Technical Notes

EMC[®] NetWorker[®] Configuring SQL VDI AlwaysOn Availability Group backups in Multi-homed (Backup LAN) Network by using NetWorker Module for Microsoft

Release number 9.0

TECHNICAL NOTES

302-002-249 REV 02

November, 2015

These technical notes contain the following information:

| • | Revision history | . 2 |
|---|--|-----|
| • | Overview | 2 |
| • | Example backup LAN environment configuration | 3 |
| • | Configuring SOL AlwaysOn Availability Group | 4 |
| • | Configuring NetWorker server | 6 |



Revision history

The following table presents the revision history of this document.

| Revision | Date | Description |
|----------|-----------------|---|
| 02 | November, 2015 | This revision contains the following updates: |
| | | • Changed the names and IP addresses in the figure in "Example backup LAN environment configuration" section. These changes are reflected in the content of the document. |
| | | Incorporated copy edit feedback. |
| 01 | September, 2015 | First release of these technical notes for EMC NetWorker Module for Microsoft release 9.0. |

Note

This document was accurate at publication time. Go to EMC Online Support (https://support.emc.com) to ensure that you are using the latest version of this document.

Overview

These technical notes provide the information about how to perform Microsoft SQL Server AlwaysOn Availability Group (AAG) backups by using EMC[®] NetWorker[®] Module for Microsoft (NMM) release 9.0 in a multihomed environment. NMM Supports SQL Server AAG backup from the SQL standalone server.

The procedures in this document are based on an example setup with the following configuration:

- SQL AAG is configured for a SQL virtual cluster with three nodes.
- The SQI virtual cluster automatically fails over in case of high availability.
- The backup is performed by using a SQL standalone server as the backup node.
- **Prefer Secondary** is the AAG backup policy.

Example backup LAN environment configuration

The following figure describes the detailed layout of the backup LAN environment.

Figure 1 Sample backup LAN environment



The example setup consists of:

- SQL Server 2012 Windows Cluster: ma-sql2012-emc
 - Node 1: ma-sql-emc1.onemc.com
 - Node 2: ma-sql-emc2.onemc.com
 - Node 3: ma-sql-emc3.onemc.com
- SQL Server instances:
 - Instance 1: masql2012emc1.onemc.com

- Instance 2: masql2012emc3.onemc.com
- phxemcnw100.emcmgmt.local: NetWorker server
- mrlemcnw100.emcmgmt.local: NetWorker server
- phxemcdd100.emcmgmt.local: Data Domain
- mrlemcdd100.emcmgmt.local: Data Domain

Update the IP address, hostname, and FQDN in the etc/hosts file for all the components in your setup. The following table provides details for the example setup.

| IP address | Hostname | FQDN | Description of host |
|--------------------|-----------------|---------------------------|---------------------|
| 10.111.255.14 0 | ma-sql2012-emc | ma-sqlemc.onemc.com | SQL 2012 cluster |
| 10.111.255.14 4 | masql2012-emc1 | masqlemc1.onemc.com | SQL 2012 instance 1 |
| 10.111.255.14 5 | masql2012-emc3 | masqlemc3.onemc.com | SQL 2012 instance 1 |
| 10.111.255.14 1 | ma-sql2012-emc1 | ma-sqlemc1.onemc.com | SQL 2012 node 1 |
| 10.111.255.14 2 | ma-sql2012-emc2 | ma-sqlemc2.onemc.com | SQL 2012 node 2 |
| 10.111.255.14 3 | ma-sql2012-emc3 | ma-sqlemc3.onemc.com | SQL 2012 node 3 |
| 10.111.127.8 | phxemcdd100 | phxemcdd100.emcmgmt.local | Data Domain |
| 10.111.255.6 | mrlemcdd100 | mrlemcdd100.emcmgmt.local | Data Domain |
| 10.111.127.5 | phxemcnw100 | phxemcnw100.onemc.com | NetWorker server |
| 10.111.255.5 | mrlemcnw100 | mrlemcnw100.onemc.com | NetWorker server |

Configuring SQL AlwaysOn Availability Group

Create the AlwaysOn Availability Group from any SQL virtual instance or the standalone server. Use the SQL Server Management Studio (SSMS) to perform the steps in this section.

