

CA XOsoft™ Replication for Windows

Microsoft® SQL Server Operation Guide
r12.5



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Chapter 1: Introduction

CA XOsoft SQL is an SQL data recovery solution that uses asynchronous real-time replication to provide cost-effective disaster recovery capabilities for Microsoft SQL on 32- and 64-bit Windows standalone and cluster servers.

CA XOsoft's asynchronous SQL server replication, over LAN or WAN, of database files from a production server to one or more local or geographically distant replica servers offers rapid SQL server recovery.

When disaster strikes, and anything that puts a stop to your ability to do business is a disaster, it is critical that you respond urgently. Whether a flood or a blackout, or the more probable virus attack or user error, you must recovery quickly with minimal data loss or risk losing productivity, revenue, customers and opportunities, perhaps even the viability of your entire business.

CA XOsoft SQL server replication software and SQL data recovery software helps ensure that you are ready to respond.

This section contains the following topics:

[About This Guide](#) (see page 7)

[Related Documentation](#) (see page 7)

[Server Requirements](#) (see page 8)

[Select Databases for Replication](#) (see page 11)

[Scenario Properties](#) (see page 11)

About This Guide

This document describes how to implement a Disaster Recovery solution for SQL Server Server using CA XOsoft. Please review each procedure before starting, to ensure you have the appropriate resources and permissions to carry it out.

Related Documentation

Use this Guide along with the *CA XOsoft Installation Guide* and the *CA XOsoft User Guide*.

Server Requirements

To implement CA XOssoft or CA XOssoft HA, refer to the appropriate list of requirements, depending on the server type you selected. These components are licensed separately. If you do not have the license required to access support for a specific server type, please contact Tech Support.

Base Configuration

Base Configuration

- Two servers running Windows Server 2000, 2003, or 2008 with the same level of service packs and hot fixes installed.
- All IP addresses are statically assigned (DHCP-assigned IP addresses on the Master or Replica server are not supported)
- The protected server is not a domain controller or DNS server
- Both servers should reside in the same Active Directory forest and also be members of the same domain or trusted domain.

SQL Server Configuration Requirements

- One or more instances of Microsoft SQL Server 2000, 2005, 2005 Express, or 2008 installed on each server
 - Both servers should have the same SQL version, service packs and hot fixes installed
 - Both servers should hold identical SQL server instances (default or named)
 - Both servers should reside in the same Active Directory forest and be members of the same domain or trusted domain
 - Drive letters containing database files should be identical on both servers
 - The full path to the default system database of each instance should be identical on both servers
 - Verify that the port defined in the Network Configuration TCP/IP properties of the SQL instances is assigned statically and is identical on both Master and Replica

Log On Account Conditions

The CA XOssoft Replication Engine service must satisfy certain account conditions for successful communication with other components. If these requirements are not met, scenarios may not run. If you lack the permissions required, contact your local IS team.

- It is a member of the Domain Admins group. If the Domain Admins group is not a member of the built-in domain local group Administrators you must use an account that is.
- It is a member of the local machine Administrators Group. If the Domain Admins group is not a member, add the account manually.
- For servers in a workgroup, use the Local System account.
- Master and Replica servers must reside in the same Active Directory forest.

SQL Servers Operating in a Workgroup

For servers in a workgroup, set the CA XOssoft Engine service account to a user that is a member of the Local Administrators group.

About Clusters

Installing on clusters is much the same as a standard installation. To configure CA XOssoft on a cluster, enter the Virtual Server Network Name (or IP Address) resource (in the group you intend to protect) as the Master or Replica name. Do not use node names or IP addresses when configuring the scenario. Also, you must install the CA XOssoft Engine to all cluster nodes (see *Server Setup*).

License Registration

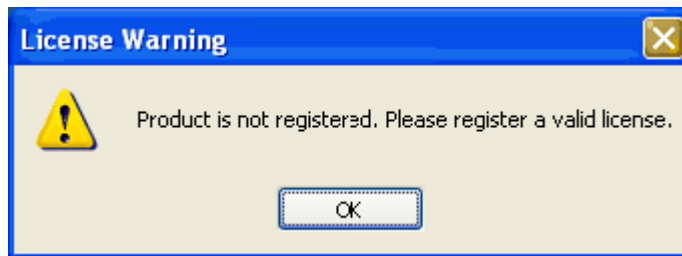
CA XOssoft licensing policy is based on a combination of several parameters, which include: the operating systems involved, the required solution, the supported application and database servers, the number of participating hosts, and the additional modules - Assured Recovery and CDP Repository. The license key that is generated for you is therefore tailored to your exact needs.

After logging in for the first time, or if your old license has expired, you need to register CA XOssoft product using your license key. To register the product, you need to open CA XOssoft Manager, which does not depend on the existence of a valid registration key. Once the Manager opens, a License Warning message appears, prompting you to register the product. A License Warning message also appears when your license is about to expire during the next 14 days.

When you are creating a scenario, some of the options might be disabled following the terms of your license. However, you can create as many scenarios as you wish, since the validity of your license key is first checked when you try to run a specific scenario. Only when you click the **Run** button, the system checks whether you are allowed to run the selected scenario according to your license key. If the system determines that you do not have the required license for running this scenario, the scenario will not run and a message will appear on the Event pane informing you of the type of license you need.

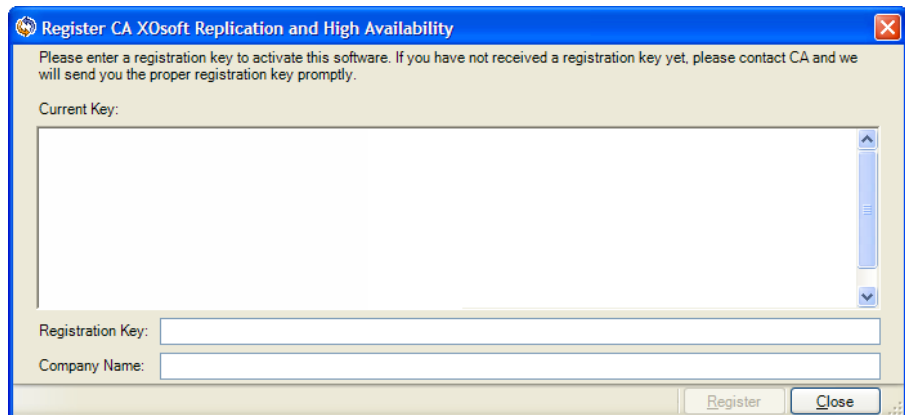
To register CA XOsoft using the license key

1. Open the Manager. The **Welcome** message appears. Then, a **License Warning** message appears informing you that your product is not registered and prompting you to register it.



