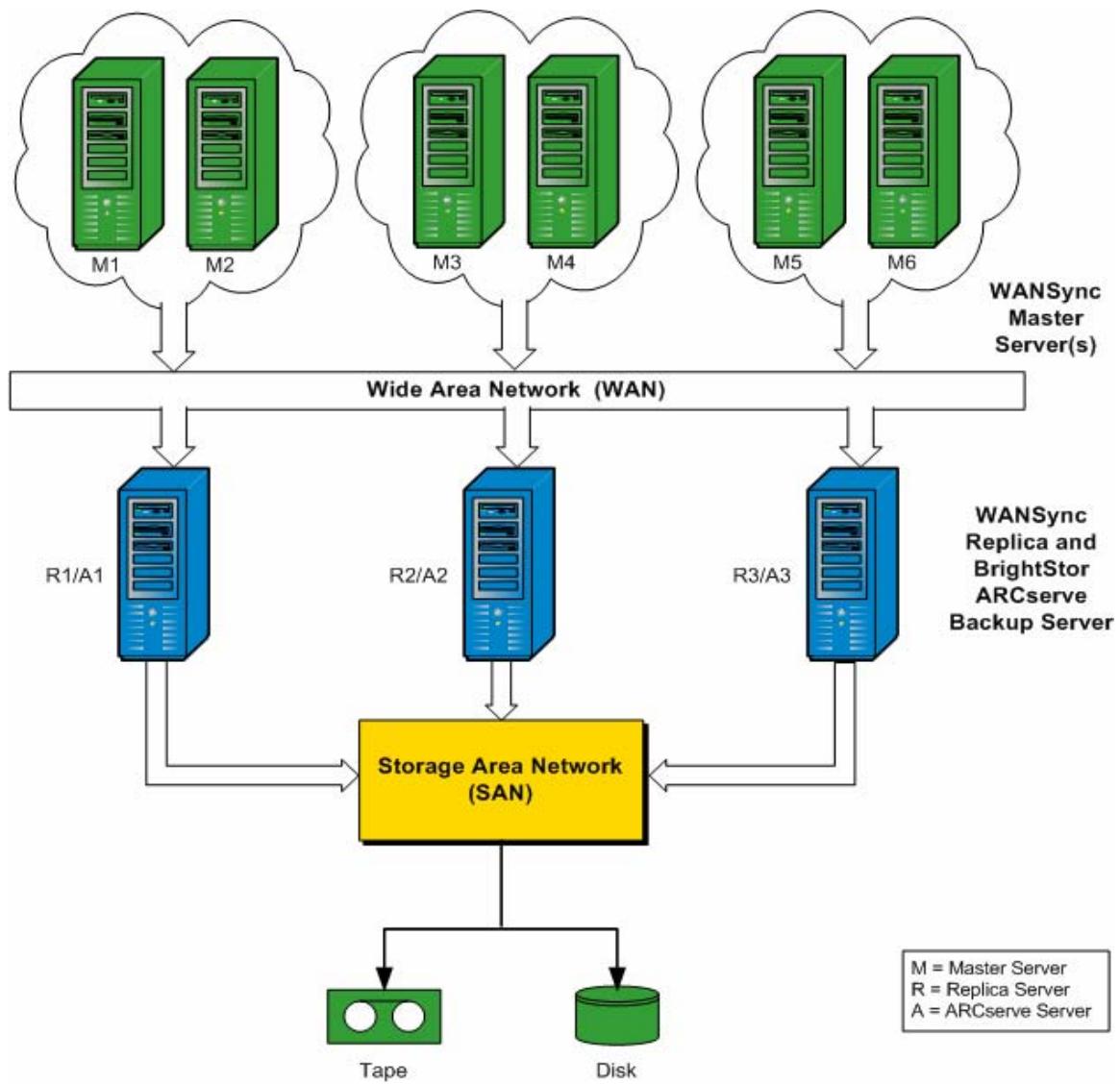
RBO Configuration - Example 1

This example shows an RBO configuration of multiple Master servers being replicated to multiple Replica servers, and then backed up from a standalone BrightStor ARCserve Backup server.



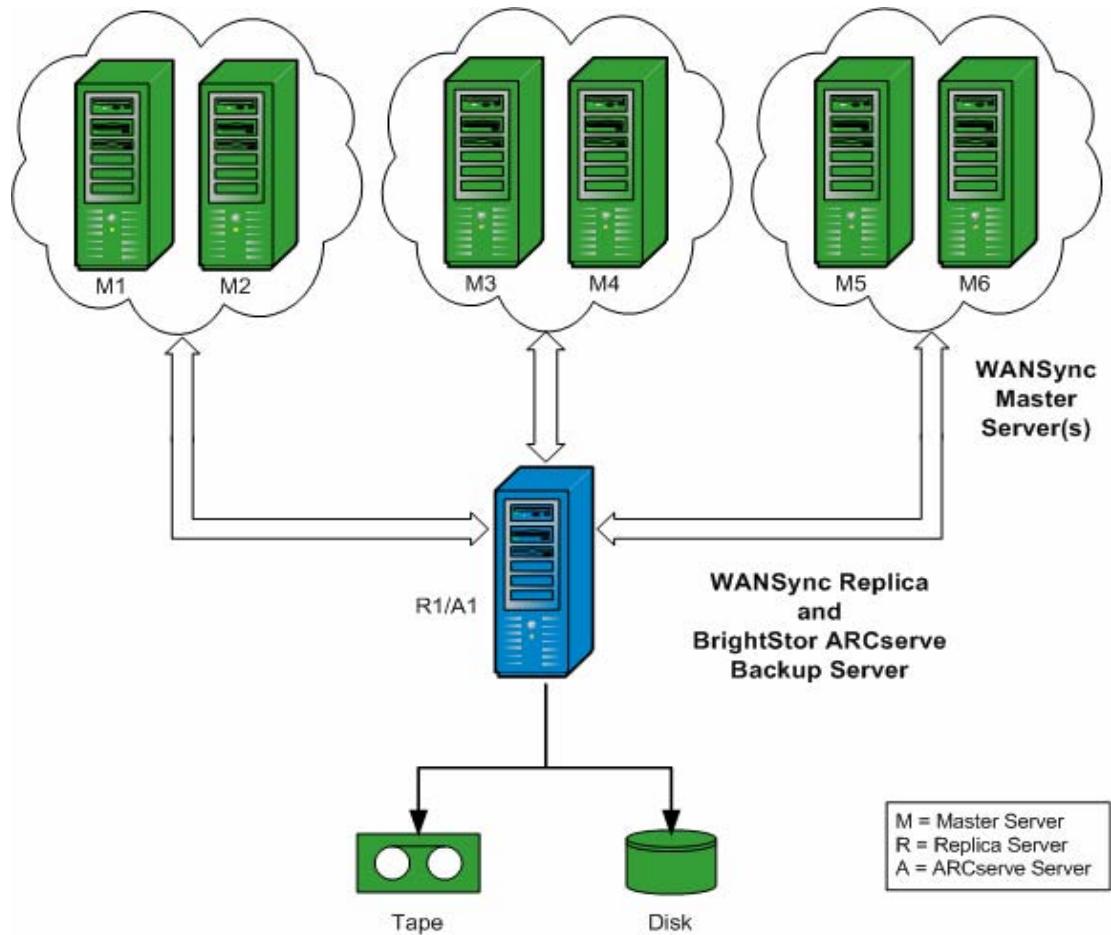
RBO Configuration - Example 2

This example shows an RBO configuration of multiple Master servers being replicated to multiple Replica servers, and then being backed up from a BrightStor ARCserve Backup server installed on each Replica server to a common library. In addition to the other advantages associated with remote branch offices utilizing a CDC, this configuration also provides the advantage of local backups of all BrightStor ARCserve Backup servers.



RBO Configuration - Example 3

This example shows an RBO configuration of multiple Master servers being replicated to a single Replica server, and then being backed up from a BrightStor ARCserve Backup server installed on the Replica server. The disadvantage of this configuration is the bottleneck condition caused by the WANSync Replica and BrightStor ARCserve Backup server processing all replications and backups of multiple servers from multiple sites.



Chapter 3: Performing Integrated Backup Jobs

This section contains the following topics:

- [Integrated Backup Jobs](#) (see page 33)
- [Create a WANSync Scenario](#) (see page 34)
- [Run a WANSync Scenario](#) (see page 38)
- [Create and Run a Backup Job](#) (see page 40)

Integrated Backup Jobs

The integration between BrightStor ARCserve Backup and WANSync provides the dual benefit of continuous data protection and backup of this protected data. Through this integration, WANSync provides real-time, continuous data replication from the Master server to the Replica server, while BrightStor ARCserve Backup then backs up this replicated data from the Replica server to the BrightStor ARCserve Backup server.

The process of performing an integrated backup involves the following operations:

- Create a scenario
- Run a scenario
- Create and Run a backup job

Create a WANSync Scenario

A WANSync scenario is the fundamental basis for managing the operation of the system. A scenario is a structure that describes what applications and data are to be protected, where they are located, where the data is to be replicated, and other scenario-specific options. Prior to performing a backup of a WANSync scenario, you must create a scenario to be backed up.

To create a WANSync scenario

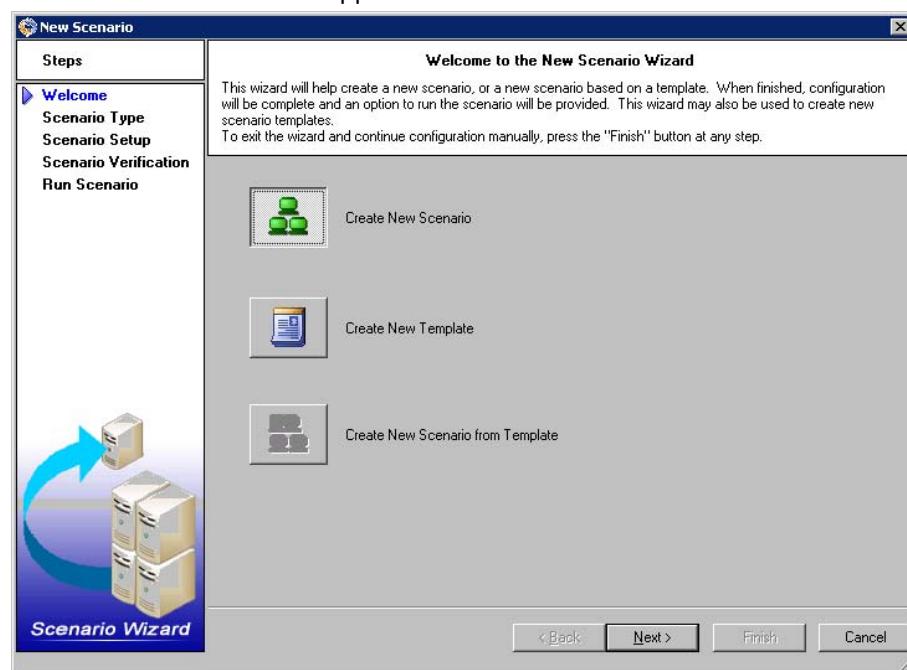
1. Launch the WANSync Manager.

The WANSync Manager can be launched from either the WANSync start menu or from the BrightStor ARCserve Backup Quick Start menu.

Note: For more information about replication scenarios and scenario creation options, see the *CA XOsoft WANSync User Guide*.

