IPSWITCH

WhatsUp Gold 2016
Failover Manager

WhatsUpGold
IT MANAGEMENT MADE SIMPLE

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About Failover

In This Chapter

About the WhatsUp Gold Failover Manager

Failover is a mechanism with the capacity to automatically switch from a primary installation of WhatsUp Gold to a standby WhatsUp system when the primary system is not functioning normally. Failover differs from *switchover*, because it is an automatic switch, whereas switchover requires that a network administrator manually make the switch. The WhatsUp Gold Failover Manager reduces costly downtime by automatically taking action in the event of a primary system failure.

The Failover Manager utilizes user-configurable criteria to determine a failed state. You can choose to have the primary system go down if *all* services are disabled, or if *any* specified service is disabled. For example, if you select all services, the services used by WhatsUp Gold must go down on the primary service for the secondary system to take over. If you select only the Polling Engine and Web Server, and both are disabled on the primary system for any reason, the secondary system takes over WhatsUp Gold network management duties until the primary system is restored.

There are currently two scenarios supported by the WhatsUp Gold Failover Manager. Each scenario uses both a primary and secondary installation of WhatsUp Gold, with the database either existing on the secondary system or separately as its own system.

In Scenario 1, the primary system uses a remote database located on the secondary system. This system is the more economical of the two, because it involves only two physical machines. While this first scenario is economical, it is riskier, as the solution is void if and when the secondary system goes down.

Primary system
Primary WhatsUp Gold system uses a remote dbase located on the secondary system.

Secondary system
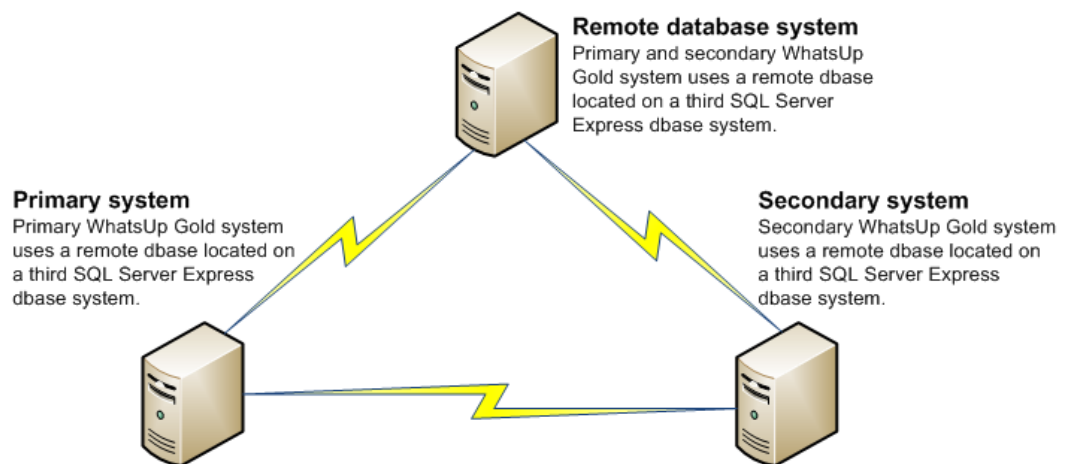Secondary WhatsUp Gold system uses a local dbase located on the secondary system.

Failover scenario 1
The failover managers on the primary and secondary systems control each other.

In Scenario 2, both the primary and secondary systems use a remote database stored on a separate Microsoft SQL Server system. While this system is more expensive to implement because of its employment of three physical machines, it ensures greater, more secure coverage of your network.

Note: WhatsUp Gold supports Failover for SQL clusters with Failover Scenario 2.

Remote database system
Primary and secondary WhatsUp Gold system uses a remote dbase located on a third SQL Server Express dbase system.

Primary system
Primary WhatsUp Gold system uses a remote dbase located on a third SQL Server Express dbase system.

Secondary system
Secondary WhatsUp Gold system uses a remote dbase located on a third SQL Server Express dbase system.

Failover scenario 2
The failover managers on the primary and secondary systems control each other.

> **Important**: *Data redundancy* occurs when the primary system and/or secondary systems write data to two or more locations for backup and data recovery. In WhatsUp Gold's Failover Manager, data from either the primary or secondary system is written to one database. To increase your network's complete coverage and protect data, make sure to schedule regular backups or take other measures to protect and save data on the system hosting the WhatsUp Gold database.

WhatsUp Gold Failover Manager and WhatsUp Gold editions

WhatsUp Gold Failover Manager is available for the following editions of WhatsUp Gold:

- WhatsUp Gold Standard Edition
- WhatsUp Gold Premium Edition
- WhatsUp Gold Distributed Edition

How does WhatsUp Gold Failover Manager work versus a non-Failover edition of WhatsUp Gold?

WhatsUp Gold Failover Manager works exactly the same as a non-Failover edition of WhatsUp Gold, with the addition of the Failover Service. All features available to you in a non-Failover edition of WhatsUp Gold are available to you in the Failover edition.

System Requirements

For WhatsUp Gold system requirements, as well as information about the latest product features, editions, fixed in this release, and known issues, refer to the Ipswitch WhatsUp Gold *Release Notes* (*http://www.whatsupgold.com/WUG163releasenotes*).