2. Click **OK** to close the message. Then, open the **Help** menu and select the **Register** option.

The **Register CA XOsoft Replication and High Availability** dialog opens.



3. Enter the following information:
 - In the **Registration Key box** - enter your registration key.
 - [Optional] **Company Name box** - enter your company name
 4. Click the **Register** button to register the product and close the dialog.
- Now you can start working with the CA XOsoft Manager according to your license permissions.

Select Databases for Replication

Using CA XOsoft SQL, you can replicate either all SQL databases (including SQL master Database) or only user-created databases.

- Replicating one or more user-created databases offers the following advantages:
- Initial data synchronization between master and replica servers is faster, as less data is transferred over the network
- Data can be stored on a replica site at a different location, even if the standby solution is used
- There is no need to stop SQL Server service on the replica machine. However, replicated databases must be detached before replication is started

Alternatively, you can replicate all SQL databases (including the SQL master database. In this case, there is no need to attach databases, as the SQL master database on the replica server is updated with path information for all other databases. However, this approach requires the following:

- SQL server service must be stopped on the replica server before replication is started
- The database directory structure on the master and replica servers must be identical (this is required only if you intend to open SQL databases on the replica server)

You can consider replication of all databases (including the master database containing SQL configuration information), if you plan to make frequent changes to system tables (for example, adding users to the syslogins table in the SQL master database). Changes to system tables are reflected in the replicated files.

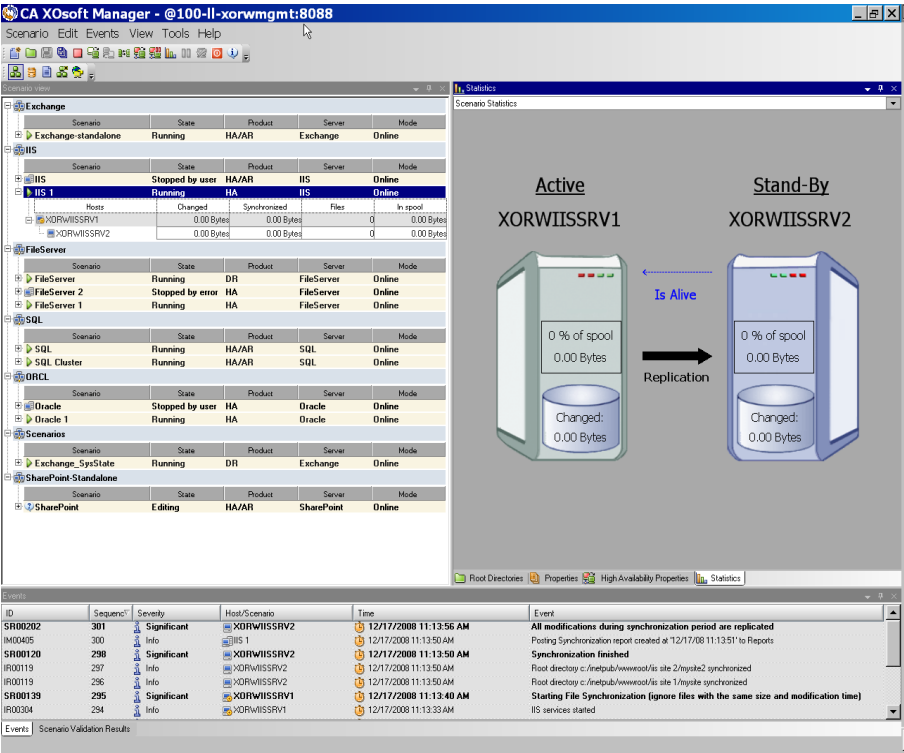
Important! If you are using Assured Recovery testing, replication of the system databases is mandatory.

Scenario Properties

If you wish to change a scenario configured through the Wizard or configure additional settings, you can use the Properties pane to modify the scenario.

The Properties pane and its tabs are context-sensitive and change whenever you select a different node from a scenario folder. You must stop a scenario before configuring its properties. Certain values cannot be modified once set; they are noted. For full details on configuring scenario properties and their descriptions, see the CA XOsoft User Guide.

Properties are organized into tabs on the CA XOssoft Manager Framework pane. The tabs displayed are based upon server type, CA XOssoft solution, and scenario status. Select the scenario for which you wish to change properties, and then select the appropriate tab.



Settings on the Root Directories tab

Select a Master Server from the Scenario Pane. Double-click its Directories folder to add or remove Master Root Directories. Select or clear checkboxes next to folders, as desired, to include or exclude them. You may also edit directory names.

Select a Replica Server from the Scenario Pane. For each Master Root directory, you must specify a Replica Root directory. Double-click the Directories folder for the Replica server. Select or clear checkboxes next to folders, as desired, to hold the corresponding Master directory.

When you select auto-discovery of database files, a SQL auto-discovery dialog opens. The dialog displays all the SQL instances and databases available on the master SQL host. This can be done in the wizard and/or in the scenario view. You can select the instances or databases that are needed.

Note: If you select an instance, you cannot deselect the master, model or msdb databases. You can only deselect user created databases.

There is also a checkbox called "Replicate new databases in the selected root directories". If checked, new databases that are created by the user after the scenario runs will be replicated.

Settings on the Properties Tab

Scenario Properties

These settings establish default behavior for the entire scenario.

- General properties -- cannot be changed once created
- Replication properties -- choose the replication mode (Online or Scheduled), synchronization values (File or Block, Ignore Files of Same Size/Type) and optional settings (Replicate NTFS Compress Attribute, Replicate NTFS ACL, Synchronize Windows Shares, Prevent Automatic Re-sync upon Error)
- Event notification properties -- specify a script to run, choose email notification, or write to event log.
- Report Handling -- specify report settings, email distribution or script execution

Master and Replica Properties

These settings establish server properties on both Master and Replica. Some settings vary by server type.

