

How To Cluster MDM 7.1 using MSCS

Applicable Releases:

SAP NetWeaver MDM 7.1

Topic Area:

Information Management

Capability:

Master Data Management

Version 1.1

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Document History

Document Version	Description
1.10	Modification of the chapters <ul style="list-style-type: none">• Multiple SAP System Installations• Appendix B – SAP NetWeaver MDM Auxiliary Servers• Appendix C has become Appendix D• New Appendix C for “Performing Multiple SAP System Installations”
1.00	First official release of this guide

Typographic Conventions

Type Style	Description
<i>Example Text</i>	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation
Example text	Emphasized words or phrases in body text, graphic titles, and table titles
Example text	File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example text	User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation.
< Example text >	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.

Icons

Icon	Description
	Caution
	Note or Important
	Example
	Recommendation or Tip

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1. Business Scenario

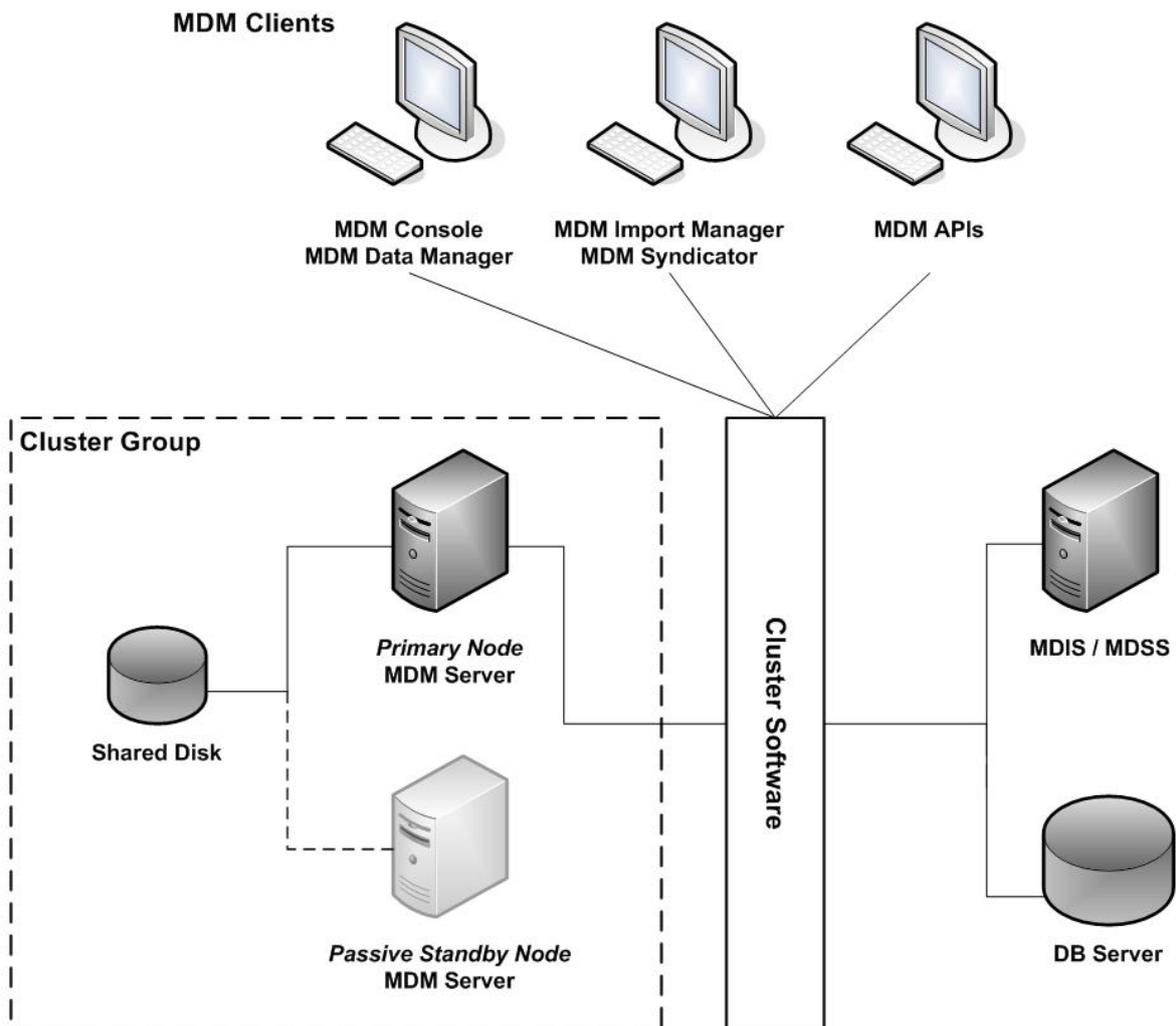
High availability (HA) is a major issue when constructing business systems in order to improve system reliability. There are different approaches that support this objective, for example, system redundancy together with load and balancing tools, backup strategies, and cluster management software. Within these approaches, in order to provide resiliency for errors occurring on CPUs or memory however, the approach of clustering is typically used.

Note

The term "High Availability" is intentionally not used here. Since MDM only supports active-passive cluster mode, the downtime is at least the time needed to load the repository. Therefore we stick to the term "Failover Environment" – providing mechanisms to recover from a failure as fast as possible.

2. Background Information

Using Microsoft Cluster Services (MSCS) you can easily group together 2 (or even more) Windows based servers into a cluster. This cluster then provides transparent MDM services appearing as one single instance. For an example of a clustered MDM landscape, see figure below.



From MDM 7.1 on, the MDM Servers runs in the SAP Start Framework. This framework is responsible to start and stop instances of an application.

If an application is clustered, the framework needs to be tightly integrated into the cluster. The cluster software needs to use SAP Start Framework methods to start and stop application instances, and to check the state of applications.

On the other hand, the SAP Start Framework needs to communicate to the cluster to inform the same about a planned application shutdown.

If the integration is not in place, the cluster will not able to distinguish between a planned shutdown of an application or a system failure. The effect is a sort of "ping-pong game" where the framework tries to stop the application and the cluster starts it again.

For this tight integration MSCS provides a special resource type to handle applications running within the SAP Start Framework. See in chapter 4.1.1 "Install SAP Resource Type" how to make this resource type known to MSCS.

Important

MDM Servers can only be installed on an Active-Passive Cluster. For details, please refer to SAP NetWeaver® Master Data Management 7.1 Solution Operation Guide, chapter 5.1 "High Availability Concepts @ MDM".

3. Prerequisites

3.1 Microsoft Cluster Server

Microsoft Cluster Server (MSCS) needs to be installed on all cluster nodes.

3.2 Cluster

In MSCS Administrator, create a cluster that will be used for the installation of SAP NetWeaver MDM Server. If a cluster already exists this can be reused.

3.3 Installation disk

A shared disk is required as installation target for SAP NetWeaver MDM Server.

This shared disk will contain the installed SAP NetWeaver MDM Server, and by default all related working directories.

3.4 Multiple SAP System Installations

If you require to install multiple SAP Systems clustered in your MSCS landscape on MS Windows Server 2003, you need to prepare the installation in advance. See "Appendix C – Performing Multiple SAP System Installations" for more details.

3.5 SAP NetWeaver MDM GUI Clients

To perform a high level functional test (smoke test), a MDM Console needs to be installed on any computer within the same network where the MDM cluster group will be created in.

3.6 Database

To perform a functional smoke test a database system should be installed and available.



Safeguarding the database is not part of this guide

3.7 Database Clients

Depending on the database used, make sure the database client software is installed and configured on each cluster node.

3.8 SAP Archiving Tool SAPCAR

For preparing the cluster, you need the SAP archiving tool SAPCAR.

This tool will be installed with an SAP System. You can either take the tool from an existing installation or download from SAP Service Marketplace. For details see SAP Note [212876](#).

3.9 SAP Host Agent

The SAP Host Agent is required on the cluster nodes. As this is not part of the cluster and the SAP installation, it has to be installed manually on each node.

Make sure the required files for installation are available. See SAP Note [1031096](#) for details.

The installation will be done in step 4.3.3 "Install SAP Host Agent".

4. Step-by-Step Procedure

This How-To Guide focuses on the clustering of the SAP NetWeaver MDM Server (MDS) as single point of failure. Other MDM Servers types like MDM Import Server or MDM Syndication Server are handled in the same way.

