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Document History

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This guide describes how to set up and use Syniti Data Replication from the AWS Marketplace. Use Syniti Data Replication to move data from any source database to AWS targets. There are three options for using Syniti Data Replication for AWS:

Product Name	Description
SDR v9.7.3.3 AWS AMI 1-1	Syniti Data Replication v9.7.3.3 for AWS for 1 SOURCE, 1 TARGET (1 PAIR) A 10-day free trial to try replicating data from one source database to one target platform.
SDR v9.7.3.3 AWS AMI 2-2	Syniti Data Replication v9.7.3.3 for AWS for 2 SOURCES, 2 TARGETS (2 PAIRS) A 10-day free trial to try replicating data with access from up to two source databases to one or two target platforms.
SDR v9.7.3.3 AWS AMI BYOL	Syniti Data Replication v9.7.3.3 for AWS for 'Bring Your Own License' Provide your own Syniti Data Replication license. See <u>BYOL Instance</u> <u>Setup</u> for license installation details.

Architecture

Access the Syniti Data Replication AMI (Amazon Machine Image) via a Remote Desktop Connection to set up, manage and run replications. Source data can be access from any supported on-premise or cloud database, and supported targets include all Amazon data platforms. The Syniti Data Replication AMI is Microsoft Windows-based and includes everything you need to set up and run test replications, including easy access to SQL Server Express and PostgreSQL for testing purposes.



Supported Platforms

So	urces	Targets
Amazon Aurora MySQL*	MariaDB*	Amazon Aurora MySQL*
Amazon Aurora PostgreSQL	Microsoft Azure SQL	Amazon Aurora PostgreSQL
Amazon RDS for MariaDB	Microsoft SQL Server	Amazon DocumentDB
Amazon RDS for MySQL*	Microsoft SQL Server CE	Amazon QuickSight
Amazon RDS for Oracle*	MySQL*	Amazon Redshift
Amazon RDS for PostgreSQL	Oracle*	Amazon RDS for MariaDB*
Amazon RDS for SQL Server	PostgreSQL	Amazon RDS for MySQL*
Amazon Redshift	Progress OpenEdge*	Amazon RDS for Oracle*
Google Cloud SQL MySQL*	SAP HANA*	Amazon RDS for PostgreSQL
Google Cloud SQL PostgreSQL	SAP Sybase ASE*	Amazon RDS for SQL Server
Gupta SQLBase*	SAP Sybase IQ*	Amazon S3
IBM Db2 LUW	SAP Sybase SQL Anywhere*	
IBM Db2 for i	Teradata*	
IBM Db2 for z/OS	Tibero*	
IBM Informix*	Vertica*	
IBM PureData*	Vector (Actian)*	
Ingres*		
**	the station of a summary state of the state	

*These databases require separate installation of a .NET provider on the AWS instance.

Requirements

- Connectivity drivers for source and target. Some drivers are included in the AMI. See the file INSTALLED SOFTWARE.txt on the instance desktop for a complete list. If a source provider is not included, download and install it using <u>the guide in the Help Center</u>.
- The ability to create a Remote Desktop Connection to access the AMI.
- An AWS account with access to an EC2 console.

Setup Steps

To launch a Syniti Data Replication AMI in AWS:

- 1. Ensure that an EC2 key pair is available to you for secure access to the AMI. Use the EC2 Dashboard to set up the key pair and install the private key file on your local system.
- 2. Sign in to AWS, if you have not already done so.
- 3. Go to the AWS Marketplace.
- 4. Search for Syniti Data Replication for AWS.
- 5. Select the region for the AMI to run in.
- 6. Click Continue.
- 7. Check the Region and Key Pair settings.
- 8. After reviewing the cost estimate for running the AMI, click Next.

- 9. Accept terms and launch the AMI.
- 10. Once setup is complete, go to the EC2 console.
- 11. Select the instance, and click **Connect** at the top of the EC2 view on the dashboard to save a remote desktop connection file that can then be used as link to open the connection.

aws Services V	Q Search for services, features, marketplace	e products, and docs [Alt+S]	Σ
New EC2 Experience Tell us what you think	Instances (1/3) Info	C Connect Instance state V	
EC2 Dashboard New	Q Filter instances		
Events	Instance state: running X Clear filters		
Tags	■ Name マ Instance ID	Instance state ∇ Instance type ∇ S	St
Limits	☑ hit.windows.buildserver.slave i-0da1b8c02836	Ge2020 ⊘ Running @Q t3.small	2
Instances	quadrate.windows.buildserver.slave i-0b89ca63b346	Gcc891 ⊘ Running @Q t2.small 🤅	2
Instances New	DBMoto (Marketplace) i-039150f85274	126f8d ⊘ Running @Q t3.large 🤅	2
Instance Types	4		_
Launch Templates			

