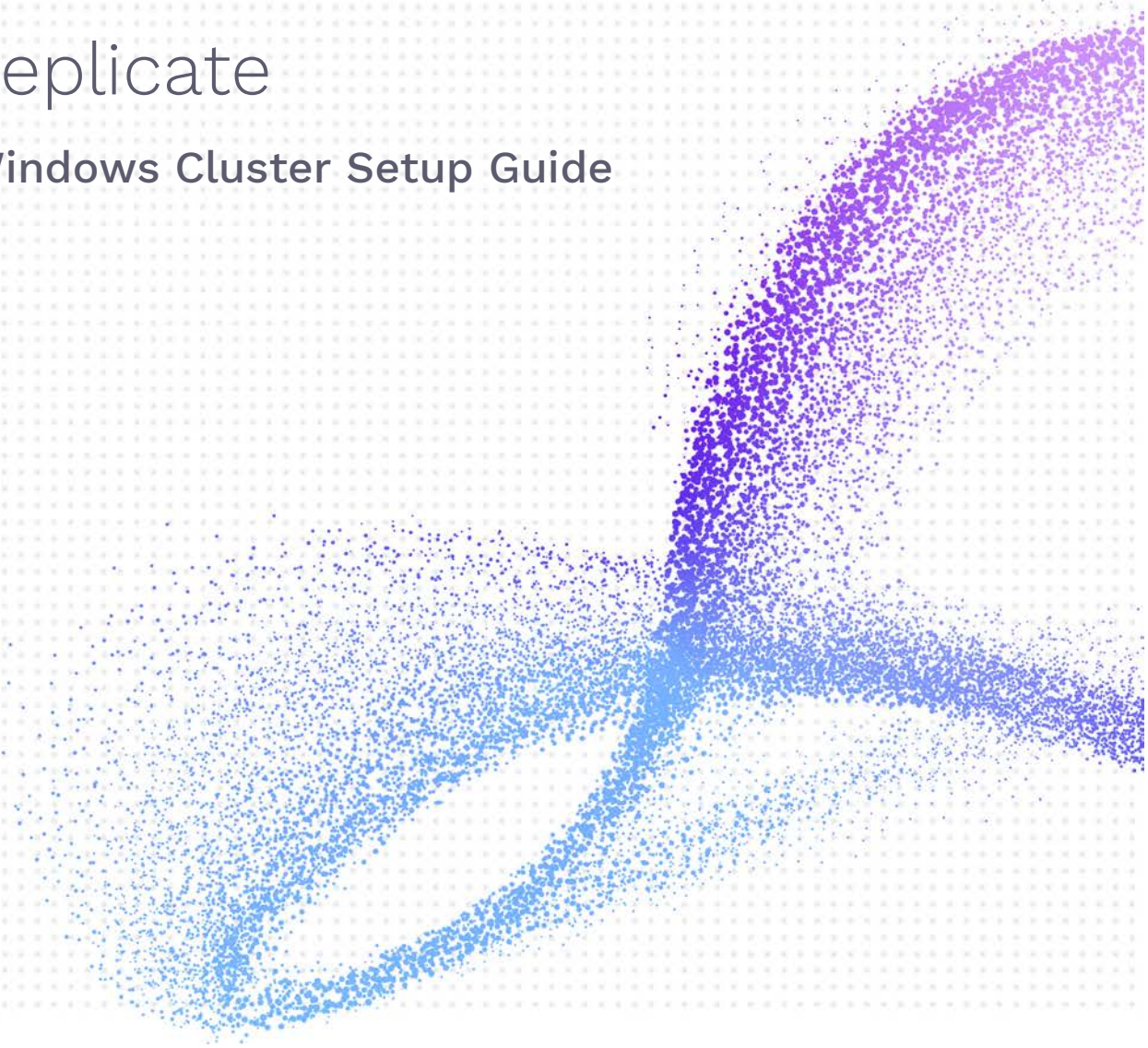
Syniti

Syniti Replicate

Microsoft Windows Cluster Setup Guide

Version 10.3



Syniti

Syniti Replicate

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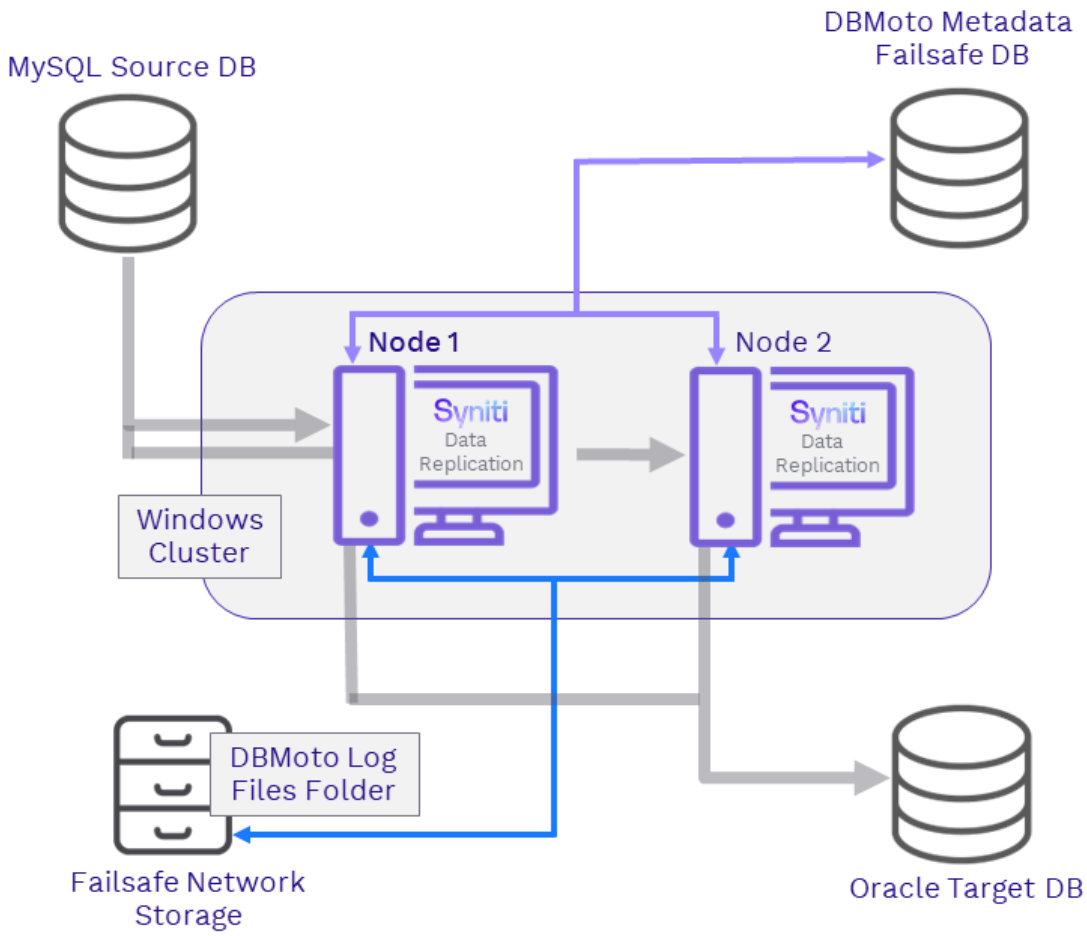
Syniti Replicate

This guide describes how to set up Syniti Replicate to run in mirroring mode in a two-node Microsoft Windows Server 2019 Failover Cluster. The steps assume that you are familiar with installing and configuring Syniti Replicate in a normal single machine environment before attempting to set it up in a cluster.

This guide **does not** cover the installation and management of the Windows Cluster environment, including details of the set up for Failover and Roles. For more information, refer to the Microsoft article Create a Failover Cluster.

Architecture

The diagram below shows two nodes in the cluster where Syniti Replicate will be installed and the locations of the Syniti Replicate Metadata and the Log Files Folder (both external to the cluster.)



Key Failover Concepts

Syniti Replicate uses two main components running as Windows services: the **Server Agent** and the **Replication Agent**. If the Log Server Agent service is used to read logs for the source, then Syniti Replicatethe Log Server Agent service needs to be running.

When Syniti Replicate fails over from one system to another, the above three services are stopped on one node, and run on the other node. The **Failover Cluster Manager** is used to create a Cluster Role that contains the 3 services to run on either node when a failure occurs.

Main Requirements Summary

- A Microsoft Windows Server 2019 Failover Cluster with two nodes (Microsoft Windows Server 2012 and above supported).
- An external fail-safe database where Syniti Replicate metadata is stored
- An external fail-safe hard-drive where the Log Server Agent's binary log files are stored
- .NET Data Providers for accessing the source, target and metadata databases

All other requirements are related to the setup of the Windows Failover Cluster and are not addressed in this document. Please refer to Microsoft documentation.

Setup Summary

Use the summary below to make sure that you complete all the setup steps for each node in the cluster.

Install a two-node Windows Server Failover Cluster (See Microsoft documentation)	• Install and configure a two-node Windows Server 2012 Failover Cluster using the Microsoft documentation • Make sure the cluster is set up with all latest Windows updates and can be managed using the Failover Cluster Manager.
Download and Install Syniti Replicate on Node 1 (See Download and Install Syniti Replicate below)	The Knowledge Platform Product Suites article acts as a hub to point to various resources. To download and/or register Syniti Replicate, log in to the support site, then click the relevant link in the Replicate section of the article. • Syniti Knowledge Base • Enter a generic support ticket • In the **DBMoto.server.config** file, set **SaveMetadataInterval** to 20.
Set up Syniti Replicate on Node 1 (See Set up the Syniti Replicate Environment on Node 1 below)	In the Syniti Replicate Management Center: 1. In the Metadata Explorer, create a metadata connection to an external failsafe database. 2. In the Metadata Explorer, create a source connection. 3. Check Use Transactional Replication. 4. Fill out the required fields. 5. Create a target connection. 6. Create a replication.

	7. Test the replication(s). 8. Stop the Replication Agent Service, Server Agent, and Log Server Agent service (if used.) 9. Use the Windows Control Panel to change the Startup Type of the three services from Automatic to Manual.
Download and Install Syniti Replicate on Node 2 (See Download and Install Syniti Replicate below)	The Knowledge Platform Product Suites article acts as a hub to point to various resources. To download and/or register Syniti Replicate, log in to the support site, then click the relevant link in the Replicate section of the article. • Syniti Knowledge Base • Enter a generic support ticket • In the **DBMoto.server.config** file, set **SaveMetadataInterval** to 20.
Set up Syniti Replicate on Node 2 (See Set up the Syniti Replicate Environment on Node 2 below)	In the Syniti Replicate Management Center: 1. In the Metadata Explorer, create a metadata connection to the database used for Node 1. 2. All connections and replications should be available from Node 2. 3. If using the Log Server Agent for replication, install the LSA Service on node 2 by opening the Connection Properties and the Setup Info dialog. 4. Test the replication(s). 5. Stop the Replication Agent Service, Server Agent, and Log Server Agent service (if used.) 6. Use the Windows Control Panel to change the Startup Type of the three services from Automatic to Manual.
Create a Failover Role in the Failover Cluster Manager (See Set Up the Failover Cluster below)	In the MS Windows Failover Cluster Manager: 1. Configure a Generic Service Role for the Server Agent Service. 2. Add the **Replication Agent Service** and the Log Server Agent service (if used) as additional resources to the role. 3. Add a dependency to the **Replication Agent Service** to ensure that the **Server Agent Service** is started first. 4. Start the role.
Test the Failover Cluster (See Test Failover Cluster Operations below)	In the MS Windows Failover Cluster Manager: 1. Select the role on the current node. 2. Right-click and choose Move, then Select Node to specify the new node. 3. Manually moving the role from one node to the other simulates what would happen in a failover situation.

Download and Install Syniti Replicate (Node 1 and Node 2)

NOTE: Complete this section on both Node 1 and Node 2 of your MS Windows Failover Cluster.

1. On the system where you plan to install Syniti Replicate, make sure that you are running Microsoft .NET Framework 4.6 or above.
2. Download Syniti Replicate.
3. In the registration form, be sure to put an email address where you can easily retrieve the registration key.
4. Unzip the downloaded file.
5. Once you have received the registration key via email, install the product using setup.exe.
6. Enter the license key information during installation.
7. Display the Syniti Replicate install folder and locate the file DBMoto.server.config.
8. Open the file in a text editor.
9. In the **optionList** section, change the value of **SaveMetadataInterval** to 20.
10. Save the file.

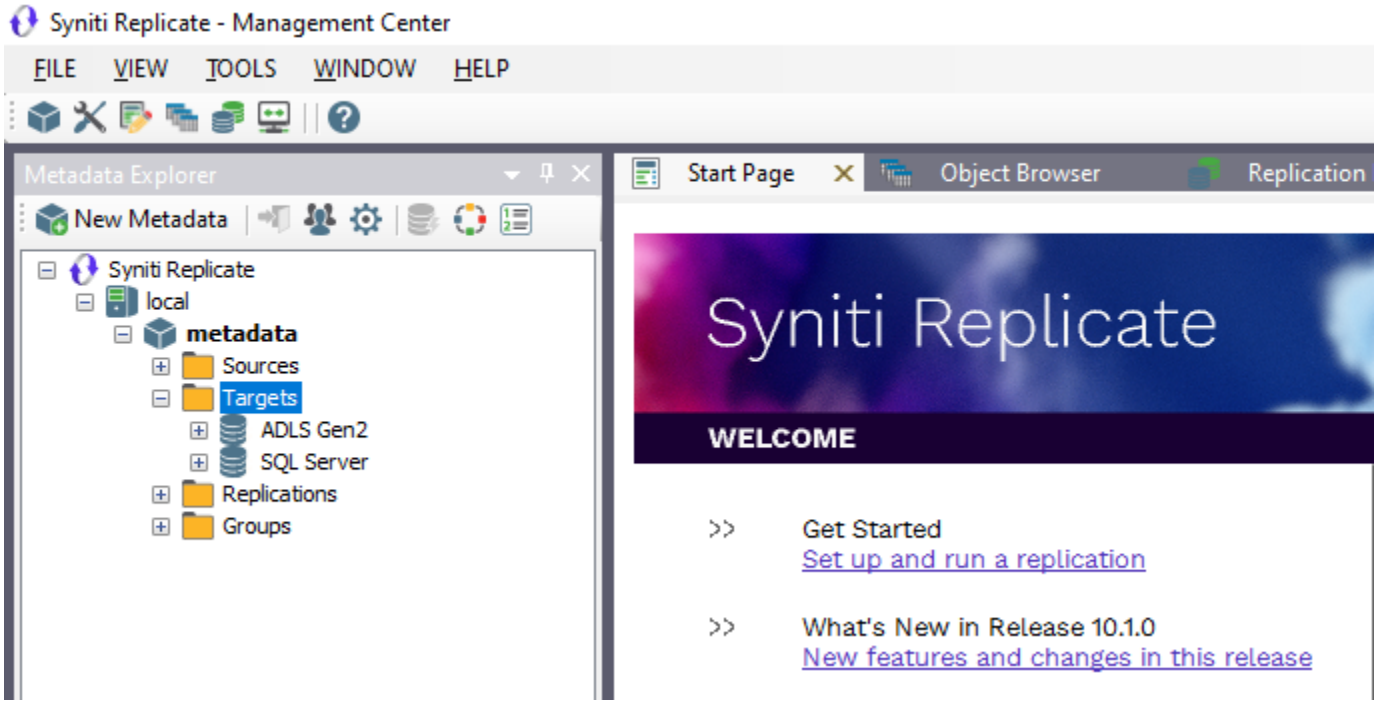
Set Up the Syniti Replicate Environment on Node 1

Set up the Metadata (Node 1 only)

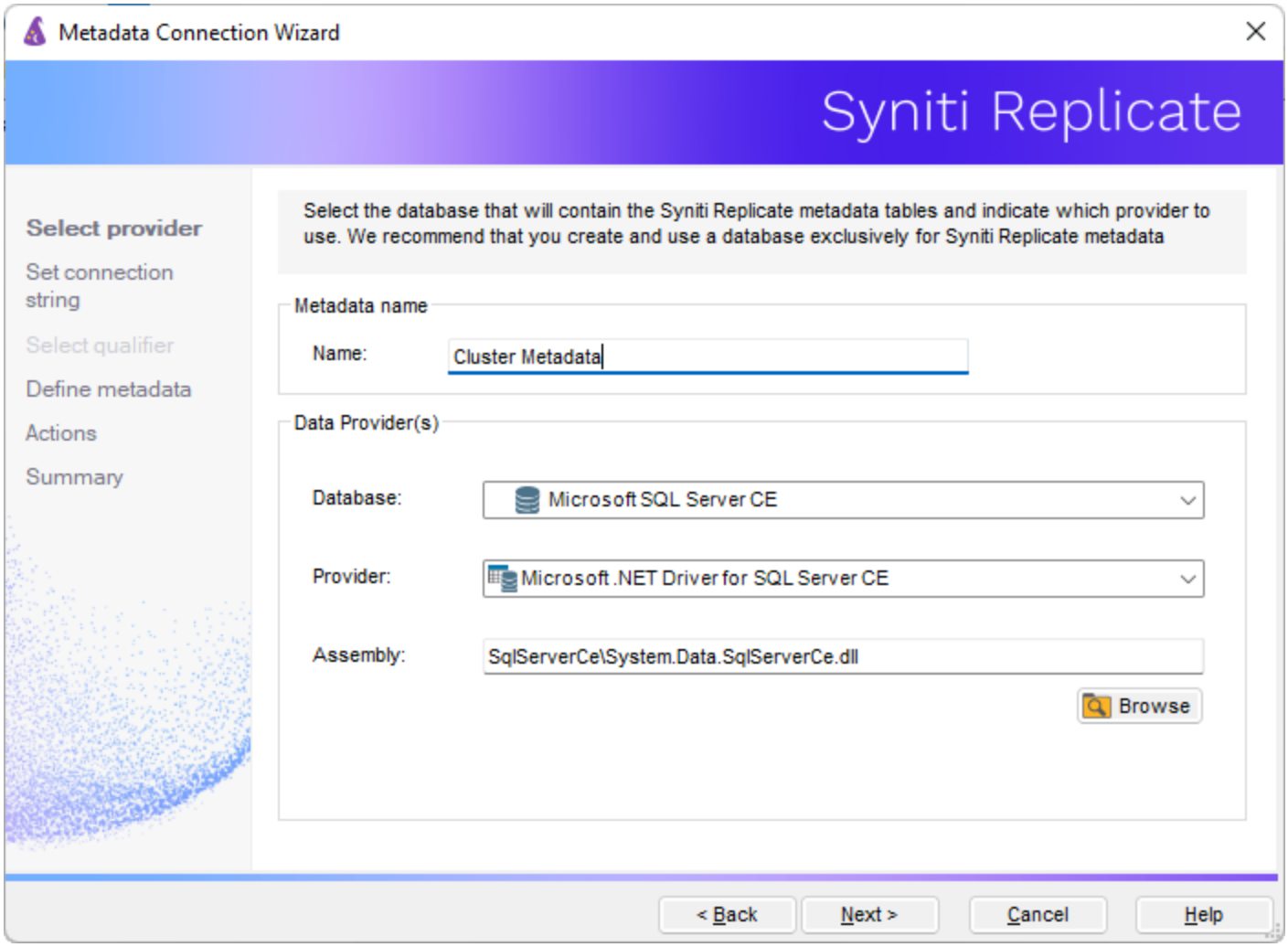
NOTE: Complete this section on Node 1 of your MS Windows Failover Cluster to create a new metadata database. Then on Node 2, point to the same metadata database as described below.

