ivanti 🍪 Management Center

Replication

Version 2024.1

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Notice

While every precaution has been taken in the preparation of the document, no responsibility is assumed for errors or omissions, nor is any liability assumed for loss or damage resulting from the use of the information it contains.

Introduction

Purpose of this Document

The purpose of this document is to provide the steps required to configure replication for the Ivanti Management Center (AMC) across a global environment. This configuration is supported by Ivanti User Workspace Manager for a global rollout.



Note

This guide covers the steps required to configure Replication using Microsoft SQL Server 2014. The steps required to set up Network Load Balancing (NLB) of the Ivanti Management Center are not covered

The current AMC design requires an AMC database per serving site and all configuration/agent updates must be saved and distributed at each serving site.

The solution uses Microsoft SQL Server replication to implement an AMC publisher and AMC subscribers. All agents and configuration updates are saved to the publisher database and the data replicated to each serving site database. This ensures a single point for managing all Ivanti Management Center instances.

Assumptions

This guide assumes the following:

• An Ivanti Management Center is installed at all serving sites and the Management Server database is configured using the UWM Server Configuration Portal.



Note

The subscriber database must be empty when it is first initialized. If any machines have polled the subscriber, or if any edits have been made with the Management Console since installing the server, the snapshot fails to initialize.

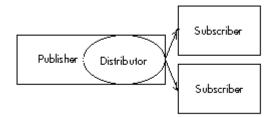
- An extra AMC is installed that will be used as the AMC publisher and the Management Server database is configured using the UWM Server Configuration Portal.
- The SQL Server Agent is running.

The table below shows the functionality available at the publisher and subscribers:

AMC Publisher Functionality	AMC Subscribers Functionality
Packages = Prerequisites, Agents, & Configurations	Computers = Computers, Discovered Computers (from Membership Rules), CCA Install
Deployment Groups = Settings, Installation Schedule, Event Filtering, Deployment Credentials & Package Assignment	Auditing = Events, Alerts
Deployment Group Membership = Membership Rules	Failover = Failover Servers
Security = Users, Policy, and ownership of all objects	
Licensing = Licenses are replicated.	
Auditing = Alert Rules, Event Definitions, Report Definitions	

Management Center Replication Design

The replication model supported is publisher, distributer, and subscriber using a central publisher replication topology. One SQL Server is configured as a publisher and distributor and the other SQL servers are configured as subscribers.



This design allows for one-way replication using SQL Server transactional replication, where an initial snapshot of data is applied at the subscribers. When data modifications are made at the publisher, the individual transactions are captured and sent to subscribers.

The transaction log is used to capture incremental changes made to data in the published articles, which is stored in the distribution database. Changes are then pushed to the subscribers and applied in the same order as they occurred.

One database must be the publisher and other databases are subscribers. The distribution database is set up on the publisher.

Only members of the **sysadmin** server role can set up and configure replication.

Setup Process

- 1. Configuring the SQL Server Agent
- 2. Configuring the Distributor
- 3. Configuring the Publication
- 4. Configuring the Subscribers

Design Notes

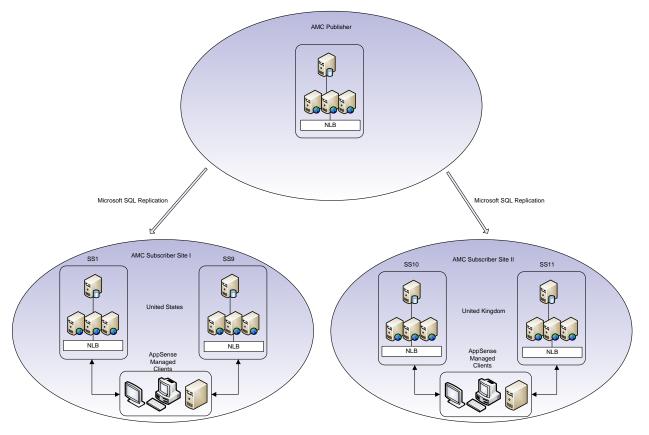
The following technical points must be followed for supported replication using Microsoft SQL Server:

- The times of all SQL servers must be synchronized (however they can be in different time zones).
- The default collation of all SQL servers must be the same.
- Machine package status information is not automatically updated on AMC subscribers when changes are
 made to the **Deployment Group** > **Settings** > **Packages** page in the Management Console connected to
 the AMC publisher. The package status information on the AMC subscriber is only updated when the
 Deployment Agent (CCA) polls.
- To ensure that the CCA Install functionality works on all subscribers, the encryption key must be stored on the Publisher AMC, and retrieved on all Subscriber AMC's. See the <u>Server Configuration Portal Help</u> for more details.
- The Management Center does not prevent edits to replicated data on any of the Subscriber AMCs. To ensure edits don't happen, it is recommended to set up the security on the Publisher AMCs to ensure users of the Subscriber AMCs cannot change replicated data.
- The Subscriber AMC's database must be a newly created database when the subscriber is first initialized. If any machines have polled the subscriber before the first initialization, or if any edits have been made with the Management Console since installing the server, the initial snapshot fails.