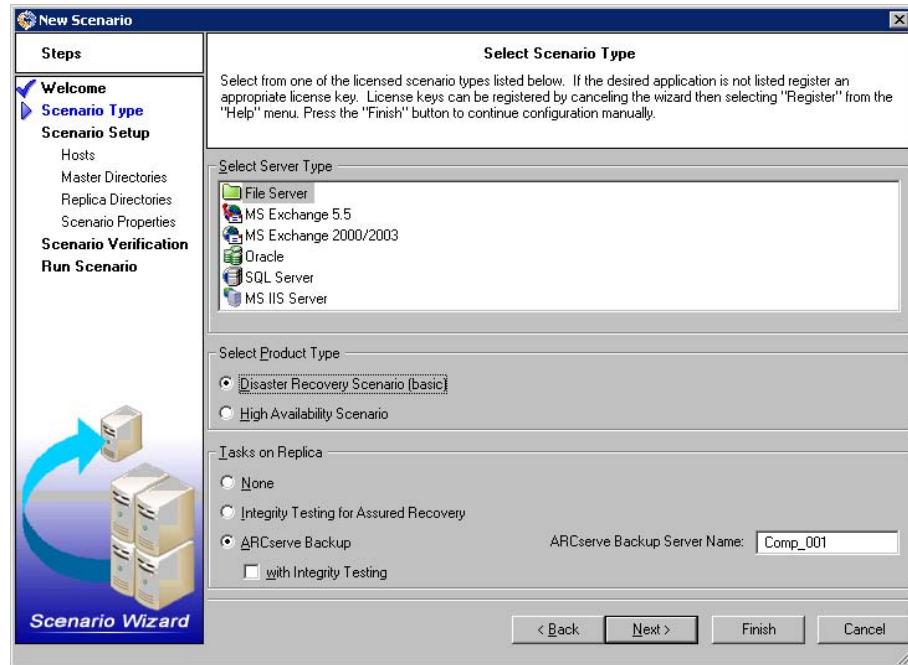
2. Click the New icon on the toolbar.

The New Scenario screen appears.



3. Select Create New Scenario and click Next to create a new scenario.

The Select Scenario Type screen appears.

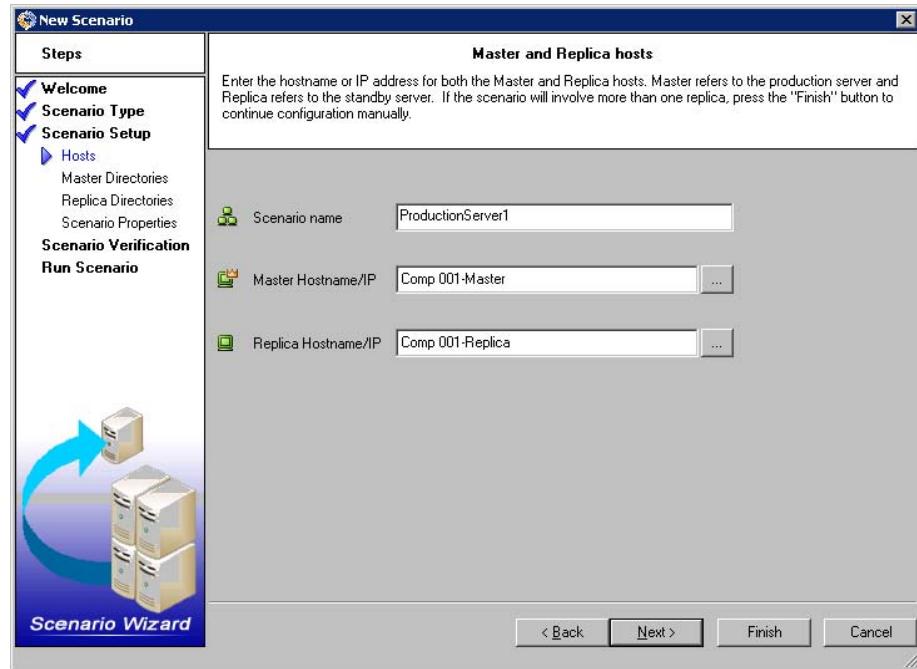


4. Select the ARCserve Backup option, choose whether or not to include Integrity Testing, and enter the name of the BrightStor ARCserve Backup server where the scenario will be backed up to. Select the appropriate Server Type, Product Type, and Assured Recovery (if available).

Note: BrightStor ARCserve Backup supports File Server, MS Exchange 2000/2003, and SQL Server scenarios only.

5. Click Next.

The Master and Replica Hosts screen appears.



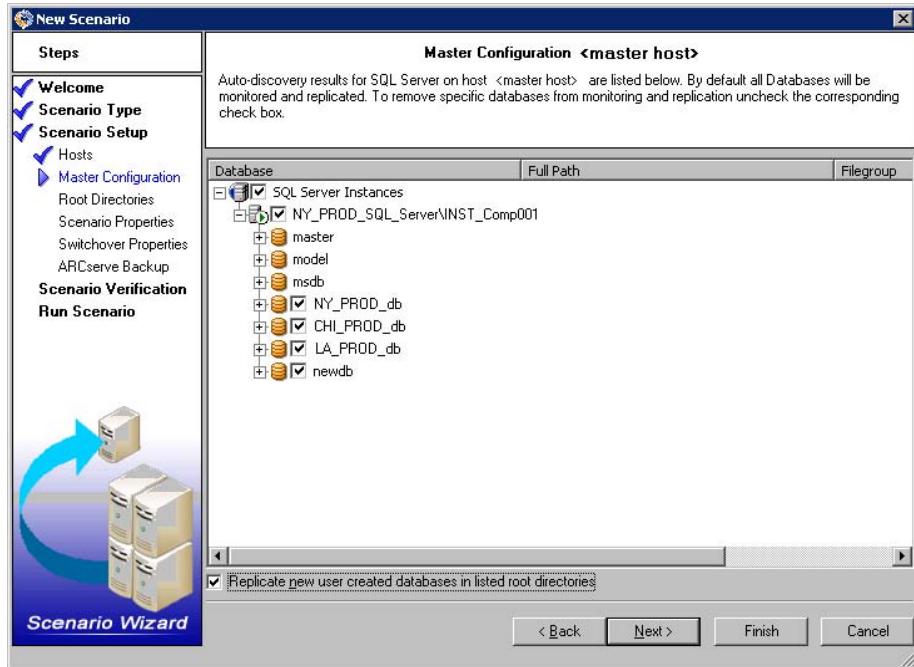
6. Enter the Scenario name for the scenario being created and the hostname or IP address for both the Master server and Replica server. You can also use the browse buttons next to each hostname field to select the corresponding locations.

The scenario to be backed up has been created.

7. Click Next.

Note: If File Server or MS Exchange was selected as the scenario type, continue with the scenario creation process the same as detailed for any other WANSync scenario. For additional procedures, see the *CA XOsoft WANSync User Guide*.

If SQL Server was selected as the scenario type, the Master Configuration screen appears.



The Master Configuration screen displays all SQL Server databases for the master host, along with a check box for the "Replicate new user created databases in listed root directories" option.

With this option checked, if a new database is created in the SQL Server root directory after the scenario has been created, WANSync will automatically begin to replicate the new database to the Replica server. However, because the newly created database has not been included in the BrightStor ARCserve Backup database, the new database will not be backed up by BrightStor ARCserve Backup. To allow the new database to be backed up, you need to modify the scenario by running the WANSync auto discovery function so that the new database will be recognized and included in the BrightStor ARCserve Backup database. For additional procedures about the auto discovery function, see the *CA XOsoft WANSync User Guide*.

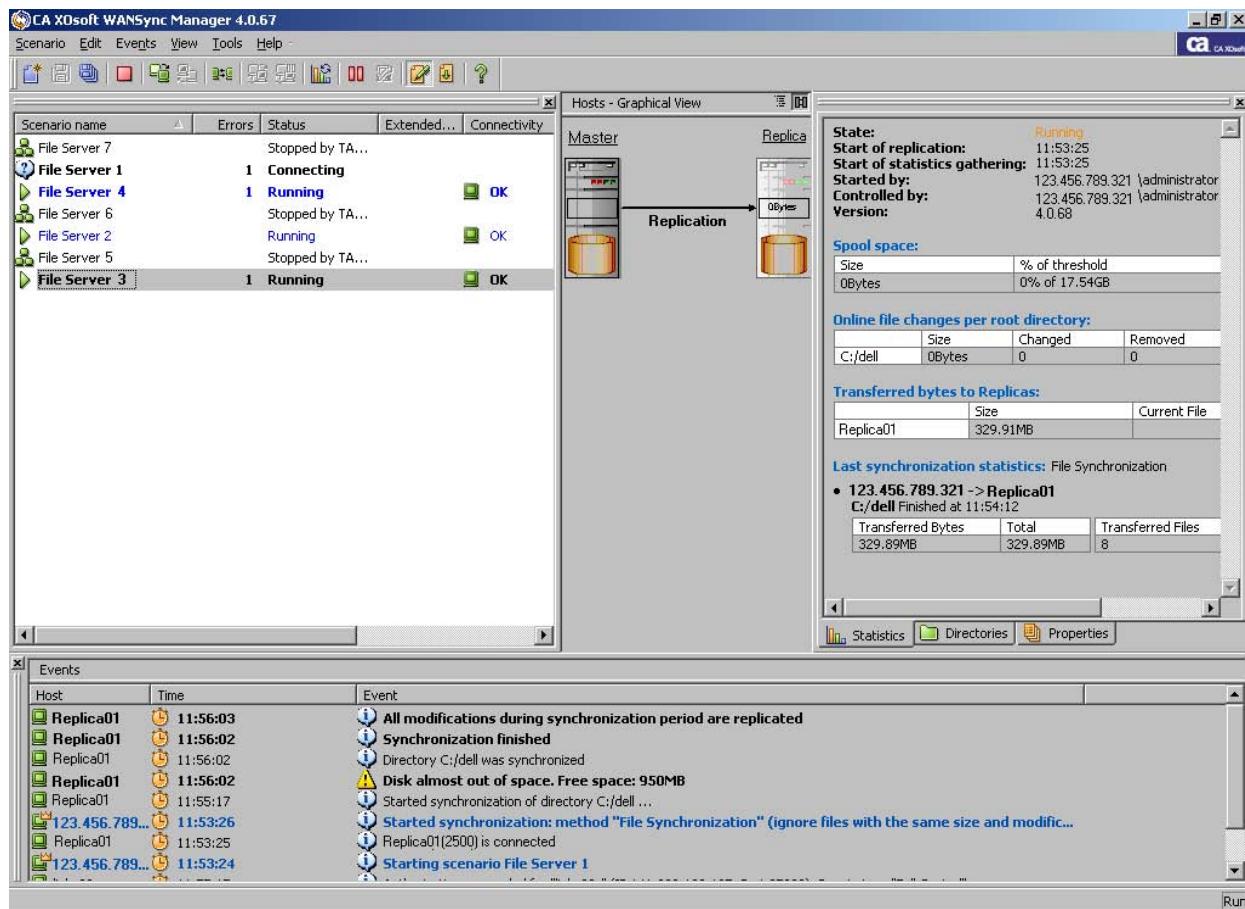
After the SQL Server scenario is properly configured, click Next and continue with the scenario creation process the same as detailed for any other WANSync scenario. For additional procedures, see the *CA XOsoft WANSync User Guide*.

Run a WANSync Scenario

WANSync creates and maintains backups in the context of user-defined scenarios. Prior to a WANSync scenario being backed up, the scenario must first be run so that it is added to the BrightStor ARCserve Backup database.

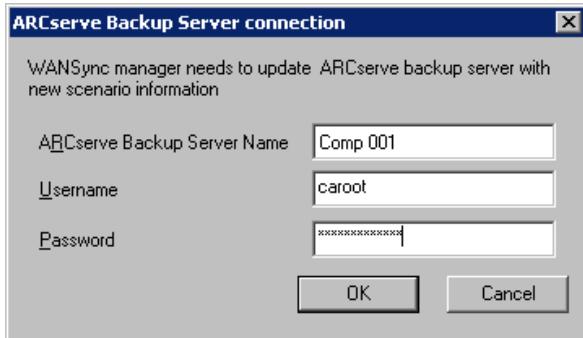
To run a WANSync scenario

1. From the WANSync Manager interface, select the scenario to be backed up.
 - The scenarios and scenario status appear on the far left pane.
 - The corresponding host replication tree or graphical view (as selected) displaying the Master server and associated Replica server appears in the middle pane.
 - The corresponding framework displaying directories (and sub-directories), and the files in those directories appear in the far right pane.
 - The Events pane at the bottom displays information about significant events, warnings, and errors received from the host.



