

# SQL Server DB Mirroring Management Pack Guide for Operations Manager 2007 R2

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Published: *May 2011*

Version: *1.0.2.10*



# Contents

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SQL Server DB Mirroring Management Pack Guide .....	3
Introduction to the SQL Server DB Mirroring Management Pack .....	4
Prerequisites.....	5
Getting Started .....	6
Before You Import the Management Pack .....	6
Files in This Management Pack .....	6
Create a New Management Pack for Customizations.....	6
Define Desired Configuration information .....	7
Security Considerations .....	10
Understanding Management Pack Operations .....	11
Objects the Management Pack Discovers.....	11
Classes .....	14
Relationships and Health Roll Up .....	15
Monitors and Alerts.....	16
Console Views.....	24
Reports .....	25
Appendix: Scripts .....	26

# SQL Server DB Mirroring Management Pack Guide

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The SQL Server DB Mirroring MP discovers Database Mirroring components and provides probe based monitors to verify that database mirrors are operational. Optionally it verifies the roles and operating modes of mirrored databases against a Desired Configuration setting.

Currently Microsoft SQL Server 2005, 2008 and 2008 R2 (any edition) are supported. Note that for SQL Server 2008 R2 support, the SQL Server MP 6.1.314.36 or later is a prerequisite.

This guide describes the steps required to install and parameterize the Management Pack. It gives an overview of the elements it consists of and suggests how to use it.

## Document Version

This guide was written based on the *1.0.2.10* version of the SQL Server DB Mirroring Management Pack.

### Revision History

Release Date	Changes
<i>June 3, 2010</i>	Original release of this guide MP version 1.0.1.36
<i>September 01, 2010</i>	Version 1.0.1.72 <ul style="list-style-type: none"><li>• Adds support for SQL 2005</li><li>• Support for SQL 2008 R2 (when being used with SQL Server MP 6.1.314.36)</li><li>• Improved script timing (delay initial load on agent)</li><li>• Default DisplayName of the mirror groups has changed to the format <i>DBName on EngineHost1 + EngineHost2</i></li><li>• Optional mirror group tag name supported in Desired Configuration settings. Will also override the default DisplayName of the mirror groups</li><li>• Fixed alert parameter replacement in DCM monitors</li></ul>
<i>April 20, 2011</i>	Version 1.0.2.5 (no functional changes) <ul style="list-style-type: none"><li>• Corrected spelling mistakes in language pack</li><li>• Replaced all SCOM shell cmdlet calls with direct .NET SDK calls to overcome potential issues when several connectors and specific MPs share an SDK connection.</li><li>• Improved discovery script timing behavior when using desired configuration on several mirrors.</li></ul>
<i>May 31, 2011</i>	Version 1.0.2.10 (SQL 2005 discovery bug fix only)

Table 1 - Management Pack Versions

# Introduction to the SQL Server DB Mirroring Management Pack

The *SQL Server DB Mirroring Management Pack* adds discovery and state monitoring of SQL database mirroring components to Operations Manager 2007 R2.

Use the SQL Server DB Mirroring Management Pack for:

- Monitoring the availability state of mirrored databases and witnesses.
- Monitoring if the mirrors are operating in line with a Desired Configuration definition.
- Report on SQL database mirroring configuration.
- Use the objects and groups discovered to add SQL database mirroring specific rules, monitors or overrides.

## Product Management Pack

This Management Pack augments the *SQL Server Management Pack* by Microsoft which does not currently discover or monitor database mirroring. For best experience, get the latest version of the SQL Server Management Pack from the Microsoft Download Center:

<http://www.microsoft.com/downloads/details.aspx?FamilyId=8C0F970E-C653-4C15-9E51-6A6CADFCA363&displaylang=en&displaylang=en>

## Other Extension Management Packs

The OpsManJam web site (<http://www.opsmanjam.com>) provides a free download of the *Extended Microsoft SQL Server Management Pack* by Matt Goedel, which extends the SQL Server Management Pack with rules dealing with database mirroring aspects. That Management Pack does not provide any discovery mechanism, which leads to all rules being enabled on any SQL DB engine.

The *SQL Server DB Mirroring Management Pack* download contains an override MP that corrects this by disabling all rules and only re-enabling it in the context of SQL DB engines that host a mirrored database. This override MP is found in the directory *SQLXTOVERRIDE* (for SQL 2008).

The discoveries and monitor based states of the *SQL Server DB Mirroring Management Pack* used in combination with the rules of the *Extended Microsoft SQL Server Management Pack* will provide a maximum value for an SQL database mirroring environment. Although either MP may be used independently of each other.