Caution

The **max text repl size** configuration setting of all SQL Servers must be sufficiently large to store agents and configurations. A minimum of 30MB (31457280 Bytes) is recommended

Logical Replication Design for Multiple Sites



Configuring the SQL Server Agent

This section outlines the steps required to configure the SQL Server Agent, which must be completed on all SQL Server nodes.

- 1. Launch the SQL Server Configuration Manager.
- 2. Open the Properties of the SQL Server Agent service.
- 3. Set the Account to run with a Domain Account that has SA rights.

SQL Server Agent (MS	SQLSERVER) Properties (Local C 💌
General Log On Recover	y Dependencies
Log on as:	
Local System account Allow service to inter	act with desktop
● <u>T</u> his account: ▲	ISDN\Administrator <u>B</u> rowse
Password:	•••••
<u>C</u> onfirm password:	
	OK Cancel <u>A</u> pply

- 4. Start the **SQL Server Agent** service.
- 5. Repeat on all SQL nodes (Publisher and Subscribers).



Configuring the Distributor

This section outlines the steps required to configure the AMC_Distribution, which must be completed on the SQL node used by the AMC publisher.

Before configuring the distributor, you need to enable Agent XPs for the SQL Server Agent. To do this, execute the following SQL query:

```
sp_configure 'show advanced options', 1;
GO
RECONFIGURE;
GO
sp_configure 'Agent XPs', 1;
GO
RECONFIGURE
GO
```

The output should read:

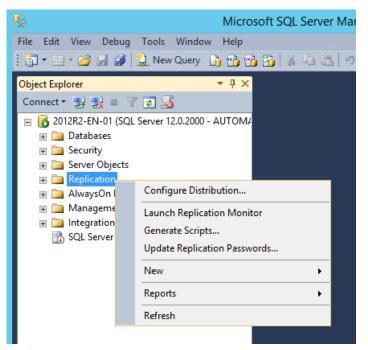
Configuration option 'show advanced options' changed from 0 to 1. Run the RECONFIGURE statement to install. Configuration option 'Agent XPs' changed from 0 to 1. Run the RECONFIGURE statement to install.

Reference

http://blog.sqlauthority.com/2014/05/27/sql-server-fix-agent-starting-error-15281-sql-server-blocked-access-toprocedure-dbo-sp_get_sqlagent_properties-of-component-agent-xps-because-this-component-is-turned-off-aspart-of-the/

Configuring a SQL Distribution involves three elements:

- Configuring the Distributor
- Enabling the Publisher
- Configuring the SQL Agent
- 6. Launch an elevated SQL Server Management Studio and log in with an Account that has SA rights.
- 7. Right-click the **Replication** folder, and then click the **Configure Distribution** to launch the Configure Distribution Wizard.



8. Select [SQL Name] will act as its own Distributor; SQL Server will create a distribution database and log. The SQL Server name will vary depending on your naming conventions. Click Next.

-8°	Configure Distribution Wizard 📃 🗖 🗙
	ributor se this server as its own Distributor or select another server as the Distributor.
	istributor is the server responsible for storing replication information used during ronizations.
)12R2-EN-01' <u>w</u> ill act as its own Distributor; SQL Server will create a distribution database d log
	e the following server as the Distributor (Note: the server you select must already be nfigured as a Distributor):
	<u>A</u> dd
	Help < Back Next > Finish >> Cancel

9. Configure the SQL Server Agent service to start **automatically** and click **Next**.



Note

This prompt may not appear if the agent was configured to start automatically in the SQL server installation.

- 3 °	Configure Distribution Wizard	-		x
	QL Server Agent Start Select whether to automatically start the SQL Server Agent service when th computer is started.	e		
	Because the replication agents that synchronize subscriptions run unattend should configure SQL Server Agent to start automatically.	led, y	ou	
	Do you want to configure the SQL Server Agent service on '2012R2-EN-0' automatically when the computer is started?	l'to s	tart	
	\textcircled{O} $\underline{Y}\text{es},$ configure the SQL Server Agent service to start automatically			
	○ No. I will start the SQL Server Agent service manually			
4	For the wizard to configure the SQL Server Agent service, the SQL Server account must have administrator permissions on the server computer. If the not have these permissions, you must change the configuration manually.			es
	Help < Back Next > Finish >>	(Cance	I

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The Snapshot Folder page displays.