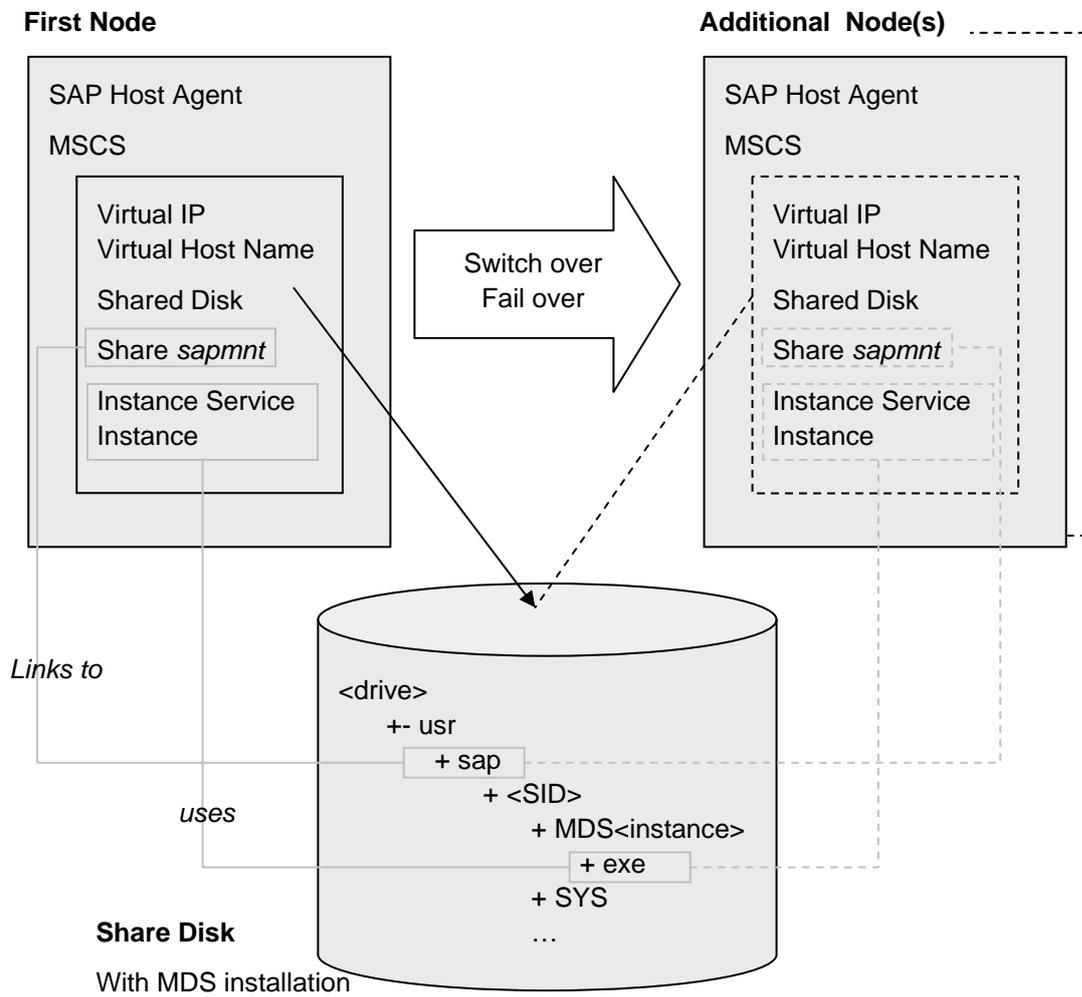
 Note

SAP does not provide a solution out “of the box”. The configuration described within this document is just one possible way of how to run MDM in a clustered environment using MSCS. You can of course build up your own configuration without following this guide.

The basic configuration approach described here as follows:

- The installation is done on a shared disk
- The installation is done from the first cluster node
- All other cluster nodes
 - only need to be prepared to run the software
 - can mount the shared disk when becoming active and
 - can reuse the installation
- All nodes, except the first one where the installation was triggered, need to just register the SAP Instance service instead of performing a fresh installation

The following picture shows the main components used within the configuration:



Checklist for a possible installation of MDS using MSCS:

Step	Chapter	Description
Prepare		
1.1	4.1.1	Install SAP Resource Type
1.2	4.1.2	Create MDM Cluster Group
1.3	4.1.3	Add Shared Disk to Cluster Group
1.4	4.1.4	Prepare SAPMNT share
Prepare First Cluster		
2.1	4.2.1	Install SAP Host Agent
2.2	4.2.2	Move SAPLOC Share to Shared Disk
2.3	4.2.3	Installation on First Cluster Node
2.4	4.2.4	Move SAPLOC Share Back to Local Disk
2.5	4.2.5	Add SAPMNT Share to Cluster
Prepare Additional Cluster		
3.1	4.3.1	Activate Cluster
3.2	4.3.2	Create Local Operating System Users and
3.3	4.3.3	Install SAP Host Agent
3.4	4.3.4	Registration of Instance Service on Additional
Finalize Cluster		
4.1	4.4.1	Adding MDS Instance Service to Cluster
4.2	4.4.2	Add MDS Instance to Cluster
4.3	4.4.3	Cluster Access
Check		
5.1	4.5	Smoke Test

4.1 Prepare Cluster

Some steps are required to prepare a MSCS cluster.

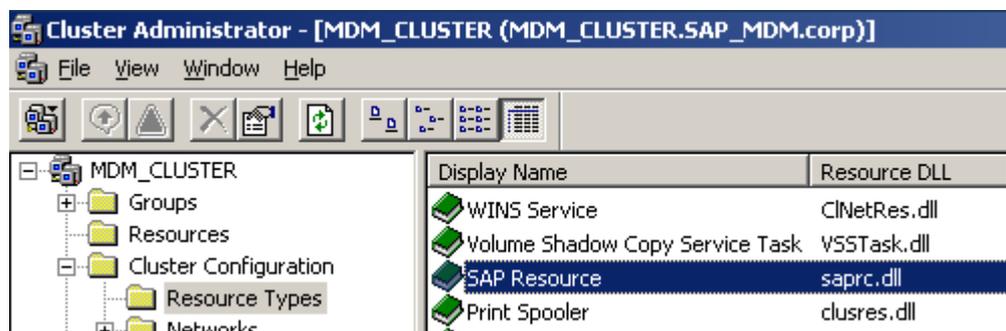
4.1.1 Install SAP Resource Type

To enable a communication between the MSCS and the SAP Start Framework, some DLLs need to be registered in the operating system.

The result is a new resource type "SAP Resource" available in MSCS.

Check if the resource type is already known on all cluster nodes. If the type already exists, you can continue with the next step.

Check within MSCS Administrator:



Note

You need to stop all SAP Systems and to take all SAP Cluster groups offline in order to avoid that files are locked

1. Copy the archive NTCLUST.SAR from the installation CD directory
<SAPINST Master
CD>:\Server_Installation\Installation_Master\MDM_IM_WINDOWS_<OS>
to a local directory.

Note

The file NTCLUST.SAR is also attached to SAP Note [1283908](#) in case it is not available on your installation CD.

2. Copy the SAP archiving tool SAPCAR into the same directory or make sure that it is accessible from the command line.
3. Open a command prompt and extract the NTCLUST.SAR archive with the following command:
`sapcar -xvf "NTCLUST.SAR"`
4. From the NTCLUSTER subdirectory, copy the following files to %windir%\system32
 - o saprc.dll
 - o saprcex.dll
 - o sapclus.dll
 - o insaprct.exe
5. Start insaprct.exe from the %windir%\system32 directory to re-register the DLLs

 Important

You have to perform these steps on all cluster nodes.

4.1.2 Create MDM Cluster Group

Within the MSCS Administrator, create a cluster group to handle the MDS for the already created cluster.

1. Create a cluster group.

 Important

You must name the group **SAP <SID>** where <SID> is the system ID that will be used later for the installation of MDS. Beware of the blank in the name!

If you name the cluster group differently you need to define your own configuration as the order of the configuration steps within this guide will become invalid. You also will not be able to gain from any future development of the SAP NetWeaver MDM Installers providing an automated cluster configuration.

2. Include a cluster resource *IP Address* that will be used as virtual IP. Set all cluster nodes as possible owners.

 Important

Follow the SAP naming convention and use the name **SAP <SID> IP** where <SID> is the system ID. Beware of the two blanks in the name!

3. Include a cluster resource *Network Name* for MDS that will be used as virtual host name. Set a dependency to virtual IP.

 Important

Follow the SAP naming convention and use the name **SAP <SID> NetName** where <SID> is the system ID. Beware of the two blanks in the name!