## Prerequisites

The SQL Server DB Mirroring Management Pack for Operations Manager 2007 R2 has the following prerequisites:

Element	Remarks
Operations Manager 2007 R2	The MP uses Powershell modules
Operations Manager 2007 R2 Agent deployed to SQL Server 2005 and 2008 DB Engine computers – including Powershell	Powershell ( >= V1) must be installed locally on all agents hosting an SQL 2005 and 2008 DB Engine
Operations Manager RMS Action Account must have at least 'Read-Only Operator' rights on the OpsMgr Management Group. Alternatively configure the 'SQL Server Mirroring Discovery RunAs Profile'.	Discoveries that run on the RMS need access to OpsMgrs repository to retrieve information about already discovered SQL Server objects.
SQL Server Management Pack	The current SQL Server Management Pack my Microsoft must be imported prior to adding this Management Pack. Support for SQL 2008 R2 requires at least version 6.1.314.36

**Table 2 - Management Pack Prerequisites**

It is recommended, that the Management Pack be imported, tested and tuned in a lab or pre-production environment, before moving it to a production management group.

# Getting Started

## Before You Import the Management Pack

Before importing the SQL Server DB Mirroring Management Pack, note the following limitations of the management pack:

- Supports SQL Server 2005, 2008 and 2008 R2 Database Mirrors only, hosted on Windows Server installations.
- Powershell ( >= V1) must be installed on SQL Server DB Engine computers involved in database mirroring.

## Files in This Management Pack

The SQL Server DB Mirroring Management Pack consists of the following files and directories:

- **RABurri.SQLServer.Mirroring.Library.mp**
- **RABurri.SQLServer.2005.Mirroring.Monitoring.mp**
- **RABurri.SQLServer.2008.Mirroring.Monitoring.mp**
- DesiredDBMirrors.xml (Desired Configuration example file)
- DesiredDBMirrors.xsd (Desired Configuration XML schema)
- Folder UNSEALED (contains unsealed versions of the Management Pack files)
- Folder SQLEXTOVERRIDE (contains override MP for the OpsMgr Jam SQL Extension MP)
- Folder LAB\_SPEEDUP\_OVERRIDE (contains override MP to speed up mirroring discoveries for lab environments: *Do not use this for productive use.*)

## Create a New Management Pack for Customizations

As with any Management Pack, it is recommended to create a fresh unsealed Management Pack to save overrides to.

## Define Desired Configuration information

The Management Pack allows defining a Desired Configuration setting for each database mirror. This information is read from an XML file, which has to be placed on the Root Management Server. When a database mirror's operational mode or role do not match what has been defined in the XML file, two monitors will warn about that condition.

**Adding Desired Configuration information is entirely optional.** Without it, the Management Pack will be fully functional, lacking only the Desired Configuration Monitors that will not be initialized.

The Management Pack download contains a sample XML file and the schema for it. To enable Desired Configuration monitoring perform the following steps:

1. Create a new XML file using the schema file **DesiredDBMirrors.xsd** in your favorite XML editor. The Management Pack download package contains an example file.
2. Add a **DesiredDBMirror** entry for each database mirror you wish to monitor configuration information for.
3. Save the XML file as **C:\DesiredDBMirrors.xml** to the Root Management Server (RMS). If required you may choose a different file location and name. When doing so, you need to override the discovery 'SQL Server Desired DB Mirroring Configuration Discovery' accordingly. Potentially each database mirror may read its Desired Configuration information from a different file.

Note that providing the optional `MirroringGroupTag` setting will change to display name of discovered mirror groups to whatever is provided as group tag.

## Sample DesiredDBMonitors.xml file

```
<DesiredDBMirrors>
  <DesiredDBMirror>
    <DatabaseName>DatabaseName1</DatabaseName>
    <MirroringGUID>6899378a-e022-4e39-9d80-1a6802a6541e</MirroringGUID>
    <!-- optional
    <MirroringGroupTag>Any Tag String Here (will become Display Name of the Mirror
Group)</MirroringGroupTag>
    -->
    <DesiredMasterComputerPrincipalName>SQL2K8-1.RAFA.LAB</DesiredMasterComputerPrincipalName>
    <!-- optional - only needed if SQL DB Engine is a named instance
    <DesiredMasterDBEngineInstanceName>MSSQLSERVER</DesiredMasterDBEngineInstanceName>
    -->
    <DesiredMirrorComputerPrincipalName>SQL2K8-2.RAFA.LAB</DesiredMirrorComputerPrincipalName>
    <!-- optional - only needed if SQL DB Engine is a named instance
    <DesiredMirrorDBEngineInstanceName>MSSQLSERVER</DesiredMirrorDBEngineInstanceName>
    -->
    <!-- set to either:
           High-performance mode
           High-safety mode with automatic failover
           High-safety mode without automatic failover
    -->
    <DesiredMirroringMode>High-performance mode</DesiredMirroringMode>
  </DesiredDBMirror>
  <DesiredDBMirror>
    <DatabaseName>DatabaseName2</DatabaseName>
    <MirroringGUID>ff60d064-2468-4dab-bb92-69dda89e1ccf</MirroringGUID>
    <!-- optional
    <MirroringGroupTag>Any Tag String Here (will become Display Name of the Mirror
Group)</MirroringGroupTag>
    -->
    <DesiredMasterComputerPrincipalName>SQL2K5-1.RAFA.LAB</DesiredMasterComputerPrincipalName>
    <!-- optional - only needed if SQL DB Engine is a named instance
    <DesiredMasterDBEngineInstanceName>MSSQLSERVER</DesiredMasterDBEngineInstanceName>
    -->
    <DesiredMirrorComputerPrincipalName>SQL2K8-2.RAFA.LAB</DesiredMirrorComputerPrincipalName>
    <!-- optional - only needed if SQL DB Engine is a named instance
    <DesiredMirrorDBEngineInstanceName>MSSQLSERVER</DesiredMirrorDBEngineInstanceName>
    -->
    <!-- set to either:
           High-performance mode
           High-safety mode with automatic failover
           High-safety mode without automatic failover
    -->
    <DesiredMirroringMode>High-safety mode with automatic failover</DesiredMirroringMode>
  </DesiredDBMirror>
</DesiredDBMirrors>
```