10. The Snapshot folder is not required for Transactional Replication at the subscriber nodes, but it is still required to configure a Distributor. Accept the default setting, and click **Next**.

🛷 Configure Distribution Wizard 📃 🗖 🗙
Snapshot Folder Specify the root location where snapshots will be stored.
To allow Distribution and Merge Agents that run at Subscribers to access the snapshots of their publications, you must use a network path to refer to the snapshot folder.
<u>S</u> napshot folder: <u>C:\Program Files\Microsoft_SQL_Server\MSSQL12.MSSQLSERVER\MSSQL\RepIData</u>
This snapshot folder does not support pull subscriptions created at the Subscriber. It is not a network path or it is a drive letter mapped to a network path. To support both push and pull subscriptions, use a network path to refer to this folder.
Help Mext > Einish >> Cancel

11. Change the name of the Distribution Database to **AMC_Distribution**. This ensures that the AMC distribution database can be clearly identified. Click **Next**.

🐨 Configure Distribution Wizard 🗖 🗖 🗙
Distribution Database Select the name and location of the distribution database and log files.
The distribution database stores changes to transactional publications until Subscribers can be updated. It also stores historical information for snapshot and merge publications.
Distribution database name:
AMC_Distribution
Folder for the distribution database file:
C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\Data
Fold <u>e</u> r for the distribution database log file:
C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\Data
The paths must refer to disks that are local to the Distributor and begin with a local drive letter and colon (for example, C:). Mapped drive letters and network paths are invalid.
Help < Back Next > Finish >> Cancel

12. Accept the Publishers default settings and click Next.

đ	(-		x						
	Publishers Enable servers to use this Distributor when they become Publishers.									
E	ublishers:									
	Publisher 🔺		Distribution Datab	ase						
	2012R2-EN-01		AMC_Distribution							
					<u>A</u> dd	•				
	<u>H</u> elp	< <u>B</u> ack	<u>N</u> ext >	<u>F</u> inish >>		Cancel				



13. Select Configure distribution, and click Next.

ď	Configure Distribution Wizard	-		x
w	Fizard Actions Choose what happens when you click Finish.			
	At the end of the wizard: ✓ Configure distribution			
	Generate a script file with steps to configure distribution			
	Help < Back Next > Finish >>		Cance	k

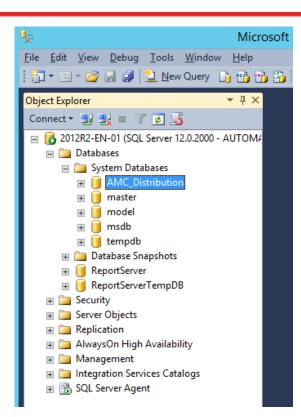
14. Allow the Configure Distribution Wizard to complete.

đ	Configure Distribution Wizard 📃 🗖 🗙
Co	Werfy the choices made in the wizard and click Finish.
Cli	ck Finish to perform the following actions:
•	Configure distribution.
Die	stribution will be configured with the following options:
•	Use '2012R2-EN-01' as the Distributor. Configure the SQL Server Agent service on '2012R2-EN-01' to start automatically when the computer is started. Use 'C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL \RepIData' as the root snapshot folder for Publishers using this Distributor. Store the distribution database 'AMC_Distribution' in 'C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\Data'. Store the distribution database log file in 'C:\Program Files\Microsoft SQL Server \MSSQL12.MSSQLSERVER\MSSQL\Data'. Allow the following servers running SQL Server to use 2012R2-EN-01 as their Distributor: 2012R2-EN-01
	Help < Back Next > Finish Cancel

15. All three elements should complete successfully, Configuring the Distributor, Enabling the Publisher, and Configuring the SQL Agent.

ð	Configure Distri	bu	tion W	/izard		-		x
	figuring lick Stop to interrupt the operation.							
	Success	_	Total Success		0 0	Error Warni	ing	
<u>D</u> eta								
	Action			Status			Mess	age
9	Configuring the Distributor			Success				_
	Enabling Publisher 'LB-SQL2014-2\NODE1	۲.		Success				
0	Configuring SQL Server Agent to start auto	mat	ically	Success				
<								>
			<u>S</u>	top		Re	eport	•
							Close	

16. To check that the Distribution Database has been successfully created, open the **System Databases** node and ensure that an **AMC_Distribution** database is present.



Configuring the Publication

This section outlines the steps required to configure the AMC_Publication, which must be completed on the SQL node used by the AMC publisher.