Syniti Replicate provides a default database (Microsoft SQL Server CE) for your metadata (all the information stored about your replication setup.) The default metadata database resides on the same system as the Syniti Replicate installation. However, when using Syniti Replicate in a Failover Cluster, it is critical to set up the metadata in a database external to the cluster that is always available. To set up a metadata in a different location:

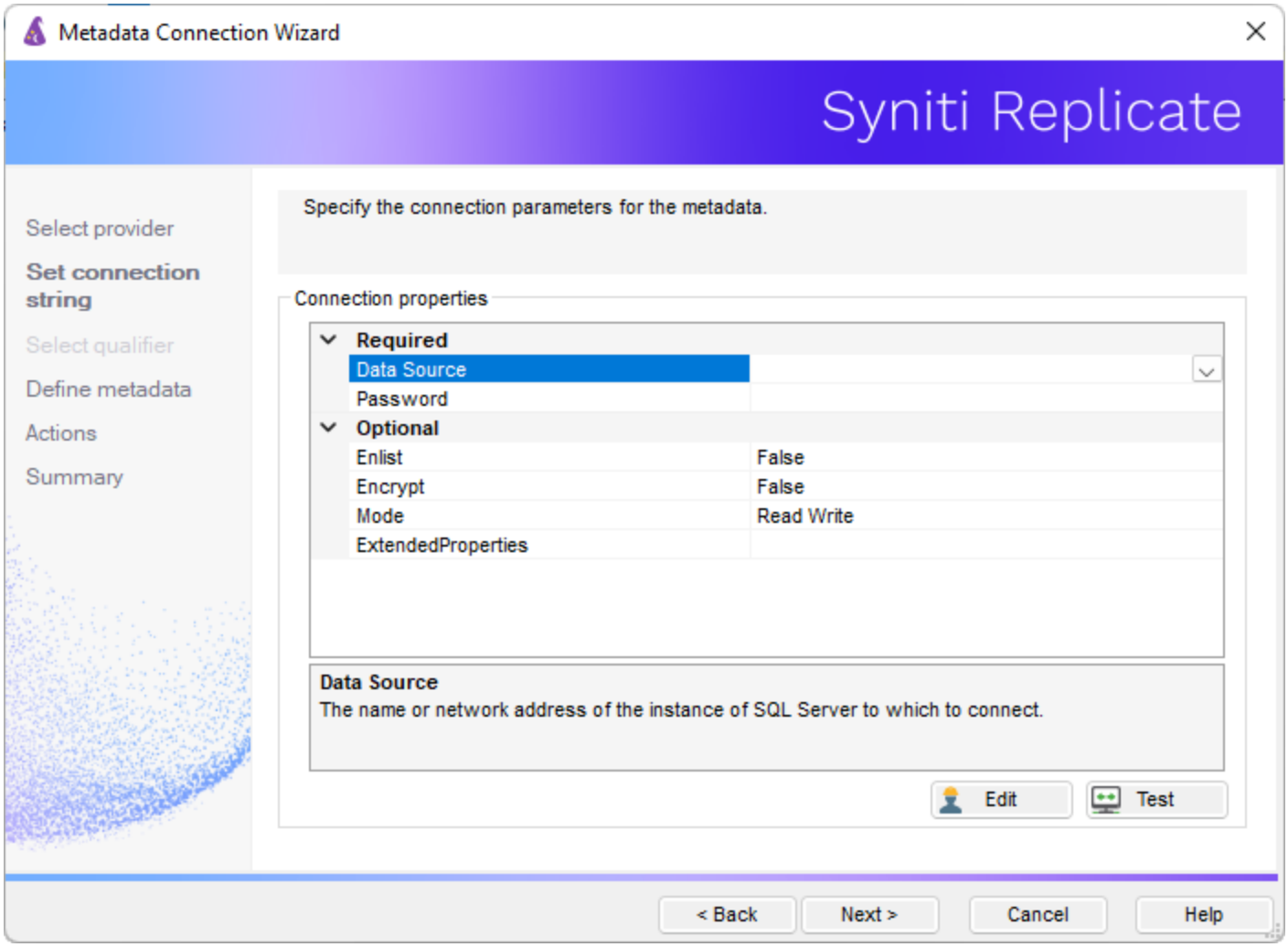
1. Start the Management Center.



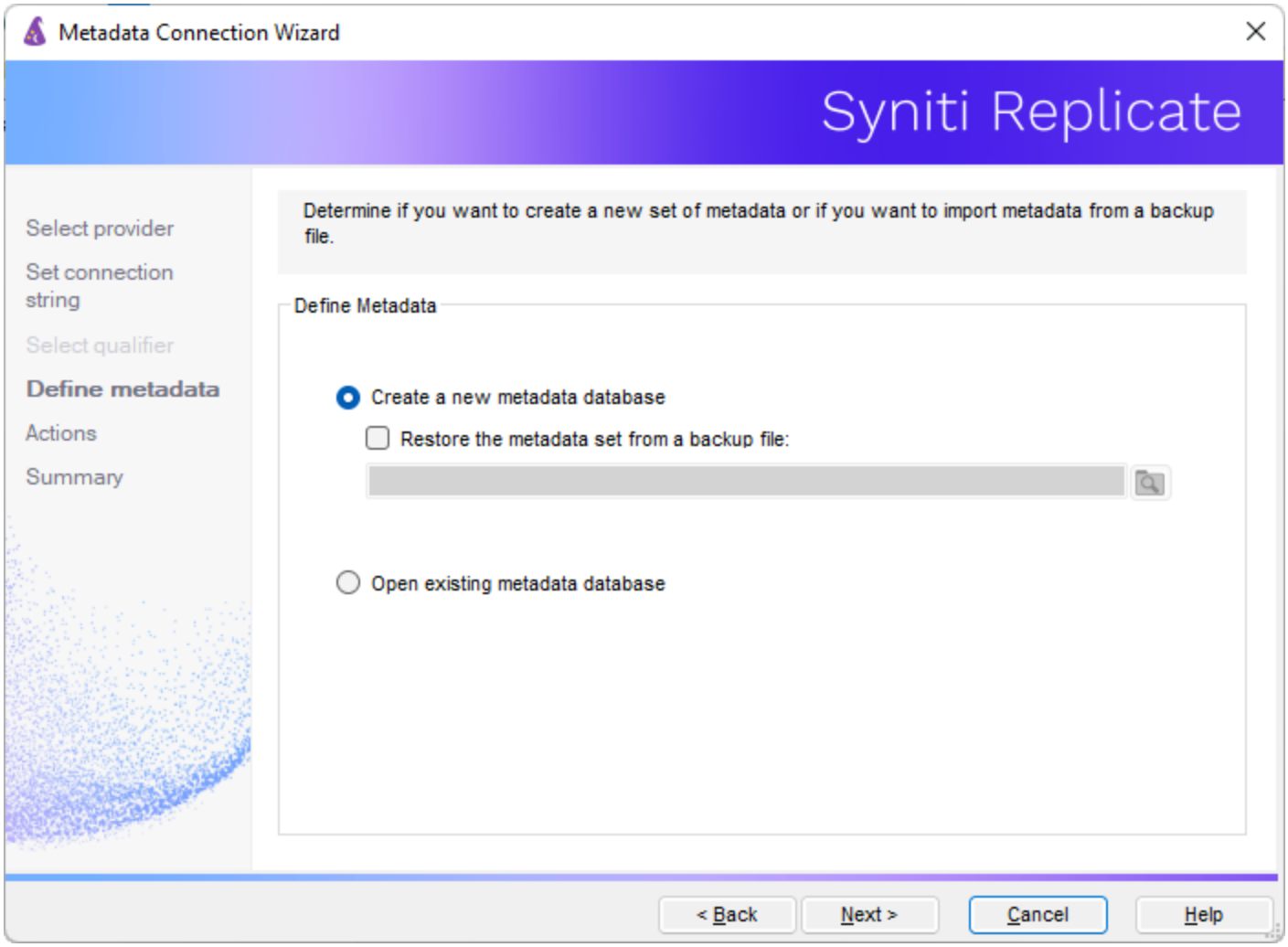
2. In the Metadata Explorer, right click on the **local** node and choose **Add New Metadata**.
3. In the Metadata Connection wizard, type a Metadata name and select the database type from the dropdown list. You are free to use any database you want for metadata, with the exception of IBM Db2 for i or IBM Db2 for z/OS.
   NOTE: If you are setting up the metadata on Node 2, you should select the same settings as on Node 1.



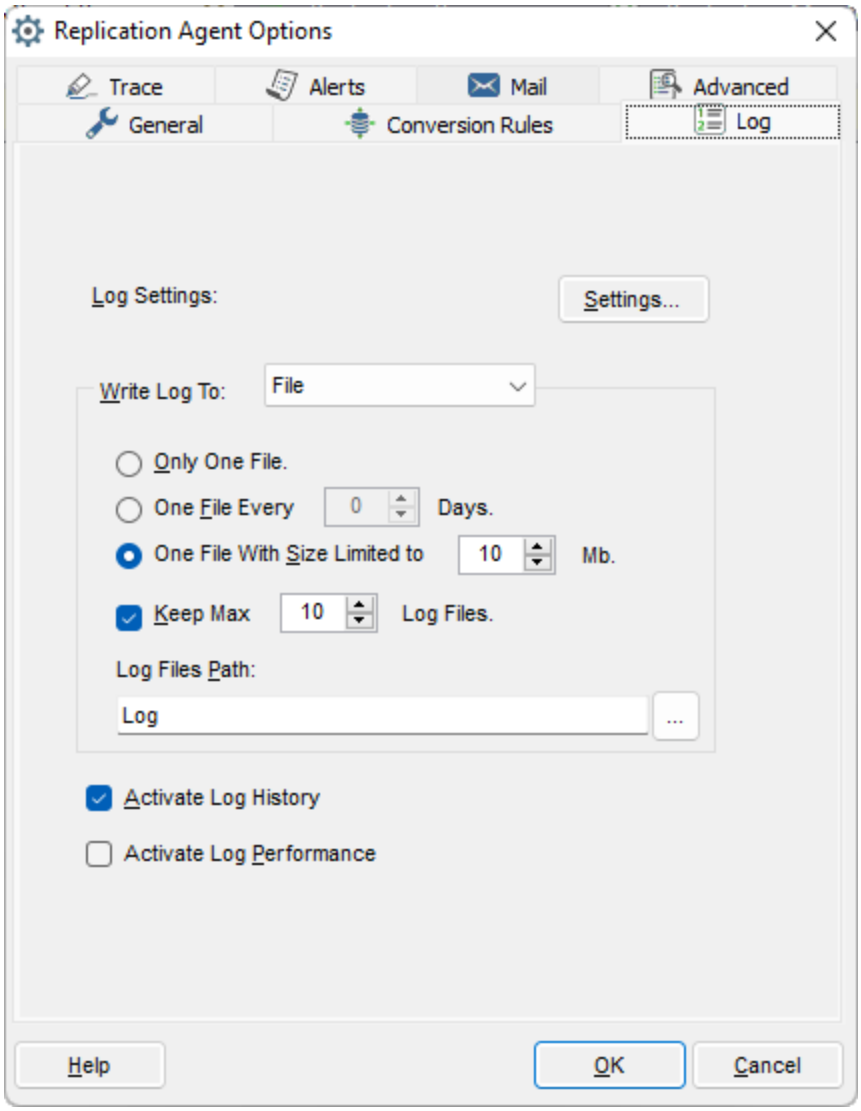
4. Enter a value in the Assembly field as required for the database you selected.
5. Click **Next**.
6. In the Set Connection String screen, type the location of the database and any additional data required (for example, in some cases you need to supply a port number.) For more information, request a **Syniti Replicate Setup Guide** that is specific to your database (available from the Syniti Technical Support team via the Help Center.)
   NOTE: If you are setting up the metadata on Node 2, you should select the same settings as on Node 1.



7. Add the user ID and password for the database.
8. For all other providers, edit at least the **Required** connection properties by clicking in the property value field and typing a new value. The list of **Optional** properties for .NET and OLE DB providers contains the most commonly used properties for the providers. Edit these as needed. Note that some properties are displayed with default values (no bold text.) Any values that you add or edit are displayed in bold text. Check the documentation for your provider for a complete list of properties. You can set the value of the ExtendedProperties property to define additional property-value pairs. The syntax for defining property-value pairs is: prop1=val1;prop2=val2;....
9. Click **Test** to test the connection to the database server.
10. Click **Next**.
11. In the **Define Metadata** screen, check the most appropriate option. For this document, the assumption is that you are creating a new database when you set up Syniti Replicate on Node 1. Once the database has been created for Node 1, you can point to the same database from Node 2. When you are working on Node 2, select the option **Open an Existing Database**.



12. Click **Next**, then complete the wizard.
13. In the Metadata Explorer, right click on the metadata that you just created and choose **Set As Default** from the menu.
    Your new metadata database will be used for all subsequent operations on Syniti Replicate.
14. In the Metadata Explorer, right click on the **local** node, and choose **Replication Agent Options** from the menu.
15. In the Replication Agent Options dialog, go to the **Log** tab.
16. Make sure that **Write Log to File** is selected, and specify a path to an external failsafe file location that can be accessed by both Node 1 and Node 2.
17. Click **OK** to complete the dialog.

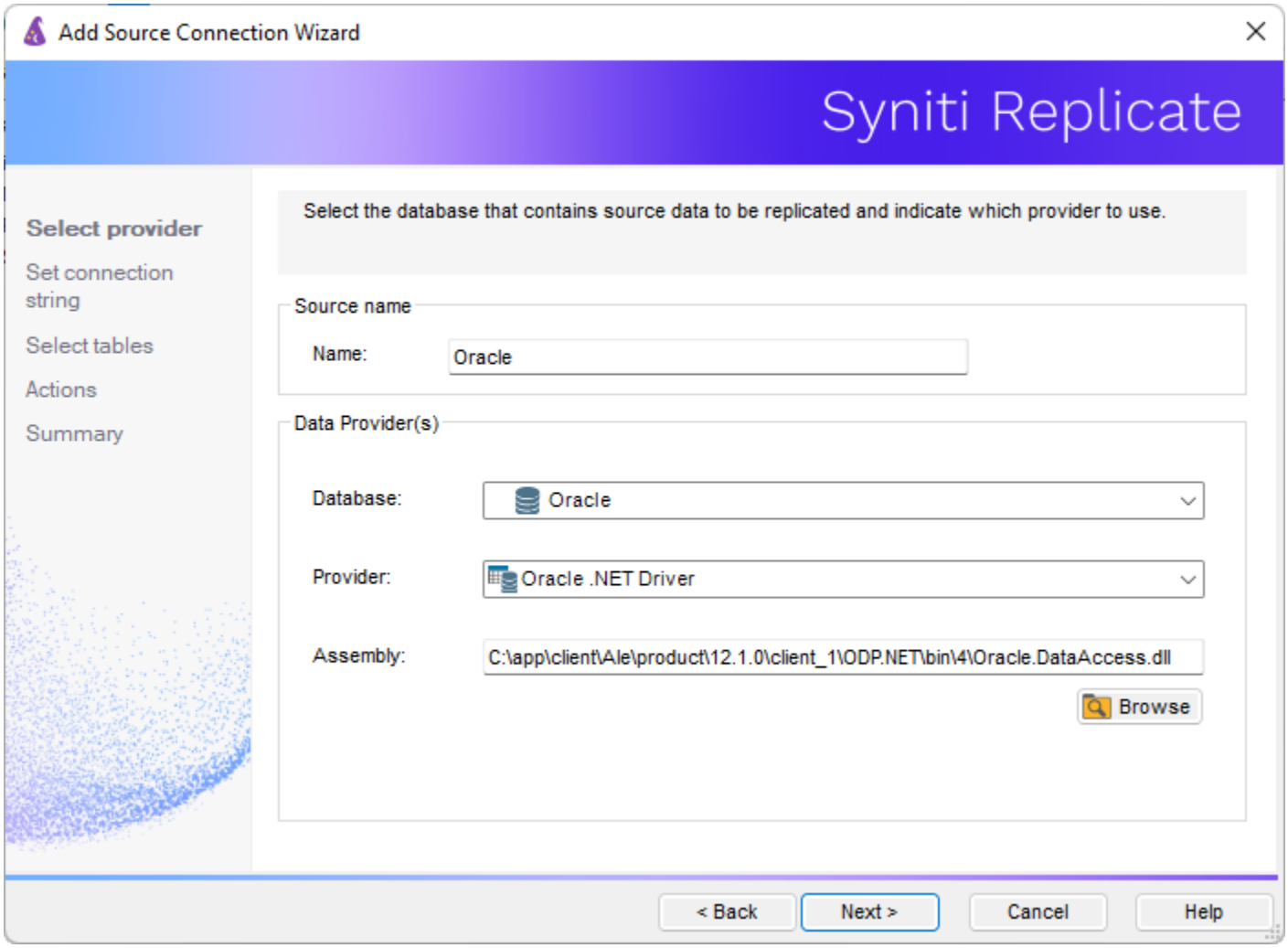


Set up a Source Connection (Node 1 only)

1. Make sure you have a database connection via a .NET data provider to your source database:
   - Install and configure one of the supported data access products. See this Help Center article for a current list of supported providers.
   - From the data access product, test the connection to the database.
   - Create a connection string for the data access product/database you are using. Check the documentation for the data access product for information on how to do this.
   - Check that the user ID you are planning to use for the database connection has sufficient permissions to complete all operations in Syniti Replicate. The user ID should have permissions to connect, select tables, insert/update/delete records. For complete details, see the **Syniti Replicate Setup Guide** that is specific to your source database (available from the Syniti Technical Support team via the Help Center).
2. Start the Management Center.

3. In the Metadata Explorer, expand the metadata node to view the **Sources** and **Targets** nodes.
4. Select the **Sources** node.
5. From the right mouse button menu, choose **Add New Connection**.

6. In the Source Connection Wizard, follow steps to add a connection string and test the connection to the database.



7. In the **Select Provider** screen, fill out the following fields:

   Source Name
   Type a name to identify the source connection. This name appears in the Metadata Explorer as a way to group connections for a specific replication.

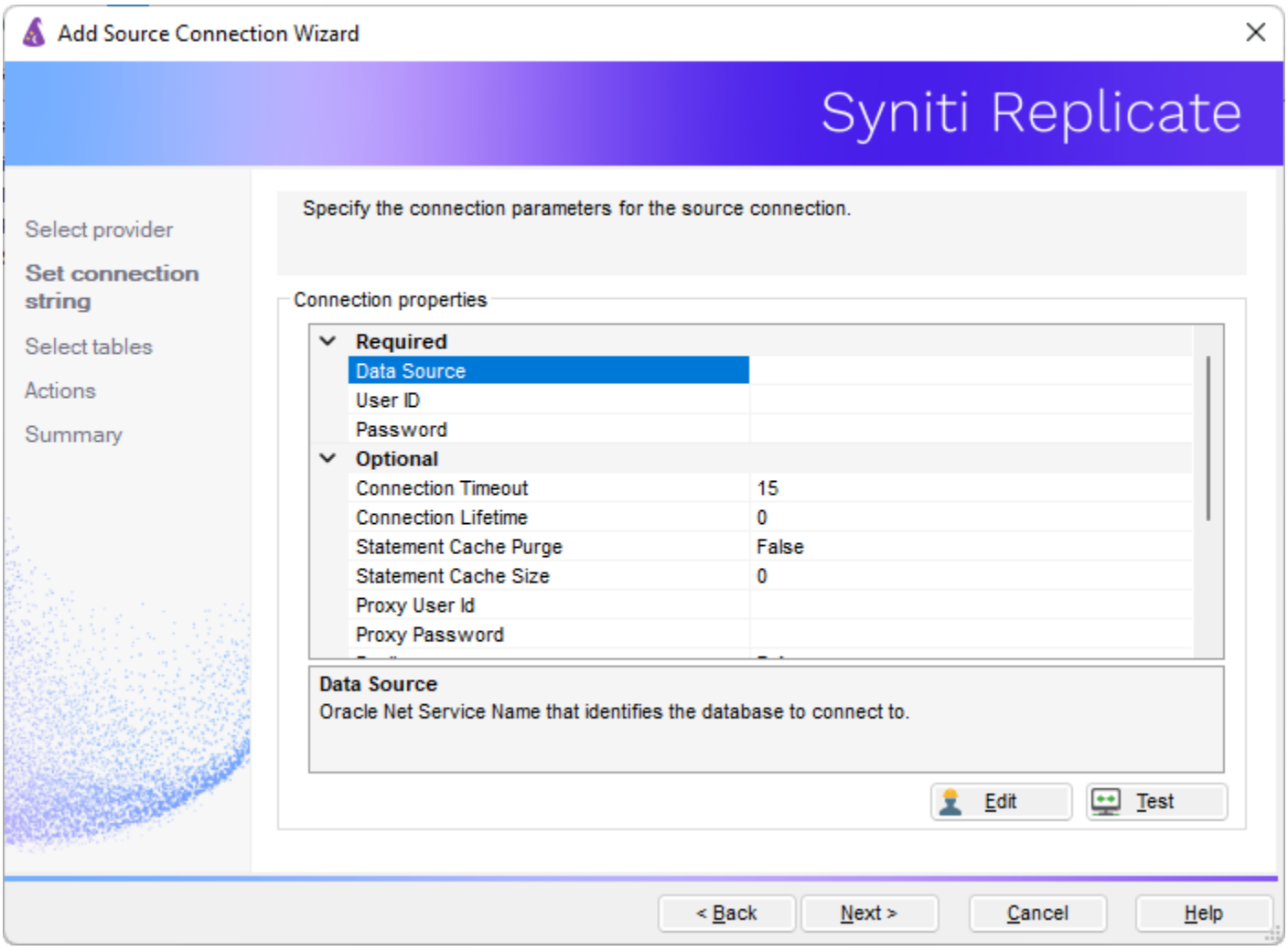
   Database
   Select the source database from the drop-down list.