4. Bring the cluster group online.

4.1.3 Add Shared Disk to Cluster Group

Within the MSCS Administrator, the shared disk that will be used as installation target needs to be added to the cluster group before starting the installation:

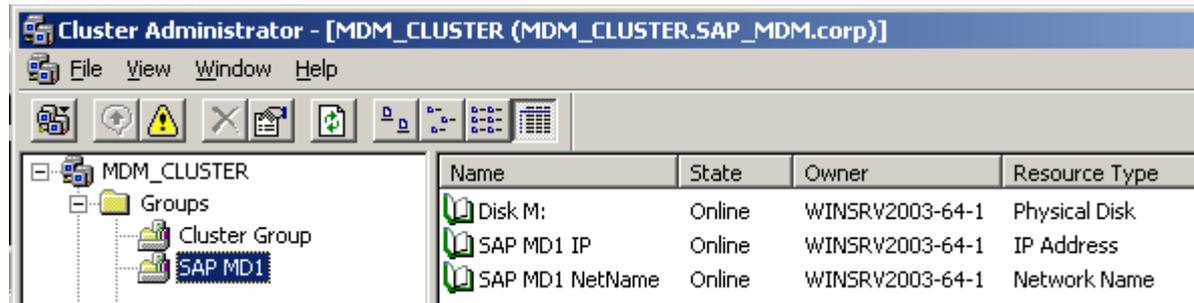
1. Include a cluster resource *Physical Disk* that will be used as installation disk. Set all cluster nodes as possible owners. Select your physical drive.

 Important

It is required that you use a cluster resource of type *Physical Disk*. Otherwise you can not continue following this guide and need to define your own configuration.

2. Bring the resource online.

The result looks like this:



4.1.4 Prepare SAPMNT share

You need to create a folder share within the file system of the shared drive in advance. This will help the SAP Installation Framework to find the correct installation drive.

1. Create folder structure <installation drive>:\usr\sap
2. Share the directory `sap` using the following share name **sapmnt**. This share is used by SAP to access system specific information for system <SID>.

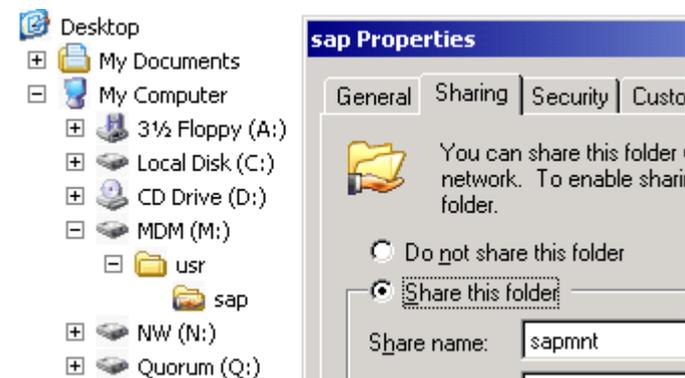


Note

The SAP Installer will set the required permissions on the shares.

3. Bring the resources online.

Example



4.2 Prepare First Cluster Node

The actual installation will be done on the first cluster node. The MSCS will be configured for the clustering of MDS.

4.2.1 Install SAP Host Agent

The SAP Host Agent is required to start/stop the MDS instance using MDM Console or CLIX.

If SAP Host Agent is not yet installed on your system, install it by following the instructions of SAP Note [1031096](#).

Though the installation of SAP Host Agent will be done by the SAP NetWeaver MDM Server Installers this steps needs to be performed in advance to avoid using a shared drive

Important

Make sure that the share `saploc` is on a local drive and not on a shared drive.

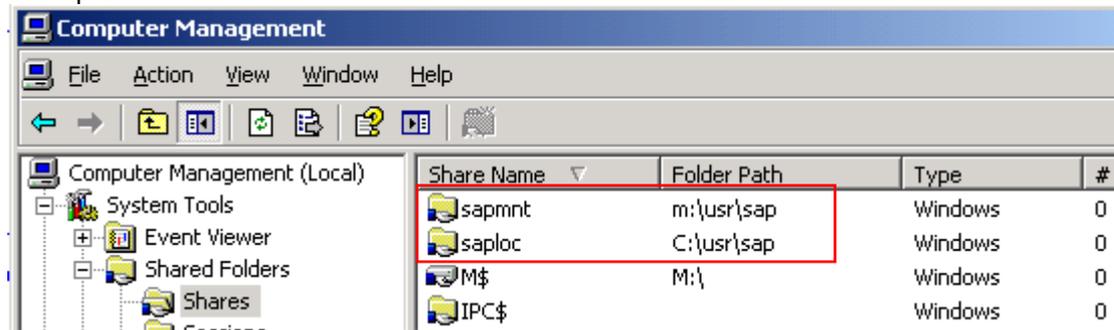
4.2.2 Move SAPLOC Share to Shared Disk

The current use of SAP Installation Framework requires that the share `saploc` points to the same folder on the shared disk as the share `sapmnt` to enable a clustered installation.

For the installation step the share `saploc` temporarily needs to be redirected.

1. Check where the shares `saploc` and `sapmnt` point to. You can use *Microsoft Windows Computer Management*

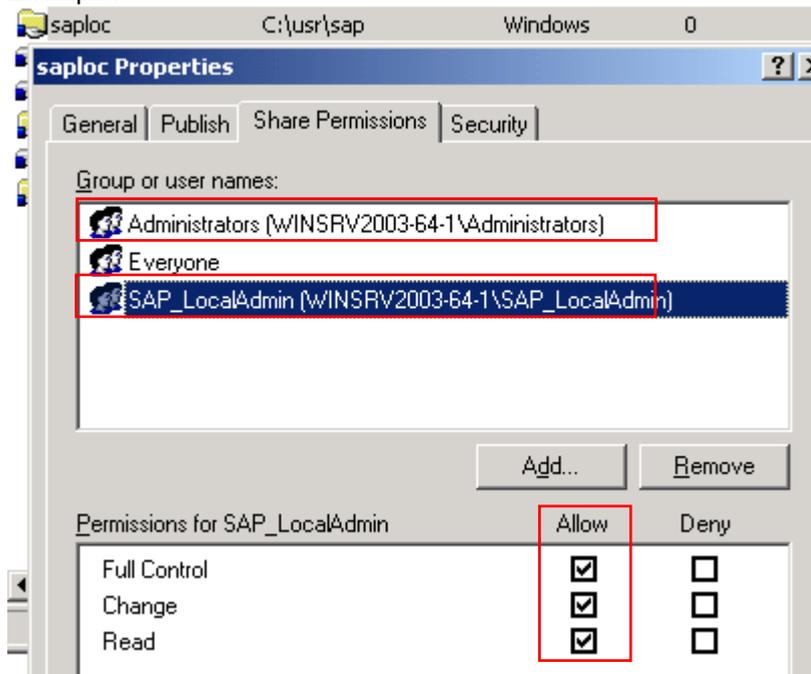
Example:



Keep the folder path for `saploc` that it can be reset after the installation.

2. Check the share permissions for the user groups *Administrators* and *SAP_LocalAdmins* within the properties of `saploc`.

Example:



Keep the information that it can be reset after the installation.

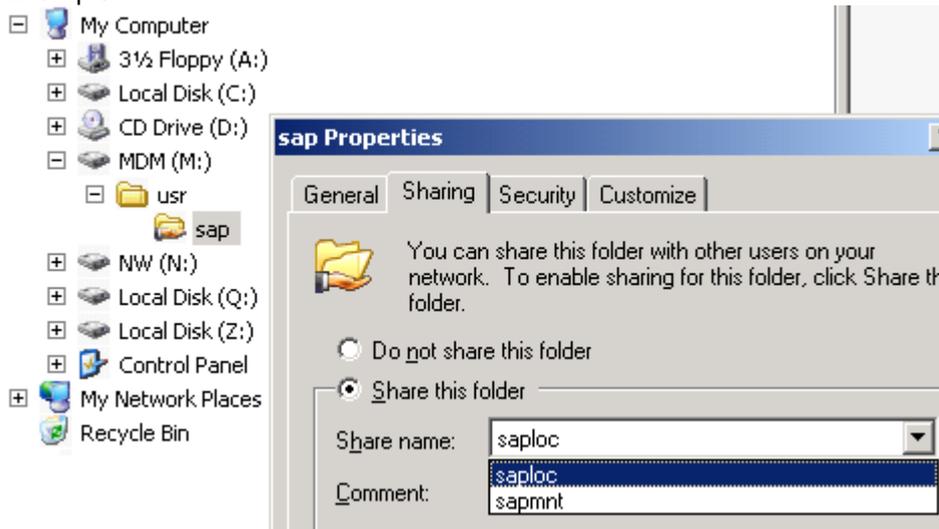
3. Remove the share **saploc**.