An SQL publication involves three elements:

- Configuring the AMC database
- Creating the Publication
- Adding the Articles

The publication is called **AMC_Publication** and includes the following articles in the **ManagementServer** database.



Note

Management Server 8.2 and 8.3 - 27 articles are published.

Management Server 8 FR4 – 28 articles are published.

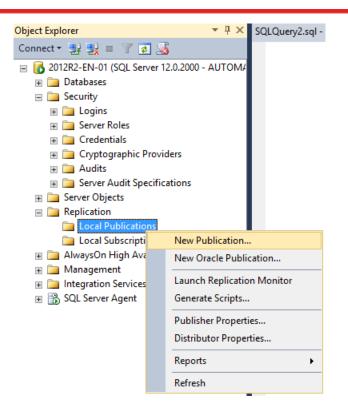
Management Server 8 FR5, 8.6 and 8.7 – 29 articles are published.

Management Server 10, 10.1, 2018, 2019 and 2020 - 30 articles are published.

Publication Articles:

- ActionConfigurations
- Actions
- AlertRules
- Conditions
- DeploymentCredentials
- EventDefinitionParams
- EventDefinitions
- GroupEventFilter
- GroupInstallationSchedule
- GroupPackages
- Groups
- LicenseFeature (Management Server 10 and later)
- Licenses
- LicensingV2 (Management Server 8 FR5 and later)
- Packages

- PackageVersionPrerequisites
- PackageVersions
- Patches (Management Server 8 FR4 and later)
- Policies
- PrerequisiteCheck
- PrerequisiteCommand
- PrerequisiteExitCode
- PrerequisiteResource
- Prerequisites
- Products
- Properties
- ReportDefinitions
- SecurityElements
- SecurityRoles
- Users
- 17. Open SQL Server Management Studio and log in with an Account that has SA rights.
- Open the supplied PrepareManagementCenterForReplication.sql. Ensure that the ManagementServer database is the active database in the toolbar.
 Refer to the following community article for a script to achieve this: <u>BP09 Configuring SQL Replication for UWM Management Center</u>.
- 19. Select **Execute** and ensure that the script completes successfully.
- 20. Right-click the **Local Publications** folder under the Replication folder. Select **New Publication** to launch the New Publication Wizard.





21. The New Publication Wizard launches. Select the ManagementServer database, and click Next.

ii [‡]		New Put	olication W	izard	_		x
	ion Datab the database t		data or objects	you want to publish			1
Databases:							
AMC_DB1							
Help		< Back	Next >	Finish >>		Cancel	

22. Select Transaction publication, and click Next.

New Publication Wizard	-		x
Publication Type Choose the publication type that best supports the requirements of your application.			1
Publication type:			
Snapshot publication			
Transactional publication			
Peer-to-Peer publication			
Merge publication			
Transactional publication: The Publisher streams transactions to the Subscribers after they receive an initia the published data.	al snap	oshot d	of _
Peer-to-Peer publication: Peer-Peer publication enables multi-master replication. The publisher streams tra all the peers in the topology. All peer nodes can read and write changes and the propagated to all the nodes in the topology.			
Merge publication: The Publisher and Subscribers can update the published data independently af Subscribers receive an initial snapshot of the published data. Changes are merg		•	~
Help < Back Next > Finish >>	(Cancel	

Select the **publication articles** listed at the top of this section. No Stored Procedures, Views, or User Defined Functions will be published.

₫ [‡]	New Publicat	ion V	Vizard 🗕 🗖 🗙
Articles Select table tables.	es and other objects to publish as a	articles.	Select columns to filter
Objects to pub	olish:		
	bles ActionConfigurations (dbo) Actions (dbo) AlertEvents (dbo) AlertEventsDeprecated (dbo) AlertRules (dbo) Alerts (dbo) Conditions (dbo) DeploymentCredentials (dbo) DeploymentInstructions (dbo) DeploymentStatusHistory (dbo) DiscoveredMachines (dbo) EventDefinitionParams (dbo) EventDefinitions (dbo) EventParamDateTimesDeprecato III		Article Properties Article Properties
Help	< Back	Next	> Finish >> Cancel

23. Right-click the **Properties (dbo)** table and select **Set Properties of This Table Article**. In the Article Properties dialog, change **Action if name is in use** to **Delete Data. If article has a row filter, delete only data that matches the filter**. Click **OK** to close the dialog. Then click **Next** to continue.