2. Click the Run scenario icon on the toolbar.

The ARCserve Backup Server Connection dialog is displayed with the name of the server.



3. On the ARCserve Backup Server Connection dialog, enter the proper username and password to allow the BrightStor ARCserve Backup server to communicate with the agent on the Replica server.

The selected scenario is now added to the BrightStor ARCserve Backup database and can be backed up.

Note: Backups can only be performed when WANSync is in the replication mode (green arrow icon next to scenario name).

The BrightStor ARCserve Backup Activity Log will be updated to reflect any WANSync operations related to creating, deleting, or modifying scenario records in the BrightStor ARCserve Backup database.

Show Errors, Warnings, Information Grouped by Jobs				
Type	Date	Job	Session	Message
Job95 [12/15/2006 10:43:34 AM] [Finished]				
Inform...	12/15/2006 10:43:42 AM	95		Backup Operation Successful.
Inform...	12/15/2006 10:43:42 AM	95		123-456-789-321 \File Server - test (1224069566) (198-765-432-123) [123-456-789-321]
Inform...	12/15/2006 10:43:42 AM	95		Missed Nodes/Volumes:
Inform...	12/15/2006 10:43:42 AM	95		Total Files backed up..... 1
Inform...	12/15/2006 10:43:42 AM	95		Total Directories backed up..... 1
Inform...	12/15/2006 10:43:42 AM	95		-- Failed and Canceled status..... 0
Inform...	12/15/2006 10:43:42 AM	95		-- Complete and Incomplete status..... 1
Inform...	12/15/2006 10:43:42 AM	95		Total Volumes to be backed up..... 1
Inform...	12/15/2006 10:43:42 AM	95		-- Failed and Canceled status..... 0
Inform...	12/15/2006 10:43:42 AM	95		-- Complete and Incomplete status..... 1
Inform...	12/15/2006 10:43:42 AM	95		Total Nodes to be backed up..... 1
Inform...	12/15/2006 10:43:42 AM	95		Serial No [Seq 1]..... N/A
Inform...	12/15/2006 10:43:42 AM	95		Total number of sessions..... 1
Inform...	12/15/2006 10:43:42 AM	95		Media ID..... 9C43
Inform...	12/15/2006 10:43:42 AM	95		Media Name..... 4/04/06 10:56 AM
Inform...	12/15/2006 10:43:42 AM	95		Media Pool..... N/A
Inform...	12/15/2006 10:43:42 AM	95		Device Group..... GROUP0
Inform...	12/15/2006 10:43:42 AM	95		*** Backup Summary for Job ID 95 ***
Inform...	12/15/2006 10:43:42 AM	95		Number of Error(s)/Warning(s): 0/0
Inform...	12/15/2006 10:43:42 AM	95		Average Throughput: 0 KB/min
Inform...	12/15/2006 10:43:42 AM	95		Elapsed Time: 0s
Inform...	12/15/2006 10:43:42 AM	95		1 Session(s).
Inform...	12/15/2006 10:43:42 AM	95		** Summary for 123.456.789.321 **
AEO415	12/15/2006 10:43:42 AM	95	11	WANSync scenario <name=File Server - test, id=1224069566> is not in replication state

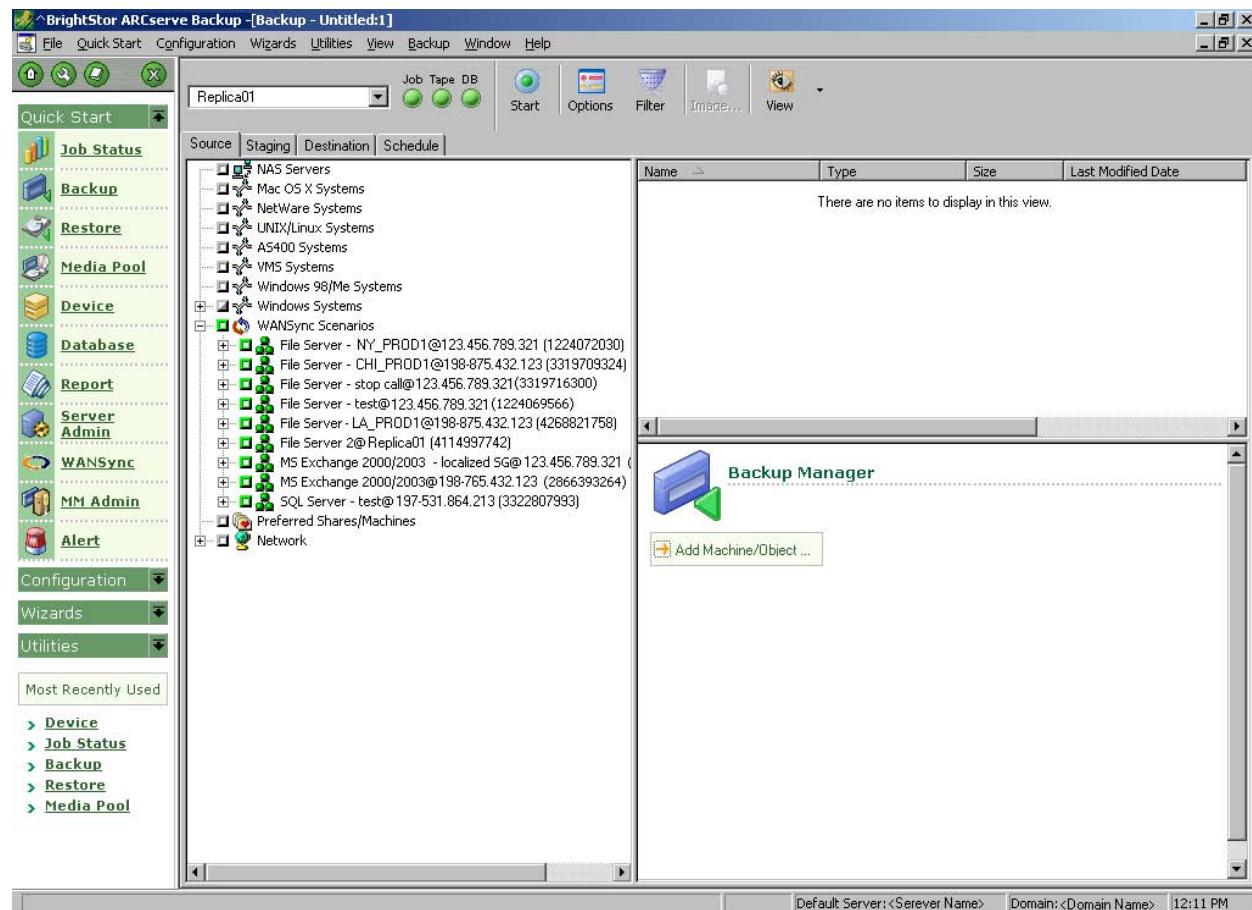
Create and Run a Backup Job

After a WANSync scenario has been added to the BrightStor ARCserve Backup database a backup job can be created.

To create and run a backup job

1. From BrightStor ARCserve Backup, access the Backup Manager and select the Source tab.

The left pane of the Source tab lists all of the WANSync Scenarios that have been registered in the BrightStor ARCserve Backup database and are candidates for being backed up.



2. Expand the WANSync Scenarios and select the scenario to be backed up.

The Security dialog appears, prompting you to provide the user name and password to login into the BrightStor ARCserve Backup Client Agent running on the **Replica** server.



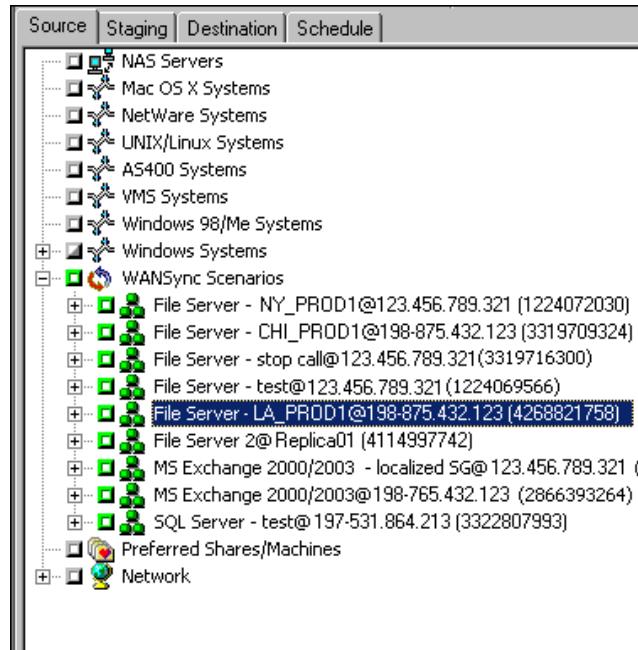
3. Enter the user name and password and click OK.

If the credentials are accepted, you will be allowed to select a scenario for backup.

4. Expand the scenario to view the entities contained within the scenario to be backed up.

The scenario is expanded to display the associated entities. Individual entities can only be viewed and not selected for backup. Supported scenarios include File Server, MS Exchange, and SQL Server.

Note: Depending upon the type of scenario stored in the BrightStor ARCserve Backup server (File Server, MS Exchange 2000/2003, or SQL Server), different entities within each scenario will be displayed.



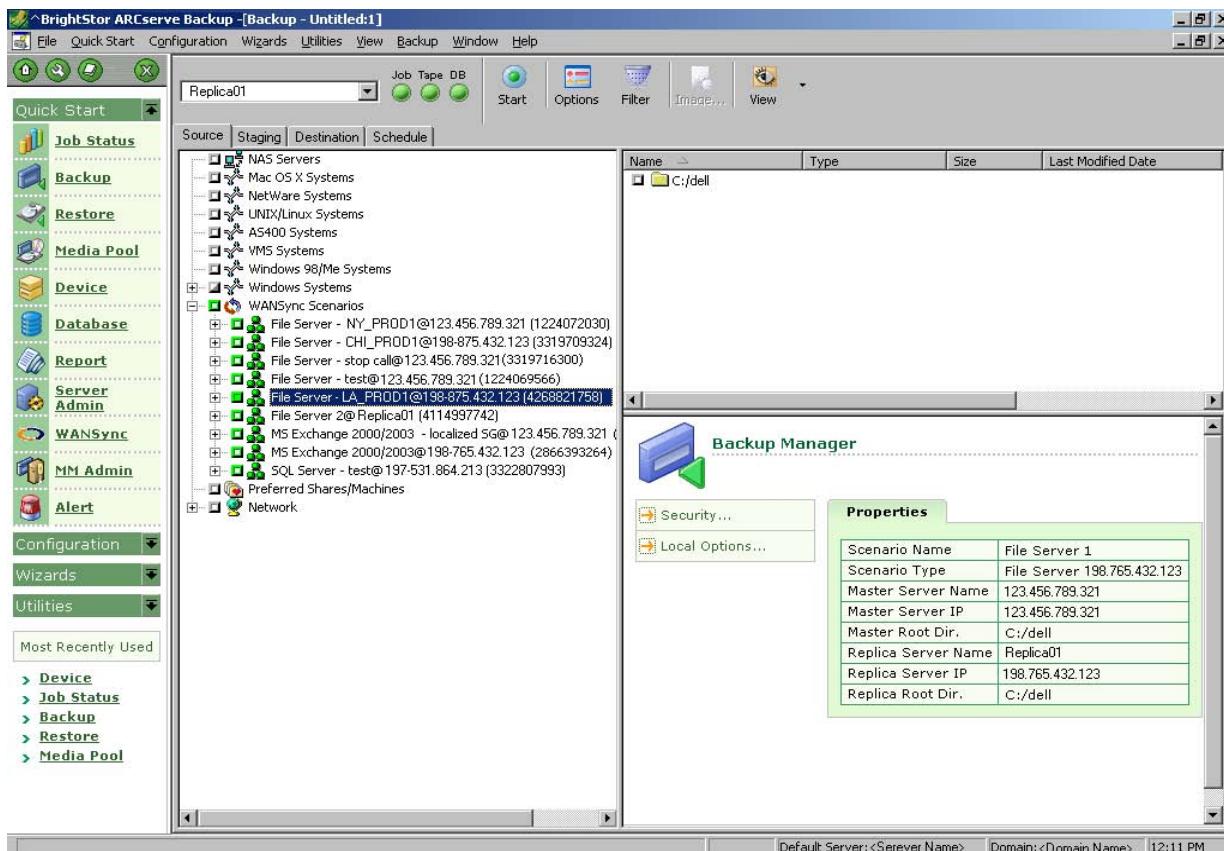
5. Select the scenario to back up.