- Host connection properties -- Enter the IP address, Port number and Fully Qualified Name of the Master and Replica
- Replication properties -- These properties differ for Master and Replica. See the CA XOsoft User Guide for more information.
- Spool properties -- Set the size, minimum disk free size and directory path. See Spool Directory Settings for more information.
- Event notification properties -- specify a script to run, choose email notification, or write to event log.
- Report properties -- choose synchronization or replication reports, specify distribution or script execution
- (Replica) Scheduled Tasks -- set or suspend tasks, including Replica Integrity Testing for Assured Recovery. For more details, see the CA XOsoft User Guide.
- (Replica) Recovery properties -- set delay, data rewind properties, or scheduled task for replica.

Chapter 2: Creating and Using Scenarios

This chapter describes the most common setup for CA XOssoft HA for Microsoft SQL Server.

This section contains the following topics:

[Create an SQL Scenario](#) (see page 15)

[Run the Scenario from Outside the Wizard](#) (see page 16)

[Stop a Scenario](#) (see page 18)

[View a Report](#) (see page 18)

Create an SQL Scenario

Creating scenarios is covered in full detail in the CA XOssoft User Guide. This section provides additional information specific to a MS SQL disaster recovery scenario. The Scenario Creation Wizard guides you through the steps required to create a disaster recovery scenario. When completed, you should run your scenario to start data synchronization. Synchronization could take a while, depending on database size and network bandwidth. Once synchronization completes, your scenario now maintains the Replica server so that it can take over for the Master the moment a failure is detected.

Please read the entire procedure, including cross-referenced information, if applicable, before you proceed.

To create a SQL scenario

1. From the CA XOssoft Manager, choose Scenario, New or click the New Scenario button.
2. When the Welcome dialog opens, select Create New Scenario and click Next.
3. When the Select Scenario Type dialog opens, select SQL, Disaster Recovery Scenario, and Replica Integrity Testing for Assured Recovery (optional). For more information on Assured Recovery, see the *CA XOssoft User Guide*.
4. When the Master and Replica hosts dialog opens, name your scenario and provide the hostname or IP address for the Master and Replica servers. If either server is a MSCS cluster, enter the cluster resource virtual server name or IP address. Click Next. For more information, see Redirection Methods.

5. Wait for Engine Verification to complete and click Next. If needed, click Install to upgrade the Engine on one or both servers and then click Next.

The Database for Replication dialog opens, listing all auto-discovered results for the specified Master. By default, all databases are included.

6. Change selections, as desired and click Next.
7. When the Scenario Properties dialog opens, configure additional properties, if needed. If you use NTFS ACLs with domain accounts for user access control, we recommend that you choose the Replicate NTFS ACL option and click Next. For more information, see Scenario Properties or the *CA XOsoft User Guide*.

The Master and Replica Properties dialog opens.


8. Accept default settings or make the desired changes and click Next.
9. Click Next to initiate scenario verification. If errors are reported, you should resolve them before continuing. At successful verification, click Next to complete scenario creation.
10. Choose Run Now or Finish, as desired. Run Now starts synchronization. Finish allows you to run the scenario later. See [Run the Scenario from Outside the Wizard](#). (see page 18)

Run the Scenario from Outside the Wizard

After you create a scenario, you need to run it to start the replication process. Normally, before data changes on the Master will begin to be replicated on the Replica, the Master and the Replica need to be synchronized. Therefore, the first step in initiating a replication is synchronizing the Master and Replica servers. After the servers have been synchronized, online replication starts automatically, continuously updating the Replica with all of the changes that occur on the Master.

Note: In order for the replication process to succeed, verify that the user under which the CA XOsoft Engine is running has Read permission on the Master, and Read and Write permissions on each replication root directory and included files, and on all participating Replica hosts.

To run the scenario from outside the wizard

1. From the Scenario pane, select the scenario you want to run.
2. Click **Run**  on the Standard toolbar.

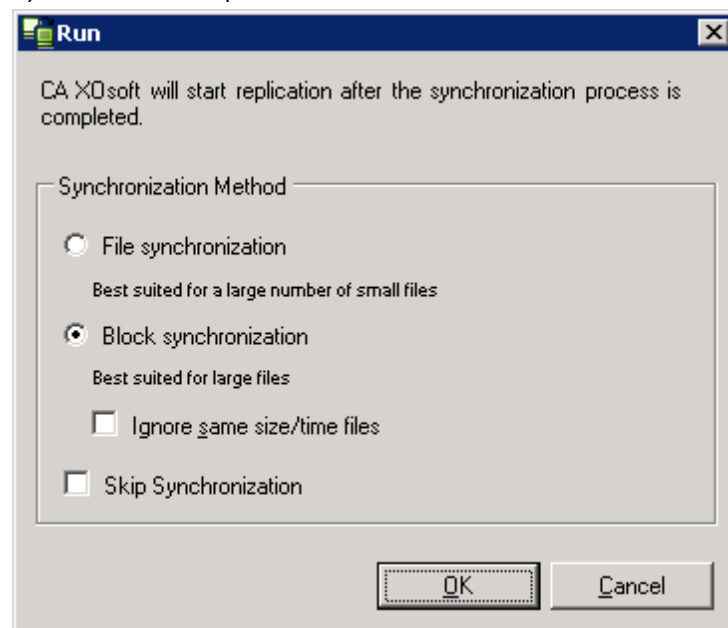
Before initiating synchronization and replication, CA XOsoft verifies your scenario configuration. When verification completes successfully, CA XOsoft Manager displays the message: *Are you sure you want to run scenario "scenario_name?"* If problems are discovered, the top pane displays any warning and error messages resulting from verification.

Note: Scenario Verification checks many different parameters between the Master and Replica servers to ensure a successful switchover. If any errors or warnings are reported you should not continue until they are resolved.

3. Correct errors before you continue. Errors are reported on the Event pane.

Note: Replication of mount points succeeds only if those were added to the Master before the Engine was started. If you included the mount points in the Master root directories when the Engine was already running, no error is reported but the replication does not start. In this case, you need to restart the Engine on the Master before initiating replication.

When no error is reported, the **Run** dialog appears and contains synchronization options.




Note: Do not use Skip Synchronization for any scenarios replicating a database.