Example:



4. Create the share **saploc** on the same folder as **sapmnt**

Example:



As a result you will have **saploc** and **sapmnt** pointing to the same folder on the shared disk

Example:

Share Name	Folder Path
sapmnt	m:\usr\sap
saploc	M:\usr\sap

4.2.3 Installation on First Cluster Node

Important

The cluster installation has to be done as a domain installation. For information on domain installations, see SAP NetWeaver MDM 7.1 Installation Guide for Windows.

1. Activate the MDM cluster group on the cluster node where you perform the installation.
2. Open command prompt.
3. Prepare the installation by setting the environment variable `SAPINST_USE_HOSTNAME` to the virtual hostname you have specified in the cluster group. You can do this by executing the command:

```
set SAPINST_USE_HOSTNAME=<virtual hostname>
```

Tip

Ping the virtual hostname to make sure the name is known to the system.

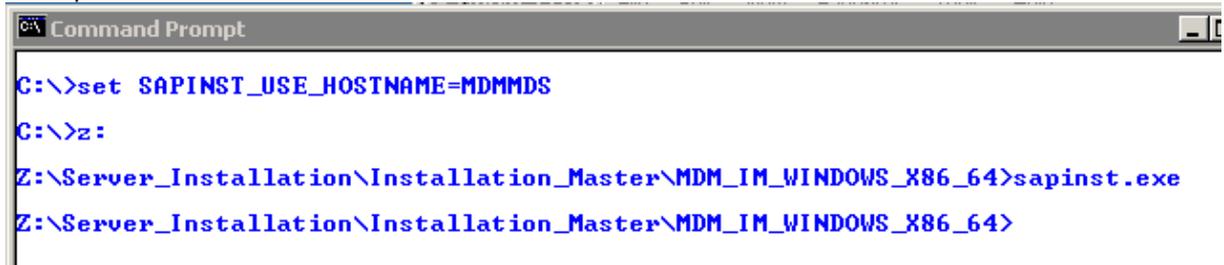
Note

During the installation, the virtual host name will be used instead of the local hostname.

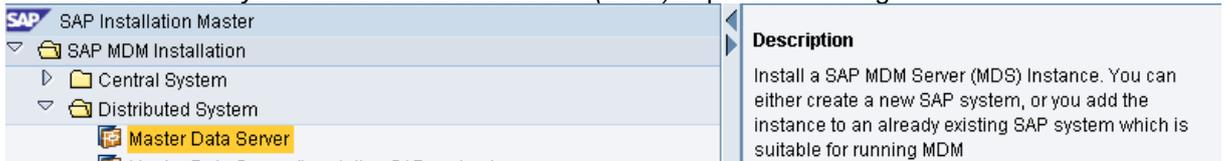
4. In the command prompt, navigate to the directory of the installation master and start the installation from within this directory.

```
<SAPINST Master
CD>:\Server_Installation\Installation_Master\MDM_IM_WINDOWS_<OS>
```

Example:



Select *Distributed System* → *Master Data Server (MDS)* in product catalog



Switch to *custom* installation mode.

Insert the same SID that you have entered in the cluster group configuration.

CAUTION

Make sure that the destination drive is set to the shared disk that you added to the MDM cluster group.

Example:



Recommendation

Keep the information of SID, Instance Number, User, Password, virtual hostname for later use.

Select *Domain of Current user*.

Example:

SAP System User Domain

SAP System ID (SAPSID)

Domain Model

Local Domain

Domain of Current User

Different Domain

Windows Domain

Finish the installation.

Perform an MDM smoke test

5. Start MDS instance using MDM Console

 **Important**

Remember to use the virtual host name for the MDS instance when mounting an MDM Server in the MDM Console.

6. Make sure the MDS is functioning for example by creating a repository using the MDM Console. This test is to make sure that MDS is running correctly and can connect to the Database

 **Note**

Remember to clean up the test repositories after the completed installation.

7. Stop the MDS instance using the MDM Console, and stop the instance service using the Microsoft Service Administrator.

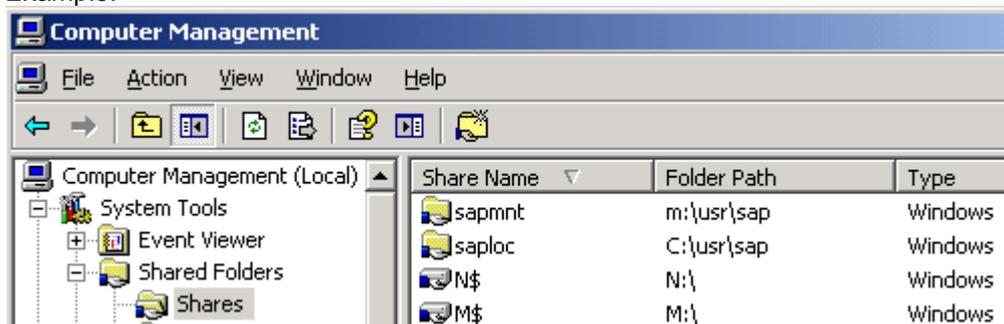
4.2.4 Move SAPLOC Share Back to Local Disk

After the installation of SAMP NetWeaver MDM has successfully been completed, you need to move share `saploc` back to the origin folder on a local disk.

1. Remove current `saploc` share from the same folder `sapmnt` point to
2. Create a new share for `saploc` on the origin location
3. Set the origin share permissions for the local user groups *Administrators* and *SAP_LocalAdmins*

As a result you will now have `saploc` pointing to the origin folder on a local driver where `sapmnt` is pointing to a folder on the shared disk.

Example:



4.2.5 Add SAPMNT Share to Cluster Group

Within the MSCS Administrator, add the share **sapmnt** to your cluster group.

Add resource to

1. Include a cluster resource *File Share* that will be used for the share **sapmnt**.

 **Important**

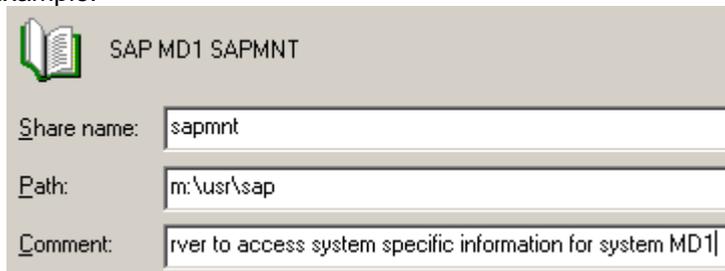
Follow the SAP naming convention and use the name **SAP <SID> SAPMNT** where <SID> is the system ID. Beware of the two blanks in the name!

Set all cluster nodes as possible owners.

Set a dependency to the resources of *Network Name* and *Physical Disk*

As Share Name use **sapmnt** and point to the path <shared disk>\usr\sap

Example:



SAP MD1 SAPMNT

Share name:

Path:

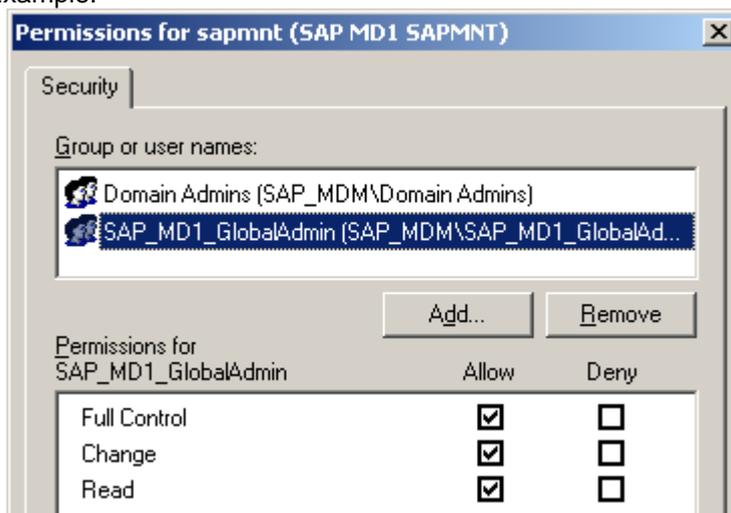
Comment:

Edit permissions to the share:

(optionally remove everybody and) add domain group account <domain>/SAP_<SID>_GlobalAdmin. Give it full access.