## Learn about the Mirroring GUID

Each SQL Server mirror is assigned a mirroring GUID when configuring it. This GUID can be found by

- Checking the Management Pack's **DB Mirror State** view once the DB mirrors have been discovered by the management pack.
- Running the following query against a mirroring member DB Engine's master DB:

```
SELECT d.name DatabaseName,
       dm.mirroring_guid as MirroringGUID,
       dm.mirroring_role_desc MirroringRole,
       CASE
         WHEN dm.mirroring_safety_level = 1
           THEN 'High-performance mode'
         WHEN (dm.mirroring_safety_level = 2) AND
              (Len(dm.mirroring_witness_name) = 0)
           THEN 'High-safety mode without automatic failover'
         WHEN (dm.mirroring_safety_level = 2) AND
              (Len(dm.mirroring_witness_name) > 0)
           THEN 'High-safety mode with automatic failover'
       END AS MirroringMode
from sys.database_mirroring dm
join sys.databases d on (dm.database_id=d.database_id)
where mirroring_guid is not null
```

## Security Considerations

Some discoveries of the Management Pack are executed on the Root Management Server (RMS). They require that the RMS default action account has at least 'Read-Only' access rights to Operations Manager. Configure this using the 'User Roles' dialogue in the Operations Manager Console's Administration pane. After that change, reboot the RMS.

If granting the RMS action account access rights is not desired, the 'SQL Server Mirroring Discovery RunAs Profile' may be configured with such credentials (only required for the RMS).

On the agents, the default action account needs to possess rights on the SQL Server DB Engines it will discover and monitor. If this is not the case (low-privilege environment), the Run As profiles from the SQL Server Management Pack must be configured. If the SQL Server Management Pack has already been successfully deployed, then this configuration will likely already have been implemented. The SQL Server Management Pack Guide (6.1.314.36 or later) describes the required steps to support a low privilege configuration in detail.




Run As Profile	Credentials required
SQL Server Mirroring Discovery RunAs Profile	At least 'Read-only' operator on Operations Manager
SQL Server Discovery Account	Refer to SQL Server Management Pack guide
SQL Server Monitoring Account	Refer to SQL Server Management Pack guide

**Table 3** - Run As Profiles

# Understanding Management Pack Operations

## Objects the Management Pack Discovers

The Management Pack discovers the object types listed in the following table.

Category	Object Type	Discovery Details	Object Properties
SQL Server Element	SQL Server Mirrored Database	Specialized from the "SQL Server Database" class (hosted by DB Engine). Represents a database that is part of a mirror.	Database Name  Database Engine Mirror Group Tag Mirror GUID Mirror Operating Mode Mirror Partner Instance Mirror Witness Node Desired Mirroring Role Desired Mirroring Mode
	SQL Server Mirroring Member	Hosted on DB Engine Represents a DB Engine that has mirrored databases.	
	SQL Server Mirroring Witness	Hosted on DB Engine Represents a DB Engine that serves as a witness for mirrors.	
	SQL Server Mirrored Database Witness	Hosted on Mirroring Witness Represents a witness instance for a single DB mirror.	Database Name Database Engine Mirroring GUID  Mirror Partner Instances Mirror Operating Mode
Mirror Service	SQL Server Database Mirroring Service	Represents a Distributed Application Service, summing up the health of all DB mirrors. Singleton	
	SQL Server Database Mirroring Group	Each group represents a DB mirror. Contains mirrored databases and optionally a witness.  The Desired Configuration properties are only discovered if a matching entry was found in the Desired Configuration XML file.	Database Name Mirroring GUID  Mirror Group Tag Desired Master Computer Desired Master DB Engine Desired Mirror Computer Desired Mirror DB Engine Desired Mirror Operating Mode Desired Mirror Config Source

Groups	SQL Computers (DB Mirroring Host)	Contains Windows Computers that host at least one mirrored database Singleton	
	SQL Computers (DB Mirroring Witness)	Contains Windows Computers that serve as witness for at least one database mirror. Singleton	
	SQL DB Engines (DB Mirroring Host)	Contains SQL DB Engines that host at least one database mirror. Singleton	
	SQL DB Engines (DB Mirroring Witness)	Contains SQL DB Engines that serve as witness for at least one database mirror. Singleton	

**Table 4 - Object Types**

## Discoveries

By default the Management Pack discovers all of the above objects. This behavior may be changed by overriding the discoveries listed below:

Element	Discovery Rule Name	Default setting	Overrides
Mirrored DB	Discovers SQL Server 2008 Mirroring Objects Targeted at SQL 2008 DB Engines	<b>Enabled</b> Every 4 hours	
Mirror Witness	Discovers SQL Server 2008 Mirroring Witness Objects Targeted at SQL 2008 DB Engines	<b>Enabled</b> Every 4 hours	
Mirror Group	SQL Server 2008 Mirror Group Discovery Targeted at the Root Management Server	<b>Enabled</b> Every hour	
Desired Configuration settings	SQL Server Desired DB Mirroring Configuration Discovery Targeted at Mirror Groups (runs on the RMS)	<b>Disabled</b> Every 4 hours	Desired Configuration file location (on RMS)

**Table 5 - Discoveries**

Due to the default timing settings of the discoveries, it may take some time until all elements appear in Operations Manager. The same applies for changes.

Once a newly created SQL database has been discovered by the SQL Management Pack (default SQL DB discovery runs every 4 hours), it may take up to 5 hours until all mirroring components are discovered. Add another 4 hours until the optional Desired Configuration settings are discovered.

**In a pre-production environment only:** The discovery intervals may safely be increased to allow testing. Restarting the Health Service on the agents respectively the RMS may also help to speed up discovery. The Management Pack download contains an override MP that will speed up discoveries significantly. Do not use this speed up override pack in a production management group!

## Classes

The following diagram shows the classes defined in this management pack and which classes they are specialized from.

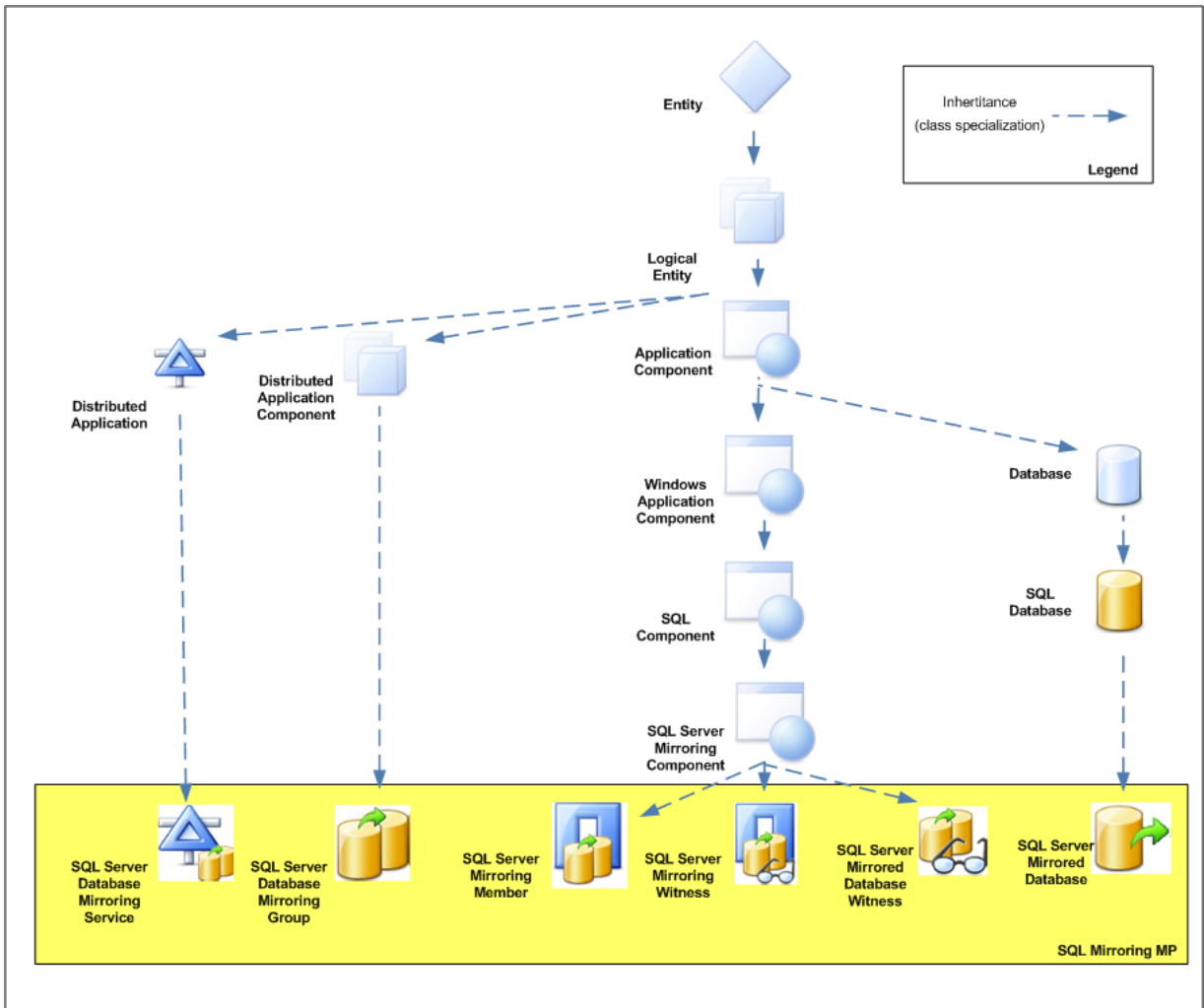
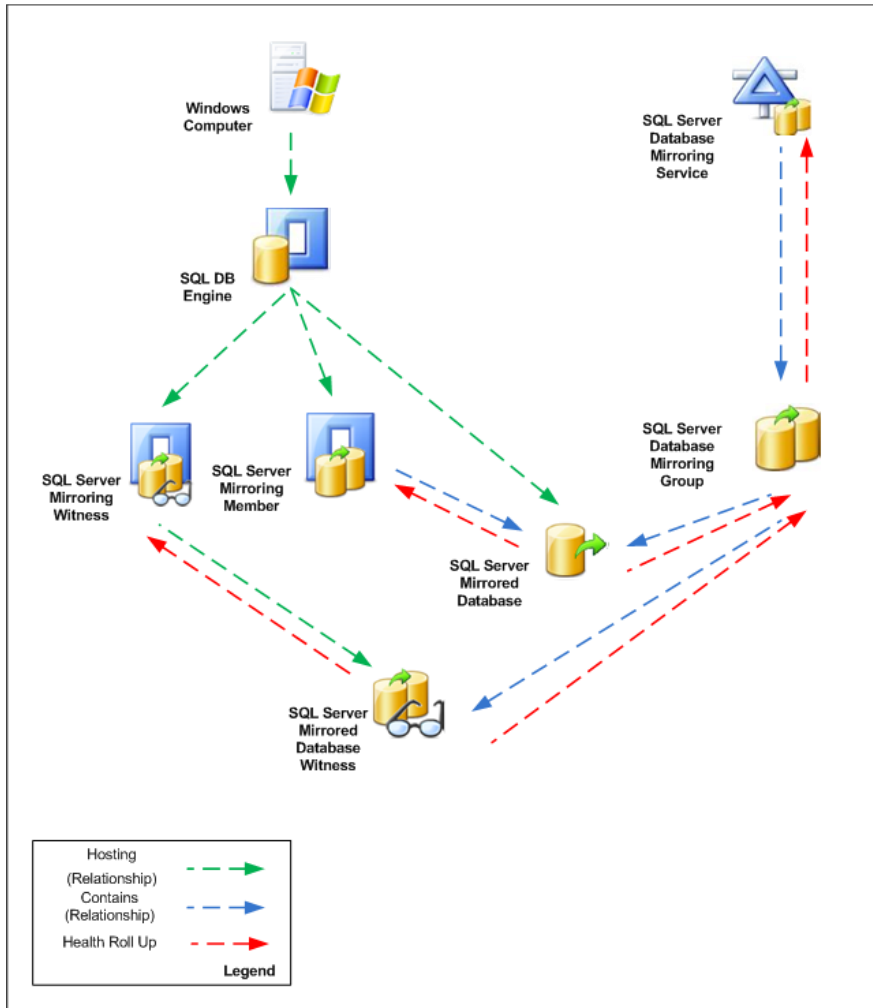