4. Select Block Synchronization. Select the Ignore same size/time files to skip the comparison of files with the same path, name, size and modification time, which are generally identical, to reduce synchronization time. You should enable the Skip Synchronization option only when you are certain the files on both Master and Replica are identical.
5. Click the **OK** button. Synchronization may take a while, depending on database size and network bandwidth between the Master and Replica. You will receive the following message in the event window when the synchronization is complete: *All modifications during synchronization are replicated.*

At this point, the scenario is operational and active. By default, a Synchronization Report is generated when synchronization finishes. To view the report, refer to the topic, [View a Report](#). You can also generate regular Replication Reports to monitor the replication process on each participating server. For more information, see the *CA XOsoft User Guide*.

Stop a Scenario

To stop a scenario

1. From the Scenario pane, select the scenario you want to stop.
2. To stop the scenario, click the **Stop**  button on the Standard toolbar.
A confirmation message appears prompting you to approve the scenario stopping.
3. Click **Yes** in the confirmation message. The scenario stops.
After stopping the scenario, the Manager no longer shows the green play symbol to the left of the scenario, the scenario's state turns into **Stopped by user**, and the Statistics tab is no longer available on the Framework pane.

View a Report

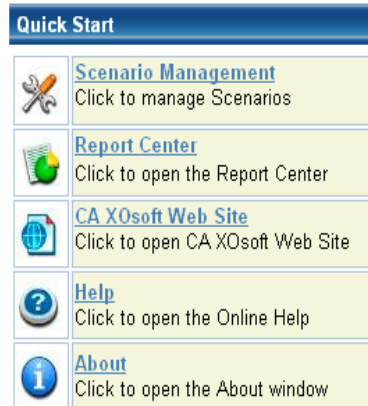
CA XOsoft can generate reports on the replication and synchronization processes. These reports can be stored on your desired location, opened for view from the Report Center, sent by email to a specified address, or they can trigger script execution.

The default storage directory of the generated reports is:
[ProgramFilesFolder]\CA\XOsoft\Manager\reports

To view a report

Note: Though an Exchange report is shown for illustrative purposes, the steps and screens are similar regardless of scenario type.

- To view a report, first you need to open the Report Center. There are two ways to open it:
 - On the Overview Page, click the **Report Center** link on the **Quick Start** pane on the left:



- From the **Tools** menu, select the **Reports** option and then **Show Scenario Reports**.

The Report Center opens in a new window:

The screenshot shows the 'CA XOssoft Report Center' window. At the top, it says 'Updated: Tuesday, December 09, 2008 1:32:09 PM'. Below this is a table titled 'Available Reports per Scenario'. The table has columns for Scenario Name, Synchronization, Difference, Replication, Assessment Mode, Assured Recovery, CDP, and Total Reports. It lists scenarios for SQL, Exchange, and FileServer. Below this table is another table titled 'Reports' with columns for Host, Changes, Date, Time, Type, Summary, Detailed, and Size (bytes).

Available Reports per Scenario							
SQL							
Scenario Name	Synchronization	Difference	Replication	Assessment Mode	Assured Recovery	CDP	Total Reports
SQL	1	0	0	0	0	0	1
Backward SQL	1	0	0	0	0	0	1
Exchange							
Scenario Name	Synchronization	Difference	Replication	Assessment Mode	Assured Recovery	CDP	Total Reports
Exchange-standalone	1	0	0	0	0	0	2
FileServer							
Scenario Name	Synchronization	Difference	Replication	Assessment Mode	Assured Recovery	CDP	Total Reports
FileServer	1	0	0	0	0	0	2

Reports							
Drag a column header here to group by that column							
Host	Changes	Date	Time	Type	Summary	Detailed	Size (bytes)

The Report Center consists of two tables:

- The upper table - **Available Reports per Scenario** - contains a list of all scenarios that have reports, along with the type and number of available reports for each scenario.
- The lower table - **Reports** - contains a list of all the reports that are available for the scenario selected in the upper table.

- To view a specific report, select from the **Available Reports per Scenario** table the scenario that this report represents. Then, from the **Reports** table below, click the report you want to open:

Drag a column header here to group by that column							
Host	Changes	Date	Time	Type	Summary	Detailed	Size (bytes)
XDRMEXCH2K7-1	Unknown	Today	03:29:37	Assured Recovery			811
XDRMEXCH2K7-1	Changes found	12/07/08	22:29:48	Synchronization			28415

Note: Depending on your settings, for Synchronization and Replication reports a **Detailed** report can be generated in addition to the **Summary** report. Both reports represent the same process, but the **Detailed** report also provides a list of the files that participated in the process.

The report you selected appears in a new window:

 CA XOsoft Report Center [Report Center Home Page](#)

CA XOsoft High Availability

SYNCHRONIZATION REPORT

Synchronization mode	BlockSynchronization (include files with the same size and modification time)
Scenario	Scenario001
Master host	XDRWSECN2K7-2(1)
Replica host	XDRWSECN2K7-1(2)
Scenario start time	07-Dec-08 22:23:31
Report start time	07-Dec-08 22:23:41
Report finish time	07-Dec-08 22:29:48

Summary:

Total number of files modified	154
Total number of bytes changed	171.7MB

Chapter 3: Recovering Data

This section contains the following topics:

[The Data Recovery Process](#) (see page 21)

[Recover Lost Data from Replica](#) (see page 22)

[Setting Bookmarks](#) (see page 25)

[Data Rewind](#) (see page 26)

The Data Recovery Process

When an event causes loss of Master data, the data can be restored from any Replica. The recovery process is in fact a synchronization process in the reverse direction - from a Replica to the Master.

CA XOsoft enables you to recover data in two ways:

- Recover lost data from the Replica to the Master -- this option is a synchronization process in the reverse direction and requires you to stop the scenario. (This option is not recommended for Oracle, SQL or Exchange scenarios.)
- Recover lost data from a certain event or point in time (Data Rewind) -- This option uses a process of stamped checkpoints and user-defined bookmarks to roll corrupt data on the Master back to a time before corruption occurred.

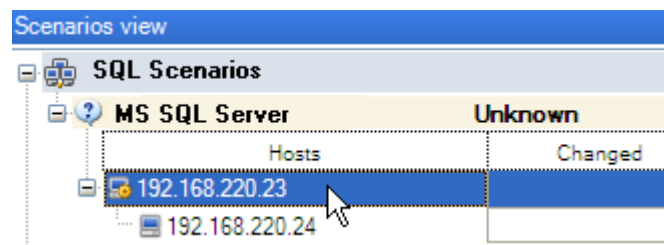
Important! You must stop replication in order to initiate recovery.