The marker box next to the selected scenario is filled solid green and the corresponding scenario properties are displayed in the right pane of the Backup Manager. All backups will be full backups (not incremental or differential).

The backup job will create a session for each entity that constitutes a scenario. The level of granularity for an entity is dependent upon the type of scenario (File Server, MS Exchange, or SQL Server).

For multistreaming backup jobs, each WANSync scenario will be backed up as a child job. If one node contains multiple scenarios, the master job will split them so that each child job will back up one scenario.

Note: Only entire scenarios can be backed up.



6. Make the relevant selections for Staging, Destination, Schedule, Global Options, and any other backup-related options.

For more information about these backup options, see the *BrightStor ARCserve Backup Administrator Guide*.

Note: You can select multiple WANSync scenarios or include non-WANSync scenarios in the backup.

7. From the Backup Manager, click the Start button to initiate the backup.

The Security and Agent Information dialog appears and displays information about the selected scenario. Each WANSync scenario will display two sets of credentials; one for the Master server (shown with a crown symbol) and one for the associated Replica server.

The Master server credentials are used to log in to the WANSync engine, while the Replica server credentials are used to log in to the BrightStor ARCserve Backup Client Agent running on the Replica server.



8. Select the applicable server and click the Security button.

The Security dialog will appear for the selected server.

9. Enter the user name and password, and click OK.

The Submit Job dialog appears.

Continue the backup procedure as normal. For more information about this procedure, see the *BrightStor ARCserve Backup Administrator Guide*.

10. When the backup procedure is completed, click OK to submit the backup job

Depending upon selected options, the backup job is either run immediately or entered in the job queue and will be executed at the scheduled time.

Important! If you access the WANSync Manager while the backup job is running, a popup message will be displayed indicating that the specified scenario is locked from another host and asking you to press OK to take control. If you press OK, the backup job will fail because BrightStor ARCserve Backup is no longer controlling the scenario. In order to successfully complete the backup job you need to either not open the WANSync Manager, click Cancel, or ignore the message and not press OK.

Chapter 4: Performing Integrated Restore Jobs

This section contains the following topics:

- [Integrated Restore Jobs \(see page 45\)](#)
- [Restore Using WANSync Failover \(see page 46\)](#)
- [Restore Using WANSync Data Rewind \(see page 47\)](#)
- [Restore Using BrightStor ARCserve Backup \(see page 48\)](#)

Integrated Restore Jobs

The integration between BrightStor ARCserve Backup and WANSync provides the capability to restore backed up data from a variety of sources and using a variety of methods.

The process of performing an integrated restore involves the following operations:

- Restore using WANSync Failover
- Restore using WANSync Data Rewind
- Restore using BrightStor ARCserve Backup

Restore Using WANSync Failover

Failover is a restore method that detects when the protected application on the Master server fails and switches (either automatically or manually activated) to a designated Replica server with essentially zero loss of data and time. If a Master server fails or must be shut down for maintenance, a synchronized replica (locally or in a remote location) will instantly and automatically take its place.

The advantage of a WANSync restore using the failover feature is that there is an immediate resumption of the data processing in the event of a hardware failure on the Master server. Data can be recovered almost immediately from the Replica server, without any disruptions or loss of data or service.

Automatic failover is designed to allow applications that are running on the Master server to automatically switch to the Replica server. This process can either be completely transparent or it can be configured to require user intervention.

Manual failover can be initiated for a number of reasons (usually for maintenance purposes), but still has the same end result of switching the application processes from the Master server to the Replica server.

For detailed procedures about recovering lost data from a Replica server using the failover feature, see the *CA XOsoft WANSync User Guide*.

Restore Using WANSync Data Rewind

Data Rewind is a restore method that allows rewinding files to a point in time (rewind point) before they were corrupted. Because replication continuously updates source data to the Replica server, the Replica server always holds the same data as in the Master server. In the case of data corruption, recovering the latest files from the Replica server will not help, since chances are high that data in the Replica server is also corrupted. These rewind points serve as checkpoints in the Rewind log that mark an event or operation. The actual information stored includes the operation that will undo the event, in case the rewind point is activated. Data recovery uses these rewind points or bookmarks in the Rewind log to reset the current data back to a previous state. Because this built-in rewind technology occurs on the Replica server, any "data rewinding" to a previous state can only be performed on the Replica server.

The advantages of a WANSync restore using the data rewind feature are very quick recovery, extreme granularity of the recoverable data, and application aware replication and recovery.

For detailed procedures about recovering lost data from a Replica server using the Data Rewind feature, see the *CA XOsoft WANSync User Guide*.

Restore Using BrightStor ARCserve Backup

Recovery of data that was replicated from the WANSync Master server to the WANSync Replica server and then backed up using BrightStor ARCserve Backup can be performed using the following methods:

- Restore by Session
- Restore by Tree
- Restore by Query

When restoring to a Replica server, ensure that the corresponding application is not running. This avoids any attempt to restore files that are currently in use. When restoring to the Master server, ensure that the BrightStor ARCserve Backup Client Agent is installed and running.

Note: For SQL Server and MS Exchange scenarios, only full scenario restores are supported. For File Server scenarios, more granular restores to the specific files, directories, or volumes are supported.

In addition, regardless of the restore method being used, you can also make the relevant selections for Schedule, Global Options, and any other restore-related options. For more information about these restore options, see the *BrightStor ARCserve Backup Administrator Guide*.

To set the WANSync-specific global restore option

1. From the Restore Manager window, click the Options toolbar button.

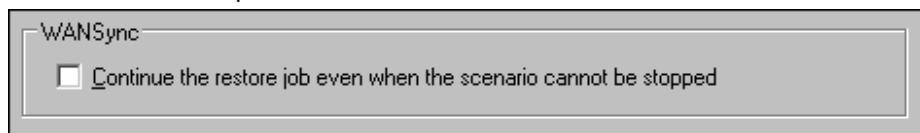
The Global Options dialog appears.

2. Select the Operation tab.

The Operation dialog appears, displaying the WANSync-specific "Continue the restore job even when the scenario cannot be stopped" option.

By default, this option is not checked, indicating that if WANSync cannot stop the scenario during the restore process, the job will fail. If you check this option, WANSync will still attempt to stop the scenario; however, if the scenario cannot be stopped, the restore job will continue.

- The advantage of checking this option is that you are more likely to have a successful restore.
- The disadvantage of checking this option is that with the scenario running and continuous replication being performed, any problems that are contained on the Master server will overwrite the restored data on the Replica server.



Restore by Session

The Restore by Session method allows you to select the session and the files and directories you want to restore. Use this method when you know the media name, but are not certain about the session you want to restore. This view uses the BrightStor ARCserve Backup database; if the database engine is stopped, this method of restore will not work.

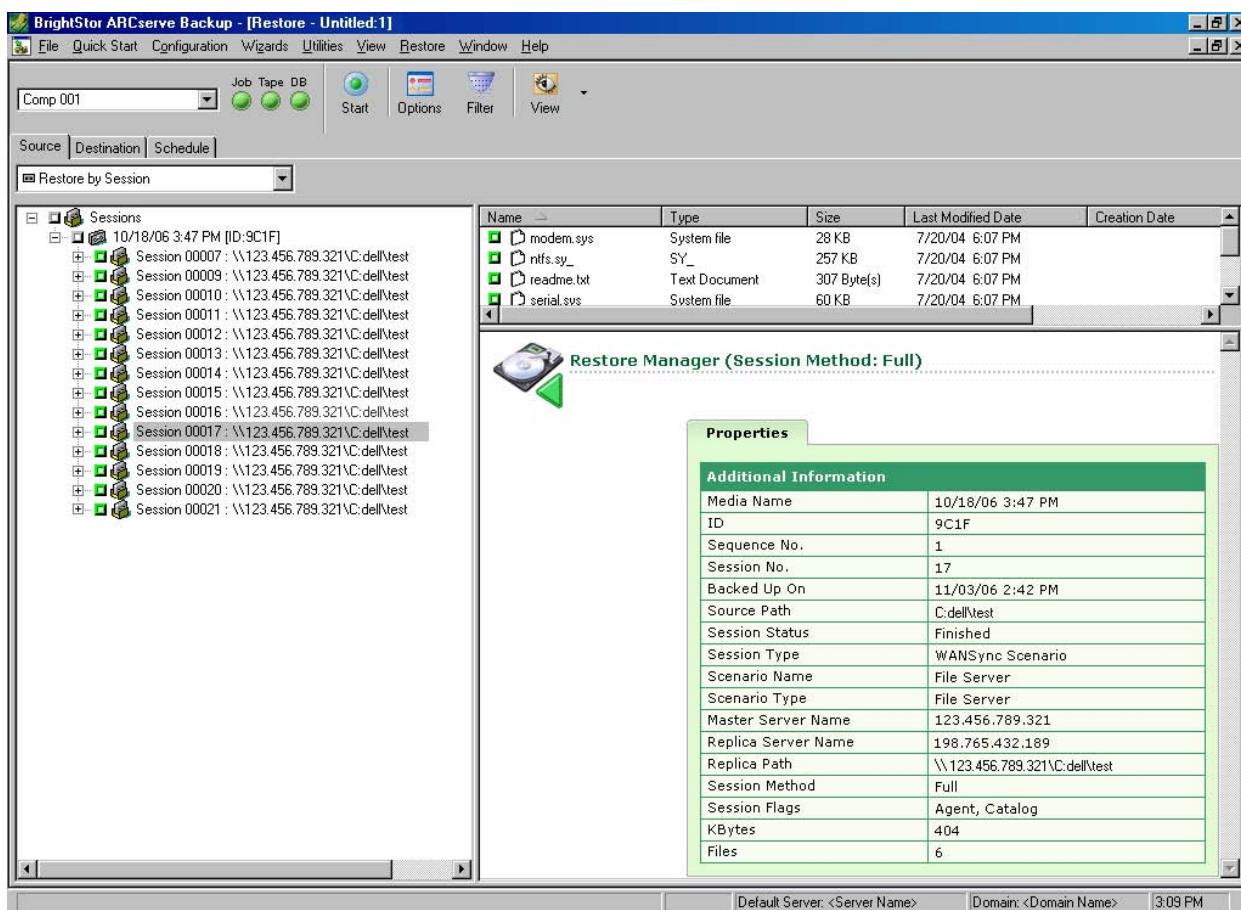
To restore a backup job by session

1. From BrightStor ARCserve Backup, access the Restore Manager, select the Source tab, and choose Restore by Session from the Source View drop-down menu.

The left pane of the Restore Manager lists all of the WANSync Scenarios that have been backed up and are candidates for being restored.