Figure 1 - Class Diagram

## Relationships and Health Roll Up

The second diagram explains the relationships between the classes and shows how an object's health is being rolled up.



**Figure 2 - Health Roll Up**

Windows Computer and SQL DB Engine are not defined in the SQL Server DB Mirroring Management Pack.

## Monitors and Alerts

Monitors in the Management Pack are targeted at Mirrored DB, Witness and Mirroring Group objects. Summary roll up monitors targeted at Mirroring Groups ensure that only a single alert will be created per database mirroring issue.

### SQL Server Database Mirroring Group Monitors

A single configuration monitor is targeted directly at Database Mirroring Groups. Four summary roll up monitors write alerts, when at least one of the member databases experiences an issue.



**Figure 3** – Database Mirroring Group Monitor

#### Database Mirror Status Summary Monitor

The two state monitor roll up monitor generates an alert if the databases underneath are not synchronized. By raising the alert through the roll up monitor, it is assured that only a single alert is being created when the mirror experiences a SUSPENDED or UNSYNCHRONIZED or DISCONNECTED condition.

Severity	Alert Name	Possible Overrides	Implementation Details
Warning or Critical	Database Mirror not Synchronized Sample alert: Database mirror Laertes is not synchronized. Desired Principal: SQLSRV01 Desired Mirror: SQLSRV02.		Health Roll Up targeted at the mirrored database's <i>Database Mirror Status</i> monitor

**Table 6** - Database Mirror Status Summary Monitor



### Database Mirror Witness Status Summary Monitor

The two state monitor roll up monitor generates an alert if the databases underneath are no longer connected to their mirroring witness. By raising the alert through the roll up monitor, it is assured that only a single alert is being created when the mirror experiences a DISCONNECTED witness condition.