Optionally give domain group *Domain Admins* full access to share

Example:



Permissions for sapmnt (SAP MD1 SAPMNT)

Security

Group or user names:

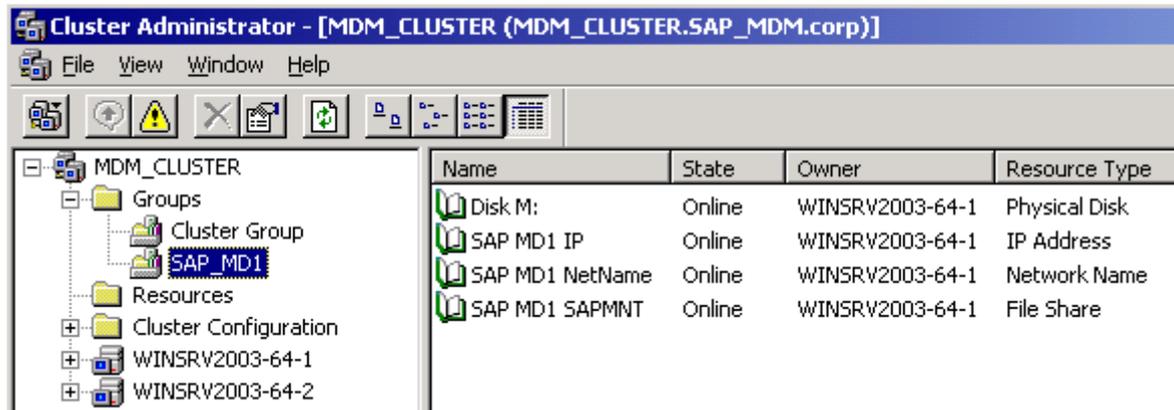
- Domain Admins (SAP_MDM\Domain Admins)
- SAP_MD1_GlobalAdmin (SAP_MDM\SAP_MD1_GlobalAd...)

Permissions for SAP_MD1_GlobalAdmin

	Allow	Deny
Full Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Change	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Read	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2. Bring the resources online.

The result looks like this:



4.3 Prepare Additional Cluster Nodes

After the software has been installed on the first cluster node on the shared disk, it only needs to be registered on the additional cluster nodes.

So perform the following steps for each additional cluster node.

Important

You have to perform the following steps on all additional cluster nodes.

Important

Depending on the DB, make sure the DB clients are installed and configured on each cluster node.

4.3.1 Activate Cluster Node

1. Log on to the node where the instance service is supposed to be registered next.
2. In cluster administrator, move MDM Cluster Group to this node

4.3.2 Create Local Operating System Users and Groups

Important

The cluster installation has to be done as a domain installation. For information on domain installations, see SAP NetWeaver MDM 7.1 Installation Guide for Windows

A set of users and user groups for the SAP System and the SAP Host Agent is required on this node. Use the SAP Installation to create the users for you.

1. Start the installation master.
2. Choose *Additional Software Life-Cycle Options* → *Operating System Users and Groups* in the product catalog.



Do not check the option to create only user for SAP Host Agent.

Create Operating System User Accounts

Create OS accounts for SAP Host Agent only

Choose the same system ID that you have chosen on first node.

Example:

SAP System

SAP System ID (SAPSID)* MD1

Create OS Accounts for Your Database

Database ID (DBSID)*

Database Type MaxDB

Software Units

Specify whether the system, optional standalone unit, or standalone engine is based on the database, you have to select at least one of the options. For *TREX* deselect both.

Based on AS ABAP

Based on AS Java

Make sure to select the correct domain options in the following dialogs.

Example:

SAP System User Domain

SAP System ID (SAPSID) MD1

Domain Model

Local Domain

Domain of Current User

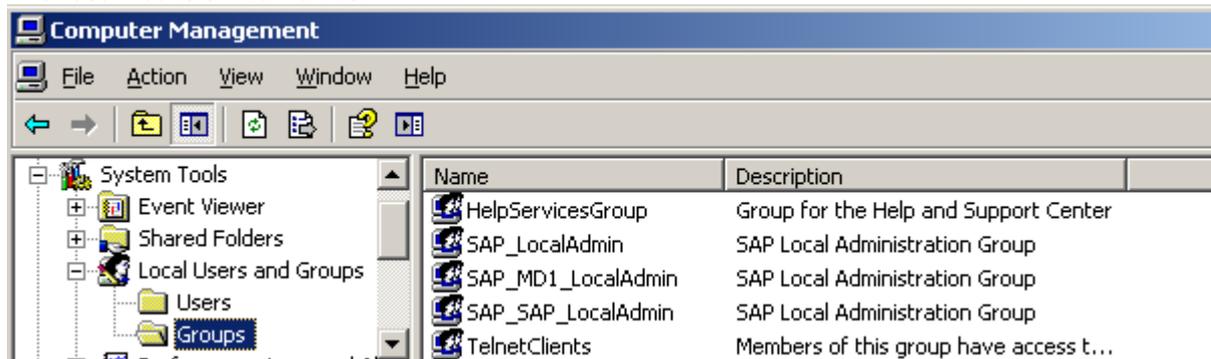
Different Domain

Windows Domain

This will create local group accounts and add domain users to them.

Finish the installation.

The result looks similar to this:



4.3.3 Install SAP Host Agent

The SAP Host Agent service is required to start/stop the MDS instance using MDM Console or CLIX.

Install the SAP Host Agent following the instructions of SAP Note [1031096](#).

Important

Make sure that the share **saploc** is on a local drive and not on a shared drive.

4.3.4 Registration of Instance Service on Additional Nodes

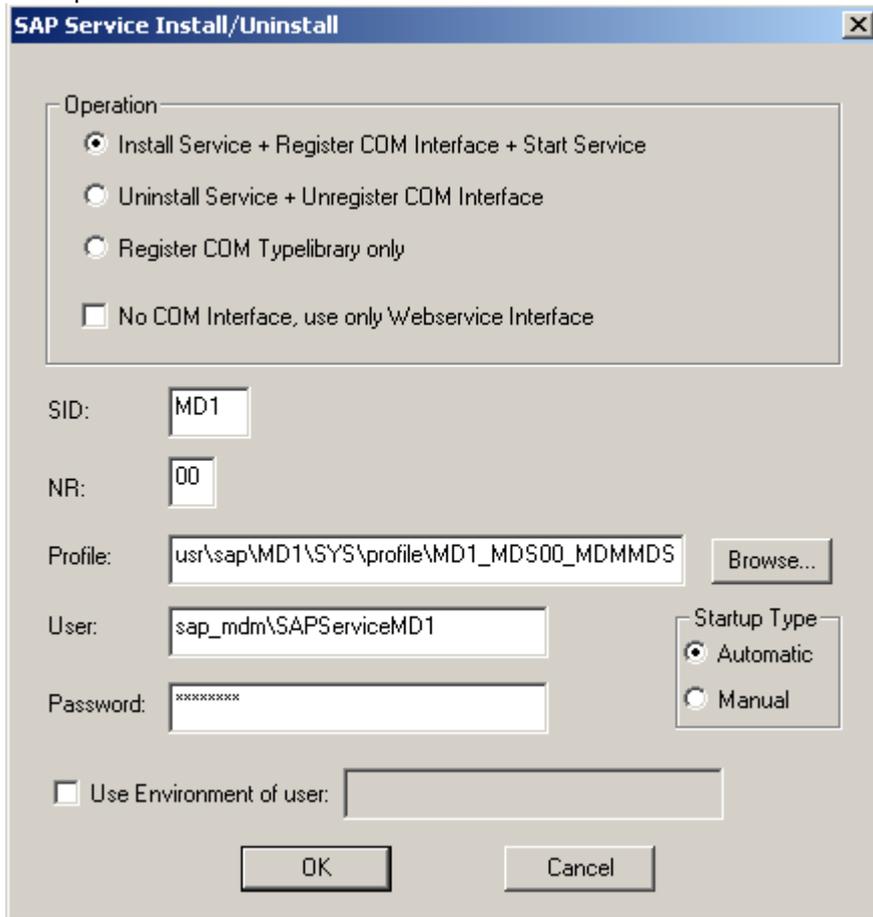
Instead of installing the software, it is sufficient to register the instance service in the system by using the available installation from the shared disk.

1. Open command prompt.
2. Navigate to folder on the shared disk where the SAP Start Service (sapstartsv.exe) is located usually: <shared disk>\usr\sap<SID>\MDS<Instance Number>\exe\
3. Call sapstartsv.exe
4. Install the MDS Instances in the SAP Start Framework, choose same instance parameters as defined on first node (SID, instance no., user, password, profile).

The profile for the instance startup is located in the following folder usually: <shared disk>\usr\sap<SID>\SYS\profile\
and has the name like <SID>_MDS<instance nr>_<virtual host name>

Specify the user <domain>\SAPService<SID>

Example:



Perform an MDM smoke test

5. Start MDS instance using MDM Console

 **Important**

Remember to use the virtual host name for the MDS instance when mounting an MDM Server in the MDM Console.