Provider
The value for the .NET Provider is displayed automatically. You do not need to change this value.

Assembly
Type the path to the provider DLL. If the value is not available, Syniti Replicate displays a message when you continue in the Source Connection wizard, allowing you to go back and type in the path.
Example:
C:\oracle10_2\client\odp.net\bin\2.x\Oracle.DataAccess.dll.

8. In the **Set Connection String** screen, fill out the following fields:

Connection Properties
Edit at least the **Required** connection properties by clicking in the property value field and typing a new value.



For Synchronization Replications:
The login/user ID that you provide must be unique to Syniti Replicate. It should not be used for any transactions occurring in either database involved in the synchronization. Syniti Replicate does not replicate transactions by the user you specify in this connection. This user ID is used by Syniti Replicate

during synchronization to read the database logs and perform the synchronization operations. Therefore, any transactions found in the logs with this user ID are not replicated as part of the synchronization data.

For Oracle Replications:
If you are replicating from Oracle using mirroring or synchronization, enter a user ID which will be exclusively used by Syniti Replicate and has the authority to read the database transaction log (redo log.) See a detailed list of authorities needed.

The list of **Optional** properties for .NET and OLE DB providers contains the most commonly used properties for the providers. Edit these as needed. Note that some properties are displayed with default values (no bold text.) Any values that you add or edit are displayed in bold text. Check the documentation for your provider for a complete list of properties. You can set the value of the ExtendedProperties property to define additional property-value pairs. The syntax for defining property-value pairs is: prop1=val1;prop2=val2;....

Edit
Click **Edit** to open a text entry window where you can paste or type a connection string for your provider. This is offered as an alternative to the Connection Properties grid, but should be used with great care because an error in the connection string can cause a connection to fail or to have unexpected properties. This window displays any connection information that you have already entered in connection string format. Note that default values are not displayed as part of the connection string.

Test
Click Test to make sure that the connection correctly opens a database connection.

9. In the **Select Tables** screen, choose the tables that you plan to replicate.

   When creating a replication, you will be able to select an object for replication from those that you have chosen in this wizard. If you create multiple replications, you can select an object for each replication that you are defining. Use the **Select All Tables** and **Deselect All Tables** buttons to work with multiple tables. Use the **Hide System Tables** checkbox to limit the number of tables displayed.

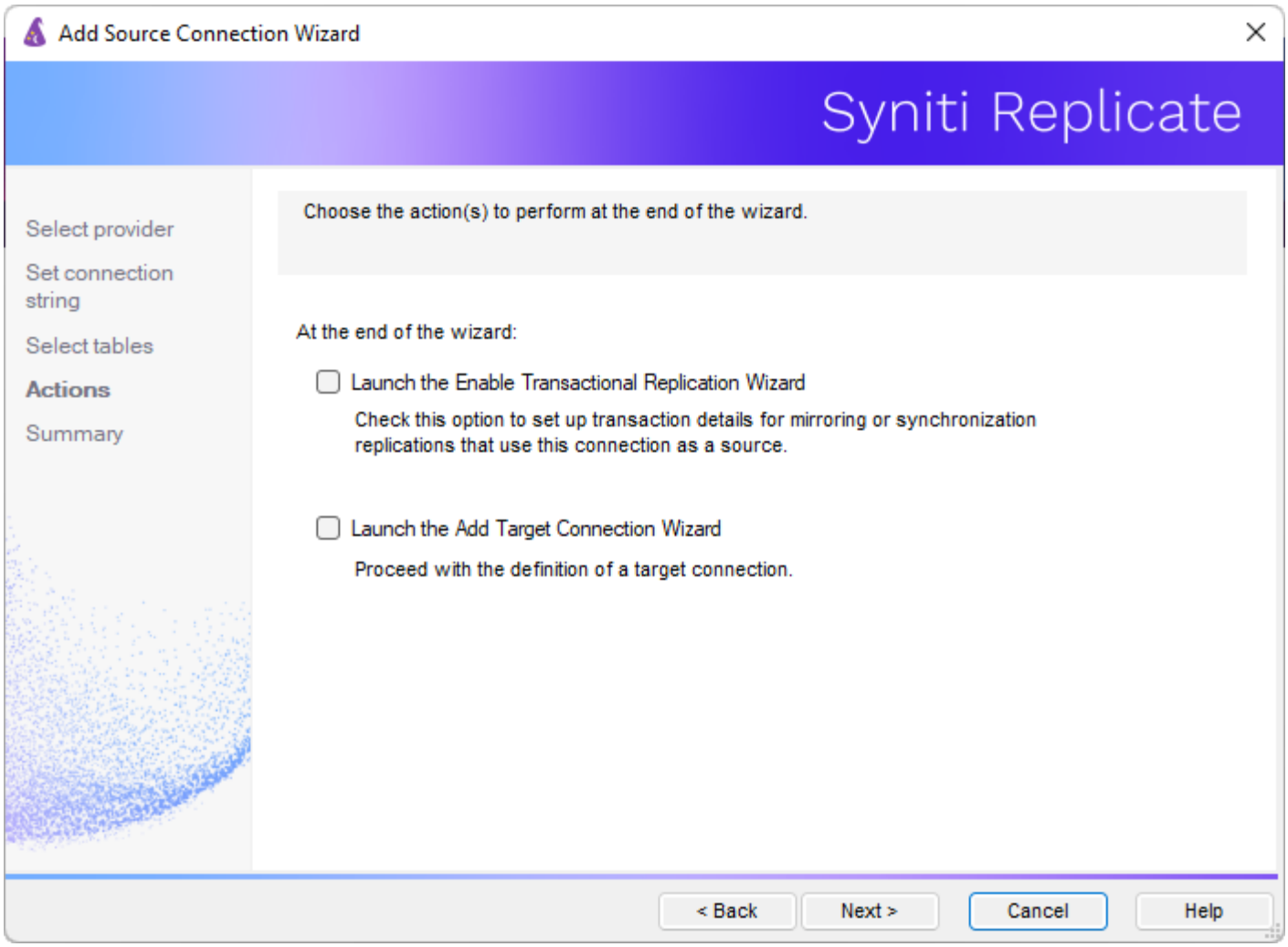
   

   Select a database owner/schema, then click this button to check all tables under the owner/schema.

   Select a database owner/schema, then click this button to uncheck all tables under the owner/schema.

10. In the **Actions** screen, check the option **Launch the Enable Transactional Setup Wizard**.



11. Complete the wizard.

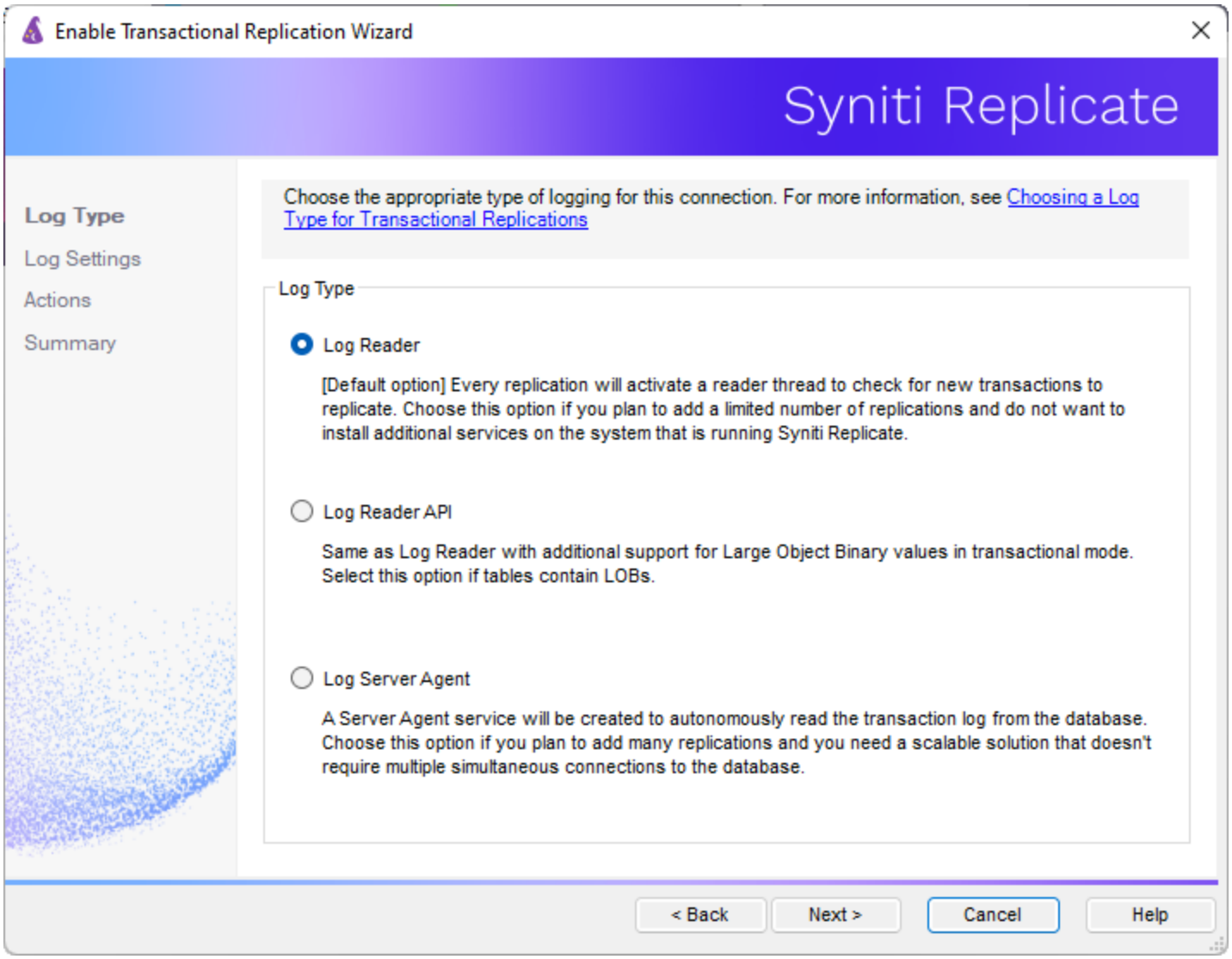
Enable Transactional Replication

This section assumes you are planning to replicate data to a target using mirroring (rather than Refresh) from a relational database. For Refresh replications, you do not need to complete the Enable Transactional Replication wizard. If you have checked the Source Connection wizard option to launch the Enable Transactional Replication wizard, follow the steps below. To open the wizard from the Management Center, choose the connection in the Metadata Explorer, then right-click to choose Transactional Setup > Enable...

In the **Enable Transactional Replication wizard**:

1. Select the type of transactional replication to use. The options depend on the source database and can include log reader, log server agent, triggers, plus log reader API (for IBM Db2 for i only). Check the help for more information on the best option.

   If you choose the Log Server Agent option, you will need to set up some files in a path that is accessible to both nodes in the cluster.



2. Click **Next** to enter the log settings. The fields and appropriate values depend on the database and log type. You can obtain a setup guide for a specific relational database by making a request in the Help Center.

   For the Log Server Agent, the **Log Server Folder** and **Log Files Folder** paths should be accessible from both nodes in the cluster.
3. Click **Next** to verify your settings against the source connection to the database. If any information is missing, you will not be able to proceed.
4. In the Actions screen, check the option to launch the **Add Target Connection wizard**.
5. Click **Next** to review your changes.
6. Click **Finish** to complete the wizard.

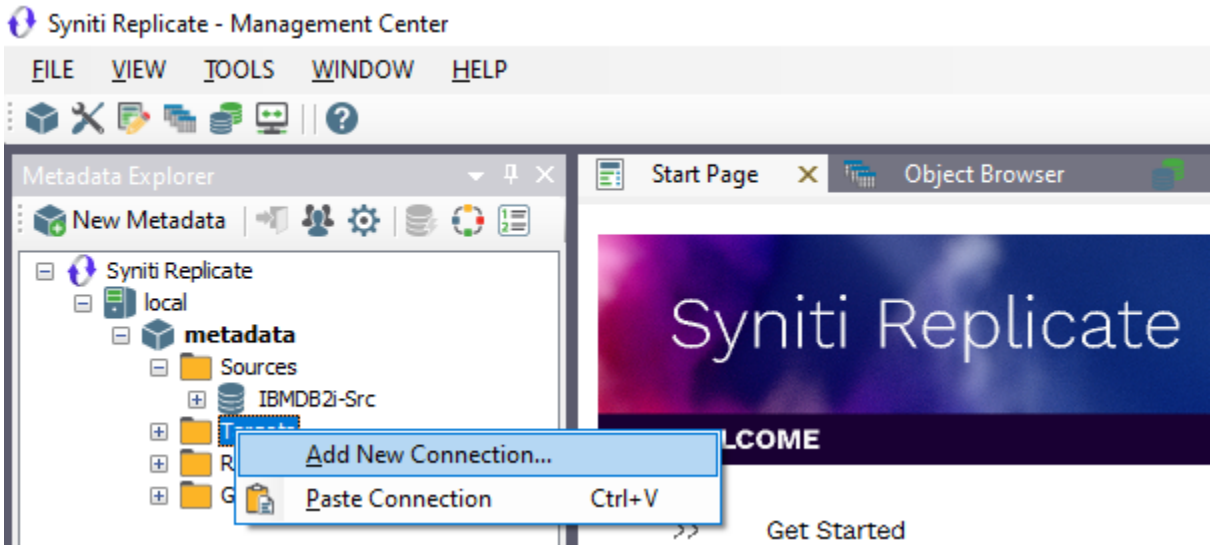
The source connection is now set up for transactional replications.

Create a Target Connection (Node 1 Only)

To create a target connection, either the Target Connection Wizard opens automatically because you selected that option in the last screen of the Enable Transactional Replication wizard, or you can select the **Targets** node in the Metadata Explorer.

Note that you must install, configure and test the connection to the database to which you are replicating before attempting to create a target connection to the database from Syniti Replicate. For example, if you are replicating from Oracle to MySQL, you need .NET data providers installed and tested for both Oracle and MySQL.

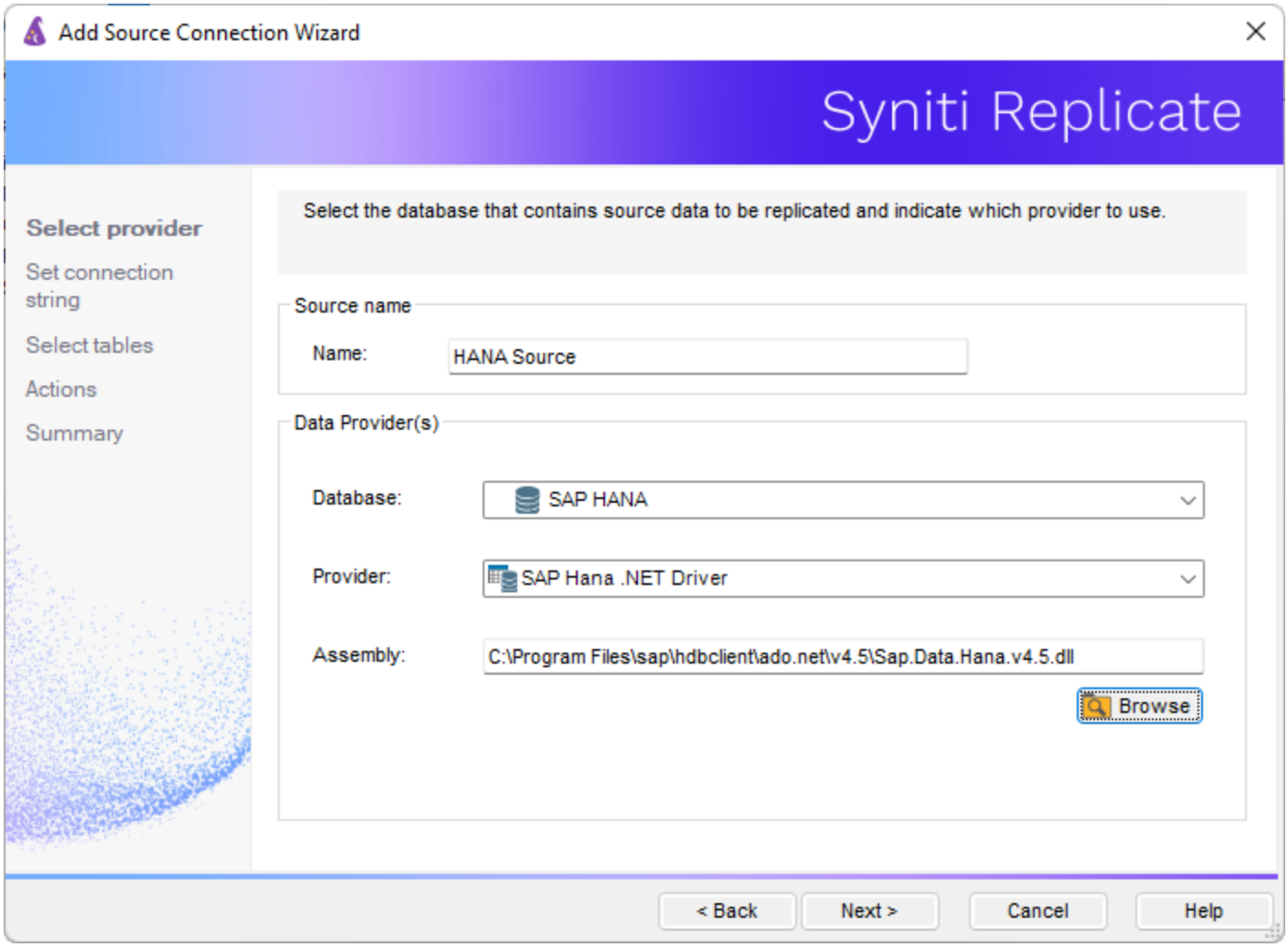
1. From the right mouse button menu, choose **Add New Connection**.



2. In the Target Connection Wizard, select the database to which you are replicating then follow steps to add a connection string and test the connection to the database.

   If you are creating a connection to an Oracle database, refer to the steps above (Source Connection) for configuring the connection. Note that you do not need to configure the Setup Info screen unless you are planning to perform a synchronization replication using Oracle.

   For all other databases, check this Help Center article before entering a value in the **Assembly** field.

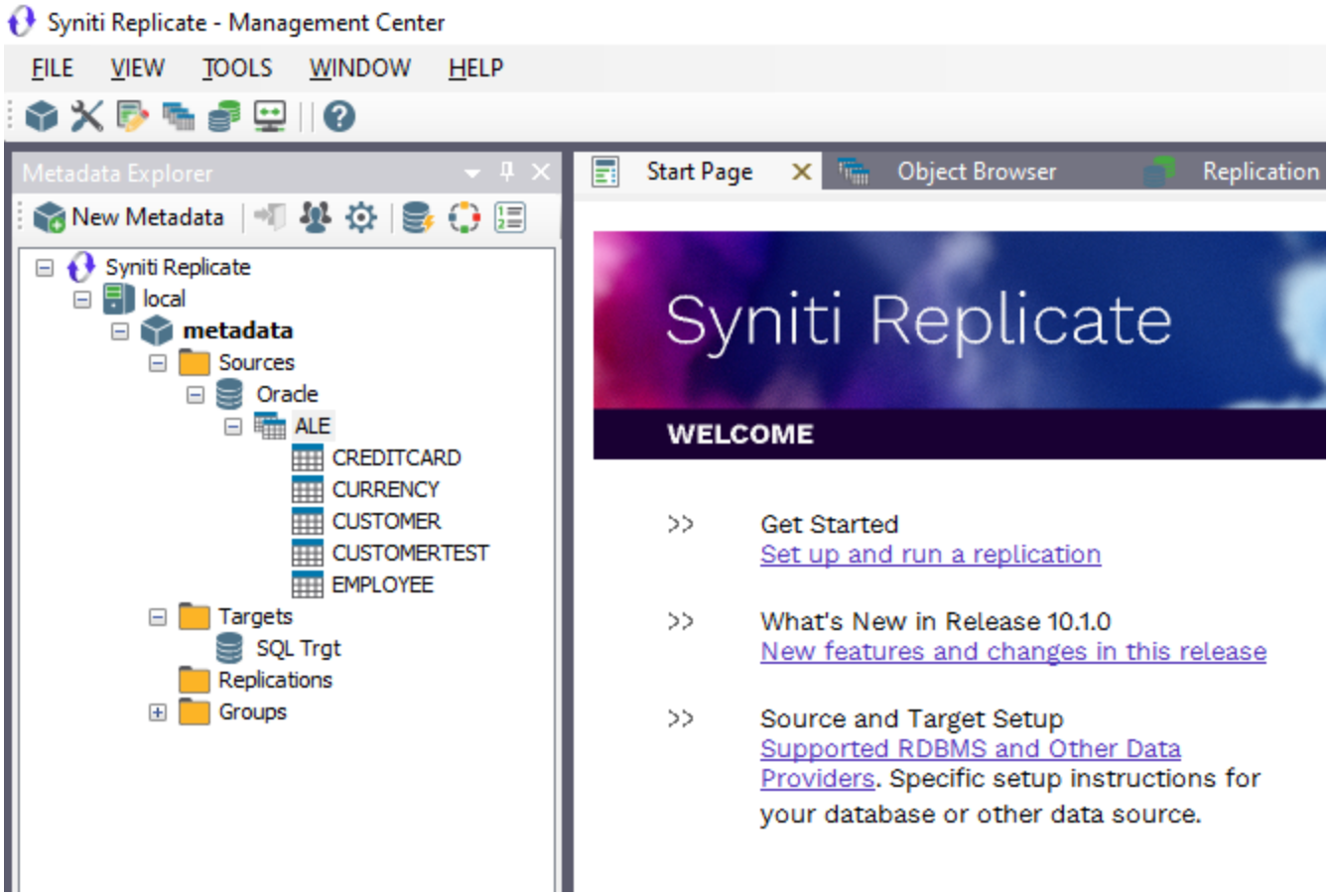


3. Choose the tables to which you plan to replicate.
   If a table does not exist, continue to the next screen without selecting a table. You can use the Create Target Table wizard once you have created the connection.
4. Complete the wizard.