Perform the following steps after you create the SQL AlwaysOn Availability Group from the **masql2012emc1** SQL virtual instance for the **db1**, **db2**, and **db3** databases :

- 1. Add the **masql2012emc3** and **ma-sql-emcX.onemc.com** replicas to the SQL AlwaysOn Availability Group.
- 2. Set the backup preference to secondary only, prefer secondary, or any replica.
- 3. Set the priority of the **ma-sql-emcX.onemc.com** node to the highest, as shown in the following figure.

| bject Explorer | <mark>▼ </mark> | |
|---|--|--|
| Connect - 🛃 🛃 🔲 🍸 🛃 | | |
| 🗉 🧰 Management | | |
| 🗉 🛅 Integration Services Catalogs | | Availability Group Properties - AG2 |
| 🗉 📸 SQL Server Agent | Select a page | 2 · · · · · · · · · · · · · · · · · · · |
| 🗉 🐻 capy (SQL Server 12.0.2000 - SQLVDI\administrator) | Seneral | Script 👻 🚺 Help |
| 🗉 🛄 Databases | Rackup Preferences | |
| 🗉 🧰 Security | Permission | Availability group name: AG2 |
| 🗉 🧰 Server Objects | | |
| Replication | | Availability Databases |
| 🗉 🚞 AlwaysOn High Availability | | Database Name |
| 🗉 🚞 Management | | dbc1 |
| Integration Services Catalogs | | de10 |
| 🗉 📸 SQL Server Agent | | 4-11 |
| Inst17\inst17 (SQL Server 12.0.2000 - SQLVDI\administrator) | | ddcii |
| 🗉 🧰 Databases | | dbc12 |
| 🗉 🧰 Security | | |
| 🗉 🧰 Server Objects | | |
| 🗉 🧰 Replication | | |
| 😑 🧰 AlwaysOn High Availability | | |
| 😑 🛅 Availability Groups | | |
| 🗉 👸 AG1 (Primary) | | Add Remove |
| 🖃 👘 AG2 (Primary) | | |
| 🖃 🛄 Availability Replicas | Connection | Availability Heplicas |
| CAPY (Secondary) | Server | Server Instance Role Availability Failover Connections in Readable S |
| INST17\INST17 (Primary) | inst17\inst17 | Mode Mode Primary hole Secondary (|
| SQLFEDNODE1\INSTNAME (Secondary) | Connection: | LAPT Secondary Asynchro V Manual V Allow all conne V Tes V IC |
| 😑 🚞 Availability Databases | SQLVDI\administrator | INST17UNST17 Primary Asynchro V Manual V Allow all conne V Yes V 10 |
| 🔥 dbc1 | New connection properties | SQLFEDNODE1\INS Secondary Asynchro V Manual V Allow all conne V Yes V 10 |
| 🔥 dbc10 | | |
| 🔥 dbc11 | Progress | |
| 🔥 dbc12 | | |
| Availability Group Listeners | Heady | |
| 🗉 👔 AG3 (Primary) | TAP Y | Add Remove |
| 🛞 😭 AG4 (Primary) | | |
| 🛞 👔 AG5 (Secondary) | | OK Carnel |
| 🗉 🛄 Management | | OK Calicel |
| 🖙 🥅 Integration Services Catalogs | | |

Perform the following steps after you create the SQL AlwaysOn Availability Group from the **ma-sql-emcX.onemc.com** SQL standalone server:

- 1. Set the backup preference to **Primary**.
- 2. Set the readable secondary of all the nodes to **YES**.

The following image displays the **SQL FEDNODE1\INSTNAME** SQL standalone server with **Prefer Secondary** as the backup preference and **80** as the highest backup priority.

| - mail and a second sec | Availability G | roup Properties - AG2 | _ D X | | | |
|--|---|--|-----------------|--|--|--|
| Select a page | 🔄 Script 👻 🎼 Help | | | | | |
| Backup Preferences | Where should backups occur? | | | | | |
| | Prefer Secondary Automated backups for this availability group should occur on a secondary replica. If there is no secondary replica available, backups will be performed on the primary replica. | | | | | |
| | Secondary only All automated backups for this a | wailability group must occur on a secondary re | eplica. | | | |
| | Primary All automated backups for this a | wailability group must occur on the current prin | nary replica. | | | |
| | Page Script < 10 Help Rup Preferences Where should backups occur? ission Prefer Secondary Automated backups for this availability available, backups will be performed or Secondary only All automated backups for this availability available, backups for this availability available, backups will be performed or Secondary only All automated backups for this availability available backups for this availability available. Primary All automated backups for this availability available. Any Replica Backups can occur on any replica in the secure priorities: Server Instance CAPY INSTIT/VINSTI7 Inst17 SQLFEDNODET/UNSTNAME tion: IVadministrator ew connection properties Iss Ready Instance | ica in the availability group. | | | | |
| | Replica backup priorities: | | | | | |
| | Server Instance | Backup Priority (Lowest=1, Highest=100) | Exclude Replica | | | |
| | CAPY | 500 | | | | |
| Connection | INST17\INST17 | 50 🗘 | | | | |
| Server: inst17\inst17 | SQLFEDNODE1\INSTNAME | 80 🗘 | | | | |
| Connection: SQLVDI\administrator View connection properties Progress Ready | | | | | | |
| | | | OK Cancel | | | |