Recover Lost Data from Replica

To recover all lost data from a Replica

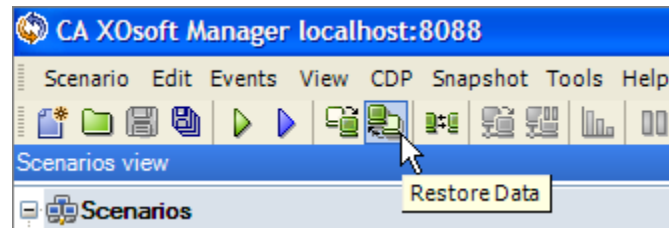
1. On the Manager, from the Scenario pane select the desired scenario and stop it.
2. [For database applications only] stop the database services on the Master host.
3. On the Manager, from the scenario folder select the Replica host:

Note: If multiple Replica servers participate in the required scenario, select the Replica from which you want to recover data.

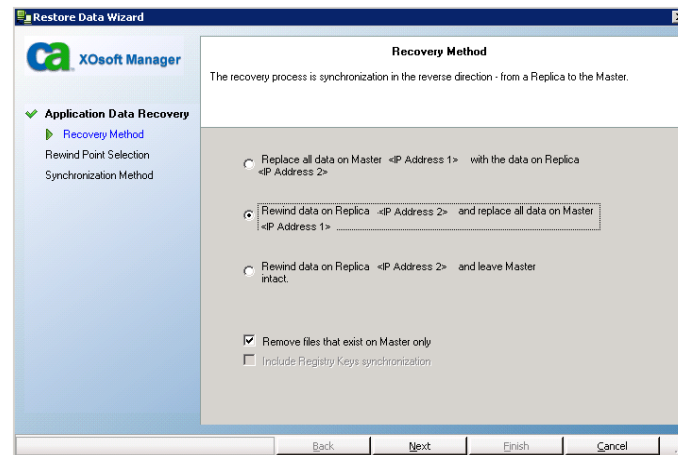


The **Restore Data** option is enabled.

4. From the **Tools** menu, select **Restore Data**, or click the **Restore Data** button on the Standard toolbar:

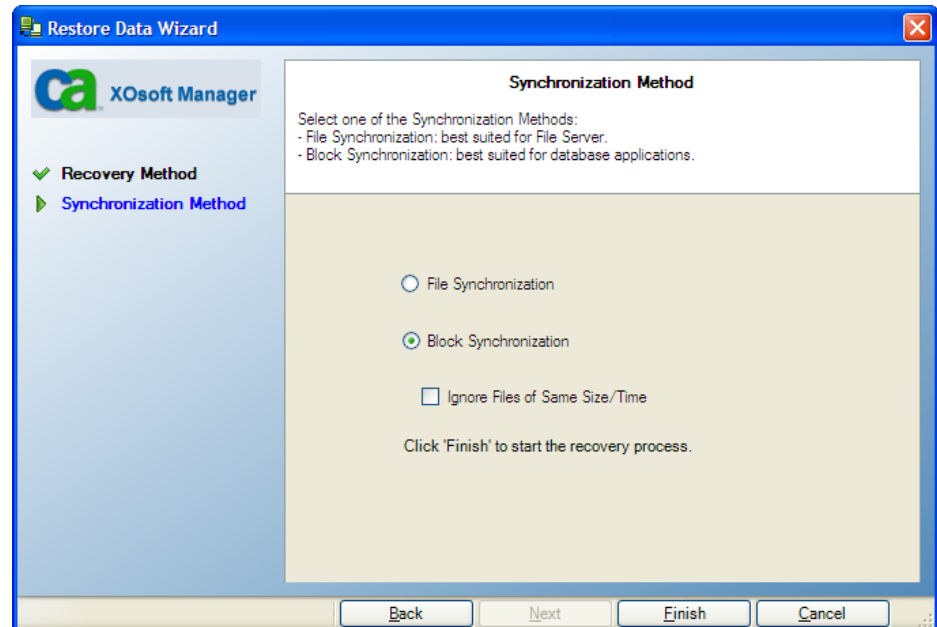


The **Recovery Method** page of the Restore Data wizard appears:



Note: If the **Data Rewind** property is set to On, another **Restore Data dialog** (see page 26) will appear. In this case, select the first option - Replace all data on Master with the data on Replica.

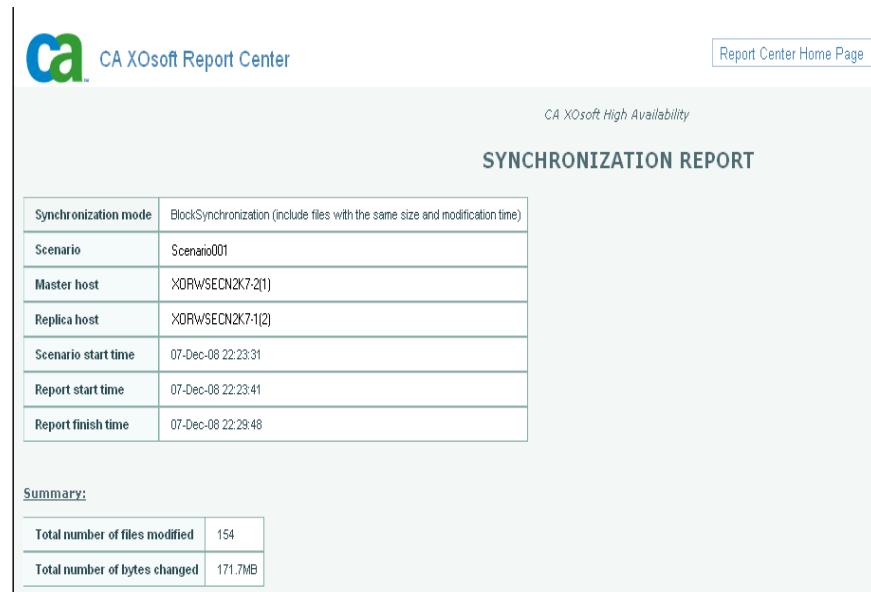
5. Click Next. The Synchronization Method page appears:



6. Make sure that the **Block Synchronization** method is selected, and click **Finish**.

Once you finished initiating the recovery process, CA XOsoft builds a temporary reverse tree using the selected Replica as the root, and the Master as the terminating node. After the Master recovery process ends, the temporary scenario is deleted, and you receive the following message in the Event pane: **Synchronization finished**.