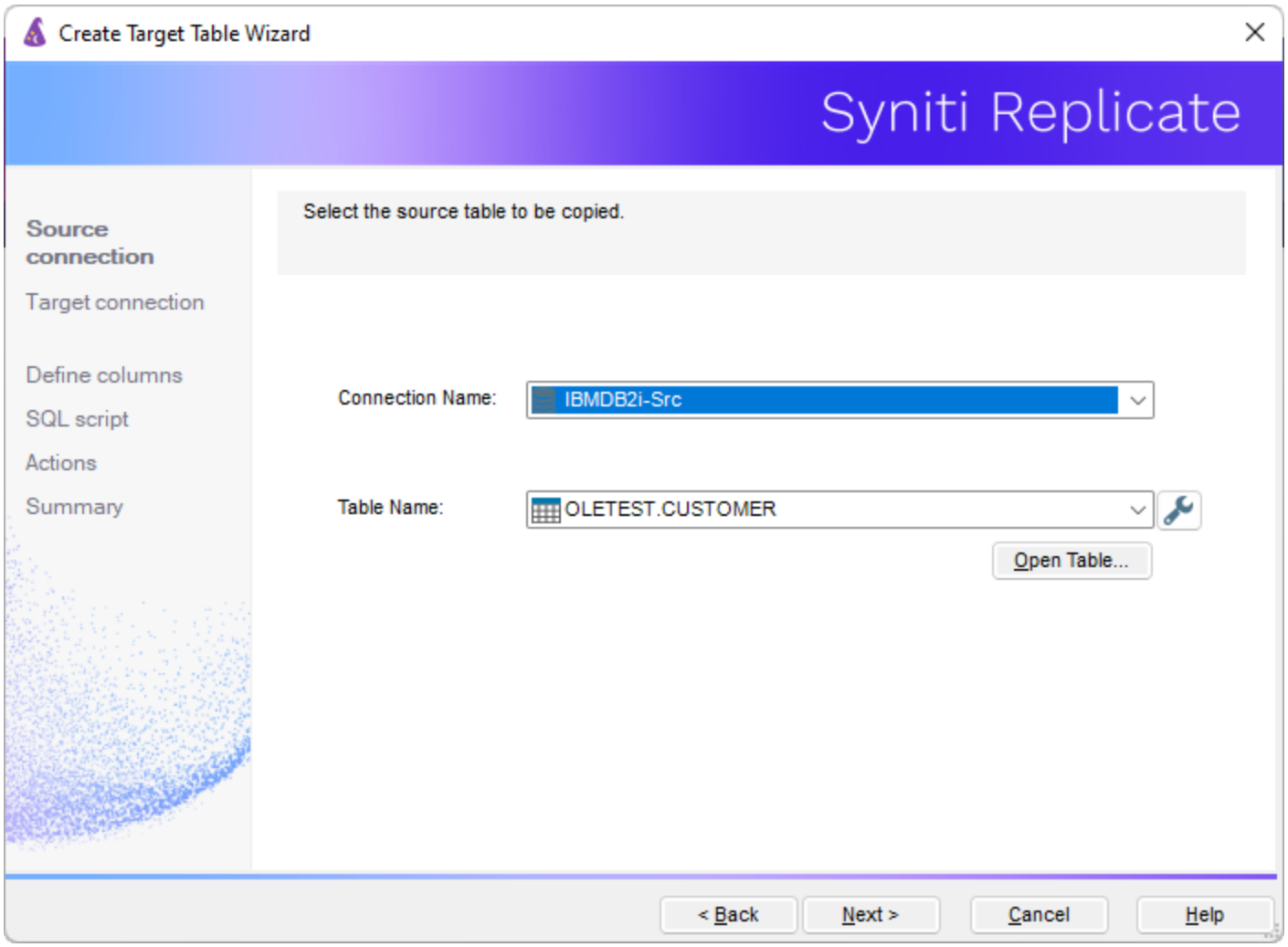
Create a Target Table (Node 1 Only)

If you are replicating to a database where no target table exists, you need to create the target table before defining the replication. If the target table already exists in the database to which you are replicating, go to Defining the Replication. The Target Table wizard allows you to create tables from Syniti Replicate but the target schema/owner etc. (depending on your database type) must have been created prior to running the wizard.

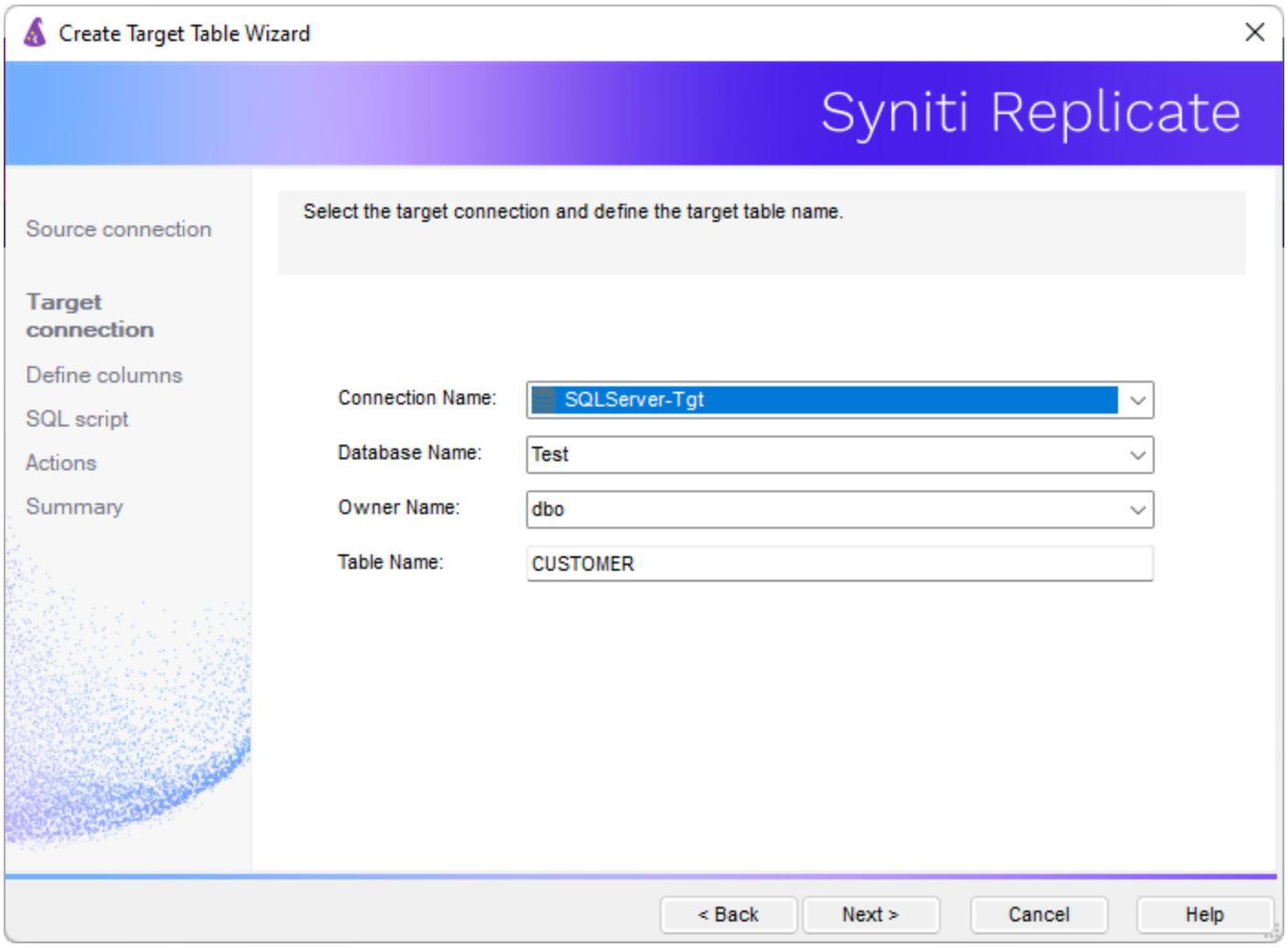
1. Expand the Syniti Replicate tree to display the table that contains the data you want to replicate.
2. Select the table and drag it to the target connection name to open the Create Target Table wizard.



3. In the **Select Source Connection** screen, choose the source name from the drop-down list that includes all the source connections you have created.

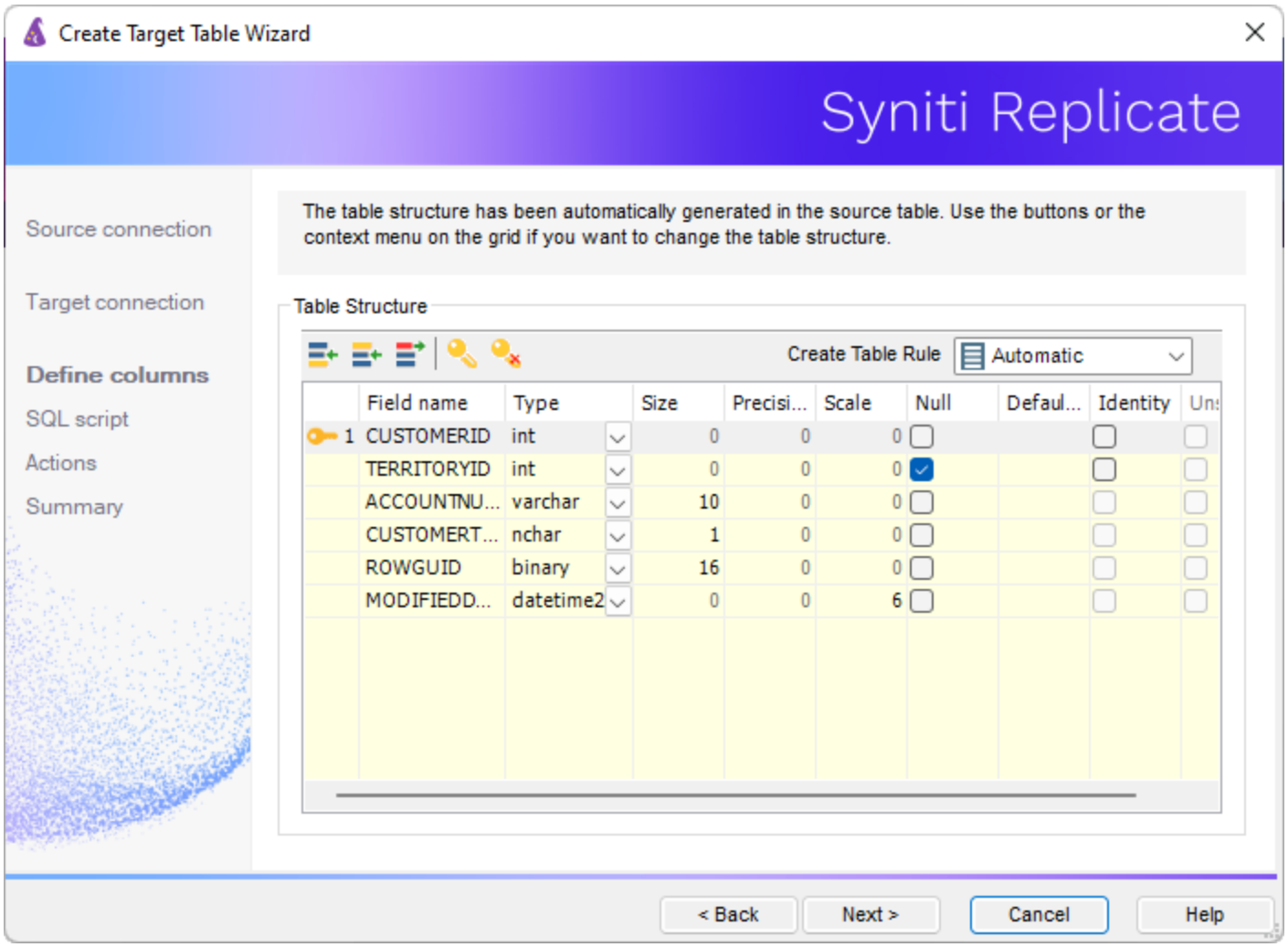


4. Choose the table that you want to replicate from the drop-down list.
5. If you want more information about the table before proceeding, click **Open Table...**.
6. Click **Next** to go to the **Select Target Connection** screen.

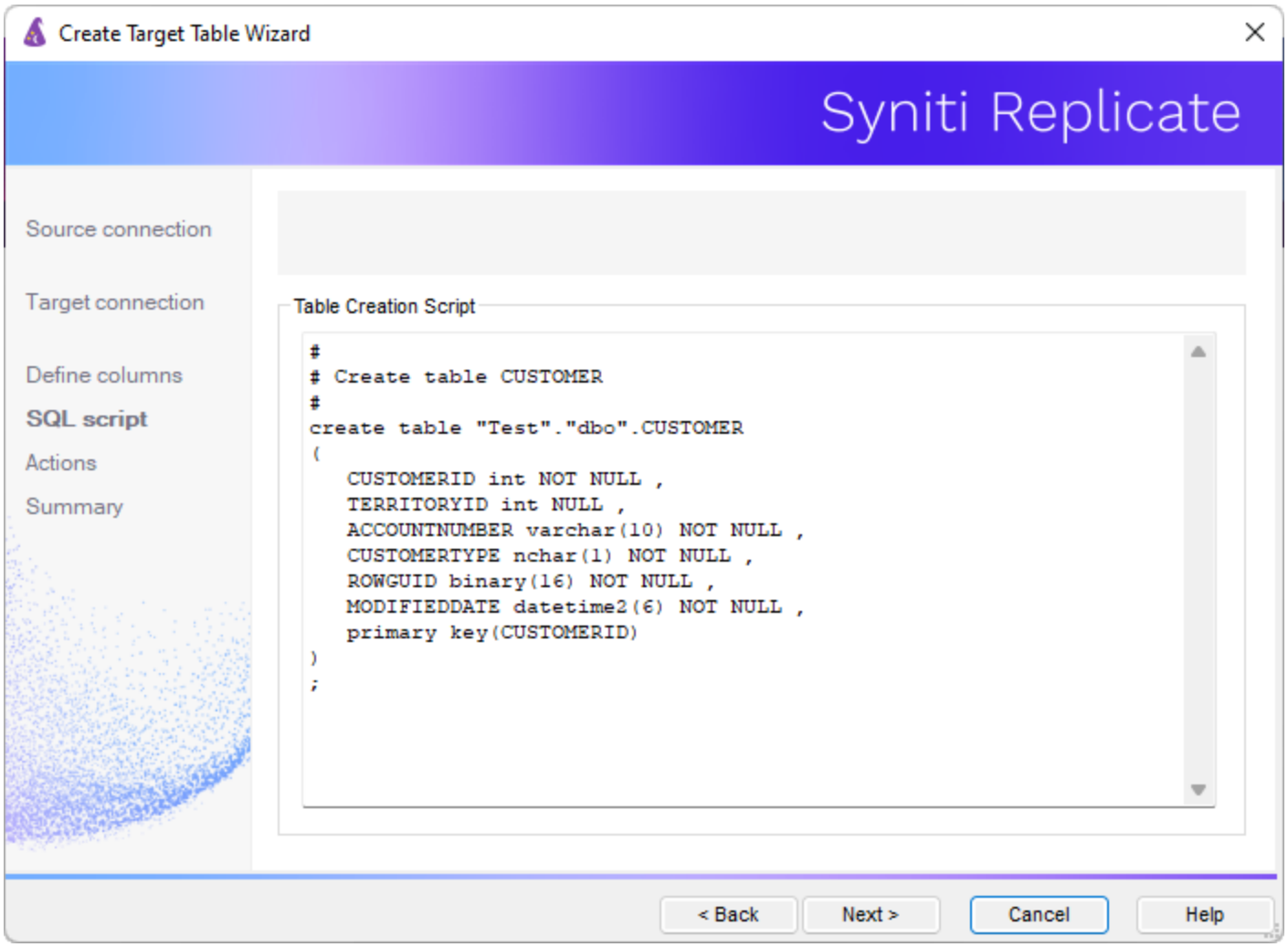


Choose a target source name from the drop-down list that includes all the target connections you have created.

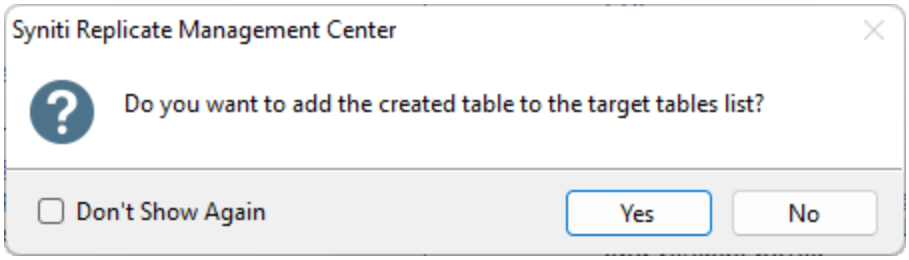
7. Type a name for the table you wish to create in the target database. This table will contain the replicated data.
8. Click **Next** to go to the **Define Columns** screen.



9. Review the columns that will be created in the target table. You can add or remove columns as well as designate one or more columns as a primary key.
10. When you have finished editing the target table columns, click **Next** to go to the **SQL Script** screen.



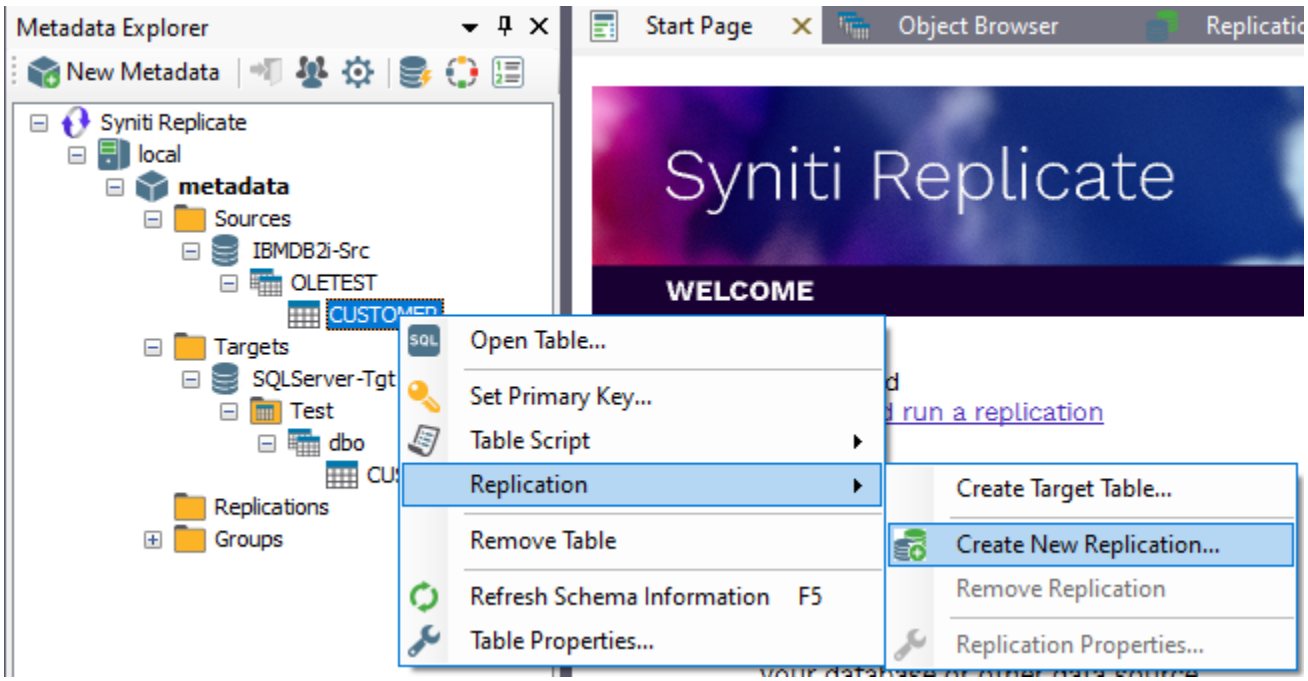
11. If necessary, edit the SQL script that generates the table.
12. Click **Next** to review the wizard settings in the **Summary** screen.
13. To create additional tables, check the option **Create another table**.
    This opens another Create Target Table wizard when this wizard is complete.
14. To go directly to creating a replication once this wizard is complete, check the option **Proceed with the Definition of a Replication**.
    This opens the Replication wizard when the Create Target Table wizard is complete.
15. Click **Finish** to create the target table.
16. Note that the new table is not automatically displayed in the Metadata Explorer. Click **Yes** to add the newly created table to the list of target tables.