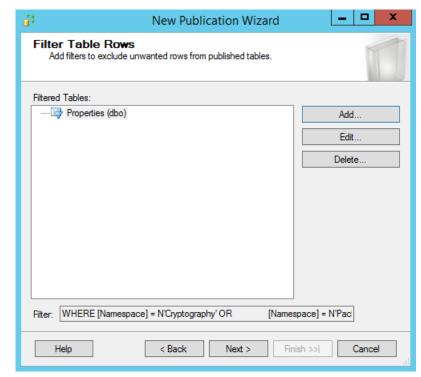
	perties:	F 1	_
	Copy filtered indexes	False	1
	Copy data compression attribu		
	Copy sparse column attribute	False	L
⊿	Destination Object	D	Ł
	Destination object name	Properties	
	Destination object owner Action if name is in use	Delete data. If article has a row filte	1
	Convert data types	False	1
	Convert TIMESTAMP to BINA		
	Create schemas at Subscriber		ſ
	Convert XML to NTEXT	False	
	Convert MAX data types to N	1 0.00	
	Convert new datetime to NVA		l
	Convert filestream to MAX data	True	
	Convert large CLR to MAX dat	False	
	Convert hierarchyld to MAX da		Γ
	Convert spatial to MAX data ty		1
⊿	Identification		
	Description		5
De	tion if name is in use termines the action to perform if bscriber.	an object of the same name exists at the	

- 24. The properties table requires filtering, select **Add**. In the Add Filter dialog, select the **Properties (dbo)** table in the dropdown.
- 25. In the Filter Statement, modify the second line to state "*WHERE* [Namespace] = N'Cryptography' OR [Namespace] = N'Packages'"

ŧ٩.		Add Filter
1.	Select the table to filter.	
	Properties (dbo)	¥
2.	Complete the filter statement to identif	fy which table rows Subscribers will receive. Example
	Columns:	Filter statement:
	Namespace (nvarchar) Name (nvarchar) Value (sql_variant)	SELECT <pre>select <pre>select</pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>
		OK Cancel Help

26. Click **OK**.

27. Click Next.



28. The Snapshot Agent page displays, ensure that neither option is selected, and Click Next.

ii [‡]	New Publication Wizard 📃 🗖 🗙
Snapsho Specify w	t Agent then to run the Snapshot Agent.
	are initialized with a snapshot of publication schema and data. The Snapshot the snapshot.
Create a si	napshot immediately and keep the snapshot available to initialize subscriptions
Schedule t	the Snapshot Agent to run at the following times:
	Change
	change the snapshot properties, do not start the Snapshot Agent until after you roperties in the publication property dialog box.
Help	K Back Next > Finish >> Cancel

29. The Agent Security page displays, click **Security Settings**.

New Publication	Wizard 🗕 🗖 🗙
Agent Security For each agent, specify the account under which settings.	it will run and its connection
Snapshot Agent:	
	Security Settings
Log Reader Agent:	
	Security Settings
You must specify a login for each replication age	nt before continuing the wizerd
Help < Back Net	xt > Finish >> Cancel



30. The Snapshot Agent Security dialog displays.

Snapshot Agent Security				
Specify the domain or machine account under which the Snapshot Agent process will run.				
Run under the following Window	vs account:			
Process account:				
	Example: domain\account			
Password:				
Confirm Password:				
 Run under the SQL Server Ager practice.) 	nt service account (This is not a recommended security best			
produce.y				
Connect to the Publisher				
 By impersonating the process ac 	count			
O Using the following SQL Server I	login:			
Login:				
Password:				
Confirm Password:				
	OK Cancel Help			

- 31. Select **Run under the SQL Server Agent service account** as the account under which the Snapshot Agent process will run.
- 32. Select connect to the publisher by impersonating the process account. Click OK.



Note

Security is not compromised because the SQL Agent is already configured to run under the context of a Windows Account and uses Kerberos authentication.

33. The Agent Security page displays, click Next.

i ²	New Publication Wiz	ard 🗖 🗖 🗙
Agent Sec For each a settings.	c urity gent, specify the account under which it will n	un and its connection
Snapshot Age	nt:	
SQL Server Ag	gent account	Security Settings
Log Reader Ag	gent:	
SQL Server Ag	gent account	Security Settings
Help	< Back Next >	Finish >> Cancel

34. The Wizard Actions page displays, select Create the publication, and click Next.

⁴	New Publication Wizard	_ D X
Wizard Action Choose what	ons happens when you click Finish.	
At the end of	f the wizard:	
✓ Creat	te the publication	
Gene	erate a script file with steps to create the publication	
Help	< Back Next > Finish	>> Cancel

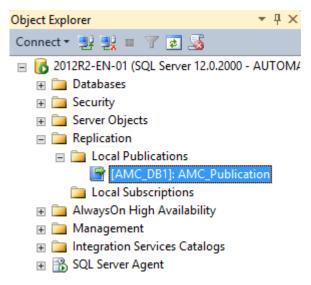
35. The Complete the Wizard page displays, enter the name **AMC_Publication**. This ensures that the AMC articles can be clearly identified. Click **Finish**.