7. By default, once a data recovery occurs a Synchronization Report is generated:



The screenshot displays the CA XOsoft Report Center interface. At the top left is the CA XOsoft Report Center logo, and at the top right is a link for 'Report Center Home Page'. Below the header, the text 'CA XOsoft High Availability' is visible. The main heading is 'SYNCHRONIZATION REPORT'. A table lists the following details:

Synchronization mode	BlockSynchronization (include files with the same size and modification time)
Scenario	Scenario001
Master host	XDRWSECN2K7-2(1)
Replica host	XDRWSECN2K7-1(2)
Scenario start time	07-Dec-08 22:23:31
Report start time	07-Dec-08 22:23:41
Report finish time	07-Dec-08 22:29:48

Below the table, a 'Summary:' section contains another table:

Total number of files modified	154
Total number of bytes changed	171.7MB

Now, the replication process can restart following the original scenario.

Setting Bookmarks

A *bookmark* is a checkpoint that is manually set to mark a state that you may want to rewind back to. We recommend setting a bookmark just before any activity that may cause data to become unstable. Bookmarks are set in real-time, and not for past events.

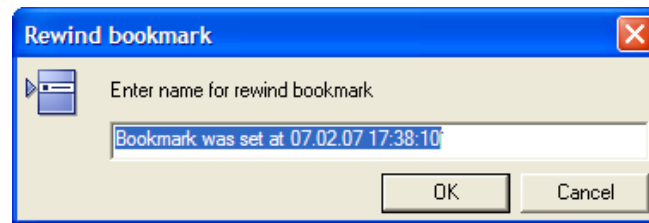
Notes:

- You can use this option only if you set the **Recovery - Data Rewind** option to **On** (default setting is Off).
- You cannot set bookmarks during the synchronization process.

To set a bookmark

1. When the required scenario is running, on the Scenario pane select the Replica host from which you want to rewind data.
2. From the **Tools** menu, select the **Set Rewind Bookmark** option.

The **Rewind bookmark** dialog opens.



The text that appears in the **Rewind bookmark** dialog will appear in the **Rewind Points Selection** dialog as the bookmark's name. The default name includes date and time.

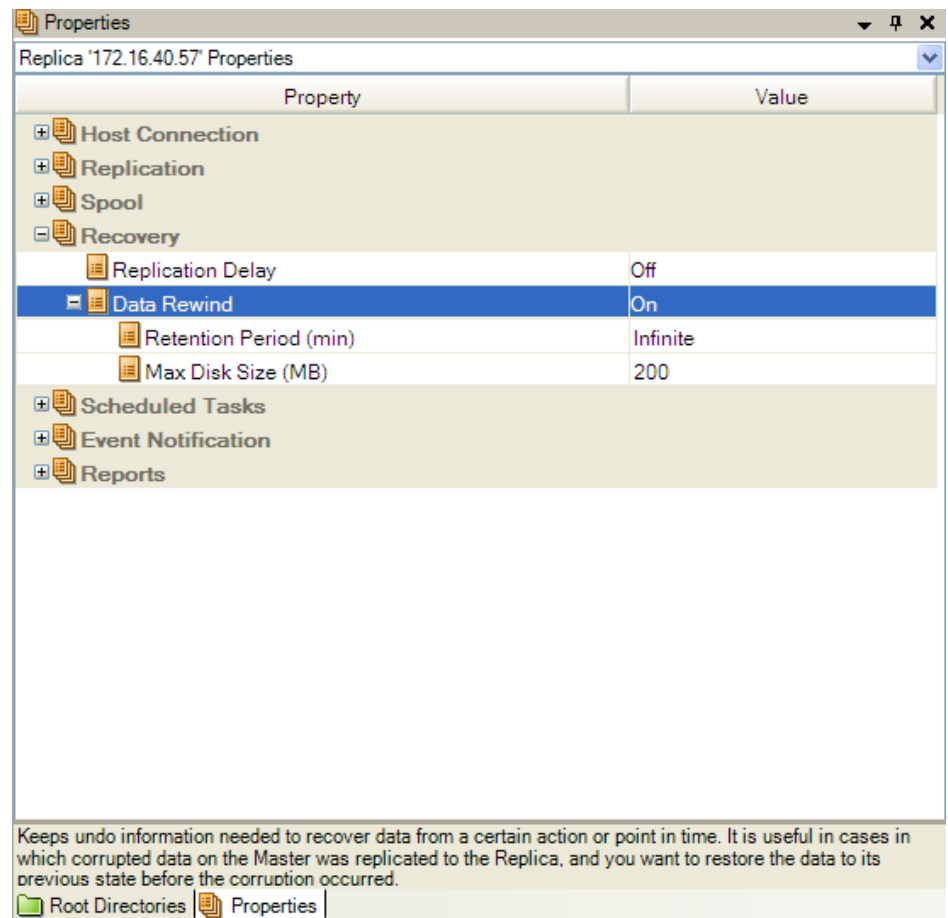
3. Accept the default name, or enter a new name for the bookmark. It is recommended to give a meaningful name that will later help you recognize the required bookmark. Then, click **OK**.

The bookmark is set.

Data Rewind

The Data Rewind recovery method allows you to rewind data to a point in time before it was corrupted. The rewind process takes place on the Replica server before the reverse synchronization process starts. The Data Rewind method uses rewind points or bookmarks that enable you to reset the current data back to a previous state.

You can use this option only if you set the **Recovery - Data Rewind** option to **On**.



If this option is set to Off, the system will not register data rewind points. For more information about Data Rewind parameters (Retention Period, Max Disk Size), see the *CA XOsoft User Guide*.

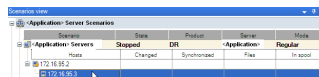
Important! The data rewind process operates in one way only - there is no replay forward. After rewind, all data subsequent to the rewind point will be lost, since data after the rewind point will be overwritten with new data.

Note: The automatic registration of the rewind points starts only after the synchronization process is completed, and the message **All modifications during synchronization period are replicated** appears on the Event pane. Similarly, you cannot manually set bookmarks during synchronization. In the following example, a File Server scenario is used, but the steps are the same for all scenario types.