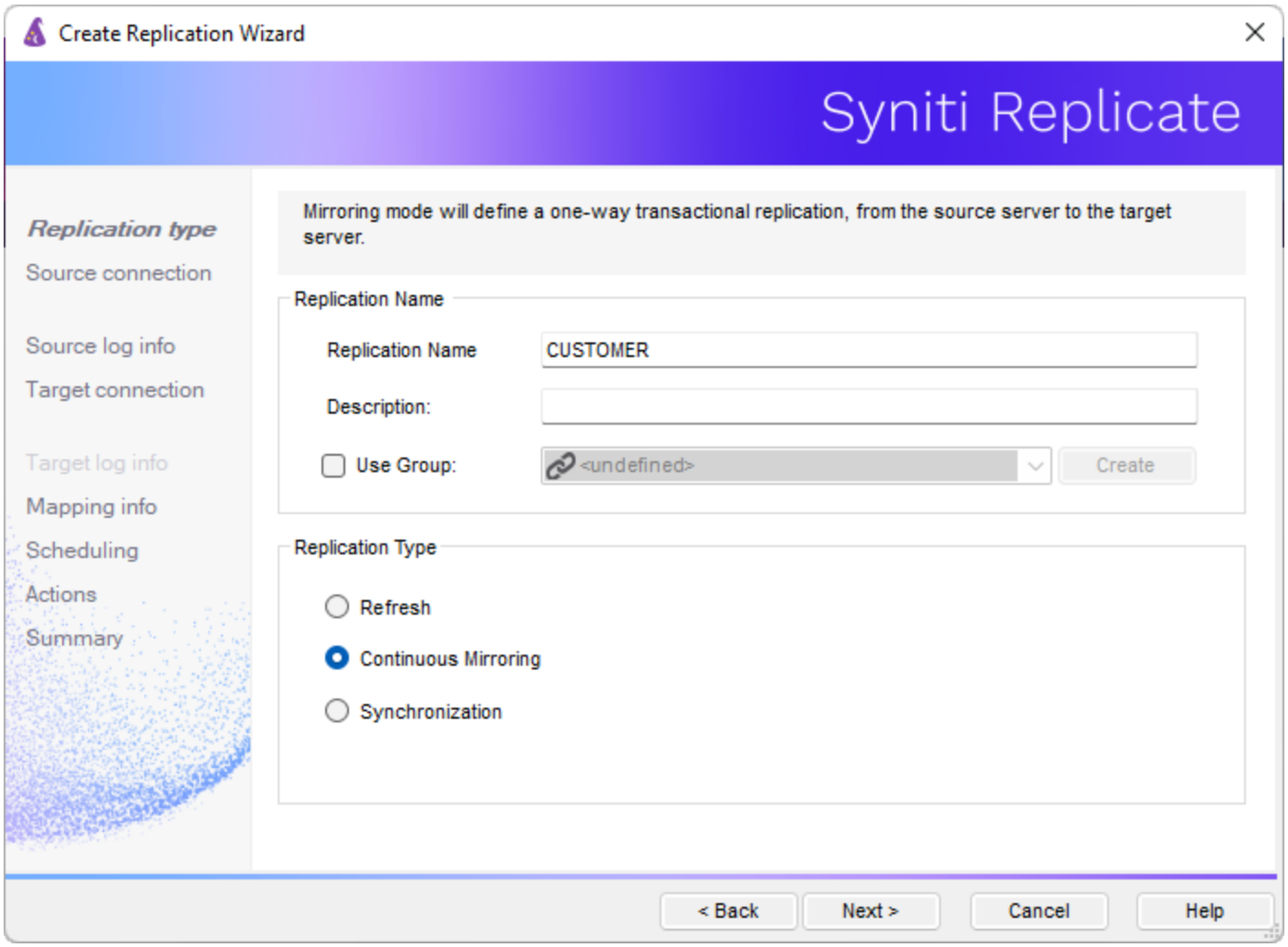
Define the Replication (Node 1 Only)

This section explains how to create a single table-to-table replication. However, most real applications consist of many such replications and, if the replications use the same source and target databases, it may make sense to create a replication group to optimize database connection and log access times. Use the Help menu in the Management Center to find out more information about grouping replications.

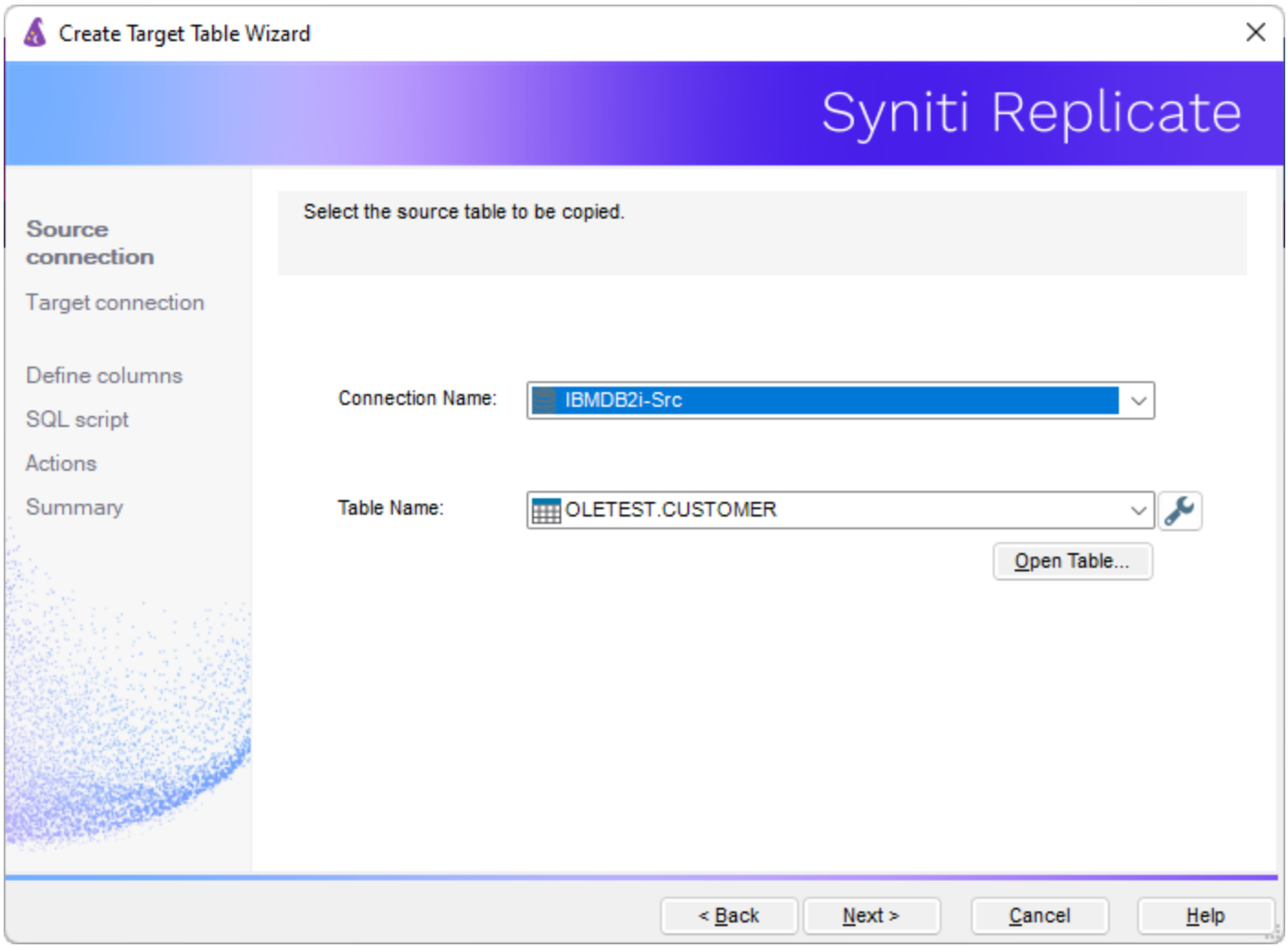
1. Expand the Metadata Explorer tree to display the table that contains the data you want to replicate.
2. Select the table.
3. From the right mouse button menu, choose **Replication** then **Create New Replication...**.



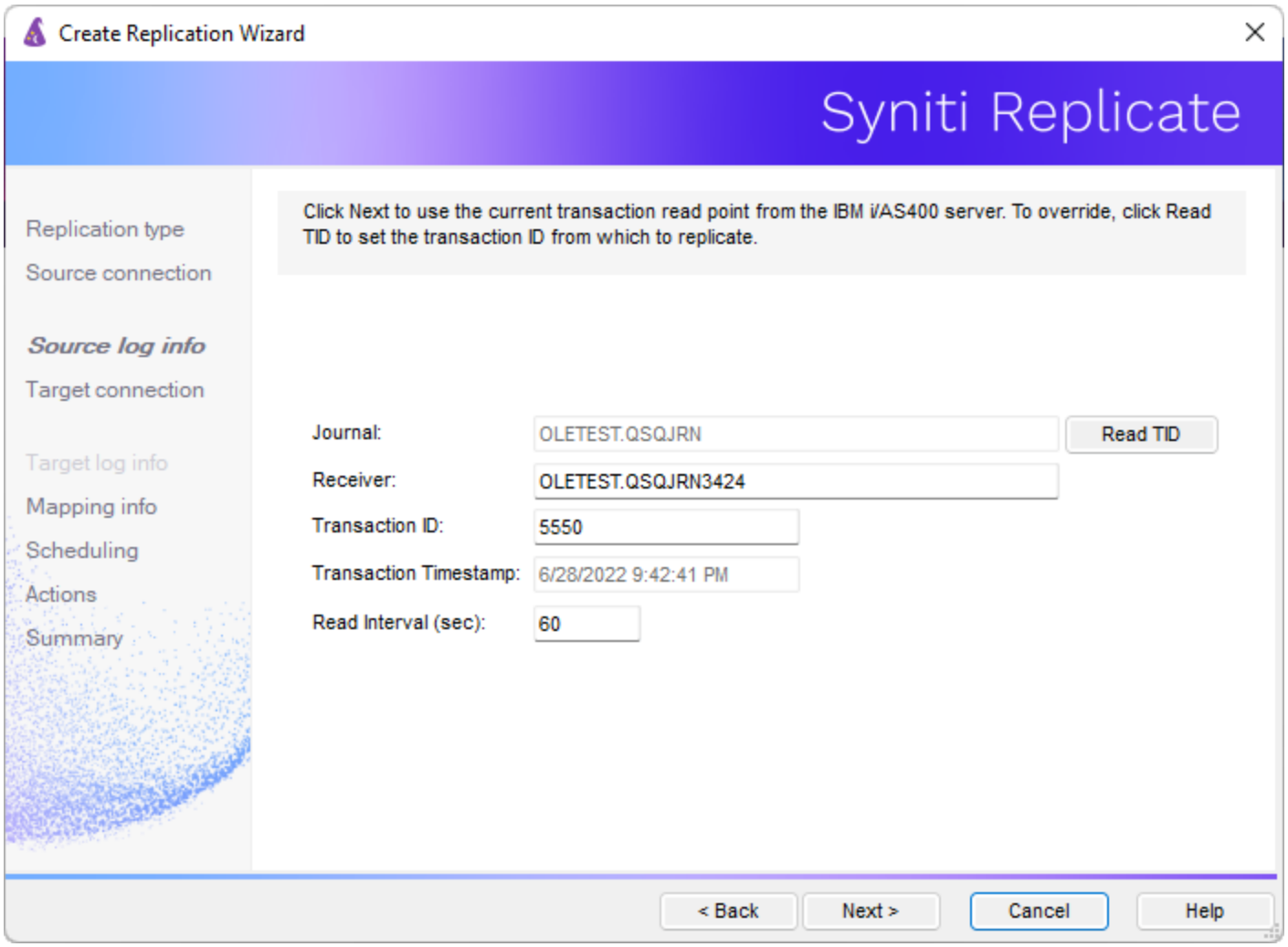
4. In the **Define Replication Type** screen, type a name to identify the replication.
5. Optionally provide a description of the replication.
6. In the Replication Mode area, choose Continuous Mirroring.



7. Click **Next** to go to the Select Source Connection screen.



8. Choose the source name from the drop-down list that includes all the source connections you have created.
9. Choose the table that you want to replicate from the drop-down list.
10. If you want more information about the table before proceeding, click **Open Table**....
11. Click **Next** to go to the Source Log Info screen. The fields in this screen depend somewhat on the source database, but the Transaction ID, Transaction Timestamp and Read Interval fields are always present.



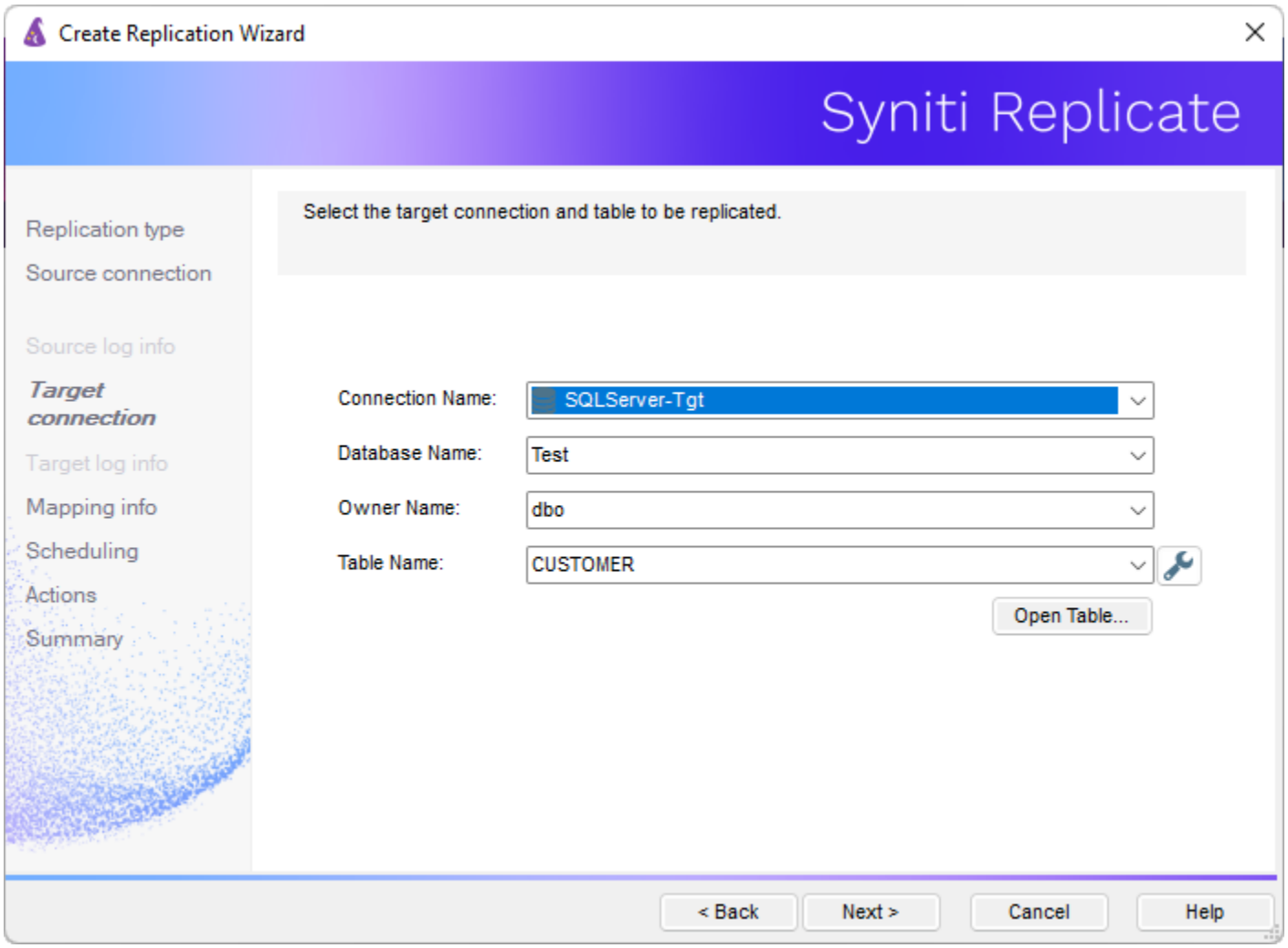
Transaction ID
The ID for the transaction at which you want to start replication. If you want to change the transaction ID, click **Read TID** to open the Read Point dialog. In this dialog, you can either retrieve the current transaction or the transaction for a specified date and time. If you enter a date and time, Syniti Replicate retrieves the first transaction after the time entered. This information is available and can be changed in the Replication Properties dialog after the wizard is completed.

Transaction Timestamp
The timestamp for the transaction above.

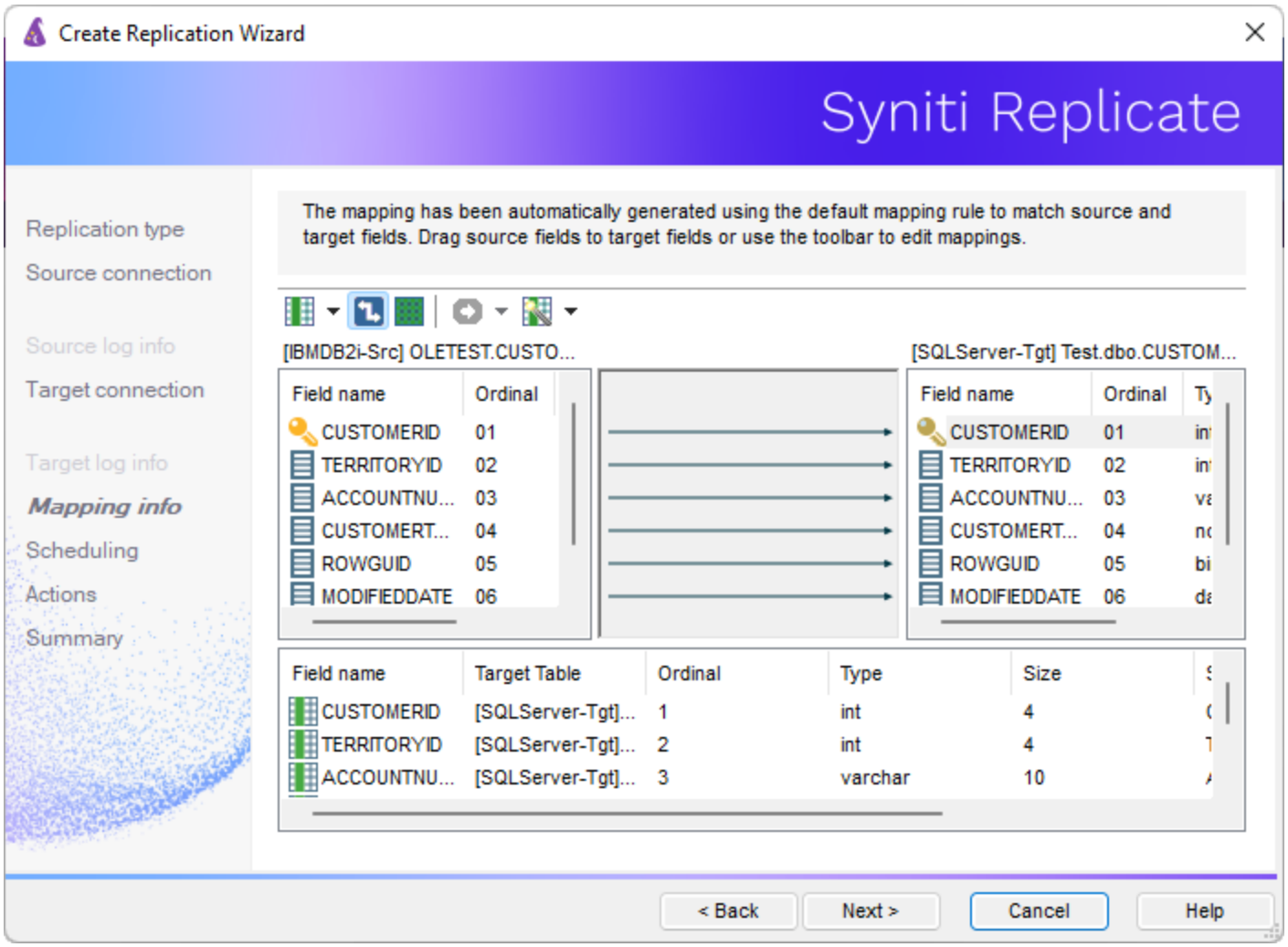
Read Interval (sec)
The frequency (in seconds) with which you want to check the log during replication. For example, if the setting is 90 seconds, Syniti Replicate will check the log every 90 seconds to see if any transactions have occurred that need to be replicated to the target table. This information is available and can be changed in the Replication Properties dialog after the wizard is completed.