6. Within the MDM Console you will see the previous created repository. Create another repository to make sure that the MDS on this node can also connect to the Database.

 **Note**

Remember to clean up the test repositories after the completed installation.

7. Stop the MDS instance using the MDM Console, and stop the instance service using the Microsoft Service Administrator.

4.4 Finalize Cluster Configuration

At this point, all cluster nodes are now prepared according to the MDS installation. Now the MSCS configuration needs to be finalized. This can be done from any node.

1. Within the MSCS Administrator, bring the cluster group online which will be used to finalize the configuration.

4.4.1 Adding MDS Instance Service to Cluster Group

After the instance service has been registered on all cluster nodes, you can add it to the cluster group in MSCS Administrator

1. Include a cluster resource *Generic Service* into the cluster group for the MDS Instance service.

Important

Follow the SAP naming convention and use the name

SAP <SID> <Instance nr> Service

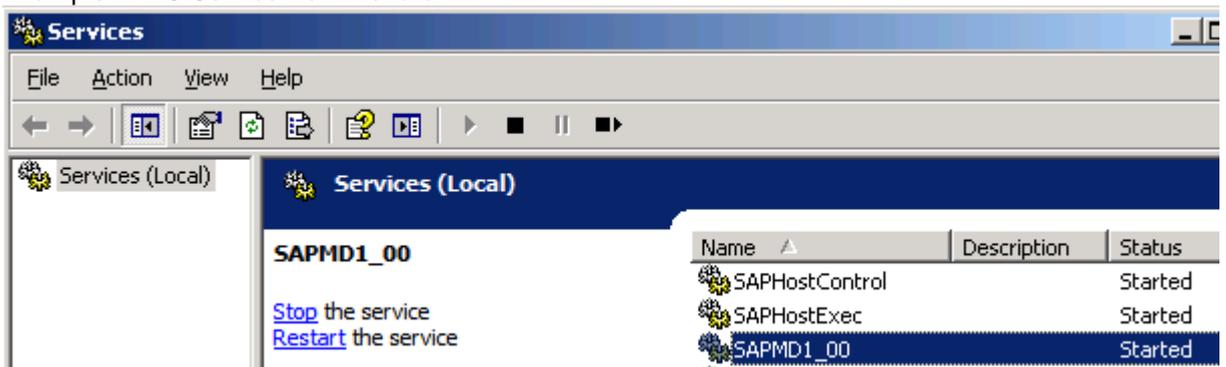
where <SID> is the system ID and <Instance nr> is the installation number.

Set all cluster nodes as possible owners.

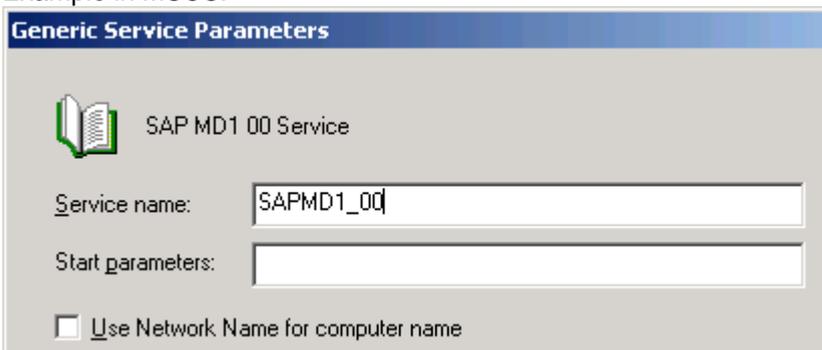
Set a dependency to the resources of *Network Name* and *Physical Disk* and the *File Shares* for **saploc** and **sapmnt**.

For *Service name* specify the name of the MDS Instance Service. The name of the service is **SAP<SID>_<instance nr>** (with no blanks in between). Verify the name within Microsoft Service Administrator. Leave *Start Parameters* empty.

Example in MS Service Administrator



Example in MSCS:



2. Bring the cluster resource online.

4.4.2 Add MDS Instance to Cluster Group

Now the SAP instance itself needs to be added to the cluster group to establish the communication between the SAP Start Framework and the MSCS

In MSCS Administrator

1. Include a cluster resource *SAP Resource* into the cluster group for the MDS Instance.

 **Important**

Follow the SAP naming convention and use the name

SAP <SID> <Instance nr> Instance

where <SID> is the system ID and <Instance nr> is the installation number.

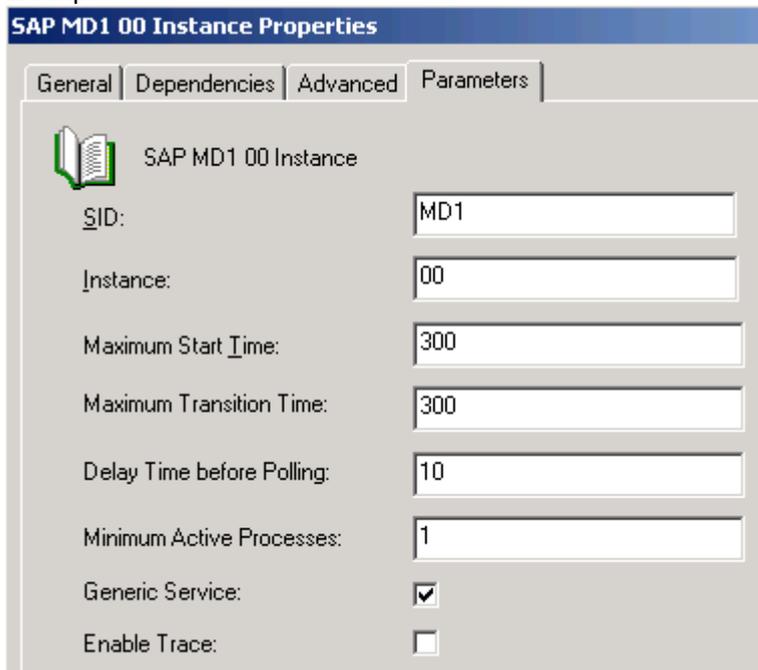
Set all cluster nodes as possible owners.

Set a dependency to the resources of *Generic Resource* for the Instance Service.

In the *Resource Parameters*, specify the *SID* and *Instance* for the MDS.

2. Enter the properties of the newly created cluster resource and activate the checkbox *Generic Service* on the tab *Parameters*.

Example:

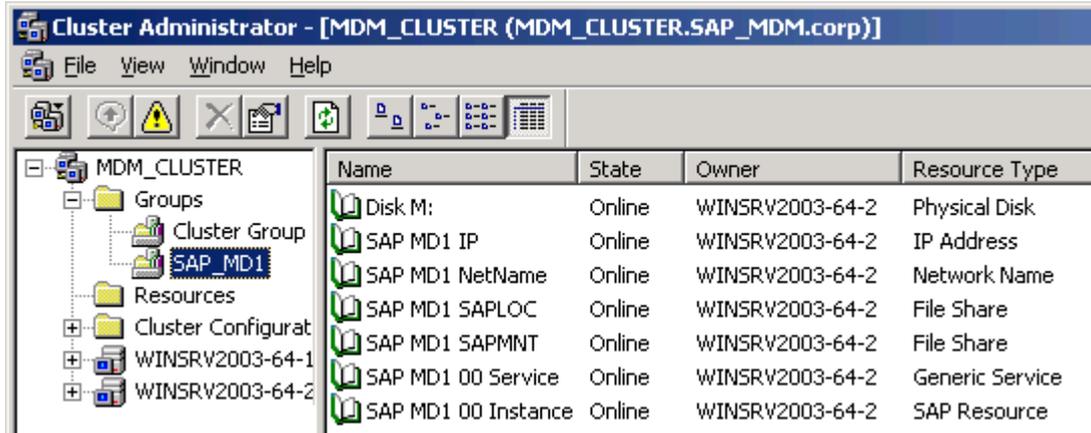


The screenshot shows the 'SAP MD1 00 Instance Properties' dialog box with the 'Parameters' tab selected. The dialog has four tabs: 'General', 'Dependencies', 'Advanced', and 'Parameters'. The 'Parameters' tab contains the following fields and checkboxes:

Property	Value
SID:	MD1
Instance:	00
Maximum Start Time:	300
Maximum Transition Time:	300
Delay Time before Polling:	10
Minimum Active Processes:	1
Generic Service:	<input checked="" type="checkbox"/>
Enable Trace:	<input type="checkbox"/>

3. Bring the cluster resource online.

The result looks similar to this:



4.4.3 Cluster Access Permissions

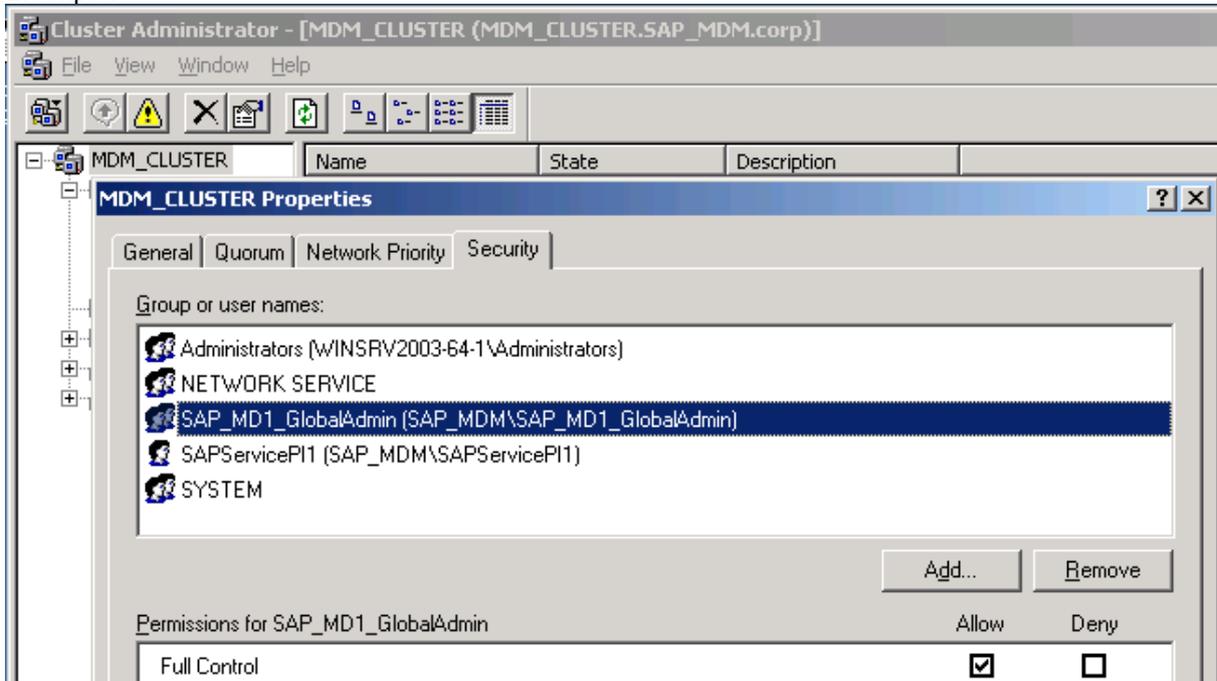
Set the cluster permissions so that all users of the group **SAP_<SID>_GlobalAdmins** have full access on the cluster. This is required so that the cluster can be administered by the SAP Management Console.

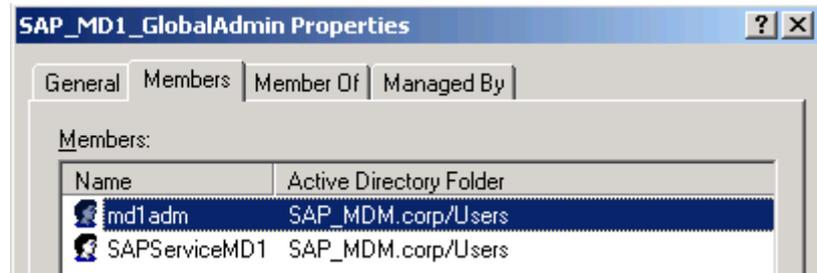
Remark:

The users <SID>adm and SAPService<SID> are members of group SAP_<SID>_GlobalAdmin

1. In MSCS Administrator, right click the cluster node and open the properties from the context menu.

Example:





4.5 Smoke Test

Perform a smoke test for each node within the cluster.

This is to make sure that the integration of SAP Start Framework with MSCS and MDS works, and the database connection is configured correctly

Preparation of test:

1. In MSCS, move the cluster group to the first cluster node and bring it online.
2. Start MDS instance using MDM Console (might already be running).
(Background for the step: MDM Console can communicate with SAP Host Agent, MDS can access the virtual host name)

Important

Remember to use the virtual host name for the MDS instance when mounting an MDM Server in the MDM Console.

Execution of Functionality test:

3. With the MDM Console you will see the previous created repository. Delete one of the previously created repositories or create another one.
(Background for the step: Database is configured correctly and MDS can connect to the Database)
4. Stop the MDS instance using the MDM Console. Check in MSCS that no restart is triggered.
(Background for the step: Integration of SAP Start Framework into MSCS)
5. Restart the MDS instance using the MDM Console – give it some time to become responsive
(Background for the step: preparation for next cluster node test)

Important

Check in the process list of the operating system that the mds.exe is down before restarting the MDS instance.

6. Move the cluster group to the next cluster node and repeat the steps starting from 3.
(Background for the step: failover/switchover test)

Note

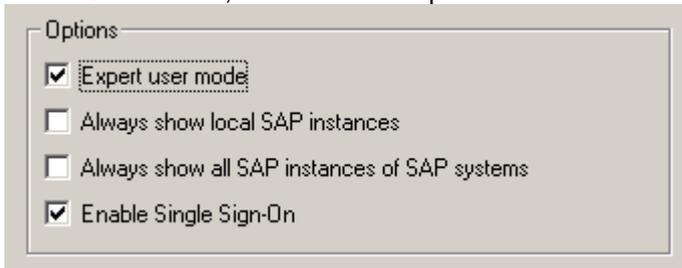
Remember to clean up the test repositories after the completed installation.

5. Appendix

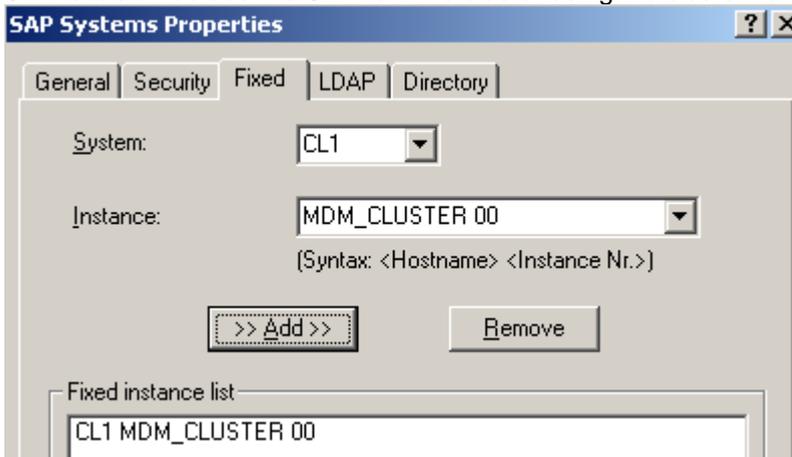
Appendix A - Using SAP Management Console

If you want to use SAP Management Console (SAPMMC) to monitor or administer the SAP NetWeaver MDM SID within the cluster with the virtual host names, you need to adjust the configuration of SAP MMC to hide the local instances and use the clustered instances instead. This step is optional.

1. Open SAPMMC.
2. Open Properties from the context menu of the node *SAP Systems*.
3. on the *General* tab, deactivate the options as shown in the figure below

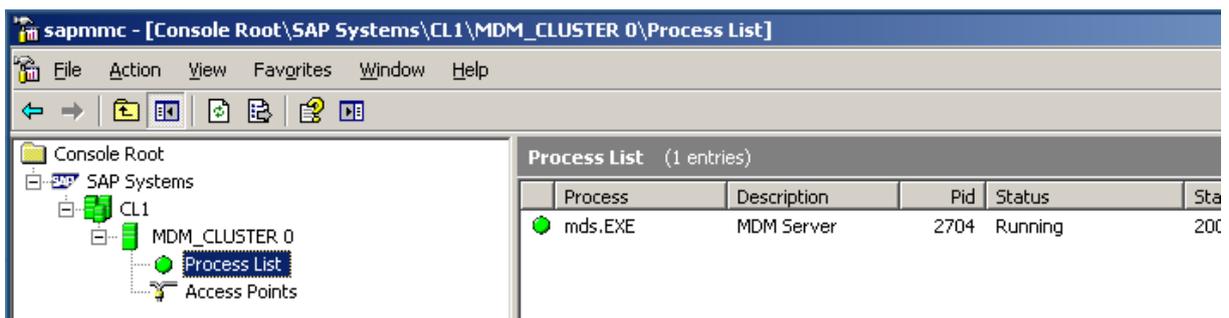


4. On the tab *Fixed* add the SID from the cluster using the cluster name



5. Save the configuration.

You are now able to work with the instances within the cluster regardless of which cluster node is active.