Severity	Alert Name	Possible Overrides	Implementation Details
Warning	Database Mirror Witness not Connected  Sample alert:  Database mirror Minos has lost connection to its witness.		Health Roll Up targeted at the mirrored database's <i>Database Mirror Witness Status</i> monitor

**Table 7** - Database Mirror Witness Status Summary Monitor

### Mirrored DB Mode Compliance Summary Monitor

The two state monitor roll up monitor generates an alert if the databases underneath are not operating in the desired mode. Valid mirroring modes are:

- High-performance mode
- High-safety mode without automatic failover
- High-safety mode with automatic failover

Requires that the Desired Configuration information is defined by means of an XML file placed on the Root Management Server. See *Define Desired Configuration information* earlier in this guide.

Severity	Alert Name	Possible Overrides	Implementation Details
Warning	Database Mirror Mode Configuration is not compliant  Sample alert:  Database mirror Hector not currently running according to its desired configuration mode.  Desired Mirroring Mode: High-performance mode.		Health Roll Up targeted at the mirrored database's <i>Database Mirror Mode Compliance</i> monitor

**Table 8** - Mirrored DB Mode Compliance Summary Monitor

### Mirrored DB Role Compliance Summary Monitor

The two state monitor roll up monitor generates an alert if the database mirror roles do not match the Desired Configuration setting. This happens when PRINCIPAL (Master) and MIRROR roles are reversed after a failover.

Requires that the Desired Configuration information is defined by means of an XML file placed on the Root Management Server. See *Define Desired Configuration information* earlier in this guide.

Severity	Alert Name	Possible Overrides	Implementation Details
Warning	Database Mirror Role Configuration is not compliant Sample alert: Database mirror Melenaos not currently running according to its desired configuration. Desired Principal: SQL01 / Current Principal:SQL05 Desired Mirror: SQL05 / Current Mirror: SQL01.		Health Roll Up targeted at the mirrored database's <i>Database Mirror Role Compliance</i> monitor

**Table 9** - Mirrored DB Role Compliance Summary Monitor

### SQL Server Mirroring Desired Configuration Syntax Monitor

The two state monitor warns an invalid Desired Configuration setting is found when parsing the XML file. See *Define Desired Configuration information* earlier in this guide for details.

Severity	Alert Name	Possible Overrides	Implementation Details
Warning	Desired DB Mirror Configuration Syntax is invalid Sample alert: The Desired DB Mirror Configuration file does contain invalid information for database mirror Nestor with GUID 05069A07-4DFE-48D6-BF97-454CBAE18705. See alert context for details.		Triggered by events of the Desired Configuration discovery script.

**Table 10** - SQL Server Mirroring Desired Configuration Syntax Monitor

### Mirrored Database Monitors

The monitors targeted at mirrored database objects will be shown in the state view together with the standard SQL Server Management Pack ones. This is because a mirrored database specializes from a database.

The original Database Status monitor will be disabled by the SQL Server DB Mirroring Management Pack for all mirrored databases. Its functionality has been fully copied to the Database Status (Mirrored DB) monitor. The latter does not warn when a database is in restoring state (which is the operational mode of a mirror DB).



**Figure 4 – Mirrored Database Monitors**

### Database Mirror State Monitor

The three state monitor alerts when the state of a mirrored DB is not SYNCHRONIZED. SUSPENDED and UNSYNCHRONIZED are considered a warning, DISCONNECTED a critical condition.

This monitor does not create an alert by default. Enabling alert creation will lead to duplicate alerts. Summary alerts are created by the roll up monitor targeted at the Database Mirroring Group.

Severity	Alert Name (alert creation disabled by default)	Override Name	Implementation Details
Warning or Critical	Database Mirror not Synchronized Sample alert ( <i>disabled by default</i> ): Database mirror Minos in SQL Server instance MSSQLSERVER on computer SQL2K8 is DISCONNECTED	Interval Default: 300 seconds	OleDB query to check the state. Runs every 5 minutes.

**Table 11 – Database Mirror State Details**

### Database Mirror Witness Status Monitor

The two state monitor warns when a mirroring witness instance is DISCONNECTED.

This monitor does not create an alert by default. Enabling alert creation will lead to duplicate alerts. Summary alerts are created by the roll up monitor targeted at the Database Mirroring Group.

Severity	Alert Name (alert creation disabled by default)	Possible Overrides	Implementation Details
Warning	Database Mirror Witness not Connected  Sample alert ( <i>disabled by default</i> ):  Database mirror Nestor in SQL Server instance MSSQLSERVER on computer SQL2K8-1 has lost connection to its witness sql2k8-3	Interval  Default: 300 seconds	OleDb query to check the state. Runs every 5 minutes.

**Table 12** – Database Mirror Witness Status Monitor

### Database Status (Mirrored DB) Monitor

This three state monitor is a copy of the SQL Server Management Pack Database State Monitor, which is disabled for mirrored databases. Its only difference is that it will not warn, when a database is in RESTORING state since this is the normal operation mode of the MIRROR instance database.

For more details see the SQL Server Management Pack guide.

Severity	Alert Name	Possible Overrides	Implementation Details
Warning or Critical	Database Offline  Sample alert:  Database OperationsManagerDW in SQL Server instance MSSQLSERVER on computer SQL2K8-1. is offline/recovery pending/suspect/emergency	Interval  Default: 3600 seconds	VBScript to check the state. Runs every hour.