12. In the Transaction ID field, click **Read TID** to open the Read Point dialog.
13. Choose either the current transaction or a transaction ID based on a time and date.
14. Click **OK** to add the value to the Source Log Info screen.

15. Set the value of the Read Interval field to the frequency with which you want Syniti Replicate to check the transaction log for new events to mirror.
16. Click **Next** to go to the Select Target Connection screen.

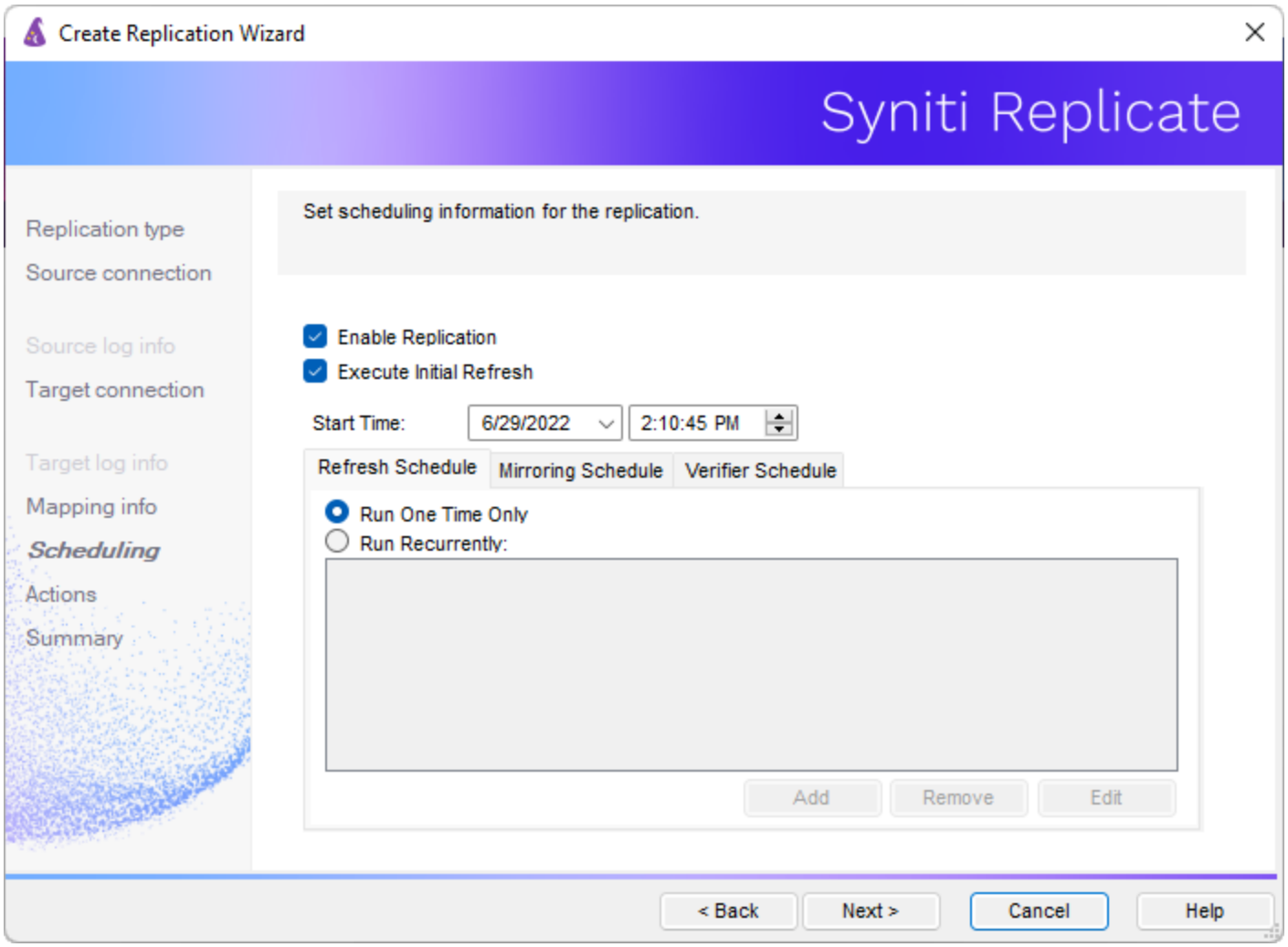


17. Choose a target source name from the drop-down list that includes all the target connections you have created.
18. Choose the table to which you want to replicate from the drop-down list.
    If no tables are listed, you need to exit the wizard and add or create a target table.
19. If you want more information about the table before proceeding, click **Open Table**....
20. Click **Next** to go to the Set Mapping Info screen.



Source and target columns with the same name are automatically mapped. You can also map columns by dragging the target column and dropping it on the source column, or you can map a column to an expression. For more information about mapping, check the Replication Wizard help topic. An alternative is to write a script to set mappings at runtime.

21. Click **Next** to go to the **Scheduling** screen.



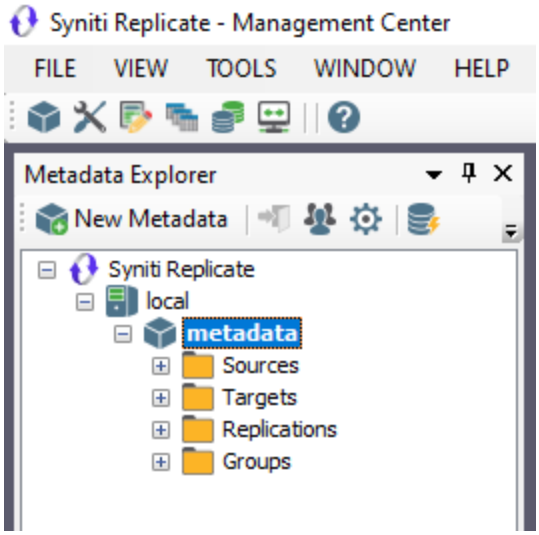
22. Make sure the **Enable Replication** option is checked. This is required for the replication to run.
23. Set a start time for the replication. The **Start Time** field indicates the time at which the Replication Agent will begin considering the replication for execution.
24. Check the option to **Execute Initial Refresh** if needed.
    If you check this option, a full replication will be performed from the source to the target table, prior to starting the mirroring process where only incremental changes will be replicated.
25. Go to the Mirroring Schedule tab.
26. Select how you want to run the replication:
    - **Run Continuously**: the transaction log will be checked for changes to the table using the frequency that you specified on the Set Log Info tab. Any changes will be replicated to the target table.
    - **Schedule Interruptions**: the replication process will run as above, except for interruptions specified when you click the Schedule button in the Scheduler dialog.
27. Click **Next** to go to the Summary screen.
28. Click **Finish** to complete the wizard.

Set Up the Syniti Replicate Environment on Node 2

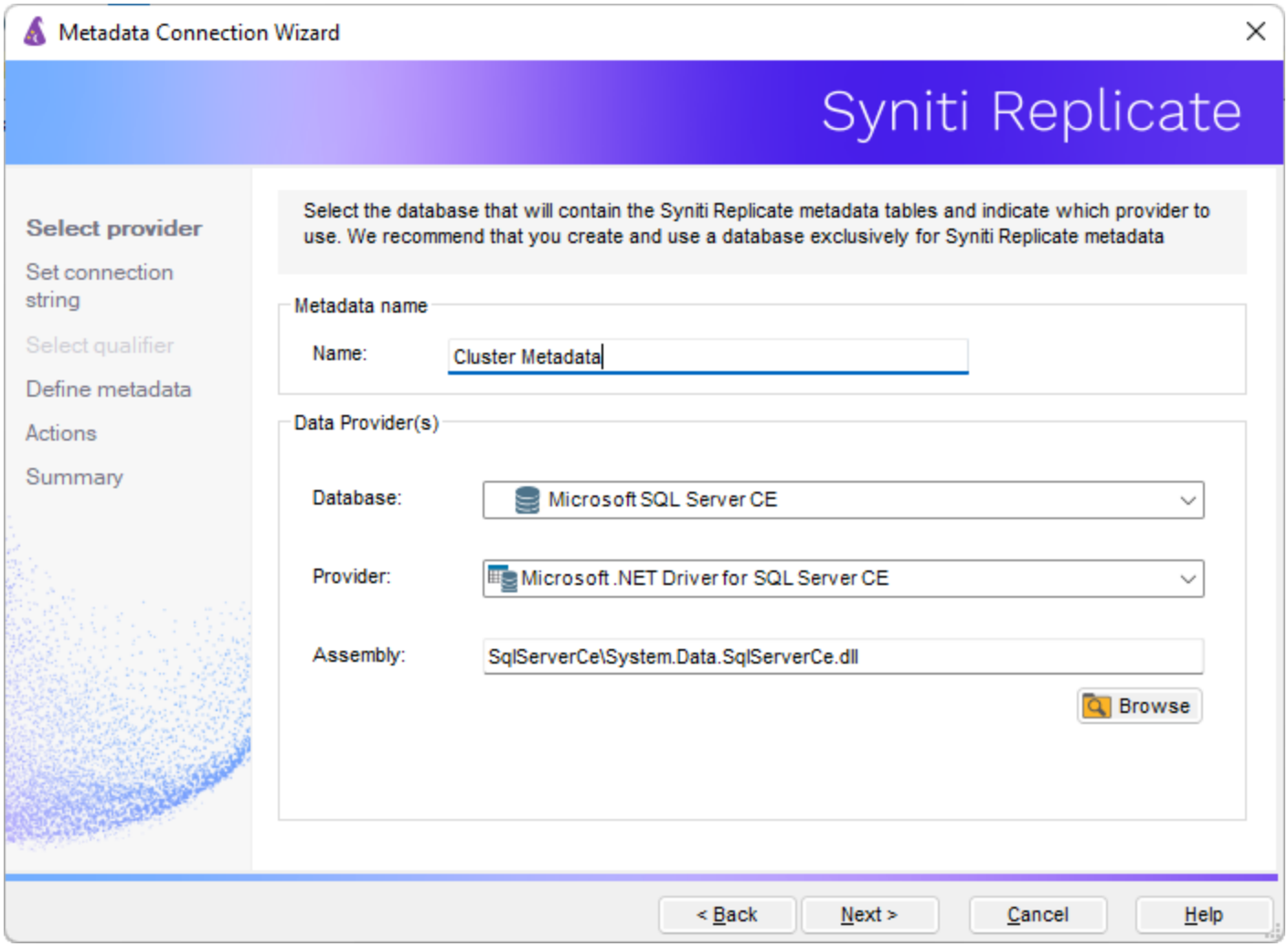
Set up the Metadata

When setting up Syniti Replicate on Node 1 of your MS Windows Failover Cluster, you created a new metadata database. Now, on Node 2, you will point to the same metadata database as described below. DO NOT create a new database here because the two instances of Syniti Replicate must share the same metadata.

1. Start the Management Center.



2. In the Metadata Explorer, right click on the **local** node and choose **Add New Metadata**.
3. In the Metadata Connection wizard, type a Metadata name and select the database type from the dropdown list.
   NOTE: If you are setting up the metadata on Node 2, you should select the same settings as on Node 1.



4. Enter a value in the Assembly field as required for the database you selected.
5. Click **Next**.
6. In the Set Connection String screen, choose Select Existing Database from the drop-down menu (if using MS SQL Server CE) or type the location of the database and any additional data required (for example, in some cases you need to supply a port number.) Be sure to select the same settings as on Node 1.

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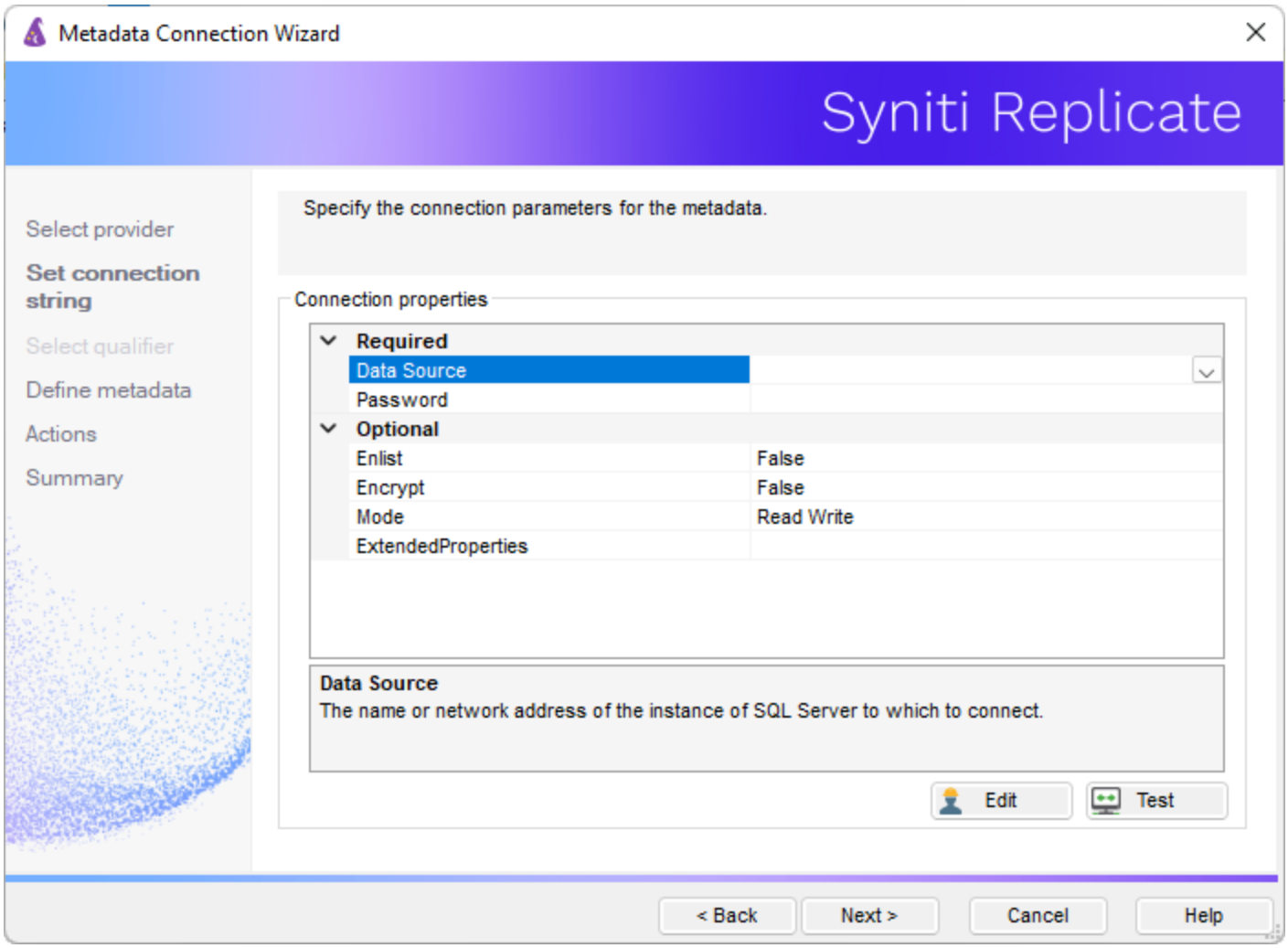
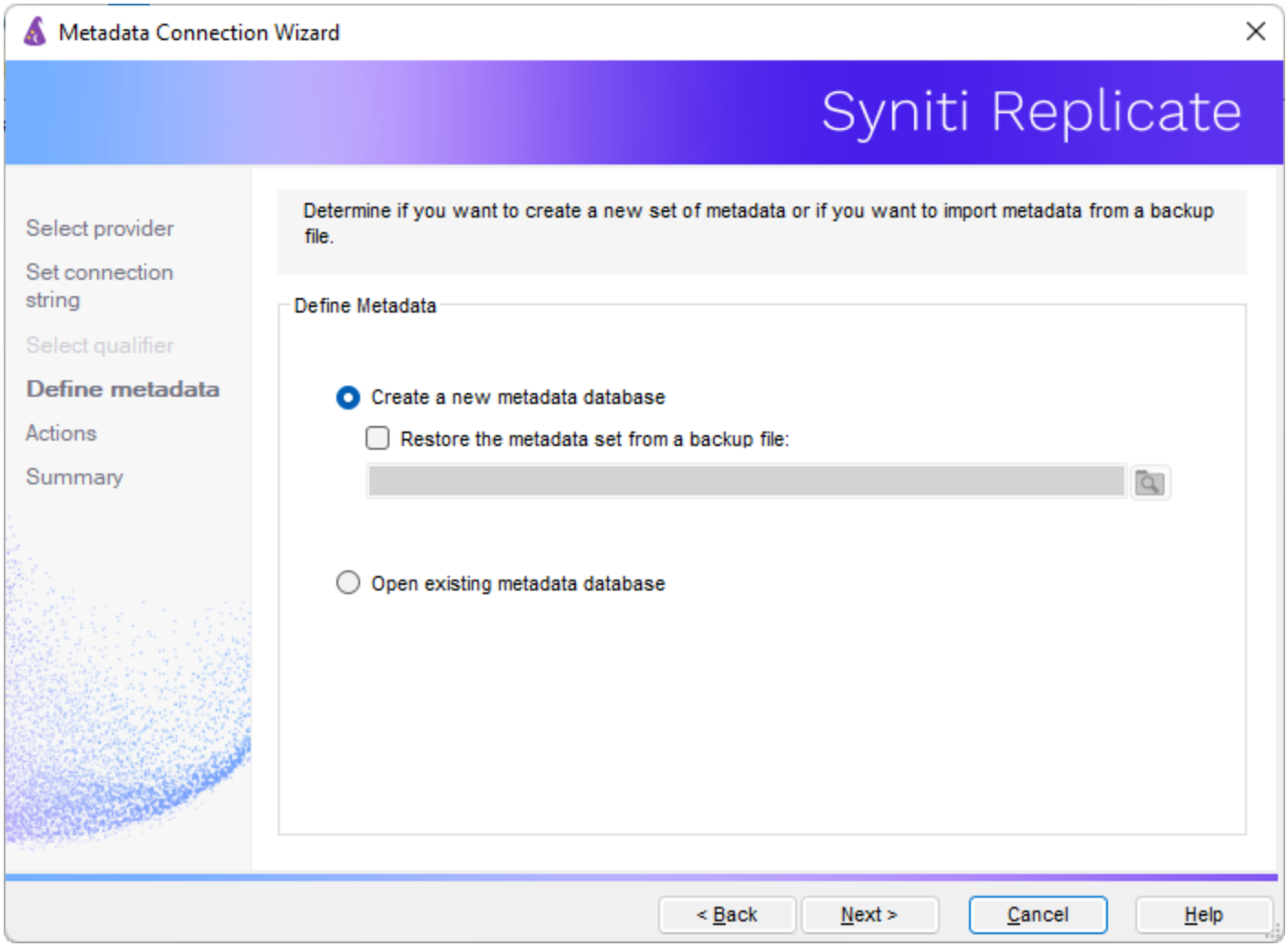
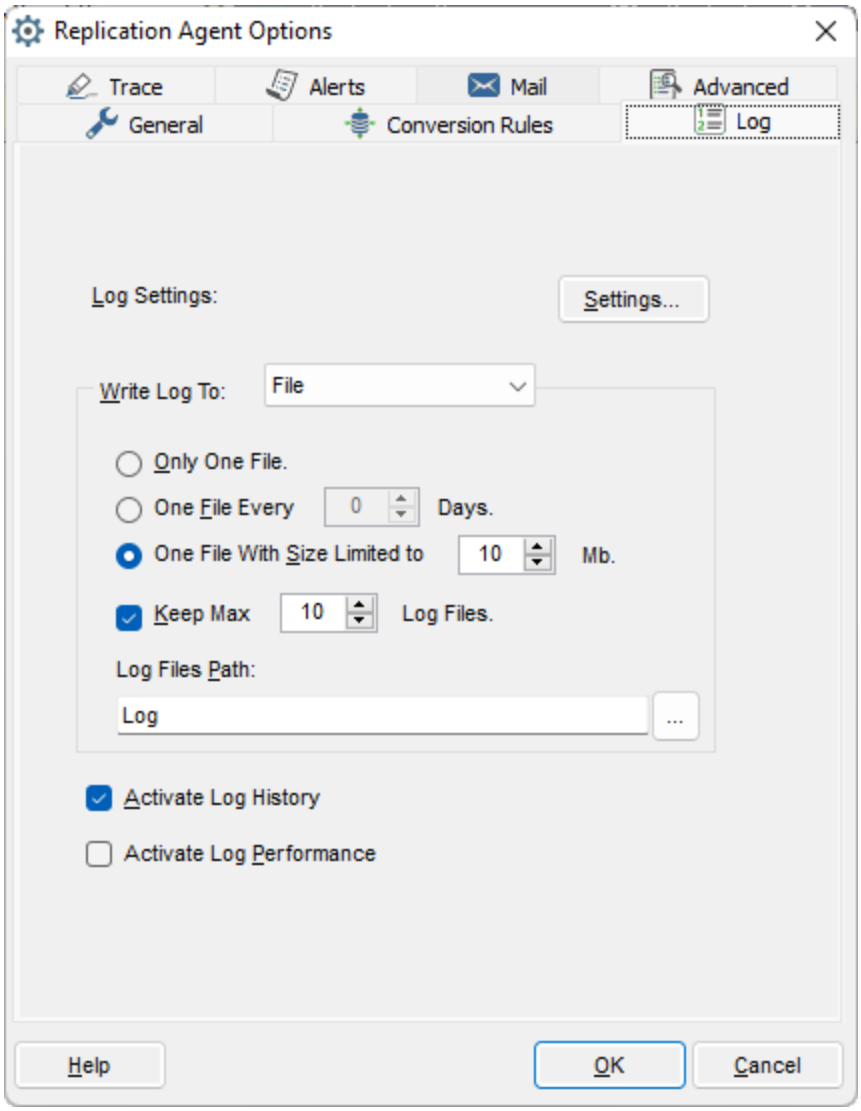