To recover lost data using rewind points

1. On the Manager, from the Scenario pane select the desired scenario and stop it.
2. [For database applications only] stop the database services on the Master host.
3. On the Manager, from the scenario folder select the Replica host:

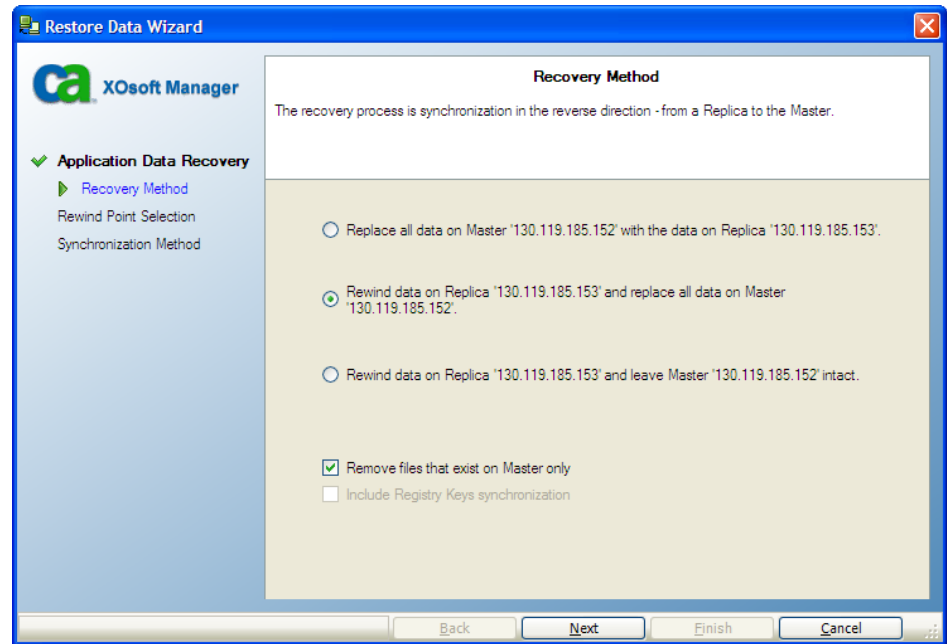
Note: If multiple Replica servers participate in the required scenario, select the Replica from which you want to recover data.



Scenario	Time	Status	Server	Note
Application - Servers	Stopped	OK	Application - Servers	Regular
172.16.31.2	Changed	Synchronized	Rep	OK good
172.16.31.3				

4. From the **Tools** menu, select **Restore Data**, or click the **Restore Data**  button. If you are prompted for user credentials, enter the appropriate information and click OK.

The **Recovery Method** page of the Restore Data Wizard opens.



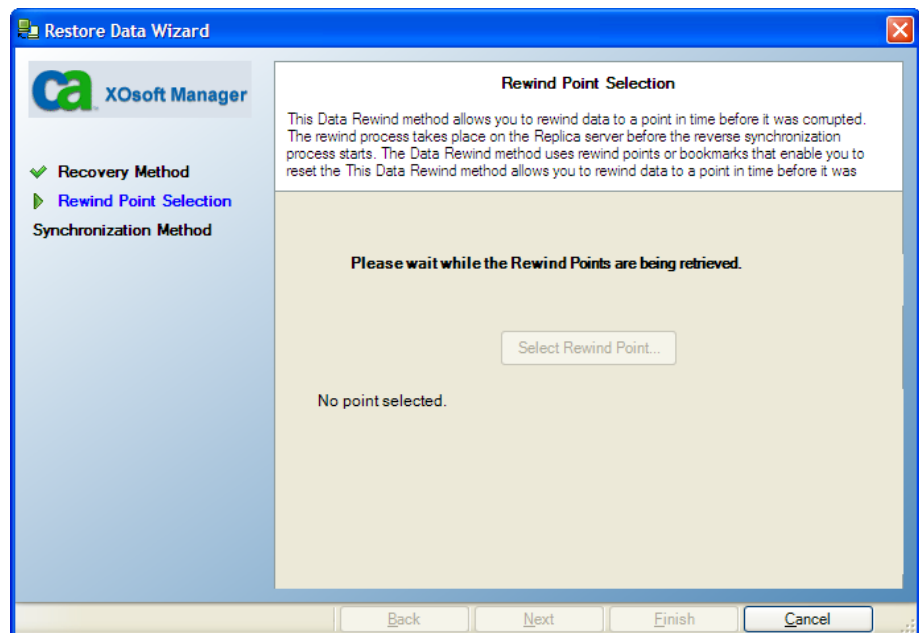
5. Select one of the Rewind data options, depending on whether you want the rewind data synchronized back to the Master (option 2) or left on the Replica only (option 3).

Notes:

- If the user credentials you used to log in to the Manager are different than the ones required for working with the Engine on the Replica, a **User credentials** dialog appears, asking you to enter log on account details for the selected Replica.
- The **Include Registry Keys synchronization** checkbox is enabled, only if you activated this option before starting the scenario. If the checkbox is enabled, you can select it to include the synchronized Registry Keys in the recovery process.

After you select a Rewind data option, a Recovery scenario is automatically created. This Recovery scenario will run until the end of the rewind process.

6. Click **Next**. The **Rewind Point Selection** page is displayed.



7. Wait until the **Select Rewind Point** button is enabled, and click it to view the existing rewind points.

The **Select Rewind Point** dialog opens.