12. In the Connect to instance dialog, on the RDP Client tab, click to download the remote desktop file.

C2 > Instances > i-Oda1b8c02836e2020 > Connec	ct to instance
Connect to instance Info Connect to your instance i-Oda1b8c02836e2020 (hit.windows.build	dserver.slave) using any of these options
Session Manager RDP client	
You can connect to your Windows instance using a remot running the RDP shortcut file below:	e desktop client of your choice, and by downloading and
Download remote desktop file	
When prompted, connect to your instance using the follo	wing details:
Public DNS	User name
ec2-3-93-137-48.compute-1.amazonaws.com	Administrator
Password Get password	
If you've joined your instance to a directory, you can use	your directory credentials to connect to your instance.
	Cancel

- 13. Use this dialog to retrieve the password and record any other connection information you need.
- 14. Define a Security Group for the connection. Configure an InBound rule to connect from any machine to the EC2 instance using the following settings:

Type: RDP Protocol: TCP Port: 3389 Source: 0.0.0.0/0

WARNING: This rule opens access to a client connection from **ANY** source server. To restrict access, replace 0.0.0.0/0 with the IP address of each server allowed to connect.

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NOTE: You can define an AWS security group either while configuring the EC2 instance or after the instance is created.

BYOL Instance Setup

For current Syniti Data Replication customers, there is an option to transfer your license to the AWS environment. To allow you to explore the AWS solution, you can initially request a temporary license via the <u>Help Center</u>. To add the temporary license to the BYOL version:

- 1. Upload the license to your AWS instance.
- 2. In the Management Center Metadata Explorer, select the **local** server, and choose **Manage Licenses** from the right mouse button menu.
- 3. Click Import License to add the uploaded license to the Management Center.

Creating and Running Replications

- 1. Set up a Remote Desktop Connection to access Syniti Data Replication on the AWS instance. Use the information in step 11 of the <u>Setup Steps</u> section to help you. You will need the public IP address of the EC2 instance and the instance administrator login ID and password.
- 2. Follow the steps described below to set up and run a replication.
 - Create a source connection
 - Enable a transactional replication
 - <u>Create a target connection</u>
 - Define the replication from source to target
 - <u>Run the replication</u>

Create a Source Connection

First, make sure that the .NET Data Provider to connect to your source database is available in the AWS instance. A file on the desktop of the AWS instance called INSTALLED SOFTWARE.txt contains a list of all installed providers. If the data provider for your database is not listed, you will need to locate and install the provider on the AWS instance.

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



4. In the <u>Add Source Connection Wizard</u>, follow steps to add a connection string and test the connection to the database.

If you have installed a data provider yourself, check the Supported Provider List in the <u>Help Center</u> before entering a value in the **Assembly** field.

💰 Add Source Connectic	n Wizard	×
	Syniti Data Replic	ation
Select provider	Select the database that contains source data to be replicated and indicate which provi	der to use.
Set connection string Select tables	Source name Name: IBMDB2i-Src	
Actions Summary	Data Provider(s)	
	Database: IBM Db2 for i	~
	Provider: III Software .NET Driver (Ritmoli)	~
and the second second	Assembly: Ritmo_Vilb/Sql400.dll	Browse
	< Back Next > Cancel	Help

- 5. In the Select Tables screen, choose the tables that you plan to replicate.
- 6. In the Actions screen, check the option Launch the Enable Transactional Setup Wizard.

Select provider Select provider Set connection string Select tables Actions Summary Check this option to set up transactional Replication Wizard Check this option to set up transaction details for mirroring or synchronization replications that use this connection as a source. Check this option to set up transaction details for mirroring or synchronization replications that use this connection as a source. Check this option to set up transaction details for mirroring or synchronization replications that use this connection as a source. Check this option to set up transaction details for mirroring or synchronization replications that use this connection of a target connection.	Add Source Connectio	n Wizard	X
Select provider Choose the action(s) to perform at the end of the wizard. Select tables At the end of the wizard: Actions Launch the Enable Transactional Replication Wizard Summary Check this option to set up transaction details for mirroring or synchronization replications that use this connection as a source. Launch the Add Target Connection Wizard Proceed with the definition of a target connection.		Syniti Data Replication	
Set connection string At the end of the wizard: Select tables Launch the Enable Transactional Replication Wizard Check this option to set up transaction details for mirroring or synchronization replications that use this connection as a source. Launch the Add Target Connection Wizard Proceed with the definition of a target connection. Proceed with the definition of a target connection.	Select provider	Choose the $\operatorname{action}(s)$ to $\operatorname{perform}$ at the end of the wizard.	
Launch the Add Target Connection Wizard Proceed with the definition of a target connection.	Set connection string Select tables Actions Summary	At the end of the wizard: Launch the Enable Transactional Replication Wizard Check this option to set up transaction details for mirroring or synchronization replications that use this connection as a source.	
		Launch the Add Target Connection Wizard Proceed with the definition of a target connection.	