ů ²	New Publication Wizard 📃 🗖 🗖	x
	Implete the Wizard Verify the choices made in the wizard and click Finish.	*
	blication name: AMC_Publication	
• • • •	Create the publication.	< III >
	Help < Back Next > Finish Cancel	

36. Both elements should complete successfully: Creating the Publication and Adding the articles.

\$	New Public	ation Wizard	_ D ×
	eating Publication Click Stop to interrupt the operation.		*
	Success	2 Total 2 Success	0 Error 0 Warning
Deta			
	Action	Status	Message
	Creating Publication 'AMC_Publication' Adding article 30 of 30	Success Success	
		Stop	Report 🔻
			Close

37. Check that the Publication has been successfully created. Open the **Local Publications** node and ensure that **[ManagementServer]: AMC_Publication** is present.



38. Right-click the **Publication** and select **Properties** to open the **Properties** window. Navigate to **Subscription Options** and change **Replicate schema changes** to **False**.

B		Publication Properties - AMC_Pu	Iblication – 🗖 🗙
Select a page	R 9	icript 🔻 🛐 Help	
🚰 General	- - -	Soubt - El Holp	
Articles	_		
Tilter Rows	⊿	Creation and Synchronization	
🚰 Snapshot		Independent Distribution Agent	True
😭 FTP Snapshot		Snapshot always available	False
Subscription Options		Allow anonymous subscriptions	False
Mag Publication Access List		Attachable subscription database	False
G Agent Security		Allow pull subscriptions	True
		Allow initialization from backup files	False
		Allow non-SQL Server Subscribers	False
	⊿	Data Transformation	
		Allow data transformations	False
	⊿	Peer-to-Peer Replication	
		Allow peer-to-peer subscriptions	False
		Allow peer-to-peer conflict detection	False
		Peer originator id	0
		Continue replication after conflict detection	False
	⊿	Schema Replication	
		Replicate schema changes	False V
	⊿	Updatable subscriptions	
Connection		Allow immediate updating subscriptions	False
Server: 2012R2-EN-01		Allow queued updating subscriptions	False
Server. 2012R2-EIV-01			
Connection: AUTOMATION\slaveadmin			
AUTOMATION\slaveadmin			
View connection properties			
D			
Progress	Re	eplicate schema changes	
Ready	Determines whether to replicate schema changes to published objects.		
			OK Cancel

39. In the same property sheet, navigate to **Snapshot** and change both the before and after scripts to the supplied **PrepareManagementCenterForReplication.sql**. Click **OK**.

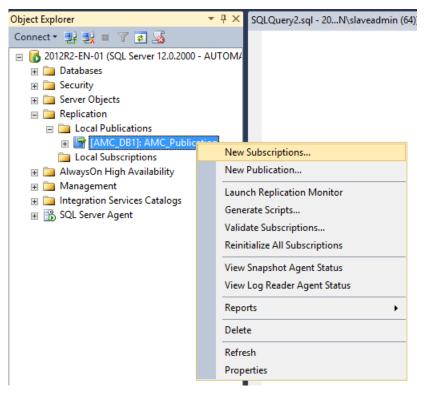
B	Publication Properties - AMC_Publication
Select a page General Articles	🔄 Script 🔻 📑 Help
 Filter Rows Snapshot FTP Snapshot Subscription Options Publication Access List Agent Security 	Snapshot format Native SQL Server - all Subscribers must be servers running SQL Server Character - required if a Publisher or Subscriber is not running SQL Server
	Location of snapshot files
	✓ Put files in the default folder
	C:\Program Files\Microsoft SQL Server\MSSQL12.MSSQLSERVER\MSSQL\RepIData
	Put files in the following folder:
	Browse
	Compress snapshot files in this folder
	Run additional scripts
	Before applying the snapshot, execute this script:
Connection	C:\AMCScripts\PrepareManagementCenterForReplication.sql Browse
Server: 2012R2-EN-01	After applying the snapshot, execute this script:
Connection: AUTOMATION\slaveadmin	C:\AMCScripts\PrepareManagementCenterForReplication.sql Browse
View connection properties	
Progress	
C Ready	
	OK Cancel

Configuring the Subscriber(s).

This section outlines the steps required to configure the AMC Subscriber, which must be completed on the SQL Server used by the AMC Publisher. Repeat for each subscriber node in the replication topology.