**Table 13** – Database Status (Mirrored DB) Monitor

### Database Mirror Mode Compliance Monitor

Two state monitor that compares the current mirror operation mode with the Desired Configuration setting. Warns if the mode is not currently set according to Desired Configuration.

Valid mirroring modes are:

- High-performance mode
- High-safety mode without automatic failover
- High-safety mode with automatic failover

Requires that the Desired Configuration information is defined by means of an XML file placed on the Root Management Server. See *Define Desired Configuration information* earlier in this guide.

This monitor does not create an alert by default. Enabling alert creation will lead to duplicate alerts. Summary alerts are created by the roll up monitor targeted at the Database Mirroring Group.

Severity	Alert Name (alert creation disabled by default)	Possible Overrides	Implementation Details
Warning	Database Mirror Mode Configuration is not compliant  Sample alert ( <i>disabled by default</i> ):  Database mirror Meleanos in SQL Server instance MSSQLSERVER on computer SQL2K8 is not currently running according to its desired configuration. Current Mode: High-performance mode Desired Mode: High-safety mode with automatic failover	Interval  Default: 300 seconds	OleDb query to check the state. Runs every 5 minutes.

**Table 14** – Database Mirror Mode Compliance Monitor

### Database Mirror Role Compliance Monitor

Two state monitor that compares the current mirror operation role with the Desired Configuration setting. Warns if the role is not currently set according to Desired Configuration.

Valid mirroring roles are:

- PRINCIPAL (Master)
- MIRROR

Requires that the Desired Configuration information is defined by means of an XML file placed on the Root Management Server. See *Define Desired Configuration information* earlier in this guide.

This monitor does not create an alert by default. Enabling alert creation will lead to duplicate alerts. Summary alerts are created by the roll up monitor targeted at the Database Mirroring Group.

Severity	Alert Name (alert creation disabled by default)	Possible Overrides	Implementation Details
Warning	Database Mirror Role Configuration is not compliant  Sample alert ( <i>disabled by default</i> ):  Database mirror Minos in SQL Server instance MSSQLSERVER on computer SQL2K8 is not currently running according to its desired configuration.  Current Role: PRINCIPAL Desired Role: MIRROR	Interval  Default: 300 seconds	OleDb query to check the state. Runs every 5 minutes.

**Table 15** – Database Mirror Role Compliance Monitor

## Mirrored Database Witness Monitor

A single availability monitor is targeted at mirroring witness objects.

**This monitor does not exist when the witness DB Engine is running on SQL 2005.**



**Figure 5** – Mirrored Database Witness Monitor

## Mirror Witness Partner Status Monitor

The two state monitor warns if database mirror witness doesn't see state of a mirror as IN\_SYNC.

This monitor does not create an alert by default. Enabling alert creation will lead to duplicate alerts. Summary alerts are created by the roll up monitor targeted at the Database Mirroring Group.

Severity	Alert Name (alert creation disabled by default)	Possible Overrides	Implementation Details
Warning	Database Mirror not Synchronized Sample alert ( <i>disabled by default</i> ): Database mirror Nestor is not synchronized. Mirror Partners: SQL2K8-2;SQL2K8-1	Interval Default: 300 seconds	OleDB query to check the state. Runs every 5 minutes.

**Table 16** - Mirrored Database Witness Monitor

## Console Views

Objects discovered and monitored by the Management Pack can be seen in various console views in the following folder: *Microsoft SQL Server* → *Databases* → *DB Mirroring*

