Actifio CDS and Sky Tech Brief

Protecting a Large Number of Microsoft® SQL Databases

Multiple Microsoft SQL databases can be captured in:

- **An SQL Instance -** When capturing an SQL Instance, as databases are added to the instance, they will automatically be included in the Actifio capture operation. Capturing databases in an SQL instance lends itself to dynamic environments where databases are regularly added and removed.

  Note: *Databases that are mounted to an SQL Instance as virtual applications are not automatically protected with the other members of the instance. Virtually mounted databases must be protected separately.*

- **An Actifio Consistency Group -** Membership to a consistency group is done manually. Capturing databases in a consistency Group lends itself to static environments where databases are not often added or removed.

When protecting large number of databases in an instance or consistency group you must consider:

- Maximum Size of vss_config on page 2
- Microsoft® SQL Database Server Maximum Worker Treads on page 2
- Error Messages on page 3

Maximum Size of vss_config

Actifio uses Microsoft® Volume Snapshot Service (VSS) to capture SQL databases. To manage capture operations, VSS uses a metadata file named **`vss_config.`** This file has a maximum allowable size of 15MB. Two factors contribute to the size of **`vss_config`**:

1. The number of characters in the names of databases
2. The path length for each database.

If **`vss_config`** exceeds its 15MB limit, its associated Actifio capture operation will fail. See Error Messages on page 3 for details on error messages that can be displayed.

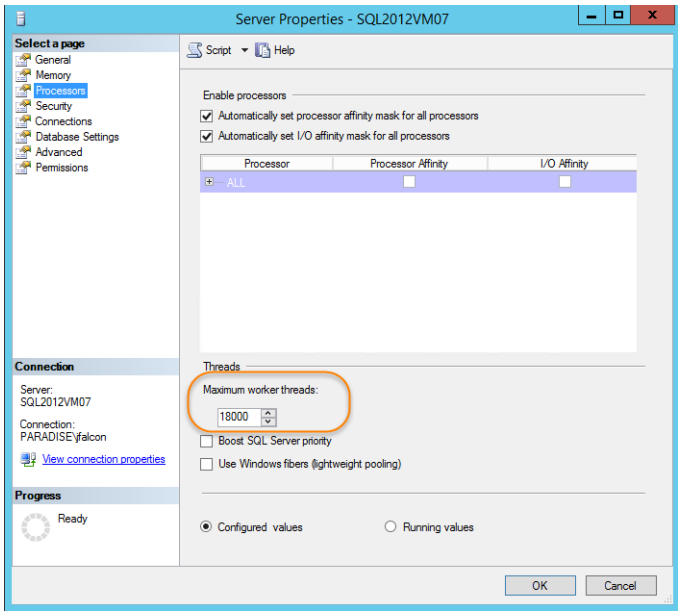
Because the factors that contribute to **`vss_config`** vary widely from environment to environment, When capturing over 1000 databases in a single consistency group or SQL instance, ramp up the number of databases captured in a single job to determine how many databases can be handled in your environment. For example:

1. Put a small number of databases (1000) in an SQL instance or a consistency group.
2. Protect the instance or consistency group.
3. Mount the protected image.
4. View the size of **`vss_config`**. It resides in a folder named after the capture job's job ID on the drive on which the Actifio connector is installed. For example: **`C:\Program Files\Actifio\tmpdata\Job_XXXXX`**

Once you know the size of **`vss_config`** for the initial capture operation, you can then determine the optimal number of databases that can be captured in a single operation. When making your determination, consider future growth of the number of databases used.

Microsoft® SQL Database Server Maximum Worker Treads

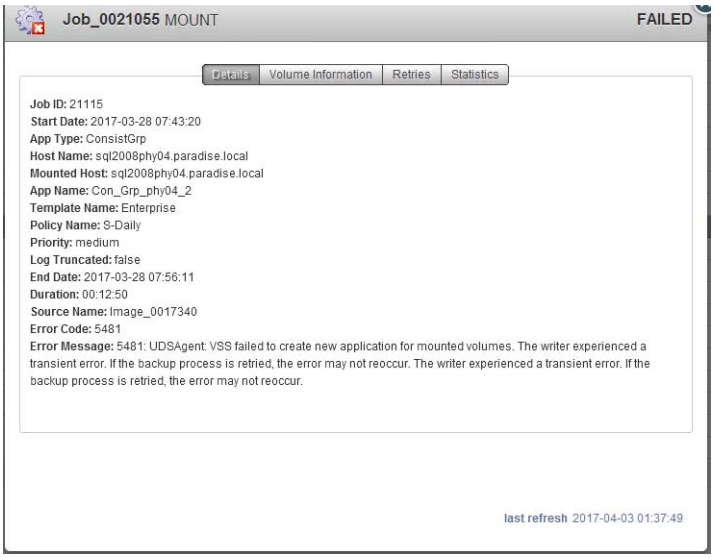
From the Microsoft SQL Server user interface, set the number of worker threads to three times the number of databases to be protected in the instance or consistency group. Consult your Microsoft SQL documentation for details on setting and using maximum worker threads.



Maximum Worker Threads Setting

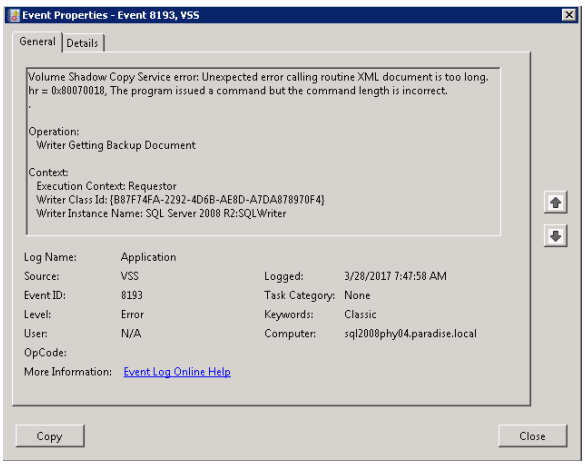
Error Messages

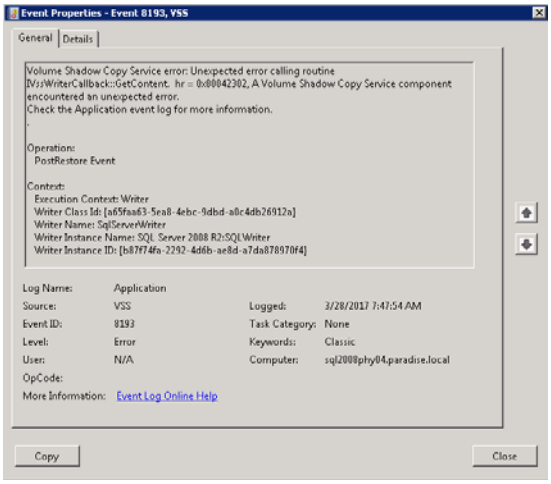
The following is an example of a job detail from the Actifio System Monitor. This example is for a mount job that tried to mount a consistency group that contained too many databases. A similar message is displayed for jobs that try to mount SQL instances that contain too many databases.



Typical Detail From a Failed Capture Operation

The following are examples of error messages from a Microsoft SQL server that tried to capture an SQL instance or Actifio consistency group that contained too many databases.





Typical Errors Encountered When vss_config Has Exceeded 15MB