7. Complete the wizard.

Enable Transactional Replication

This section assumes you are planning to replicate data to an Amazon target using mirroring (rather than Refresh) from a relational database. Mirroring replicates only the changed data since the last replication and is therefore much more efficient. 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 <u>Syniti DR help</u> for more information on the best option.

	Syniti Data Replication	
Log Type	Choose the appropriate type of logging for this connection. For more information, see <u>Choosing a Log</u> <u>Type for Transactional Replications</u>	
Actions	Log Type	
Summary	O Log Reader [Default option] Every replication will activate a reader thread to check for new transactions to replicate. Choose this option if you plan to add a limited number of replications and do not want to install additional services on the system that is running Data Replication.	
	 Log Reader API Same as Log Reader with additional support for Large Object Binary values in transactional mode. Select this option if tables contain LOBs. 	
Sec. 1	O Log Server Agent A Server Agent service will be created to autonomously read the transaction log from the database. Choose this option if you plan to add many replications and you need a scalable solution that doesn't require multiple simultaneous connections to the database.	
200 million -		

- 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 <u>Help</u> <u>Center</u>.
- 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

This section assumes you have checked the **Enable Transactional Replication wizard** option to launch the Add Target Connection wizard. If not, to open the wizard from the Management Center, choose **Targets** in the Metadata Explorer, then right-click to choose **Add New Connection...**



1. In the Target Connection Wizard **Provider** field, select the target platform of your choice.

💰 Add Target Connection	n Wizard		×
		Syniti Data Replication	
Select provider	Select the data	base target where to replicate data and indicate which provider to use.	
Set connection string	Target name		
connection string Select tables	Name: Data Provider(s)	MyS3Bucket	
Actions Summary	Database:	Amazon S3	
	Provider:	Amazon S3 Data Provider 🗸 🗸	
	Assembly:	Rowse	
and the second second			
Stephene August 200		< Back Next > Cancel Hel	D
		Zark Tevr Zancel Tel	

 Click Next to display the Set connection string screen.
 For information on how to complete the connection details for your target, check the <u>Syniti DR Setup</u> <u>Guides</u> in the <u>Help Center</u>.

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3. Click **Next** to display the Select Tables screen.

At this point, there may be no output structure available to display. You can add the information after completing the Target Connection wizard.

- 4. Click **Next** to display the **Summary** page.
- 5. Click **Finish** to complete the wizard.

Add Information to the Target Connection

The target connection is displayed in the Metadata Explorer, but you still need to add the file representation for source table data so that when you create replications below, you can specify a source table and target "file."

- 1. In the Metadata Explorer, expand the source connection you created above.
- 2. Select and drag a source table to the target file connection.
- 3. The Create Target Table wizard is displayed.

Although you are not actually creating tables, you can use this wizard to create a representation of the file data.

- 4. In the **Source Connection** screen, you should see the source table you selected above.
- 5. Click Next to display the Target Connection screen.
- 6. Verify that the screen displays the correct target connection name, and table name.
- 7. Click **Next** to review the table structure.

At this point, you can modify data types, null values and so on, if you want to modify the data eventually sent to a file.

8. Click **Next** to display the **SQL Script** screen.

The contents of this screen may be inactive if there is no editable SQL script to create a SQL table.

9. Click Next to display the Summary screen.

- 10. Click **Finish** to create the table representation in the Metadata Explorer.
- 11. Click Yes to add the table name to the target connection entry in the Metadata Explorer
- 12. Repeat steps 2 through 11 for each source table that you want to replicate to a file.

At the end of this process, you should have a list of table representations under the Files target connection in the Metadata Explorer.

Define the Replication

This section assumes you have checked the Create Replication wizard option to launch the Create Replication wizard. If not, to open the wizard from the Management Center, choose the table you want to replicate in the Metadata Explorer, then right-click to choose **Replication > Create New Replication...**

- 1. In the **Define Replication Type** screen, type a name to identify the replication.
- 2. Optionally provide a description of the replication.
- 3. In the Replication Mode area, choose Continuous Mirroring.