7. Add the user ID and password for the database.
8. For all other providers, edit at least the Required connection properties by clicking in the property value field and typing a new value. The list of Optional properties for .NET and OLE DB providers contains the most commonly used properties for the providers. Edit these as needed. Note that some properties are displayed with default values (no bold text.) Any values that you add or edit are displayed in bold text. Check the documentation for your provider for a complete list of properties. You can set the value of the ExtendedProperties property to define additional property-value pairs. The syntax for defining property-value pairs is: prop1=val1;prop2=val2;....
9. Click **Test** to test the connection to the database server.
10. Click **Next**.
11. In the Define Metadata screen, select the option **Open an Existing Database**.
12. Select the metadata database that was created for Node 1.

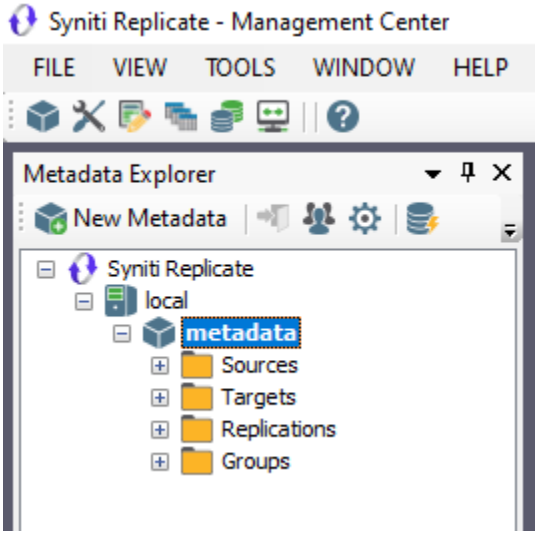


13. Click **Next**, then complete the wizard.
14. In the Metadata Explorer, right click on the metadata that you just created and choose Set As Default from the menu.
    Your new metadata database will be used for all subsequent operations on Syniti Replicate.
15. In the Metadata Explorer, right click on the local node, and choose **Replication Agent Options** from the menu.
16. In the Replication Agent Options dialog, go to the **Log** tab.
17. Make sure that **Write Log to File** is selected, and specify a path to an external failsafe file location that can be accessed by both Node 1 and Node 2.
18. Click **OK** to complete the dialog.

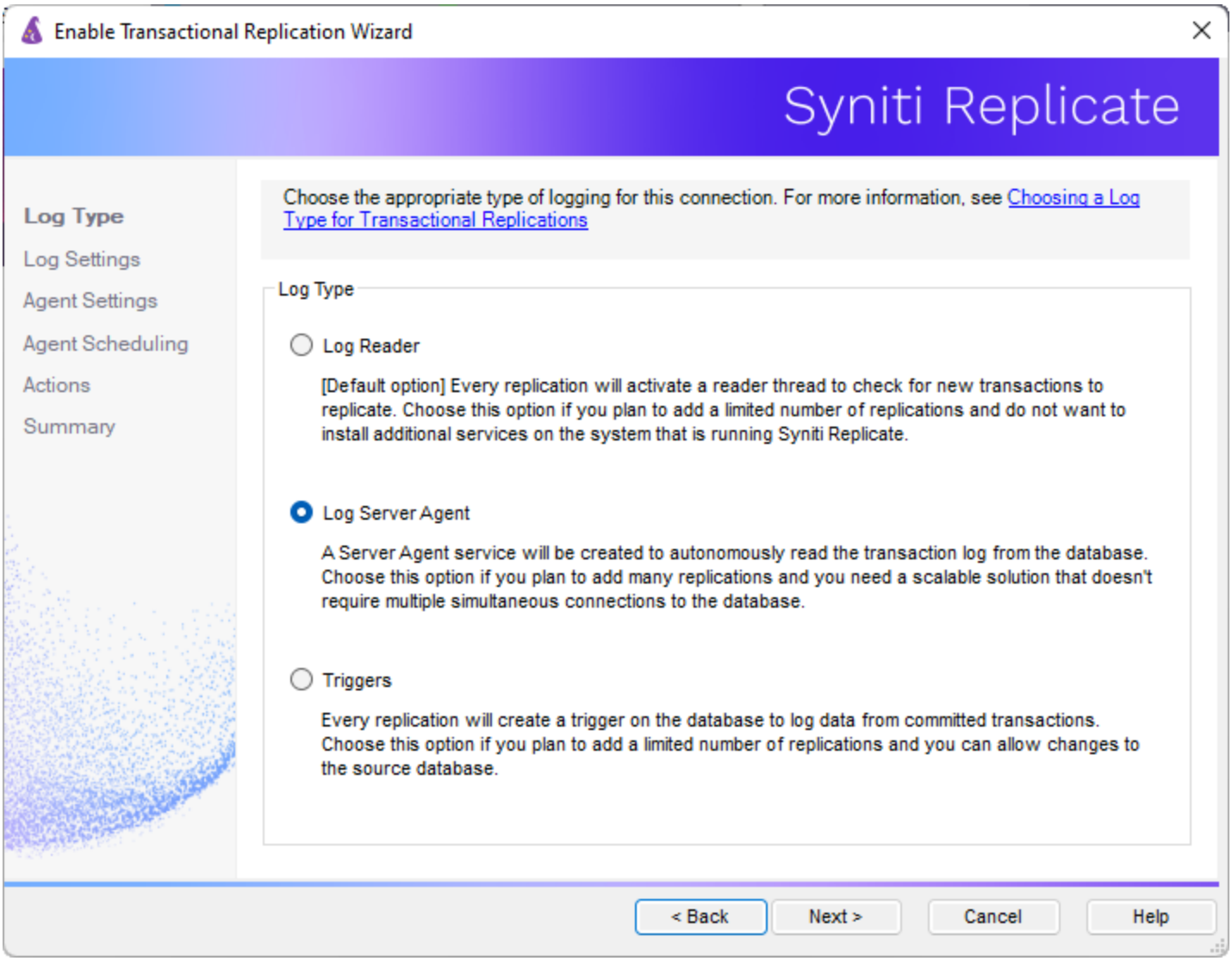


Test the Source Connection

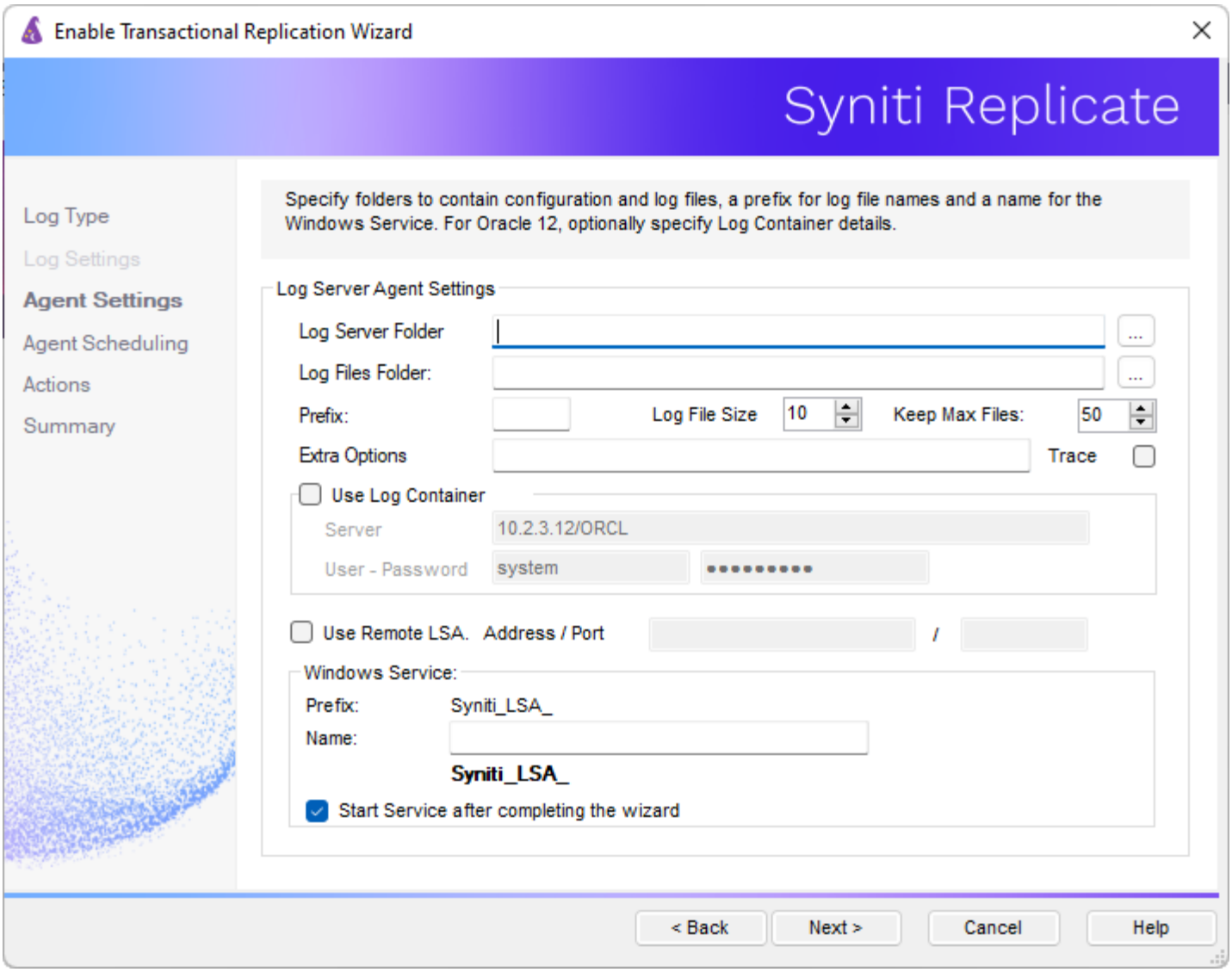
1. Make sure you have a database connection via a .NET data provider to your source database:
   - Install and configure one of the supported data access products. See this Help Center article for a current list of supported providers.
   - From the data access product, test the connection to the database.
   - Create a connection string for the data access product/database you are using. Check the documentation for the data access product for information on how to do this.
   - Check that the user ID you are planning to use for the database connection has sufficient permissions to complete all operations in Syniti Replicate. The user ID should have permissions to connect, select tables, insert/update/delete records. For complete details, see the **Syniti Replicate Setup Guide** that is specific to your source database (available from the Syniti Technical Support team via the Help Center).



2. In the Metadata Explorer, expand the metadata node to view the Sources and Targets nodes.
3. Select the **Sources** node.
4. From the right mouse button menu, choose **Connection Properties**.
5. In the Connection Properties dialog, click **Test** to make sure that the connection correctly opens a database connection.
6. If the connection does not work, check that you have installed the correct .NET Provider. Test the provider using the tools included with the provider. For any other issues, contact the Technical Support Team via the Help Center.
7. When testing is successful, click **OK** to close the Connection Properties dialog.
8. If you selected **Log Server Agent** as the Transactional Replication mode on Node 1, you need to install the Log Server Agent Service on Node 2 so that Syniti Replicate can access the log.
9. On Node 2, in the Metadata Explorer, right click on the source connection and choose **Transactional Setup** then **Enable**....
10. In the Enable Transactional Replication wizard, choose the Log Server Agent option.



11. Follow the Enable Transactional Replication Wizard to install the Log Server Agent Service.
12. The **Log Server Folder** and **Log Files Folder** paths should be accessible from both nodes in the cluster.



Test the Target Connection

Note that you must install, configure and test the connection to the database to which you are replicating before attempting to create a target connection to the database from Syniti Replicate. For example, if you are replicating from Oracle to MySQL, you need .NET data providers installed and tested for both Oracle and MySQL.

1. In the Metadata Explorer, right click the target connection and choose **Connection Properties** from the menu.
2. In the Connection Properties dialog, click **Test** to make sure that the connection correctly opens a database connection.
3. If the connection does not work, check that you have installed the correct .NET Provider. Test the provider using the tools included with the provider. For any other issues, contact the Technical Support Team via the Help Center.
4. When testing is successful, click **OK** to close the Connection Properties dialog.

Test the Replication

If you installed the Replication Agent as a service during setup, you just need to start the service using the Service Monitor program  in the Windows Notification Area.

- The replication that you have scheduled should start at the specified time.
- Use the Replication Monitor tab in the Management Center to track the progress of the replication.

To run the Replication Agent interactively:

- In the Windows Notification Area, select the Service Monitor icon  .
- From the right mouse button menu, choose **Replication Agent**, then **Start** then **Application**.
  The replication that you have scheduled should start at the specified time.
- Use the Replication Monitor tab in the Management Center to track the progress of the replication.

Stop the Syniti Replicate Services (Node 1 and Node 2)

Syniti Replicate uses a minimum of two or three Windows services:

Syniti Replication Agent
Syniti Server Agent
Syniti_LSA_xxx (only present if the Log Server Agent has been selected as the transactional replication type.)

The services on both nodes must be managed by the Failover Cluster Manager as follows.

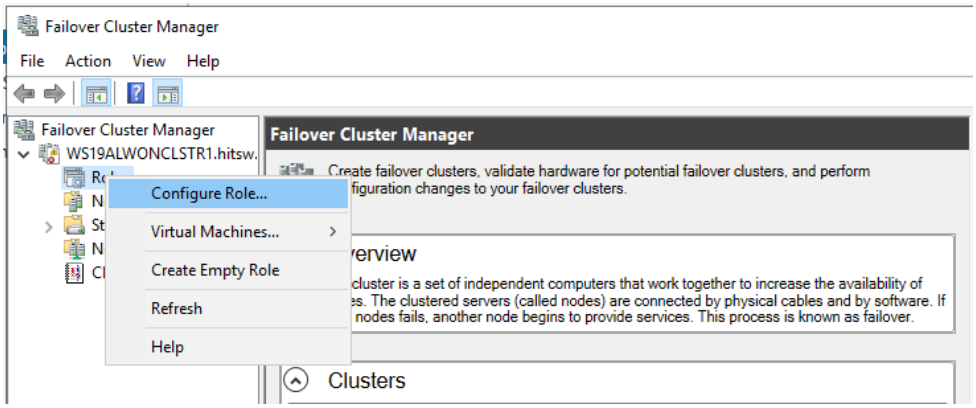
1. In the Windows Notification Area, right click on the Service Monitor icon  . From the menu, choose **Replication Agent** then **Stop**.
2. Right click on the Service Monitor icon  . From the menu, choose **Server Agent** then **Stop**.
3. If you selected Log Server Agent as your transactional replication mode, stop the LSA service you created:
   - In the **Metadata Explorer**, right click on the source connection name and choose **Transactional Setup** then **Manage**....
   - Click **Stop** to stop the service.
4. On the Windows desktop, open the Control Panel.
5. Open the Services window from Administrative Tools.
6. Change the Startup Type of the three Syniti Replicate services from **Automatic** to **Manual**.
7. Repeat these steps on the other node.

This is the first step to allowing the Failover Cluster Role to manage the services later.

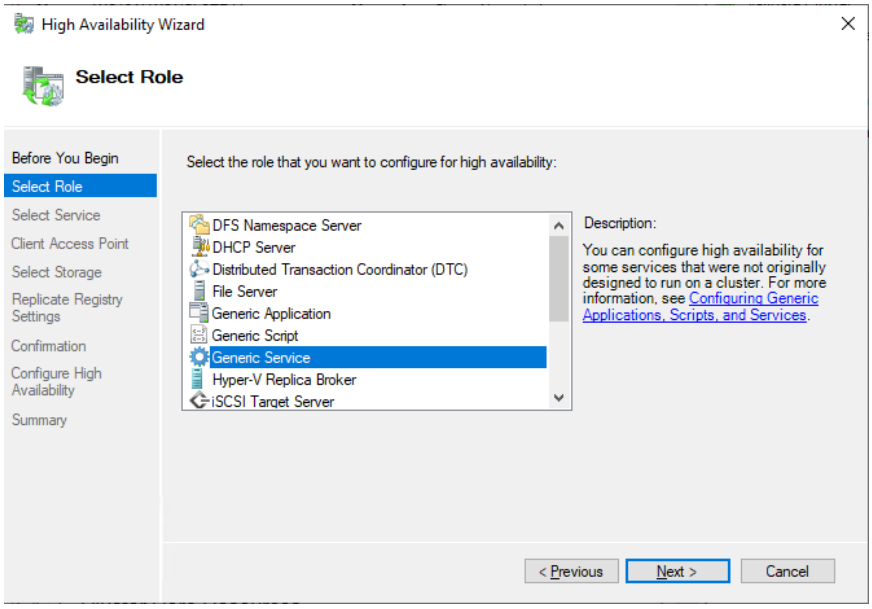
Use the Failover Cluster Manager to create a failover role for the three Syniti Replicate services.

