

## SQL Server 2008 Highlights

By RDA Principal Architect Ray Barley

Microsoft announced the immediate availability of the first Community Technology Preview (CTP) of SQL Server 2008 at TechEd 2007 in Orlando, Florida on June 4, 2007. A CTP release is a downloadable preview of a product that users can work with in a test environment to try out the new features before the actual product is released. During the product development cycle there will typically be several CTP releases.

SQL Server 2008 is built around the following technology themes:

- Mission Critical Platform for All – SQL Server 2008 will provide a more secure, reliable and manageable enterprise data platform, including an innovative, policy-based declarative management framework allowing administrators to define policies to be enforced across all database servers.
- Redefining Pervasive Insight – SQL Server 2008 will provide a more scalable infrastructure for business intelligence and empower users to easily consume data via increased integration with Microsoft Office.
- Beyond Relational – SQL Server 2008 will enable developers and administrators to store and consume any type of data from XML to documents, including a new spatial data type for map-based applications and a new integrated transactional file system to allow storing large database objects directly in the file system.
- Dynamic Development for Data Management Solutions – SQL Server 2008 will provide an integrated development environment with Visual Studio and the Microsoft .NET Framework version 3.0, accelerating development with a higher level of data abstraction with a new entity-based framework.

The highlights of the initial CTP release include the following features:

- SQL Server Integration Services (SSIS) – the script task and script component now support development in C# and full debugging capabilities.
- SQL Server Analysis Services (SSAS) –the user interface for creating and editing dimensions is enhanced to guide users toward designs that follow best practices.
- Star Join Query Optimization – improved query performance by recognizing common data warehousing join patterns.
- MERGE SQL Statement – added support for the MERGE SQL statement which is especially useful in data warehousing where data is inserted if it does not exist or updated if it does exist. MERGE is a single statement that handles both conditions.

- Change Data Capture – a generic component that tracks database changes asynchronously and exposes the changes through a relational interface. This is another big enhancement in the data warehousing area where data changes need to be captured and used to update dimensions.
- Table Value Parameters – provides an easier way to define a table type as well as allow applications to create, populate and pass table structured parameters to stored procedures and functions.
- Declarative Management Framework – a policy-based mechanism to ensure compliance with policies for system configuration and to prevent or monitor changes.

These new product features are all welcome additions to SQL Server. The Declarative Management Framework may well be the most compelling of the new features, reducing the total cost of ownership as it relates to enforcing consistent configuration and policies across all SQL Server database servers in the enterprise. The Declarative Management Framework is made up of three distinct elements:

- A Facet is a high-level category within SQL Server; it contains a list of properties.
- A Condition is a property expression that evaluates to True or False; it is associated with a particular Facet.
- A Policy is a list of Conditions that are evaluated.

The policy may operate in one of the following ways:

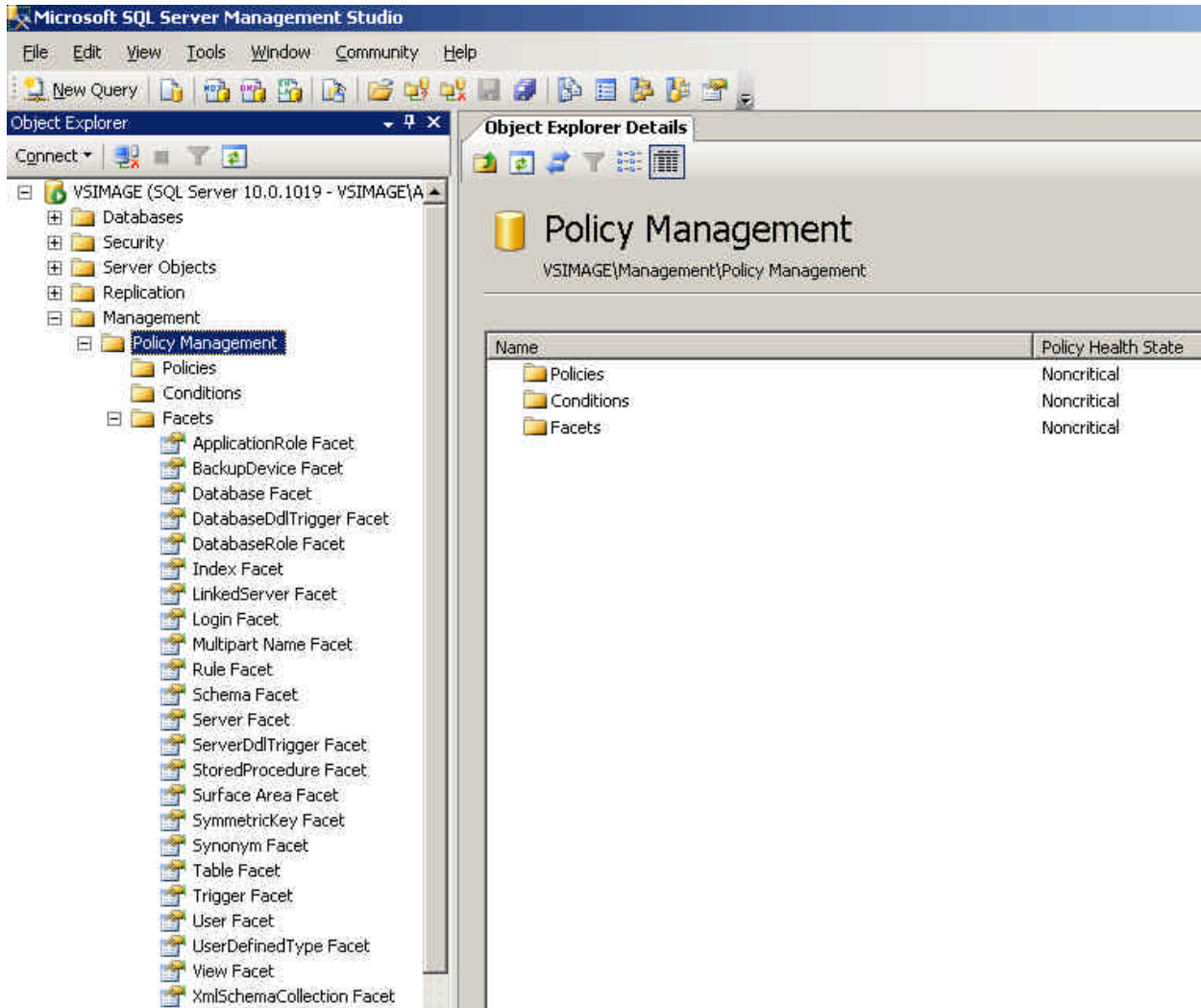
- Rollback a transaction that violates the policy; i.e. prevent a SQL statement from violating the policy
- Check on change - monitor transactions in real time and note any policy violations; i.e. allow a SQL statement to violate a policy but log the fact that the policy is violated
- Check on schedule – check for policy violations on a periodic schedule

In the next section, we will look at an example of how it works.

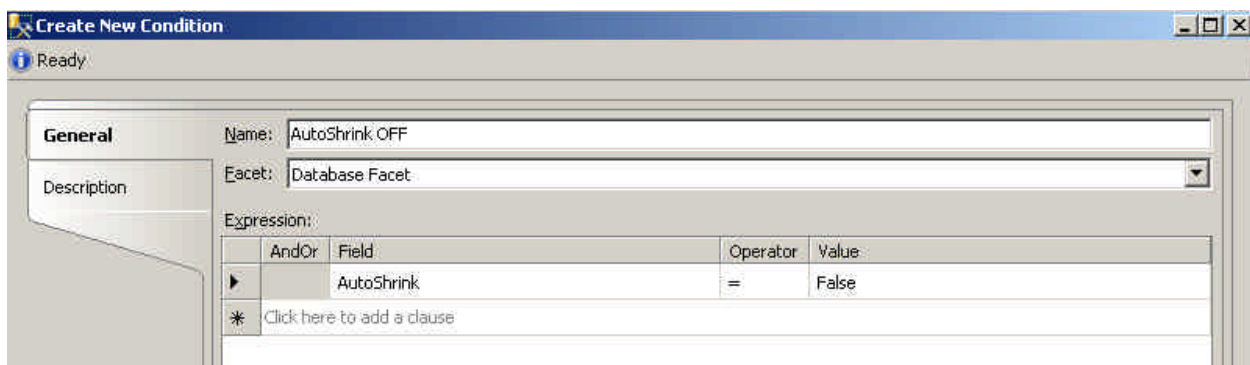
### ***Declarative Management Framework – Example***

In order to walk through an example of the Declarative Management Framework, assume that an organization wants to enforce a policy whereby all databases will have the AutoShrink property set to False. If the AutoShrink database property is set to True, then the SQL Server database engine will reduce the size of any data files that have excess space in them. Many organizations do not want this function to be performed automatically; rather they will analyze the database file sizes and shrink the files manually.