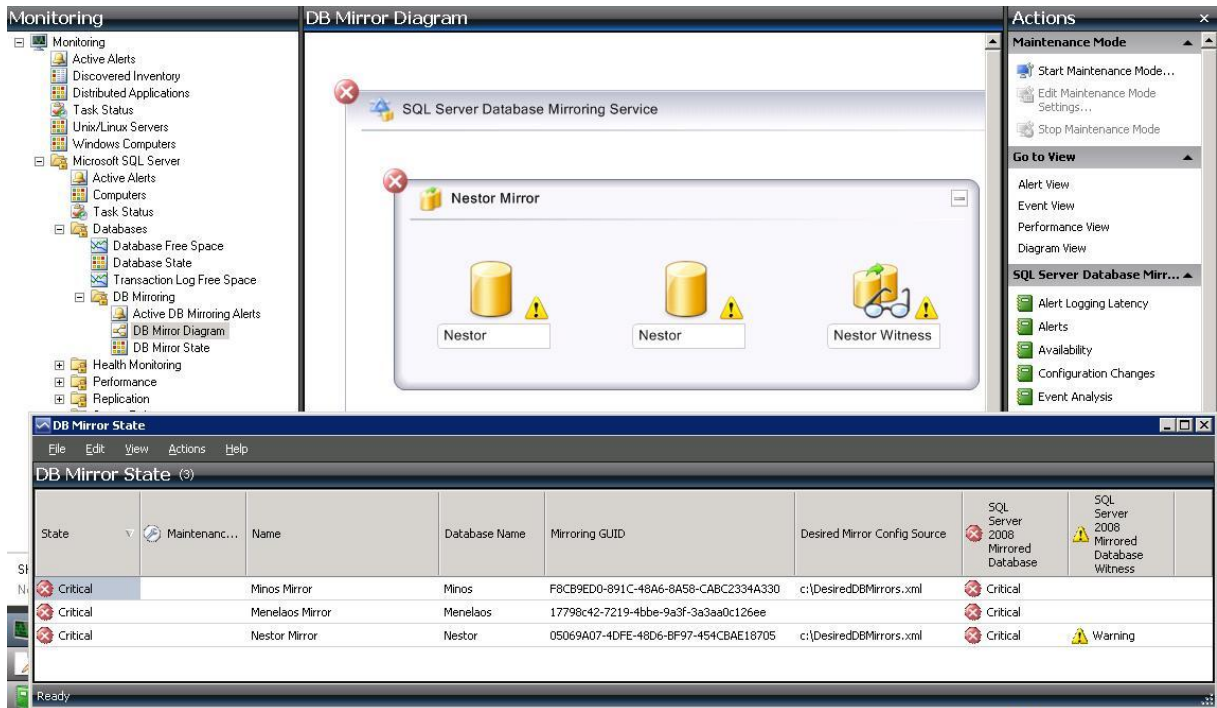


Figure 6 – Monitoring Console View

### Active DB Mirroring Alerts View

This alert view lists all currently active alerts targeted at any of the SQL database mirroring objects.

### DB Mirror Diagram View

The diagram view displays a graphical representation of the database mirror groups as they have been discovered by the Management Pack.

### DB Mirror State View

The state view gives a quick overview over the current state of the mirrored database groups and their properties. Use this view to verify successful discovery of the Desired Configuration settings and to learn about mirroring GUIDs required to configure it.



## Reports

A series of linked reports are included in Management Pack:

- SQL Database Mirror Groups (Inventory)
- SQL Mirrored Databases (Inventory)
- SQL Database Mirror Witnesses (Inventory)
- SQL Database Mirror Health (Entity Health State Report to be targeted at Mirror Groups)

**Custom Configuration Report**

Click on plus sign to see a full description for this report

Report Time : 5/26/2010 2:34 PM  
 Report Duration : From 5/26/2010 12:33 PM to 5/26/2010 2:33 PM  
 Object(s) : 6 objects included in this report  
 Objects Filtered By : \*\*\*

**Actions**

Object	Edition	Database Size (MB) (Numeric)	Mirror GUID	Mirror Operating Mode	Mirror Partner Instance	Mirror Witness
SQL Database	SQL Database	SQL Database	SQL Database	SQL Database	SQL Database	SQL Database
SQL Database: Menelaos SCOM200   SQL2K8-1	Enterprise Edition	25	17798c42-7219-4bbe-9a3f-3a3aa0c126ee	High:safety mode without automatic failover	SQL2K8-3	
SQL Database: Menelaos SCOM200   SQL2K8-3	Enterprise Edition		17798c42-7219-4bbe-9a3f-3a3aa0c126ee	High:safety mode without automatic failover	SQL2K8-1	
SQL Database: Minos SCOM200   SQL2K8-1	Enterprise Edition	25	8cb9ed0-891c-48a6-8a59-cabc23344330	High:safety mode with automatic failover	SQL2K8-2	sql2k8-3
SQL Database: Minos SCOM200   SQL2K8-2	Enterprise Edition		8cb9ed0-891c-48a6-8a59-cabc23344330	High:safety mode with automatic failover	SQL2K8-1	sql2k8-3
SQL Database: Nestor SCOM200   SQL2K8-1	Enterprise Edition	25	05069a07-4dfe-48d6-bf97-454cbae18705	High:safety mode with automatic failover	SQL2K8-2	sql2k8-3
SQL Database: Nestor	Enterprise Edition		05069a07-4dfe-48d6-	High:safety mode with	SQL2K8-1	sql2k8-

Figure 7 – Reporting Interface

Target pre-filters are configured for these reports, making choosing a valid target as easy as possible.

## Appendix: Scripts

Script	Purpose
RABurri.SQLServer.2008.Mirroring.Discovery.ps1	Discovers Mirroring components. Targeted at SQL 2008 DB Engines
RABurri.SQLServer.2008.MirroringWitness.Discovery.ps1	Discovers Mirroring Witness components. Targeted at SQL 2008 DB Engines
RABurri.SQLServer.2008.ComponentGroup.Discovery.ps1	Discovers the Mirroring Groups. Targeted at the Root Management Server's Health Service.
RABurri.SQLServer.Mirroring.DesiredDBMirrors.Discovery.ps1	Reads Desired Configuration information from an XML file and adds it to discovery data. Targeted at Mirroring Groups (runs on the Root Management Health Service).
RABurri.SQLServer.2008.Mirroring.GetSQL2008DB.vbs	Checks the status of an SQL 2008 database. <i>1:1 copy of the SQL Server Management Pack script by Microsoft. Used by the replaced Database State Monitor which ignores RESTORING state of MIRROR databases.</i>

**Table 17** - Management Pack Scripts

## Appendix: Feedback

For comments on this guide or the Management Pack, the authors of the Management Pack can be contacted by email:

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