		Syniti Dat	ta Replication
Replication type	Mirroring mode will defi server.	ne a one-way transactional replication	, from the source server to the target
source connection	Replication Name		
Source log info	Replication Name	Customer	
Target connection	Description:		
	Use Group:	🔗 <undefined></undefined>	✓ <u>C</u> reate
Mapping info			
cheduling	Replication Type		
ctions	O Refresh		
Summary	Continuous Mirro	ring	
1	Synchronization		
S. Constant			

4. Click Next to go to the Select Source Connection screen.

Create Replication Wiz	ard		×						
		Syniti Data Replication							
Replication type	Select the source connection and table to be replicated.								
Source connection									
Source log info									
Target connection	Connection Name:	DB2iPubs V							
Mapping info	Table Name:	TRAINING.CUSTOMERS							
Scheduling		Open Table							
Actions Summary									
Constant of the									
		< Back Next > Cancel Help)						

- 5. Choose the source name from the drop-down list that includes all the source connections you have created in Syniti DR.
- 6. Choose the table that you want to replicate from the drop-down list.
- 7. If you want more information about the table before proceeding, click Open Table....
- 8. Click Next to go to the Source Log Info screen.

💰 Create Replication Wiz	ard		×
		Syniti Data Replication	
Replication type Source connection	Click Next to use the curre TID to set the transaction	ent transaction read point from the IBM VAS400 server. To override, click Read ID from which to replicate.	
Source log info Target connection			
Target connection Target log info Mapping info Scheduling Actions Summary	Journal Receiver: Transaction ID: Transaction Timestamp: Read Interval (sec):	TRAINING.OSOJIRN Bend TD TRAINING.OSOJIRN0001 23 7/15/2019 8:08:20 PM 60	
		< Back Next > Cancel Het	p

The first two fields on this screen depend on the source database you are using. In this explanation, we assume you are using IBM Db2 for i (iSeries or AS/400). Check the help for the <u>Replication Wizard</u> for details on the other databases.

The Journal field is automatically filled in by retrieving the information from Db2 for i. The Receiver field will be automatically filled in after setting the Transaction ID. You do not need to modify these

fields. However, if the library that you have specified as a source is not journaled, you will need to ask your system administrator to journal the library.

- 9. In the Transaction ID field, click Read to open the Read Point dialog.
- 10. Choose either the current transaction or a transaction ID based on a time and date.
- 11. Click **OK** to add the value to the **Source Log Info** screen.
- 12. Set the value of the **Read Interval** field to the frequency with which you want Syniti DR to check the transaction log for new events to mirror.
- 13. Click Next to go to the Select Target Connection screen.
- 14. Choose the target connection from the drop-down list that includes all the target connections you have created in Syniti DR.
- 15. Choose the data set you want to replicate from the drop-down list. If the drop-down list is empty, exit the wizard and add or create a target data set.
- 16. Click **Next** to go to the **Set Mapping Info** screen. Source columns and target data with the same name are automatically mapped.
- 17. 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.
- 18. Check the option to Execute Initial Refresh. A full replication will be performed from the source table to the data file, prior to starting the mirroring process where only incremental changes will be replicated.
- 19. Go to the Mirroring Schedule tab.
- 20. 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.
- 21. Make sure the **Enable Replication** option is checked. This is required for the replication to run.
- 22. Click Next to go to the Summary screen.
- 23. Click **Finish** to complete the wizard.

Run the Replication

Start the Replication Agent service using the Service Monitor program 🐸 in the Windows Notification Area.

8	Replication Agent	•		Start	•		Service
	Start Trace			Stop			Application
5	Verifier Scheduler	•	-			_	
Ð	Management Center						
8	Server Agent	•					
	View Log File						
	Launch Service Installer						
	Exit		9	60			

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

Managing Replications Remotely

Syniti Data Replication on AWS provides two ways to access and manage replications from a system outside the AMI:

• Via a locally installed Management Center

Run Syniti Data Replication Management Center locally and connect to the Syniti DR Server Agent on AWS. This requires creating a Security Group and adding a Custom TCP rule with your IP and port 58361 as an inbound rule only.

This approach restricts some Management Center capabilities. The following limitations apply:

- Logs are only accessible when set as database logs
- Traces are not available
- Product license cannot be changed
- User settings cannot be changed
- Opening the content of a table or connecting to a database may not work. The connection .NET data providers must be installed locally and the remote settings for the connection also need to work on the local machine.
- Via a <u>local application</u> built using the Syniti Data Replication API Run an SDR API-based client application locally and connect to the Syniti DR Server Agent on AWS. This requires creating a Security Group and adding a Custom TCP rule with your IP and port 58361 as an inbound rule only.

For details on setting up either of these options, contact the technical support team via the <u>Help Center</u>.