Configuring an SQL Subscription involves one element:

- Creating the Subscription
- 40. Launch SQL Server Management Studio and log in with an Account that has SA rights.
- 41. Navigate to **Replication** > **Local Publications** > right-click the **AMC_Publication** and select **New Subscriptions**.



42. The New Subscription Wizard launches. Select the **Publisher** from the dropdown and select **AMC_Publication**. Click **Next**.

1	New Subscription Wizard
P	ublication Choose the publication for which you want to create one or more subscriptions.
	Publisher:
	2012R2-EN-01 V
	Databases and publications:
	AMC_DB1
	Help < Back Next > Enish >> Cancel

43. Select Run all agents at the Distributor, [SQL name] (push subscriptions) and click Next.

🖆 New Subscription Wizard 📃 🗖 🗙				
Distribution Agent Location Choose where to run the Distribution Agent(s).				
For the subscriptions I create in this wizard:				
 <u>R</u>un all agents at the Distributor, 2012R2-EN-01 (push subscriptions) 				
This option makes it easier to administer the synchronization of subscriptions centrally.				
O Run <u>e</u> ach agent at its Subscriber (pull subscriptions)				
This option reduces the processing overhead at the Distributor and lets each Subscriber administer the synchronization of its subscription.				
Run the wizard more than once if you want some agents to run at the Distributor and some to run at Subscribers.				
Help < Back Next > Enish >> Cancel				



44. Select Add Subscriber -> Add SQL Server Subscriber.

🖆 New	Subscription Wizard
Subscribers Choose one or more Subscribers	and specify each subscription database.
Subscribers and subscription databa	ises:
Subscriber 🔺	Subscription Database
LB-SQL2014-2\NODE1	
	Add Subscriber 💌
You must select a Subscriber a wizard.	nd specify the subscription database to continue the
Help < B	ack Next > Finish >> Cancel

45. In the SQL Server login dialog, enter the log in credentials to connect to the SQL Server. The Account must have SA rights.

1	Connect to Server	×			
Microsoft SQL Server 2014					
Server type:	Database Engine	×			
Server name:	2012R2-EN-02	~			
<u>A</u> uthentication:	Windows Authentication	*			
<u>U</u> ser name:	AUTOMATION\slaveadmin	Y			
Password:					
	Remember password				
Cor	nnect Cancel Help Optic	ons >>			

46. Select the **ManagementServer** database on the Subscriber SQL node and then click **Next**.

1	Ne	w Subscrip	tion Wizard	_ □	x
Subscribe Choose or		ers and specify o	each subscription databas	se.	
<u>S</u> ubscribers a	nd subscription data	bases:			
Subscrib	er 🔺		Subscription Database		
2012R2	-EN-01				
✓ 2012R2	-EN-02		AMC_DB2		~
			<u>A</u> dd Su	bscriber	•
<u>H</u> elp		(<u>B</u> ack	<u>N</u> ext > <u>F</u> inish >>	Cance	

47. Specify the **Process account** and the **Connection options** for the distribution agent.

Subscription propertie Agent for Subscriber	Connection to Distributor	Connection to Subscriber
2012R2-EN-02	Click () to set securit	Click () to set security

48. Select **Run under the SQL Server Agent service account**. Connect to the distributor and the subscriber **by impersonating the process account**. Click **OK**. Then click **Next**.

Note

Security is not compromised because the SQL Agent has already been configured to run under the context of a Windows Account and will use Kerberos authentication

Distribution Agent Security			
Specify the domain or machine account un synchronizing this subscription.	der which the Distribution Agent process will run when		
\bigcirc <u>R</u> un under the following Windows ac	count:		
Process <u>a</u> ccount:			
	Example: domain\account		
Password:			
Confirm Password:			
 Run under the SQL Server Agent ser practice.) 	rvice account (This is not a recommended security best		
Connect to the Distributor		_	
By impersonating the process account	nt		
O Using a SQL Server login			
	iich the agent runs must impersonate the process account. mber of the Publication Access List.		
Connect to the Subscriber			
 By impersonating the process account 	nt		
\bigcirc Using the following SQL Server login	:		
Login:			
Pass <u>w</u> ord:			
Confirm password:			
The login used to connect to the Subso database.	riber must be a database owner of the subscription		
	OK Cancel <u>H</u> elp		



49. Ensure that the Agent is scheduled to **Run Continuously**. Click **Next**.

1	New Subsc	ription Wizard	_ 🗆 X
Synchronizati Specify the sync	on Schedule nronization schedule for e	each agent.	
Agent schedule:			
Subscriber 🔺	Agent Location	Agent Schedule	
2012R2-EN-02	Distributor	Run continuously	✓
Help	< <u>B</u> ack	<u>N</u> ext > <u>F</u> inish >>	> Cancel

50. Ensure that the Subscriber is initialized Immediately. Click Next.

//

Note

When using SQL Server 2016 the option to use Memory Optimization is available for each subscriber, this feature is **not** compatible with Ivanti User Workspace Manager (UWM) products.