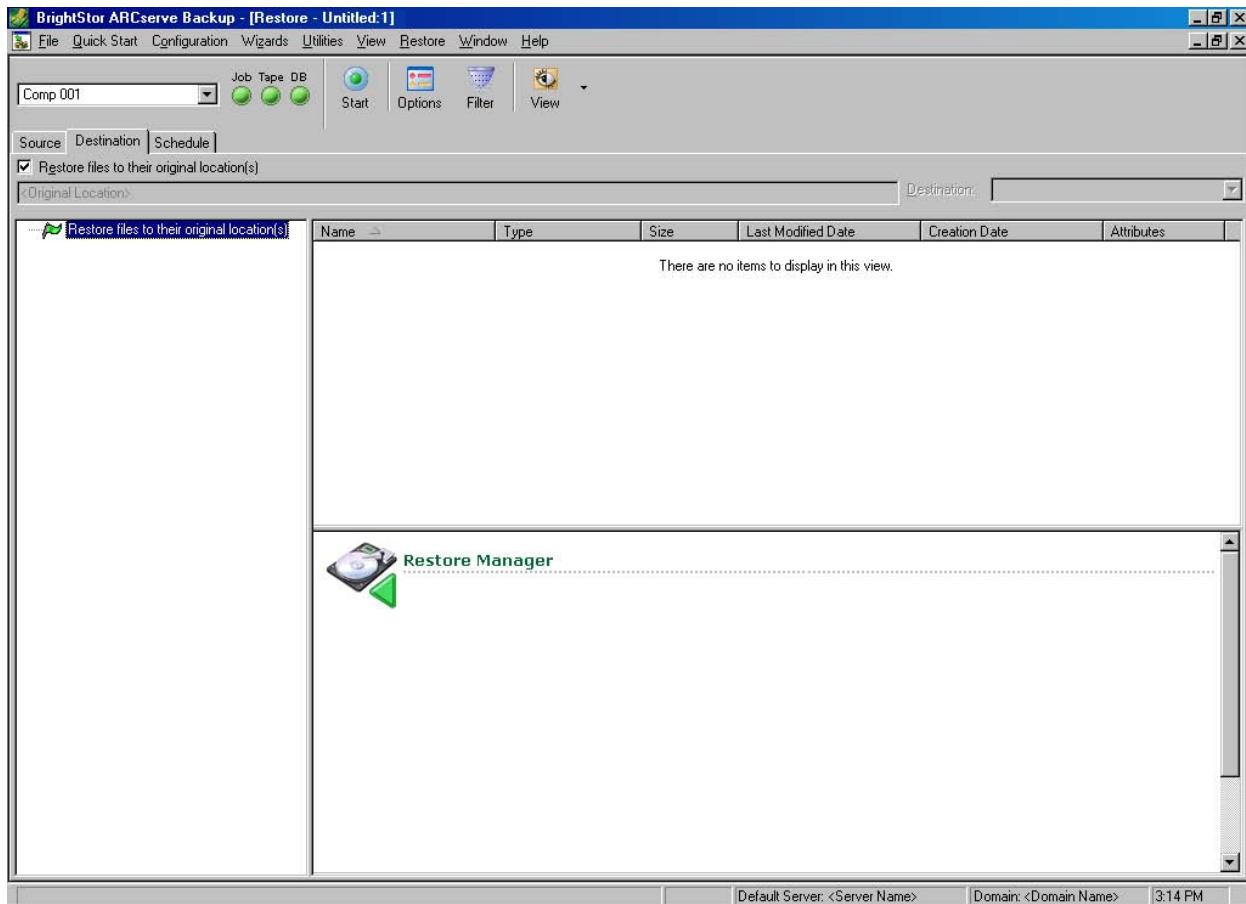
2. Select the session to be restored.

The corresponding session content and properties are displayed in the right panes of the Restore Manager.



3. Select the Destination tab and specify the destination where you want the restored files to go.

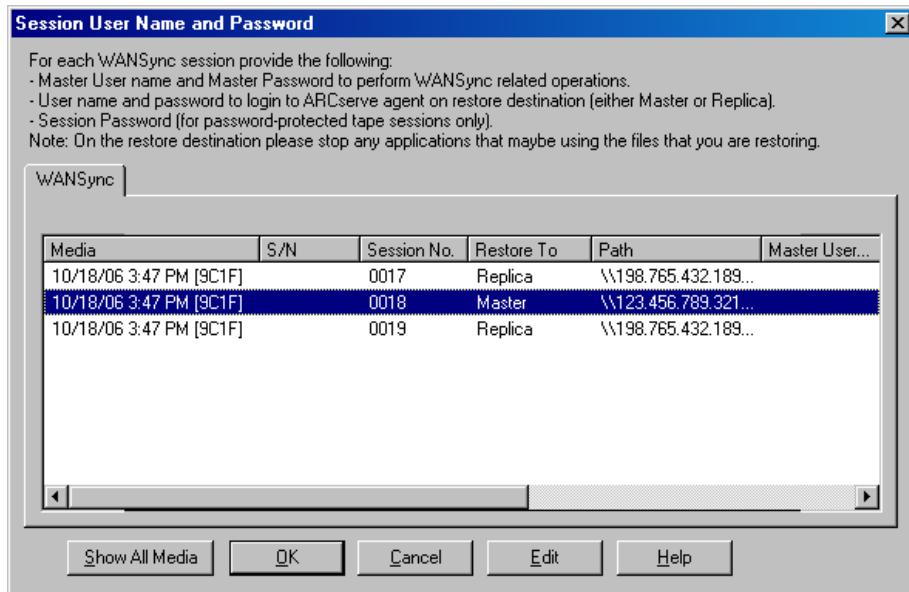
Source files can be restored to the same directory structure that they originated from (original location) or to any other location that you specify (alternate location).



4. To restore the files to their original location (default option), perform the following:

a. Ensure the Restore files to their original location(s) option check box is checked and click the Start button to run the job.

The Session User Name and Password dialog appears.

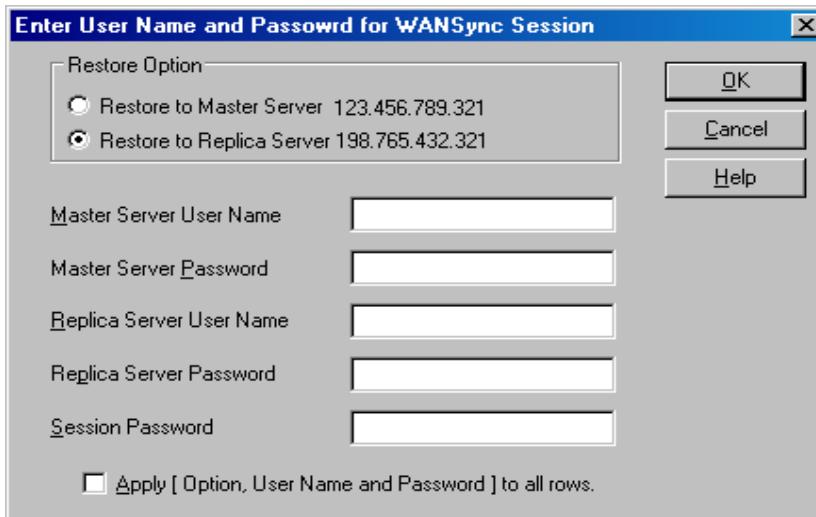


For SQL Server and MS Exchange, if the corresponding application is running and you restore a WANSync scenario to the original location, the restored files are temporarily created with a .TMP extension. After the restore job is successful, you will be prompted to reboot the server to overwrite and replace the existing active files. When the server is rebooted, the restored files will be merged into the original database. If the corresponding application is not running, temporary files will not be created during the restore to original location process and you will not need to reboot the server.

Important! For SQL Server installed on a Cluster environment rebooting is not feasible, therefore you need to stop the application resource prior to performing a restore to the original location.

- b. Select the server (Master or Replica) to restore the files to, and either double-click the selected row or click the Edit button.

The Enter User Name and Password for WANSync Session dialog appears.



- c. Select the Restore Option as either Restore to Master Server or Restore to Replica Server.

By default, the Replica server is selected because restoring to a Replica server is usually more efficient and does not interrupt operation of the production (Master) server. Restore to a Master server should be selected only if you need a faster recovery or if you need to reconstruct the Master server environment (if corrupted).

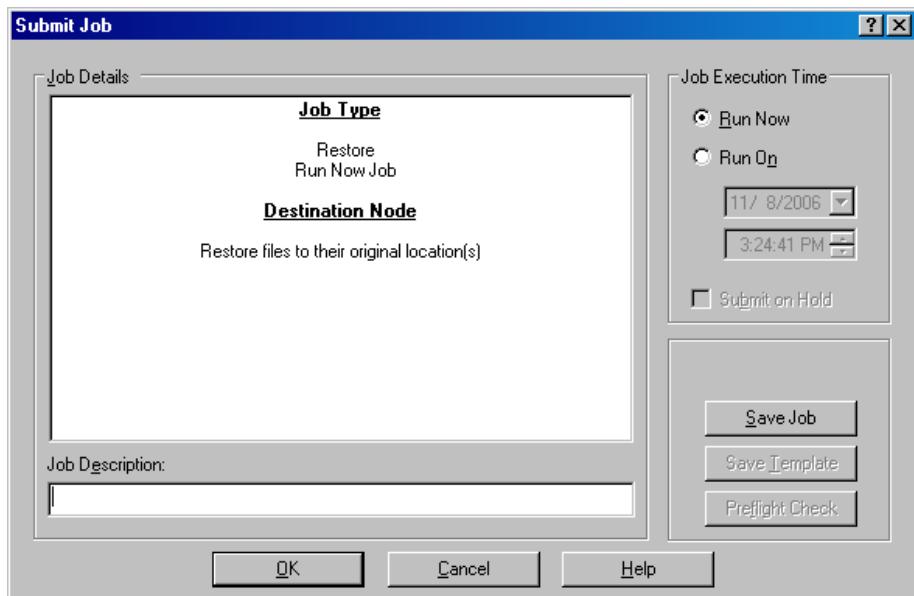
Note: When restoring to a Replica server, ensure that the corresponding application is not running. This avoids any attempt to restore files that are currently in use. When restoring to the Master server, ensure that the BrightStor ARCserve Backup Client Agent is installed and running.

- d. Enter the server security credentials (User Name and Password) and Session Password.

- If you chose to restore to a Replica server, you will need to provide the security credentials to access both the Master server and the Replica server.
- If you chose to restore to a Master server, you will need to only provide the security credentials to access the Master server.

e. Click OK.

The Submit Job dialog appears.



f. Continue with the restore procedure the same as detailed for any other BrightStor ARCserve Backup restore job. For more information about this procedure, see the *BrightStor ARCserve Backup Administrator Guide*.

5. To restore the files to an alternate location, perform the following:

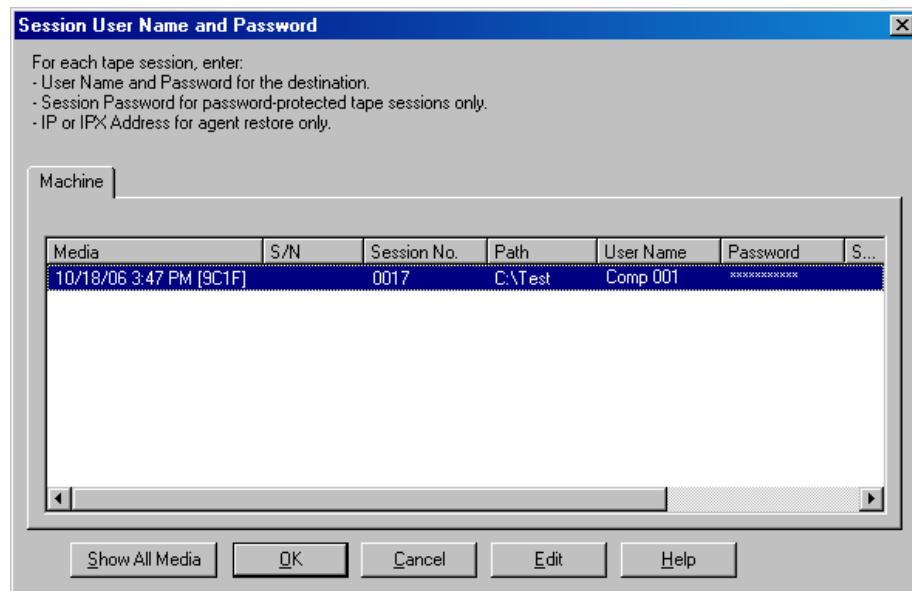
- a. Remove the check from the Restore files to their original location(s) option check box and select a destination folder.

The destination where you want the restored files to go is now specified.

Important! A WANSync restore is only supported through a Windows Systems Client Agent. As a result, the alternate restore location must be a destination machine or volume that is under the Windows Systems Client Agent tree. If you attempt to restore to the Server tree or any other tree not under the Client Agent tree, the restore job will fail. If necessary you can add a new Client Agent machine. For procedures on adding a new client object, see the BrightStor ARCserve Backup online help system.