The screen shot below shows where the Declarative Management policies are defined within the SQL Server Management Studio (SSMS). Expand the Management node; expand the Policy Management node. At this point you will see the Policies, Conditions, and Facets group nodes.



Right click the Database Facet, select New Condition from the context menu, and create the Condition that you want to enforce in the policy:

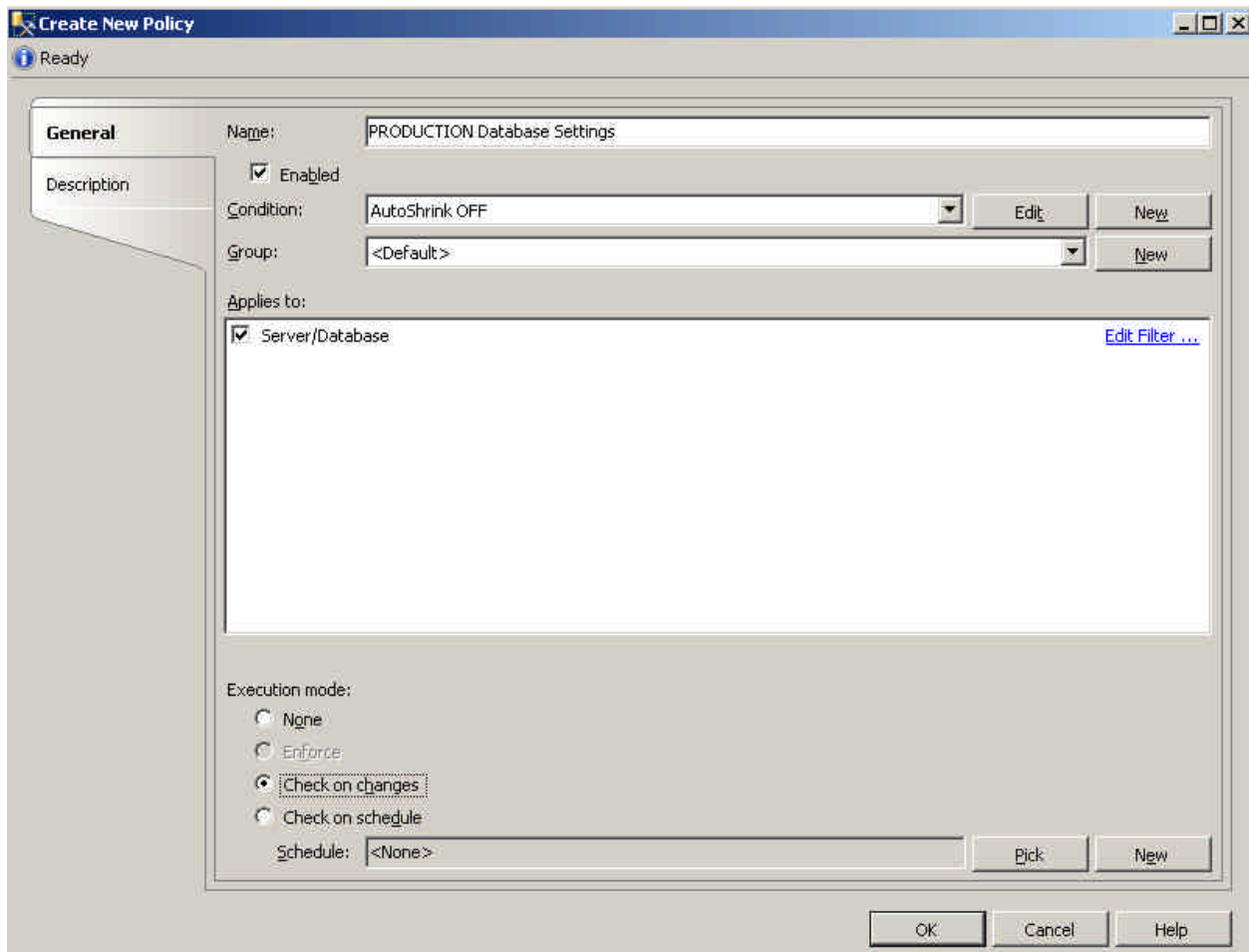


Notes on specifying the Condition:

- You can specify multiple And/Or Expressions in a Condition.