E N	lew Subscri	ption Wizard	_ D X
Initialize Subscription Specify whether to initialize of data and schema.		on with a snapshot of the publ	ication
Subscription properties:			
Subscriber	Initialize	Initialize When 🔍	
2012R2-EN-02	✓	Immediately	✓
A subscription database needs schema unless it has already be			ation data and
1 The Snapshot Agent must	run and genera	te a snapshot of the publicati	on before the
subscriptions can be initiali	zed.		



51. In Wizard Actions, select Create the subscription(s) and Click Next.

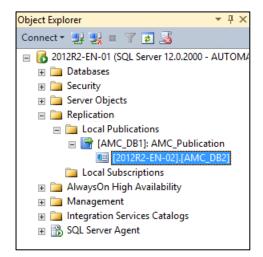
1	New Subscription Wizard	_		x
W	Vizard Actions Choose what happens when you click Finish.		Į	¢,
	At the end of the wizard:			
	☑ Create the subscription(s)			
	Generate a script file with steps to create the subscription(s)			
	Help < Back Next > Finish >>		Cance	I

52. Click **Finish**. This creates a subscriber for the corresponding publisher.

1	New Subscription Wizard	_ D X
	nplete the Wizard /erify the choices made in the wizard and click Finish.	Ť 📞
• Creater	k Finish to perform the following actions: Create subscription(s). ate a subscription to publication 'AMC_Publication' from Publ 01'. te subscriptions at the following Subscriber(s): IR2-EN-02 Subscription database: AMC_DB2 Agent location: Distributor Adent sub-to-publication	isher '2012R2-
	Agent schedule: Run continuously Agent process account: SQLServerAgent service account Connection to Distributor: Impersonate process account Connection to Subscriber: Impersonate process account Initialize: Immediately	Cancel



53. Expand the Local Publications node to view the subscriber.



Upgrading Management Servers When Replication Is Configured

In this section:

- <u>Removing Replication</u>
- Upgrade Replication Publisher & Subscriber servers
- Setup new Replication

Removing Replication

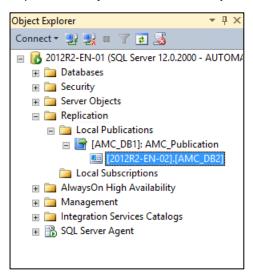
Remove the replication from the environment to ensure that the upgrades run smoothly.

Removing replication leaves the replicated databases in a disconnected mode where updates to the publisher are no longer pushed to the subscribers. However, on the subscribers, events and alerts can still be collected and machines will still join groups. Removing replication does not prevent the subscriber servers operating for this automatic day-to-day usage.

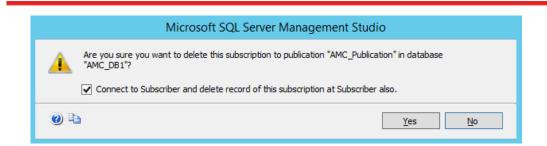
Once replication is stopped, it is not be possible to push out new configurations or agents until the upgrade process is complete. Do not change configuration directly on the subscribers because this can cause failures when replication is re-enabled.

54. Open Microsoft SQL Server Management Studio.

- 55. Connect to the SQL instance that is acting as the publisher.
- 56. Expand the **Replication** node in Object Explorer until you see all the subscribers.



57. Select each subscriber in turn and delete using right-click > **Delete**. Ensure **Connect to Subscriber and delete record of this subscription at the Subscriber also** is selected.



58. Once all the subscribers are deleted, delete the Publication in the same way.

Once this is done, replication has been removed for the estate.

Upgrade Replication Publisher & Subscriber Servers

Use the standard product guides to upgrade the Publisher and Subscriber servers.

Upgrades can be done in any order. However, replication can only be re-enabled when the publisher and subscriber have matching versions. Therefore, it may make sense to upgrade the Publisher server first, and then upgrade the Subscribers individually.

Set Up New Replication

Once the **Publisher** server has been upgraded to the latest version, follow the steps in this document for configuring the publisher. See <u>Configuring the Publication</u>.

Once a **Subscriber** server has been upgraded to the latest version, follow the steps in this document for configuring the subscribers. See <u>Configuring the Subscriber(s)</u>