Set Up the Failover Cluster

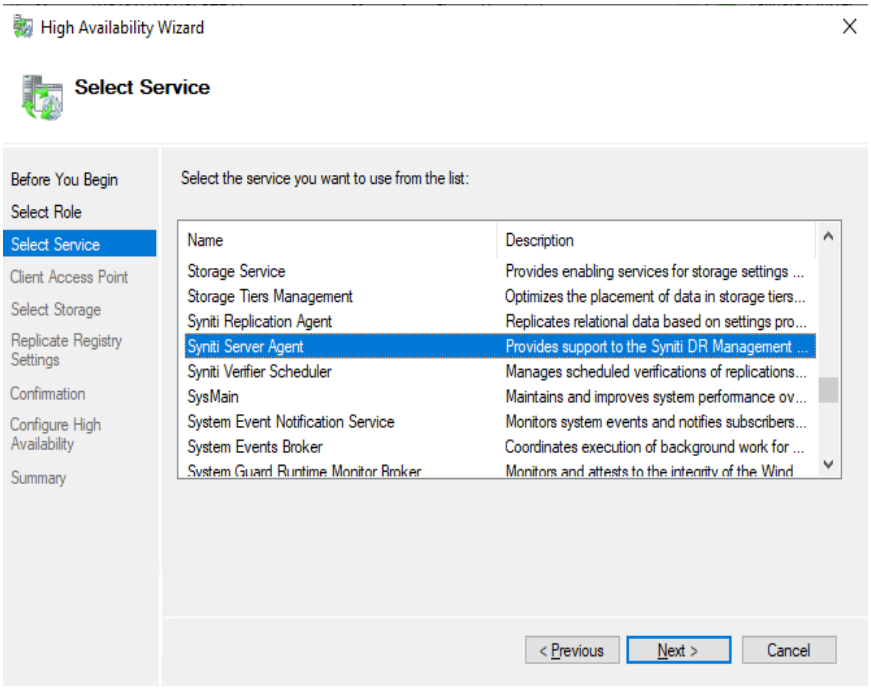
1. Open the Failover Cluster Manager.
2. Under the cluster name, right click on Roles **> Configure Roles...**



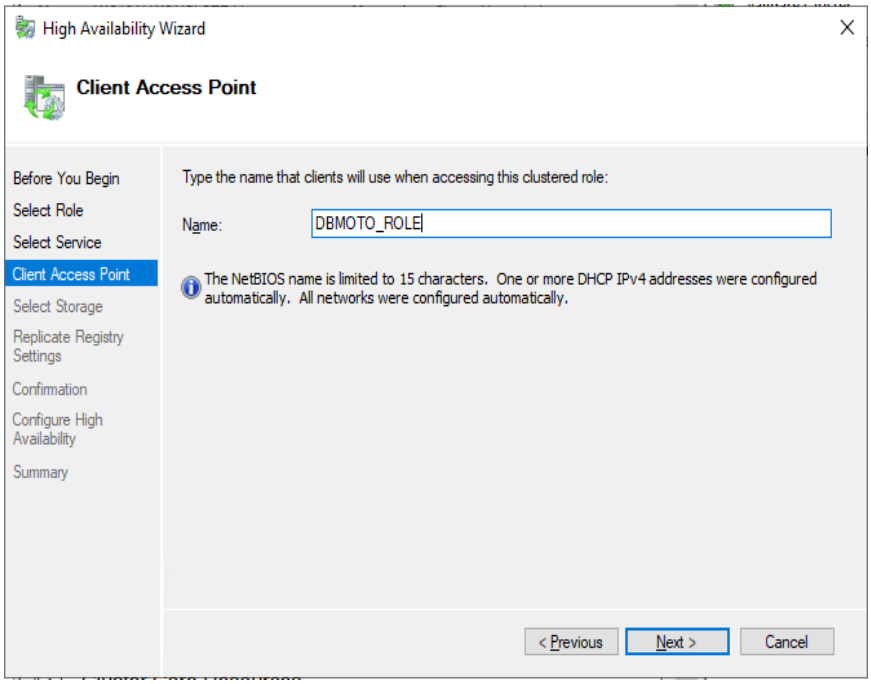
3. In the **High Availability Wizard** Select Role screen, choose **Generic Service**.



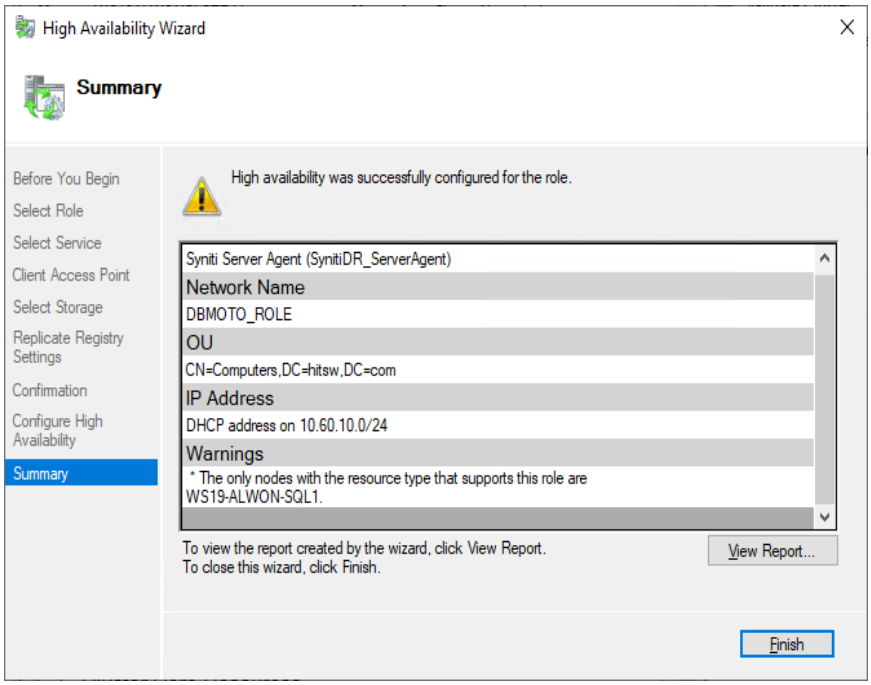
4. Click **Next**.
5. In the Select Service screen, choose the Syniti Server Agent Service.



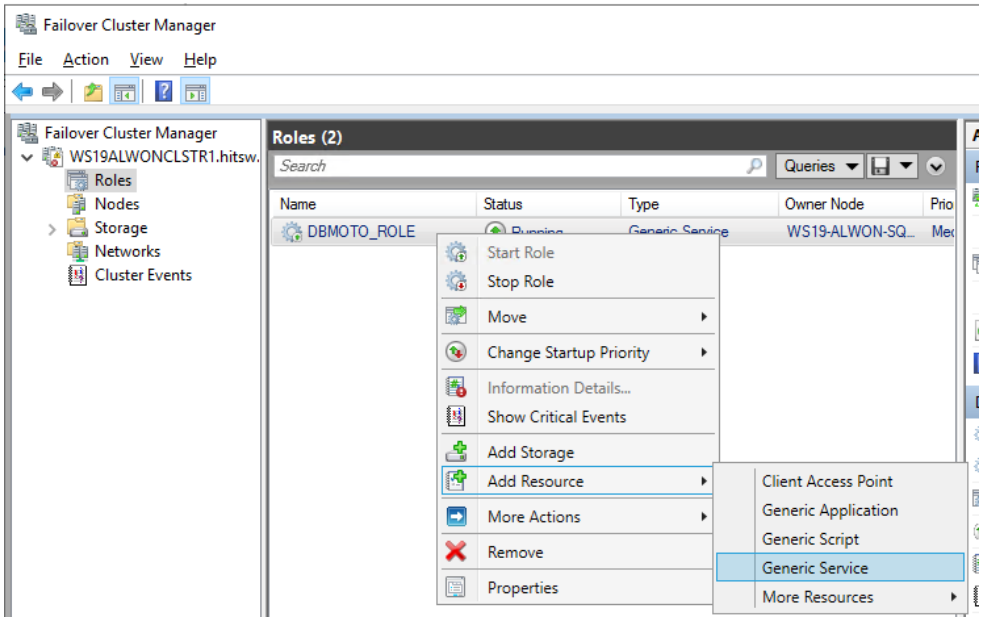
6. Click **Next**.
7. In the **Client Access Point** screen, specify a role name. This guide uses DBMOTO_ROLE as an example.



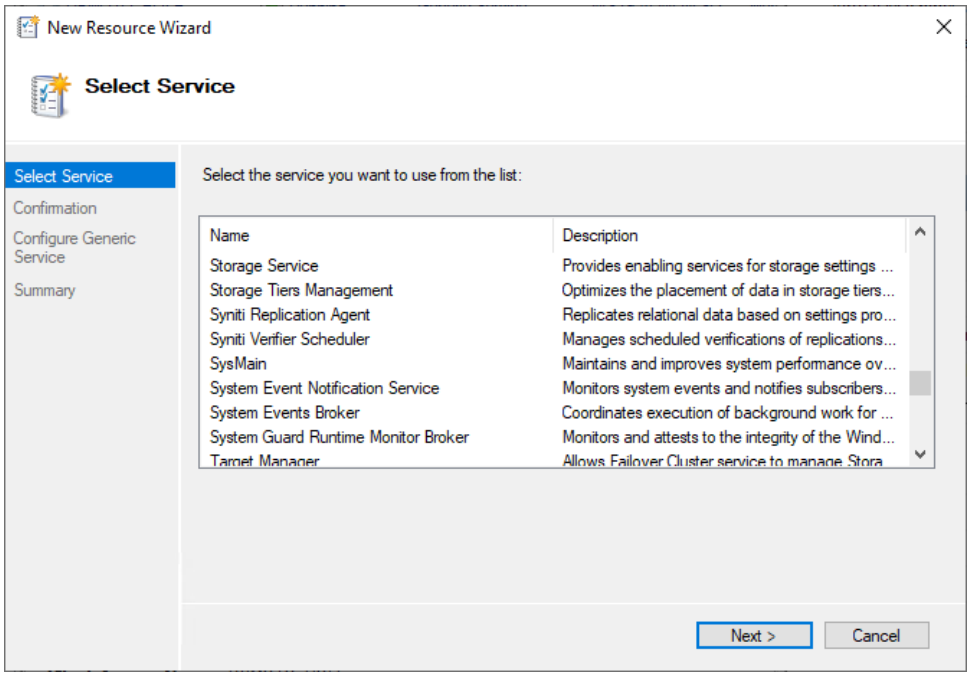
8. Complete the wizard.



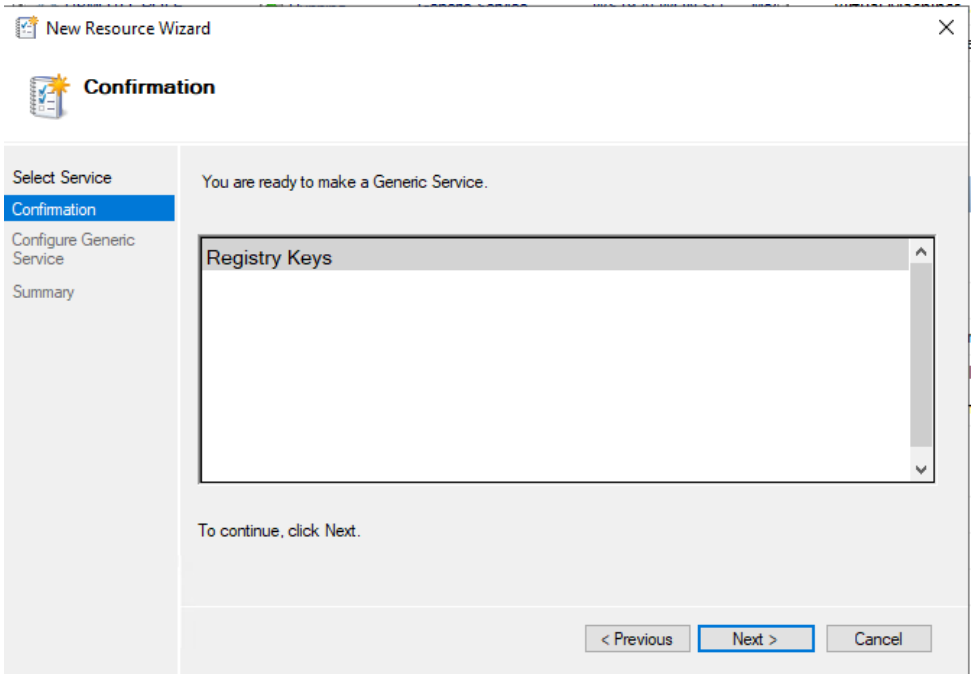
9. Add the Syniti ReplicateReplication Agent Service and the Log Server Agent service (if used) as additional resources to the role you have created.
10. Stop the role if it was started.
11. Right click on the role name to select **Add Resource** then **Generic Service**.



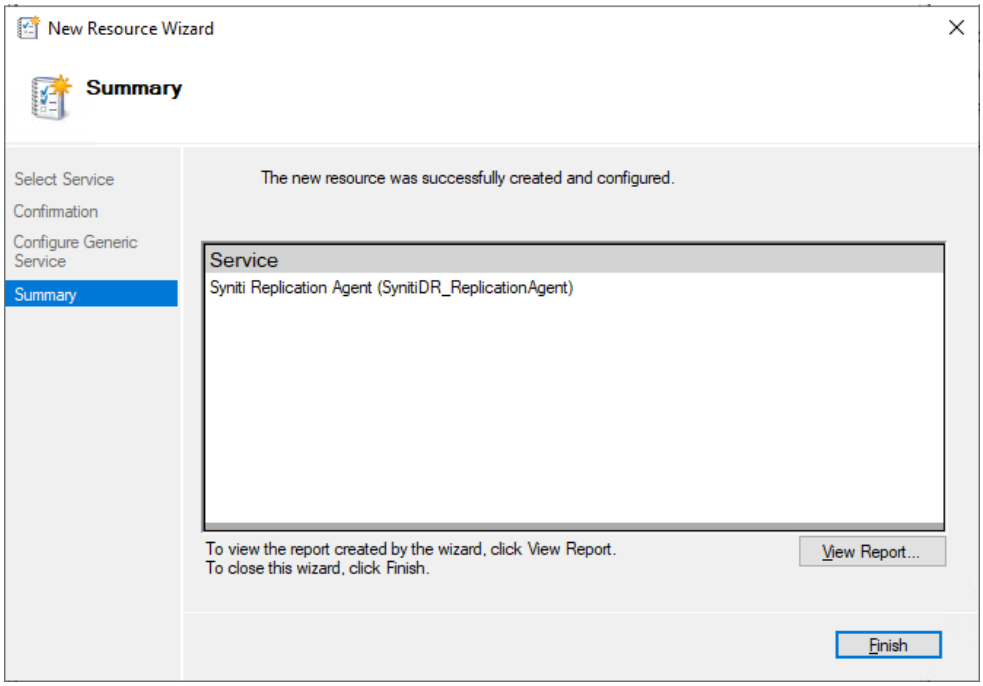
12. In the Select Service screen, choose the Syniti Replication Agent Service.



13. Click **Next.**

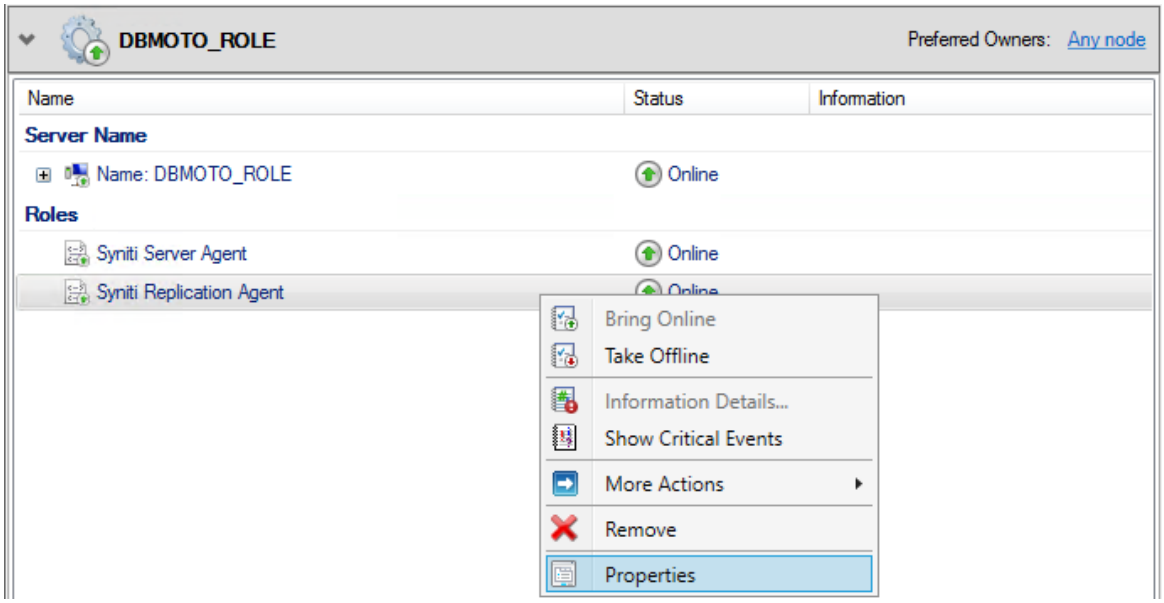


14. Complete the wizard.

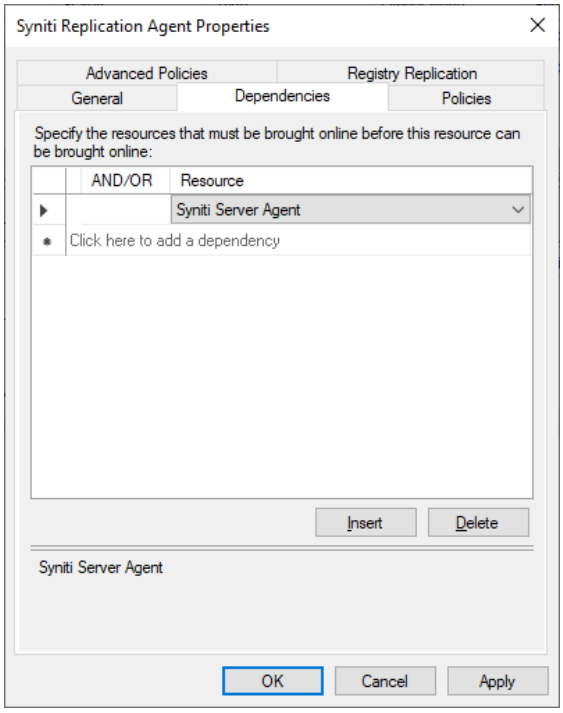


15. Repeat steps 10 to 13 to add the Log Server Agent service (Syniti_LSA_xxx), if used.

    The Syniti ReplicateReplication Agent Service depends on the Syniti ReplicateServer Agent to be running before it can start, so you need to add dependency to the Replication Agent service in the Failover Cluster Manager.
16. Display the role in the bottom pane of the Failover Cluster Manager.
17. Right click on the Replication Agent Service and choose **Properties** from the menu.



18. On the Properties Dependencies tab, add Syniti Server Agent as a dependency.



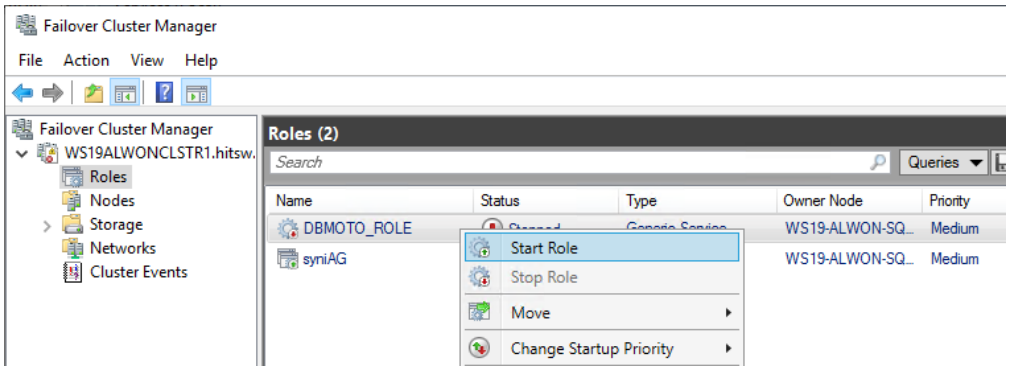
19. Click **OK** to complete the dialog.

The critical Syniti Replicate services are now controlled by the role you have created in the Failover Cluster Manager. To start all the services for replication, and for working in the Syniti Replicate Management Center, start the role. **Note that, if the role is stopped, no replications in Syniti Replicate can occur because the Syniti services are also stopped.**

Start the Role (Node 1 or Node 2)

Now that the failover role is set up, you can use it to start, stop the services and test failover by moving the role to the other node on the cluster. It is highly recommended that you control the Syniti services from the Failover Cluster Manager, rather than from the Windows Control Panel or the Syniti Replicate Service Monitor.

- In the Failover Cluster Manager, right click on the role and choose **Start Role**.



Test Failover Cluster Operations

To test the failover, use the Failover Cluster Manager to move the role from one cluster node to the other, simulating a failover situation. A failover role can run on either node: the Failover Cluster Manager displays the current role status and can be used to move a role from one node to another.

- In the Failover Cluster Manager, right click on the role and select **Move** from the menu, then choose **Select Node...** to select a new node to move/failover the role.