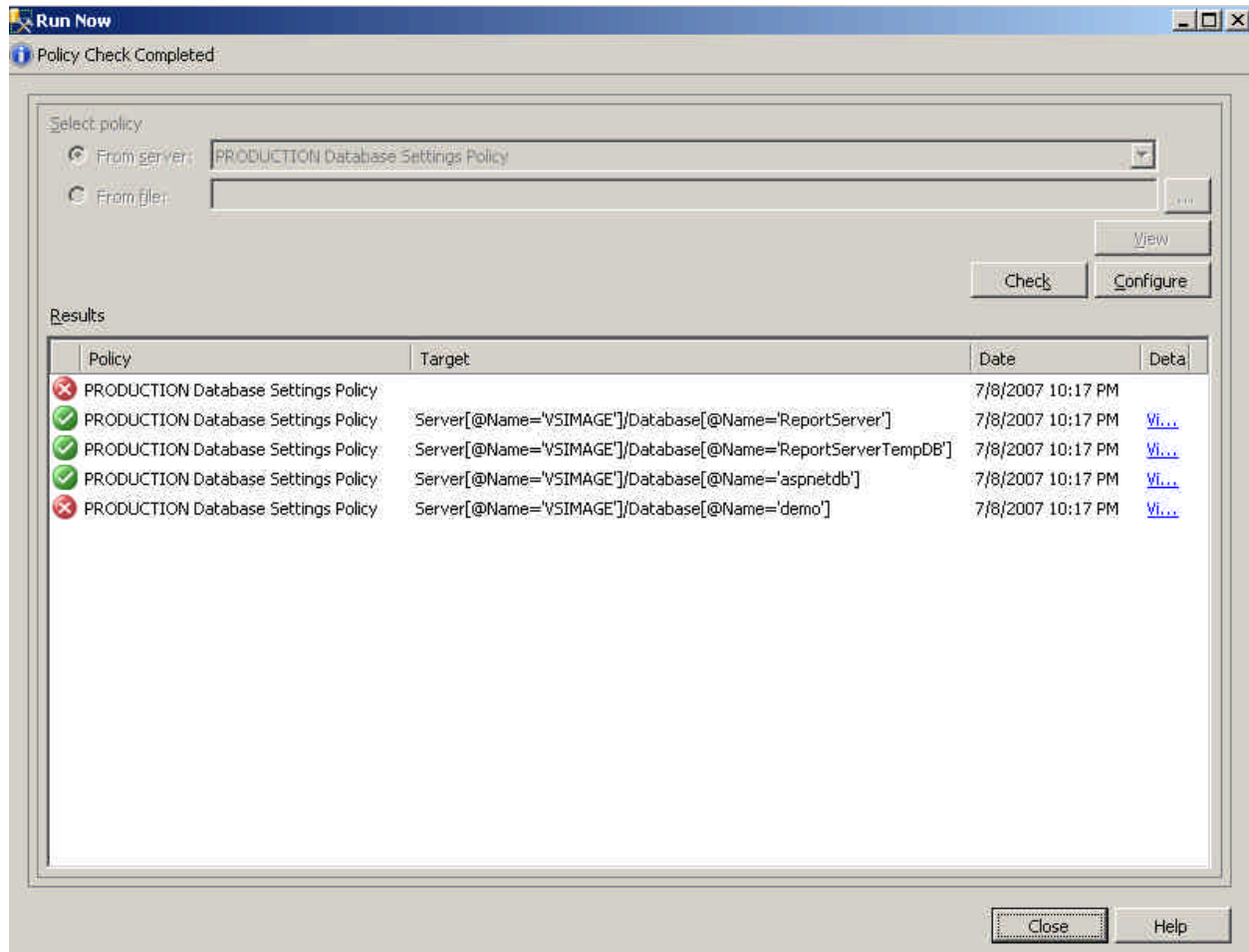
- The Field column displays a drop down list of the available fields based on the Facet.
- The Operator column displays a drop down list of choices: =, !=, LIKE, IN, NOT LIKE, NOT IN
- You enter the Value column.

Right click Policies, select New Policy from the context menu, then fill in the policy which references the Condition:



By default the policy will apply to every database on the server. You can click Edit Filter ... to specify And/Or Expression filter(s) to limit the policy to particular databases on the server. You can Export the policy and Import it to other servers.

To test this policy, right click on the policy then select Test Policy from the context menu. The following dialog is displayed showing the databases on the server and whether they are in compliance with the policy:



## Reference

For the latest information on SQL Server 2008 including download instructions, white papers, webcasts and sample code, visit the following URL:

<https://connect.microsoft.com/SQLServer/content/content.aspx?ContentID=5395>