Appendix B – SAP NetWeaver MDM Auxiliary Servers

SAP NetWeaver MDM Auxiliary Servers like SAP NetWeaver MDM Import Server and SAP NetWeaver MDM Syndication Server are not defined as Single Points of Failure. For details refer to SAP NetWeaver MDM Solution Operation Guide. The guide is available on the SAP Service Marketplace for download by following the link <https://service.sap.com/installmdm71>.

MDM Auxiliary Server not clustered

The installation of the MDM Auxiliary Server(s) can be done none clustered for a clustered MDM Server.

You can do this by selecting the Distributed Installation option from within the MDM Installers. Make sure to access the instance profile location using the virtual host name of the SAP Global Host

MDM Auxiliary Server clustered

The installation of the MDM Auxiliary Server can be clustered for a clustered MDM Server.

You can do this by selecting the Distributed Installation option from within the MDM Installers. Make sure to access the instance profile location using the virtual host name of the SAP Global Host.

Create cluster resources, similar as for the MDM Server, for the

- Instance Service (Resource type: SAP Resource)
- Instance (Resource type: Generic Service)
- Disk (Resource type: Physical Disk)
(in case the disk is different than the disk where the MDM Server is installed, required for creating a separate cluster group)

One Cluster Group:

You can have the MDM Server and the MDM Auxiliary Server within one cluster group.

Add the cluster resources the MDM Server Cluster group.

Remark: For performance perspective, keep in mind that all resources are running on one cluster node and only can be switched at once.

Multiple Cluster Groups:

You can create an own cluster group for the MDM Auxiliary Server including a dedicated IP Address and virtual hostname.

Prerequisite: You have used a different installation disk than for the MDM Server

Create a new cluster group and add the cluster resources.

Appendix C – Performing Multiple SAP System Installations

It is possible to cluster SAP NetWeaver MDM 7.1 with other SAP Systems

Using MS Windows Server 2003, a Windows network share is only available once per system which means that the share **sapmnt**, that is required by the SAP system setup, can only exist on one disk. To enable multiple SAP System installation you need to follow a special installation procedure to bypass this restriction. See below.

Using MS Windows Server 2008 you can create dedicated network shares per MSCS cluster group. For installing multiple SAP systems on one MS Windows Server 2008 host you have to prepare proper cluster groups for each instance following the procedure as it is described in this document. You do not have to perform the installation procedure as described below.

Important

For such complex MSCS systems you need in-depth knowledge of and experience with the Windows Operating system, the Microsoft Cluster Service, the sizing and clustering of an SAP system.

Therefore, the installation and configuration of such an MSCS system must be performed by an SAP Global Technology Partner, who supports any installation and configuration problems that arise from this MSCS configuration.

The idea behind the clustering of Multiple SAP Systems on MS Windows Server 2003 is the following:

- Instead of installing on a shared disk, the installation is done on a local disk.
- By using junction points the instance directories on the local disk are redirected to a shared disk
- The preparation of the folder structure including the junction points on the local disk needs to be done manually **before** executing the SAP Installer
- Due to the local installation, the Windows share **sapmnt** is available on each cluster node and does not belong to a shared disk.
- Therefore, there is no requirement to create and include the cluster resource for **sapmnt** in MSCS
- For the SAP NetWeaver MDM, each MDM Server instance needs to be linked to a shared disk
- Each instance can therefore have its own cluster group including its own shared disk

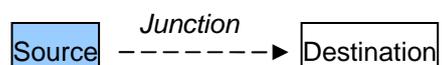
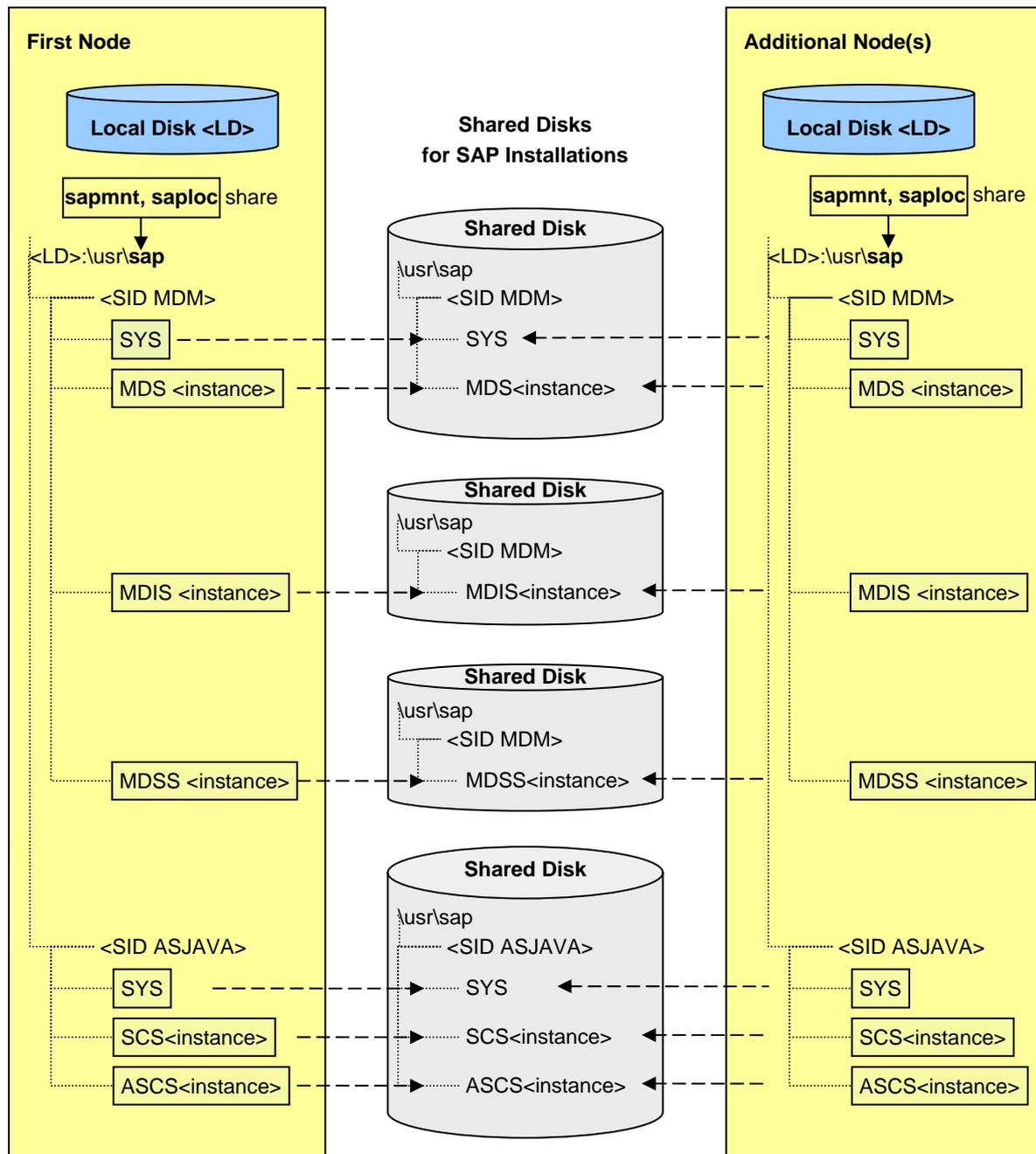
For details of how to cluster Multiple SAP Systems in MSCS see the SAP NetWeaver Installation Guides on the SAP Service Marketplace at <http://service.sap.com/instguides>.

For SAP NetWeaver 7.0 incl. EHP1 check the guide “Multi-SID Installation on Windows MSCS” on <http://service.sap.com/installnw70>

For SAP NetWeaver CE 7.1 open any windows installation guide at <http://service.sap.com/instguidesnwce711>.

The logic of the SAP NetWeaver guides can be adopted to the MDM setup.

The following picture shows an example of a possible Landscape of MDM together with another SAP Installation:



Appendix D - Master / Slave scenario in a clustered environment

SAP NetWeaver MDM using Master and Slave Repositories can be run within a clustered landscape. There is an additional configuration required in the MDS.ini configuration file.

For details, please refer to SAP NetWeaver MDM Solution Operation Guide for details. The guide is available on the SAP Service Marketplace for download by following the link <https://service.sap.com/installmdm71>.

www.sdn.sap.com/irj/sdn/howtoguides