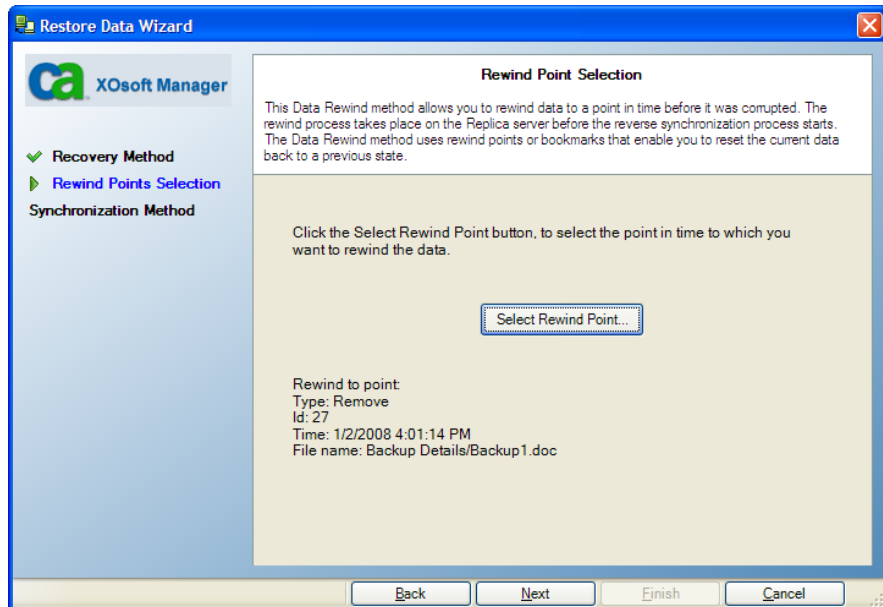
The **Select Rewind Point** dialog displays a list of all rewind points appropriate to the application you are protecting. These include modifications of folders and files that were automatically registered by the system and user-defined bookmarks.

The list can be filtered according to the rewind point type or other criteria, using the **Filter Rewind Points** pane on the left.

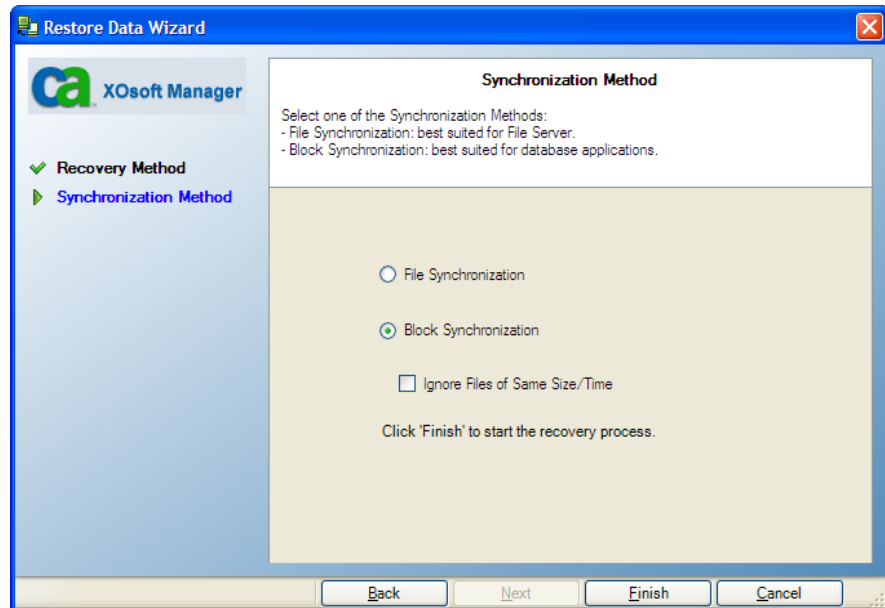
8. Select the required rewind point, and click **OK**.

Note: If you want to use a Bookmark as the rewind point, it is best practice to select the closest rewind point that indicates an actual event.

You return to the **Rewind Point Selection** page, now displaying information about the rewind point you selected.



9. Click **Next**. The **Synchronization Method** page is displayed.



10. Select the **Block Synchronization** method and click **Finish**.

Note: If the user credentials you used to log in to the Manager are different than the ones required for working with the Engine on the Replica, a **User credentials** dialog appears, asking you to enter log on account details for the selected Replica.

CA XOssoft rewinds the data to the point you selected. After the rewind process ends, you receive the following message in the Event pane:

Rewind process is completed successfully.

If you chose to replace the data on the Master with the data on the Replica, CA XOssoft starts a synchronization process from the Replica to the Master. Once the process ends, the temporary Recovery scenario is stopped and then deleted.

11. By default, once a data recovery occurs a Synchronization Report is generated.



CA XOssoft Replication	
SYNCHRONIZATION REPORT	
Synchronization mode	FileSynchronization (include files with the same size and modification time)
Scenario	Server 1
Master host	172.16.95.3(1)
Replica host	172.16.95.2(2)
Scenario start time	13-Mar-08 15:00:22
Report start time	13-Mar-08 15:29:40
Report finish time	13-Mar-08 15:29:54
Summary:	
Total number of files modified	1
Total number of bytes changed	143.27KB

Now, the Replication process can restart on the original scenario.

Appendix A: Additional Information and Tips

This section contains the following topics:

[Spool Settings](#) (see page 33)

[Rename the Microsoft SQL Server 2000/2005](#) (see page 34)

Spool Settings

The CA XOsoft spool is a folder on disk where data to be replicated is backed up (i.e., spooled) if bandwidth is not sufficient to transfer the amount of changes in real-time. Data can spool due to temporary network disconnections, network congestion, or simply because the network bandwidth is not sufficient to transfer the amount of data changing over on the server.

In addition to storing changes waiting on available bandwidth, spool space is also used as part of the normal synchronization process. Thus, some spool build up during synchronization is normal.

Place the CA XOsoft spool folder on a drive with relatively low use such as a dedicated volume or boot/system volume. Do not place the spool folder on a volume containing frequently accessed system (OS), user, or application data. Examples include volumes containing databases, shared files, or the system pagefile. By default, the spool folder is located in the tmp folder under the CA XOsoft installation directory. The spool parameters, located in the properties tab (on both master and replica) or set with the New Scenario Wizard, determines how much disk space is available for the spool. In most cases the default values are sufficient. However, if you choose to change this value, it should be at least 10% of the total dataset size. For example, if you are replicating 50GB of data on a server you should ensure that at least 5GB of space is available for spool. Please note that this space is not pre-allocated.

***Important!** If you change the spool location, please remember to remove the new path from file level antivirus scans: both scheduled and real time.*

Rename the Microsoft SQL Server 2000/2005

If you run SQL Server 2000/2005, the new name is recognized during the SQL service startup. There is no need to run Setup again or to reset the server name.

If there are any remote logins to the SQL Server, `sp_dropserver` may generate an error. To resolve the error, you may need to drop remote logins and rerun the procedure.

Note: In order to see the new SQL server in the Enterprise Manager, you need to delete an old server registration, and register the new name.

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