If you select any other preference and perform a backup of any SQL virtual instance, the backup fails.

Configuring NetWorker server

- 1. Create a client resource for the Windows cluster:
 - a. In the NetWorker Administration window, click Protection.
 - b. In the expanded left panel, select Clients.
 - c. From the **File** menu, select **New**. The **Create Client** dialog box appears.
 - d. On the General tab:
 - a. In the Name field, type ma-sql2012-emc, which is the Windows cluster name.
 - b. In the **Save set** field, type **MSSQL\$INSTNAME#AG1**, where **INSTNAME** is the named instance name on the standalone node and **AG1** is the AlwaysOn Availability Group name. If the standalone node has a default instance, then type **MSSQL#AG1**.

| | | Backup | | |
|--------------------------------|----------------|--|---------------------|---|
| ame: | ma-sql2012-poc | Scheduled backup: | v | |
| omment: | | Client direct: | v | |
| ackup type: | | Block based backup: | | |
| | | Directive: | | • |
| tualization | | Save set | MSSQL\$INSTNAME#AG1 | Q |
| irtual client: | | - | | |
| vysical host: | | | | |
| BA Host type: | | - | | |
| lev Management | | | Defect | |
| | for an | Group. | SQL2-CLUST_GAJU | |
| rowse policy. | Month | - | SQL_SA_GAJU | |
| etention policy: | Year | Ľ | grpz | |
| | | | sql1-clust_GAJU | |
| chive Management | | | | _ |
| le inactivity threshold: | 0 | Poot Poot | | • |
| le inactivity alert threshold: | 0 | Schedule: | Default | - |
| | | Save set MBT: | | |
| eckpoint Restart | | | | |
| heckpoint enabled: | | | | |
| | Directory | Backup renamed directories | . 💌 | |

- e. On the Apps & Modules tab:
 - a. Type the remote username and the password in the **Remote user** and the **Password** fields respectively.
 - b. To back up the data to a Data Domain system, select Data Domain backup.
 - c. In the Backup Command field, type nsrsqlv.

| | Douicos | General Arms & Morbiles V | Clobals (1 of 2) Clobals (2 of 2) Unit | R Licensing Scensbot Management |
|-----------------------------|---|---------------------------|--|--|
| | | ourses report amounter la | www.cr.or.z) webbils (2.01.2) line | A Product of Antibular was addressed and a second |
| Edit View Configuration Win | dow Help . 역, 다, 것(약) | Access | and the standard state of the | Deduplication |
| 10.31.199.70 | 💋 Clients (12) | Password | ••••• | Data Domain interface: P |
| — 🖉 Clients | Name 🔻 | | | Avamar deck micration backum |
| Clones | capclust capy.sqlvdi.com sql_clust capa.com | Баскор | | Avamar deduplication node: |
| | sal2-clust.capa.com | Backup command | nsrsqisv | |
| - a grp1 | J sqlfednode1 | Pre command: | | Probe |
| - I sql-clust_GAJU | Je sqlfednode2.sqlvdi.com | Post command: | | Probe resource name: |
| - 🕼 SQL2-CLUST_GAJU | sqlfednode3.sqlvdi.com | Save operations: | | |
| SQL_SA_GAJU | schoole?.capg.com | | | Prove Paskup |
| - In Local Hosts | sqinode3.capg.com | NAS device: | | (a) None |
| Notifications | J sqlsrv.sharepoint.com | NDMP: | | . Norie |
| - Probes | 🖉 win2012r2clust.capg.com | NDMP array name: | | |
| | | testeder interester. | | Proxy host |
| Restricted Data Zones | | Approacht internation | | Ovtitware |
| - A Security Audit Log | | | | Prove bast |
| - Snapshot Policies | | | | The second secon |
| Staging 🗸 | 1 | | | |
| Tima Doliniae | | | | |
| | | | | |
| ity Time A Source | Category Message | Backup config. | | |
| Thursday 8:00:01 AM event | task m Skipping NSR | | | |
| Thursday could AM event | task m Starting NSR t | | | |
| Thursday 12:02:20 event | registr Registration V | | | |
| Wednesday 8:00:00 event | task m Starting NSR t | | | |
| Wednesday 8.00.00 event | task m 'NSR task' 'Det | | | |
| Wednesday 8:00:00 event | task m Skipping NSR | | | |
| Wednesday 12:57:1 event | write c Writing to volu | | | |