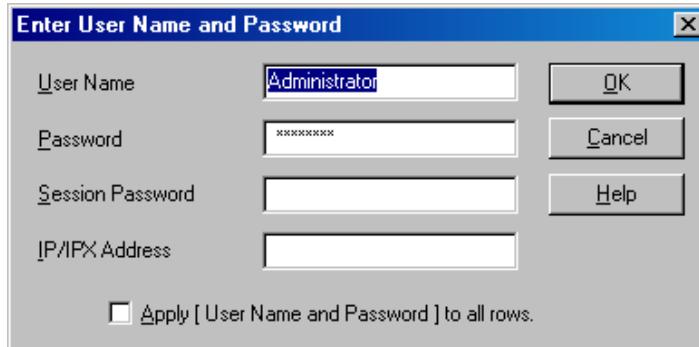
- b. Click the Start button to run the job.

The Session User Name and Password dialog appears.



- c. Select the machine to restore the files to, and either double-click the selected row or click the Edit button.

The Enter User Name and Password dialog appears.



- d. Enter the security credentials (User Name and Password), and click OK.

The Submit Job dialog appears.

- e. Continue with the restore procedure the same as detailed for any other BrightStor ARCserve Backup restore job. For more information about this procedure, see the *BrightStor ARCserve Backup Administrator Guide*.

Restore by Tree

The Restore by Tree method restores a specific directory or drive from a display of files and directories that were backed up with BrightStor ARCserve Backup. Use this method when you do not know which media contains the data you need, but you know the machine from which the back up originated.

The Restore by Tree view displays only the last instance of a backup. To view and access all other instances, select the object that you want to restore and click the Version History button. The Restore by Tree view only displays the Master server specific view.

To restore a backup job by tree

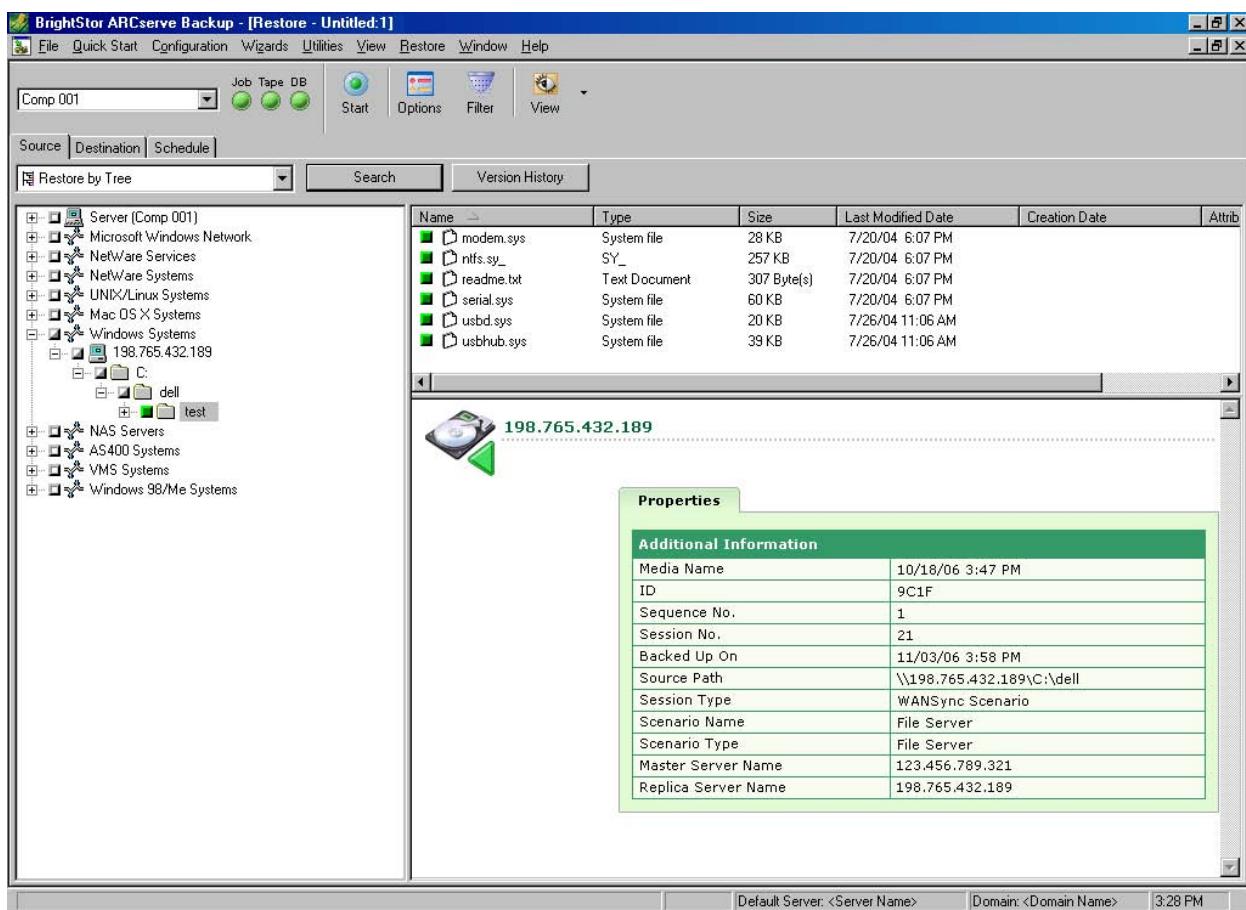
1. From BrightStor ARCserve Backup, access the Restore Manager, select the Source tab, and choose Restore by Tree from the Source View drop-down menu.

Note: If necessary, you can click the Version History button to view and select a different version of the object you want to restore.

The left pane of the Restore Manager lists the volumes, drives, directories, and files that have been backed up and are candidates for being restored.

2. Select the data to be restored.

The corresponding content and properties are displayed in the right panes of the Restore Manager.



3. Select the Destination tab and specify the destination where you want the restored files to go. Source files can be restored to the same directory structure that they originated from (original location) or to any other location that you specify (alternate location).

The destination where you want the restored files to go is now specified.

The Session User Name and Password dialog appears.

For SQL Server and MS Exchange, if the corresponding application is running and you restore a WANSync scenario to the original location, the restored files are temporarily created with a .TMP extension. After the restore job is successful, you will be prompted to reboot the server to overwrite and replace the existing active files. When the server is rebooted, the restored files will be merged into the original database. If the corresponding application is not running, temporary files will not be created during the restore to original location process and you will not need to reboot the server.

Important! For SQL Server installed on a Cluster environment rebooting is not feasible, therefore you need to stop the application resource prior to performing a restore to the original location.

Important! A WANSync restore is only supported through a Windows Systems Client Agent. As a result, the alternate restore location must be a destination machine or volume that is under the Windows Systems Client Agent tree. If you attempt to restore to the Server tree or any other tree not under the Client Agent tree, the restore job will fail. If necessary you can add a new Client Agent machine. For procedures on adding a new client object, see the BrightStor ARCserve Backup online help system.

4. Continue with the restore procedure the same as detailed for the Restore by Session method.

Restore by Query

The Restore by Query method restores files based on the search pattern used to locate the names of the files or directories. Use this method when you know the name of the file or directory you want to restore, but do not know the machine it was backed up from or the media it was backed up to. This view uses the BrightStor ARCserve Backup database.

Note: The Restore by Query method only supports File Server scenarios.

To restore a backup job by query

1. From BrightStor ARCserve Backup, access the Restore Manager, select the Source tab, and choose Restore by Query from the Source View drop-down menu.

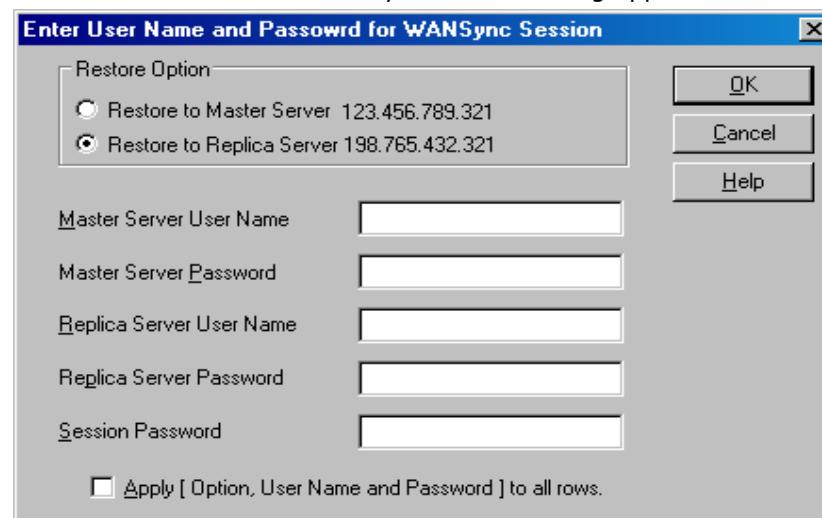
The top pane of the Restore Manager displays fields to allow you to enter the search criteria for the scenarios that have been backed up and are candidates for being restored.

2. Specify the search criteria and click Query.

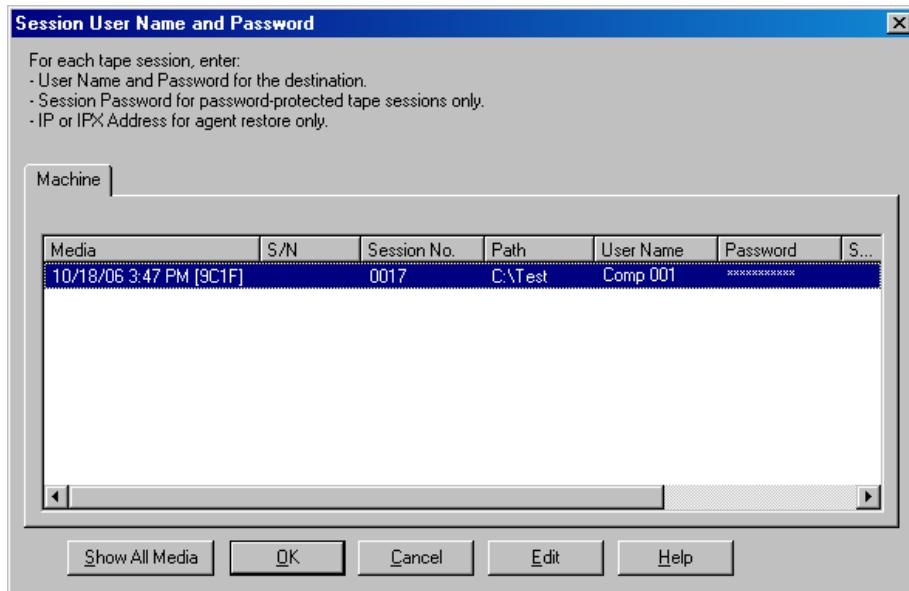
The bottom pane of the Restore Manager displays all the returned items that match the query criteria.

3. Select the files or directories that you want to restore and click the Start button to run the job.

If the selected file or directory is a WANsync scenario, the Enter User Name and Password for WANsync Session dialog appears.



If the selected file or directory is not a WANsync scenario, the Session User Name and Password dialog appears



4. Continue with the restore procedure the same as detailed for the Restore by Session method.

Chapter 5: Monitoring Backup and Replication Jobs

This section contains the following topics:

- [Integrated Job Monitoring](#) (see page 61)
- [Monitor Job Status Using BrightStor ARCserve Backup](#) (see page 61)
- [Monitor Job Status Using WANSync](#) (see page 63)
- [Alert Notification](#) (see page 65)
- [Report Generation](#) (see page 67)

Integrated Job Monitoring

Monitoring the status of backup and replication jobs consists of a combination of real-time event monitoring, generated alerts, and various reports. Through the use of BrightStor ARCserve Backup and WANSync, the entire process of an integrated backup can be monitored.

Monitor Job Status Using BrightStor ARCserve Backup

The procedure for monitoring the backup process does not change for the integrated environment. For more information about monitoring the backup process, see to the *BrightStor ARCserve Backup Administrator Guide*.