- f. If the NetWorker server is the storage node, on the Globals (1 of 2) tab:
 - a. In the **Server network interface** field, type the backup LAN interface of the server. The example setup uses 10.170.3.66 as shown in the following figure:

| Create Client | 7 7 | T | |
|-----------------------------|---|------------------------------------|--------------|
| Peneral Apps & Modules Glob | als (1 of 2) \Globals (2 of 2) \Info & Licensin | ng \Snapshot Management \ | |
| dentity | | Optimizations | |
| Client id: | | Parallelism: | 4 |
| Aliases: | | Server network interface: | 10.170.3.66 |
| | | Priority: | 500 |
| | | Physical client parallelism: | |
| | | Parallel save streams per save set | |
| | | Save session distribution: | max sessions |
| | | | |
| | | | |

```
b. Click OK.
```

The Windows client resource is successfully created.

- 2. Create client resources for all the Windows cluster nodes—ma-sqlpoc1.onbmc.com, ma-sql-poc2.onbmc.com, ma-sql-poc3.onbmc.com, and ma-sql-pocX.onbmc.com with save sets.
- 3. In NMC, on the Group Properties > Advanced tab, set the backup level to full, incremental, or differential, as required.

| Group Properties - grp2 | | | | |
|------------------------------------|-----------------|----------------------|----------------|---|
| Setup Advanced Status System | \ | | | |
| Client Overrides | | Configuration | | |
| Schedule: | • | Autorestart | Disabled | • |
| Levet | incr 💌 | lient subset | | |
| Interval | 6 | | | |
| Force incrementat | 7 | | | |
| Schedule time: | 9 | | | |
| Browse policy. | full | | | |
| Retention policy: | incr_synth_full | testart window: | 12:00 | - |
| Contraction data | | a pocess threshold | Merning | 1 |
| File inactivity threshold | 30 | Client retries: | 1 | |
| Ele inectivity electricity | | Class rates datas | | |
| rile inactivity went trireshold. | 30 • | Caene retry delay. | 0 | E |
| | | inactivity timeout: | 30 | |
| Tobe | | Savegrp parallelism: | 0 | |
| Probe based group: | | Soft runtime limit: | 0 | |
| Probe interval: | 60 🔹 | Hard runtime limit: | 0 | |
| Probe start time: | 0.00 | Options: | No Monitor | ŀ |
| Probe end time: | 23.59 | | No index save | |
| Probe success criteria: | al | | Index only | |
| Time since successful backup: | | | Verbose | ľ |
| Time of the last successful backum | | | Manual restart | - |
| the contract of the second backup. | | | | 1 |

4. Start the backup and check the backup LAN traffic on the standalone node.

Technical Notes

Copyright $^{\odot}$ 2014-2015 EMC Corporation. All rights reserved. Published in USA.

Published November, 2015

EMC believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

The information in this publication is provided as is. EMC Corporation makes no representations or warranties of any kind with respect to the information in this publication, and specifically disclaims implied warranties of merchantability or fitness for a particular purpose. Use, copying, and distribution of any EMC software described in this publication requires an applicable software license.

EMC², EMC, and the EMC logo are registered trademarks or trademarks of EMC Corporation in the United States and other countries. All other trademarks used herein are the property of their respective owners.

For the most up-to-date regulatory document for your product line, go to EMC Online Support (https://support.emc.com).

8 EMC NetWorker Configuring SQL VDI AlwaysOn Availability Group backups in Multi-homed (Backup LAN) Network by using NetWorker Module for Microsoft 9.0 Technical Notes