The integrated backup process can be monitored from the BrightStor ARCserve Backup through the Job Status Manager. The Job Status Manager is a graphical tool that helps you to centrally manage BrightStor ARCserve Backup servers across the enterprise and monitors all pending, completed, and active jobs from the Job Status Manager window. The Job Status Manager window contains a Job Queue tab and an Activity Log tab to monitor.

Job Queue Monitoring

The Job Queue tab on the right panel displays information about all jobs. Every time you run or schedule a job with the BrightStor ARCserve Backup Manager, you submit it to the Job Queue. BrightStor ARCserve Backup continuously scans the Job Queue for jobs that are waiting to execute.

When a job is in the BrightStor ARCserve Backup queue, it is listed with a status. The status can be one of the following:

Done 

A job that has already been executed with no repeat interval.

Ready 

A new one-time or repeating job (a backup job that runs every Friday, for example) waiting to be executed.

Active 

A job that is currently being executed.

Hold 

A job that is in the queue waiting to be executed later.

When an integrated backup job is submitted, the scenario name is displayed in the Job Queue window, allowing you to monitor the progress of the job.

Activity Log Monitoring

The Activity Log tab on the right panel displays comprehensive information about all the operations performed by BrightStor ARCserve Backup. The Activity Log provides an audit trail of every job that is run. For each job, the log includes the following:

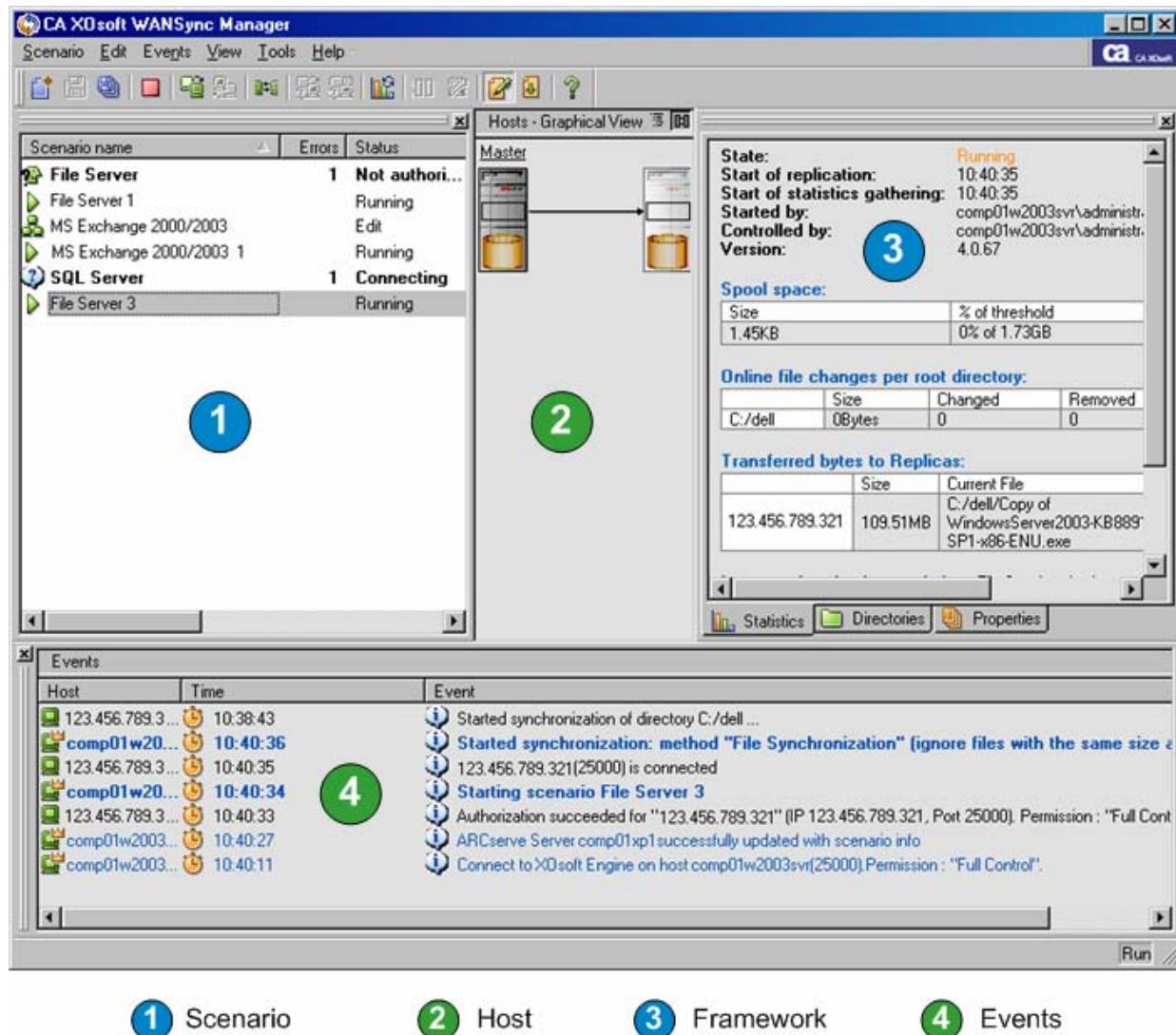
- Time the job started and ended
- Type of job
- Average throughput of the data
- Number of directories and files processed (backed up, restored, or copied)
- Job session number and job ID
- Result of the job
- Errors and warnings that occurred

When an integrated backup job is submitted, the scenario name is displayed in the Activity Log window, allowing you to monitor the progress of the job.

Monitor Job Status Using WANSync

The procedure for monitoring the replication process does not change for the integrated environment. For more information about monitoring the replication process, see the *CA XOsoft WANSync User Guide*.

The replication process can be monitored from the WANSync Manager once a scenario is running. Monitoring enables viewing state information, statistics, and events. The WANSync Manager main window is comprised of four subordinate panes; Scenario, Host, Framework, and Events.



The Scenario pane displays each host, along with the corresponding status of the replication process. The replication status is reflected by one of the following icons to the left of the scenario name:

Running 

The scenario replication process is running correctly.

Stopped 

The scenario has been created, but the replication process has been stopped or suspended.

Problem 

There is a problem with the scenario. You can click on the scenario name to display any related error messages in the Events window.

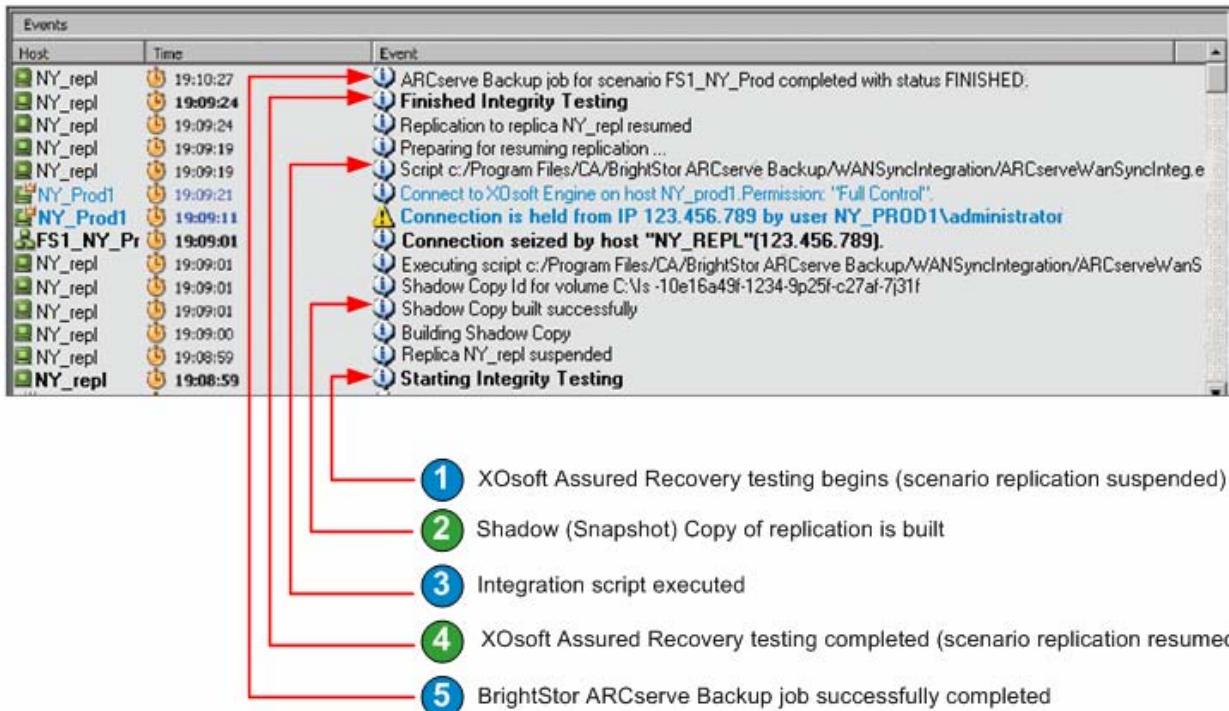
Not Authorized 

Incorrect or missing User Name or Password provided for Master server.

The Host pane can be displayed in either a graphical view or a tree view and contains replication information about the corresponding Master server (shown in the tree view with a gold crown symbol) and associated Replica server(s).

The Framework pane displays the directories (and sub-directories), and the files in those directories. The Framework pane displays two or three tabs, depending upon the job status; Statistics, Directories, and Properties. The Statistics tab is available whenever the replication process is running and provides information about the total amount of data per root directory, recorded data per Replica, and synchronization information.

The Events pane displays messages and general information (for example, that a directory is synchronized, server is connected, synchronization started/finished, etc.). This information is received from the servers participating in the running replication scenario. The information in the Events pane includes the server name and time, and a brief explanation of the event. Important events or error messages are displayed in bold letters. In addition, the Events pane also displays BrightStor ARCserve Backup status for backup jobs that are initiated via WANSync.



Alert Notification

The procedure for generating and receiving alerts does not change for the integrated environment.

- For more information about generated alerts during the backup process, see the *BrightStor ARCserve Backup Administrator Guide*.
- For more information about generated alerts during the replication process, see the *CA XOsoft WANSync User Guide*.

BrightStor ARCserve Backup Alerts

You can use the Alert notification system to send messages about events that appear in the Activity Log during your backup operation. In addition, you can also specify the method for receiving these alert notifications. You can choose one or more of the following events for which you want to be notified:

Job Completed Successfully

All of the nodes and drives/shares were processed.

Job Incomplete

Some nodes, drives, or shares were missed.

Job Canceled by User

The user canceled the job.

Job Failed

The job was started but could not be completed.

Virus Detected

A virus was detected in one of the files to be backed up.

Customized Event

A customized event occurred. To specify this type of event, enter an error, warning, or notification code in the space below the Event drop-box.

WANSync Alerts

All events are reported in real-time to the WANSync Manager and can be integrated into the OS event logging system. They can be automatically sent by email to a configured address and can also activate a notification script. Detailed real-time statistics are provided during synchronization and replication. When the event notification is configured for a scenario, the following conditions can trigger a notification:

Lost Connection

The TCP connection does not function, or a network or server went down.

Queue overflow

The quantity of data in the queue spool directory has exceeded its threshold value.

Other

Any other error

Significant info

Important information such as when synchronization is completed.

Report Generation

The procedure for generating reports does not change for the integrated environment.

- For more information about reports during the backup process, see the *BrightStor ARCserve Backup Administrator Guide*.
- For more information about reports during the replication process, see the *CA XOsoft WANSync User Guide*.

BrightStor ARCserve Backup Reports

The reports generated by the BrightStor ARCserve Backup Report Manager and WANSync complement each other and provide you with a variety of reports based on the activity stored in the BrightStor ARCserve Backup database. You can preview a report, print to a printer or file, as well as schedule when to generate a report. BrightStor ARCserve Backup provides several standard reports that display general backup and restore activity and also allow you to create custom reports to meet your specific needs. You can use a report filter to select the backup media you want to include in the report.

For example, you can configure BrightStor ARCserve Backup to automatically create and email a report for any failed backup jobs or you can create a customized report that is generated to specifically target backup jobs that are initiated by Assured Recovery.

For more information about reports during the backup or restore process, see the *BrightStor ARCserve Backup Administrator Guide*.

WANSync Reports

WANSync can generate reports on the replication and synchronization processes. These reports can be stored on the Master, sent for display by the WANSync Manager, sent by email to a specified address, or they can trigger script execution.

The WANSync-generated reports include the following:

Scenario Reports

The Scenario Reports includes statistics from synchronization tasks, including how much changed data was replicated. This report can be configured so that it is displayed at the end of every synchronization process.

This report is useful for verifying that all processes are running properly, as well as reviewing how much data is changing on a continuing basis.

Difference Reports

A Difference Report compares the difference between the Master server and the Replica server and is generated for each replica at the end of the replication process. When a replication is suspended, all changes are spooled on the Master server until the replication is resumed. During this suspension, the Difference Report will display how much data has changed. The Difference Report can be produced at any time.

This report is useful to determine how much data changes for a specific event.

Replication Report

The Replication Report includes statistics on data replicated since the beginning of the replication process, as well as statistics on data replicated since the last report. The data includes the number of replicated bytes, number of files created/updated/removed/and renamed, and the number of errors. You can view either a summarized or detailed report.

This report is useful to obtain an overall view of how much data is changing in the environment.

Synchronization Report

Following synchronization, WANSync creates and opens a report listing the files that have been transferred. This report includes the sum total of the removed and modified files, as well as the bytes transferred, listing all related file names, file paths, and sizes.

This report is useful for monitoring and managing data change and data growth in the environment.

For more information about reports during the replication process, see the *CA XOsoft WANSync User Guide*

Chapter 6: Troubleshooting

This section contains the following topics:

- [Integrated Troubleshooting](#) (see page 69)
- [Error and Warning Messages](#) (see page 69)
- [Integration Messages](#) (see page 70)

Integrated Troubleshooting

When a problem is detected, BrightStor ARCserve Backup generates a message to help you identify the problem and provide assistance in troubleshooting and resolving the problem. These messages are contained in the Activity Log (BrightStor.log) and can be viewed from the Job Status Activity Log tab. From the Activity Log, you can double-click an error or warning message to display the message details.

Error and Warning Messages

Generated messages are categorized as either an Error Message or a Warning Message, depending upon the severity of the resulting consequences. An Error Message is more severe and usually indicates a functionality problem that must be fixed before the job can continue. A Warning Message is a less severe problem that should be noted; however, performance of the job can continue.

The generated message is formatted with some or all of the following information:

Message

Indicates the Warning or Error identification number prefixed by either a W (warning) or E (error), along with a corresponding error code or brief explanation generated by BrightStor ARCserve Backup. Agent message numbers are prefixed by either an AW (agent warning) or AE (agent error).

Module

Indicates the system component or area that produced the message.

Reason

Describes what is likely to have caused the message to be generated.

Action

Suggests a possible resolution to the problem or a course of action you can take.

Integration Messages

The following Error and Warning messages are associated with the integration between BrightStor ARCserve Backup and CA XOsoft WANSync:

Message Number	Message
E3370	Unable to initialize WANSync Scenario data
E3371	Unable to get session physical path
AE0457	Unable to perform AR or suspend WANSync scenario
AE0458	Could not create WANSync backup image
AE0459	Insufficient user credentials supplied for scenario
AE0460	Snapshot creation failed for WANSync scenario
AE0461	Some snapshots could not be released for WANSync scenario
AE0463	Could not attach to WANSync scenario
AE0464	WANSync scenario could not be stopped
AE0465	WANSync scenario is not in replication state.
AE0467	Backup operation not supported on WANSync master or replica server
AE0468	Bad parameters for WANSync scenario
AE0469	The WANSync operation timed out for scenario
AE0470	WANSync connection already exists for scenario
AE0471	Bad configuration for WANSync scenario
AE0472	General WANSync errors encountered for scenario

Error E3370

Unable to initialize WANSync Scenario data. (Replica=[replica host], Scenario=[WANSync scenario name])

Module:

Task Backup

Reason:

BrightStor ARCserve Backup backend is unable to retrieve and parse the WANSync scenario definition file, which is in XML format.

Action:

Verify that the BrightStor ARCserve Backup engine is up and running.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error E3371

Unable to get session physical path. (MEDIA=[media name], ID=[media id], SESSION=[session #])

Module:

Task Restore

Reason:

During WANSync Scenario session restore to original replica node, BrightStor ARCserve Backup backend needs to find out the physical path of the session from the BrightStor ARCserve Backup database. When the BrightStor ARCserve Backup database query fails, this message will be logged.

Action:

Verify that the BrightStor ARCserve Backup database engine is running and in good state.

Merge the session into the BrightStor ARCserve Backup database.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0457

**Unable to perform AR or suspend WANSync scenario
<name=[scenario name], id=[scenario id]> on replica
server<[hostname]>**

Module:

Windows Client Agent

Reason:

Prior to backing up WANSync scenario data, the Windows Client Agent asks WANSync to perform Assured Recovery or suspend the scenario to take a snapshot of the scenario replicated data. This error indicates that WANSync is unable to perform the Assured Recovery suspend operation.

Action:

Check the WANSync Manager that manages the scenario and verify that the scenario is running and is in a replication state.

Check the WANSync events log to determine if there is any errors or warnings associated with the scenario.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0458

**Could not create WANSync backup image <name=[scenario name],
id=[scenario id]> on replica server<[hostname]>.**

Module:

Windows Client Agent

Reason:

This is a generic WANSync backup error message. It could be related to insufficient system resources or XOsoft engine problems.

Action:

Check the system event log to determine if there are any system related problems.

Check the WANSync events log to determine if there are problems related to the WANSync scenario.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0459

Insufficient user credentials supplied for scenario <name=[scenario name], id=[scenario id]>, unable to login to WANSync on master server<[hostname]>.

Module:

Windows Client Agent

Reason:

When creating a WANSync scenario backup job, it is required to provide the scenario Master server user credential, which will be packaged into the job script. This error indicates that the username/password is not correct or does not have administrative privilege.

Action:

Verify that the Master server user credential is correct. If the user is a domain user, the domain name and user name need to be in the format of DomainName\UserName.

Verify that the user has administrative privilege of the master node. Check the administrators group of the Master server to determine if the user is part of that group. If it is not, you need to add the user to the group.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0460

Snapshot creation failed for WANSync scenario <name=[scenario name], id=[scenario id]> on replica server<[hostname]>.

Module:

Windows Client Agent

Reason:

Prior to backing up WANSync scenario replication data, the XOsoft engine will take a snapshot of the replication data and the BrightStor ARCServe Backup agent will backup the data from the snapshot. This error indicates that the XOsoft engine is unable to create the snapshot and is most likely caused by insufficient system resources, such as not enough disk space.

Action:

Verify that the disk used to hold the snapshot still has enough free space.

Check system event log for VSS related errors.

Verify that the XOsoft engine service is running.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0461

Some snapshots could not be released for WANSync scenario <name=[scenario name], id=[scenario id]> on replica server<[hostname]>.

Module:

Windows Client Agent

Reason:

After the scenario backup is done, the XOsoft engine attempts to release the snapshot created earlier. This error indicates possible insufficient system resources.

Action:

Check system event log to see if there are any system related errors.

Verify that the XOsoft engine service is running.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0463

Could not attach to WANSync scenario <name=[scenario name], id=[scenario id]>.

Module:

Windows Client Agent

Reason:

The BrightStor ARCserve Backup agent cannot communicate with the XOsoft engine service. This problem could be caused by the following reasons:

- The XOsoft engine service is not running on the Replica or Master server.
- Network connection problem.
- The COM object AS_ws_backup_c is not registered.

Action:

To address this message, perform the following:

- Verify that the XOsoft engine service is running on both the Replica and Master server.
- Ping the Master and Replica servers to verify that there is no network connection problem.
- Use Oleview.exe or other tools to check COM object AS_ws_backup_c is registered on the BrightStor ARCserve Backup agent machine.
- If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0464

WANSync scenario <name=[scenario name], id=[scenario id]> could not be stopped. Please manually stop the scenario and retry restore.

Module:

Windows Client Agent

Reason:

Prior to restoring the WANSync replicated data, the BrightStor ARCserve Backup agent asks the XOsoft engine to stop the running scenario. This error indicates that the XOsoft engine service may not be running or that the user credential for the Master server is incorrect.

Action:

To address this message, perform the following:

- Verify that the XOsoft engine service is running on both the Replica and Master servers.
- Verify that Master server user credential in the job script is correct. If the domain user is used, the user name needs to be in DomainName\UserName format.
- Check the "Continue the restore job even when the scenario cannot be stopped" check box option (on the Restore Manager Global Options Operation dialog), and attempt to perform the restore job again.
- If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0465

WANSync scenario <name=[scenario name], id=[scenario id]> is not in replication state. Please retry backup when the scenario is in replication state.

Module:

Windows Client Agent

Reason:

This error indicates that during a backup, the scenario is not in a replication state.

Action:

Check the WANSync manager to verify that the scenario is in a replication state. If it is not, wait until it is in replication state and run the job again after scenario is in a replication state.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0467

Backup operation not supported on WANSync master <[hostname]> or replica<[hostname]> server. Please refer to product documentation for supported configuration.

Module:

Windows Client Agent

Reason:

The XOsoft engine on the Replica server cannot initialize the scenario for the backup due to an invalid master/replica host name or the host name resolution does not work.

Action:

If the host name was changed since the scenario was created, verify that node name of the scenario's Master and Replica server is still correct.

Verify that the DNS name resolution is working in the Replica host.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0468

Bad parameters for WANSync scenario <name=[scenario name], id=[scenario id]>.

Module:

Windows Client Agent

Reason:

This is a BrightStor ARCserve Backup internal error. This message indicates that an incorrect parameter was passed to the WANSync API.

Action:

Collect the BrightStor ARCserve Backup server and agent log files and contact CA Technical Support for assistance.

For online technical assistance and a complete list of locations, primary service hours, and telephone numbers, contact Technical Support at
<http://ca.com/support>.

Error AE0469

The WANSync operation timed out for scenario <name=[scenario name], id=[scenario id]>.

Module:

Windows Client Agent

Reason:

The WANSync operation cannot be completed within the time interval specified. The default timeout value is 3 minutes.

Action:

To address this message, perform the following:

- Check the Master and Replica servers to verify that the XOsoft engine service is running.
- Check the WANSync Manager to verify that the scenario is running and check the WANSync events log for any errors related to the scenario.
- Increase the timeout value by accessing the BrightStor ARCserve Backup Client Agent registry tree and specifying the WANSyncTimeout DWORD to a value greater than 180 seconds.

`\HKEY_LOCAL_MACHINE\ComputerAssociates\BrightStor ARCserve Backup\ClientAgent\Parameter\WANSyncTimeout`

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0470

WANSync connection already exists for scenario <name=[scenario name], id=[scenario id]>. Please retry backup.

Module:

Windows Client Agent

Reason:

This message indicates that there is another backup job being backed up and the scenario or some other applications have the connection to the scenario.

Action:

Wait and retry the backup job.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0471

Bad configuration for WANSync scenario <name=[scenario name], id=[scenario id]>. Please ensure that you either have Assured Recover (AR) configured or Suspend enabled for this scenario.

Module:

Windows Client Agent

Reason:

This message indicates that the WANSync scenario may be incorrectly configured.

Action:

See the *CA XOsoft WANSync User Guide* for detailed information about configuring scenarios.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

Error AE0472

General WANSync errors encountered for scenario <name=%hs, id=%hs>. Please check WANSync logs for more information.

Module:

Windows Client Agent

Reason:

This message indicates that the WANSync API encountered some unclassified errors and the BrightStor ARCserve Backup agent will enter this message into its log.

Action:

Check the WANSync manager for more detailed information related to scenarios.

If the problem persists, contact Technical Support at <http://ca.com/support> for online technical assistance and a complete list of locations, primary service hours, and telephone numbers.

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