Failover-specific requirements

TCP Ports 9501 and 9643 are used by the Failover Solution for communication between the primary and secondary machines, and for the `NmApi.exe` process. Please ensure that these ports are free for use by WhatsUp Gold.

Dependent upon the failover scenario you plan to implement, additional hardware and software may be required.

Scenario 1 hardware requirements:

- A primary WhatsUp Gold machine that meets all of the software and hardware requirements listed in the WhatsUp Gold system requirements.
- A secondary WhatsUp Gold machine that meets all of the software and hardware requirements listed in the WhatsUp Gold system requirements.

Scenario 2 hardware requirements:

- A primary WhatsUp Gold machine that meets all of the software and hardware requirements listed in the WhatsUp Gold system requirements.

- A secondary WhatsUp Gold machine that meets all of the software and hardware requirements listed in the WhatsUp Gold system requirements.

- A third machine that meets the disk space requirements listed the WhatsUp Gold system requirements. This machine will run a SQL Server Express database for remote use by both the primary and secondary WhatsUp Gold machines.

Important: We recommend that all machines in either scenario be on the same network subnet.

Security guidelines for installing WhatsUp Gold

To maintain adequate security protection for your WhatsUp Gold deployment, Ipswitch recommends the following installation and configuration guidelines:

- Install WhatsUp Gold and any components in a locked server room or cabinet so that physical access is restricted to trusted administrators.

- Install WhatsUp Gold software components on dedicated servers. Do not use these servers for any other purpose.

- Configure HTTPS for WhatsUp Gold web access. Follow the Microsoft recommended procedures and your organization security policy to configure HTTPS.

- Read and follow as much as possible, the complete Security Guidelines in the *WhatsUp Gold Online Help* (*http://www.whatsupgold.com/wug163webhelp*).

User interfaces

WhatsUp Gold user interfaces

WhatsUp Gold offers two user interfaces, the **Windows console interface** and the **web interface**, which offer similar functionality. We recommend that you perform the initial setup—discovery and mapping—on the console, then use the web interface for additional setup of monitors and dashboards, users and permissions, and for day-to-day monitoring.

WhatsUp Gold Mobile Access

In addition to the two main user interfaces, WhatsUp Gold offers **Mobile Access** to your network's status through an interface specifically designed for mobile devices. You can now conveniently view your network status at any time from your mobile device.

WhatsUp Gold Failover console

WhatsUp Gold Failover Manager has its own console, accessible from the WhatsUp Gold Windows console interface (**Tools > Failover Console**). Use the WhatsUp Gold Failover console to configure the WhatsUp Gold Failover Service for your network and to view information about your primary and secondary WhatsUp Gold machines.

Installing Failover

In This Chapter

Installing WhatsUp Gold Failover

For detailed information on and procedures for installing WhatsUp Gold Failover Edition, as well as other editions of WhatsUp Gold, see Installing and Configuring WhatsUp Gold.

Configuring your Failover Solution

In This Chapter

Configuring WhatsUp Gold Failover

WhatsUp Gold Failover edition is an optional WhatsUp Gold product and differs from non-Failover editions in the way that it delivers the `app.config` file to the Ipswitch Services Controller. In non-Failover editions of WhatsUp Gold, all services are set to automatically start after installation and activation. In WhatsUp Gold Failover edition, all services except for the Failover Service are set to be manually started. The Failover Service is set to automatically start because it is the mechanism responsible for setting the active machine in your Failover solution. When the Failover Service sets a machine to active, it manually turns on the services you specify as necessary for the machine to successfully poll and manage your network.

In order for WhatsUp Gold Failover to begin polling and verifying the up state of the Primary machine, you must:

1   Configure the Failover Service for the Primary machine
2   Verify and/or modify WhatsUp Gold Failover advanced settings
3   Create and apply the Windows Credentials that are used for communication between the Primary and Secondary machines

After you have completed all three requirements, the primary machine becomes active, with necessary WhatsUp services started and available for use. Subsequently, any time the primary machine is rebooted, the Failover Service again considers if the machine should be active, and has the ability to start the required WhatsUp services automatically.

> **Note**: In order for the required WhatsUp services to be started automatically, you must select the **Primary Automatic Restart** option on the Failover Advanced Configuration dialog.

Configuring the Failover Service

The Failover Service watches over the services running on the Primary WhatsUp Gold machine. If any of the services that you include in the Failover Service fails unexpectedly, the Primary WhatsUp Gold machine is considered to be in a failed state and Failover is initiated. You can set the active WhatsUp Gold installation from the WhatsUp Gold console (**Start > Ipswitch WhatsUp Gold > WhatsUp Gold**) using the Failover Console dialog (**Tools > Failover Console**). Click **Configure** and configure the Failover Service as follows:

1   Enter or select the appropriate information:

  - **Use ALL selected services**. Selecting this option tells Failover that unless *all* of the services selected go down, the primary Whats Up Gold machine continues to perform network polling duties. In the event that all of the selected services go down, the primary WhatsUp Gold machine is considered to be in a failed state and the secondary WhatsUp gold machine takes over network polling duties.

  - **Use ANY selected services**. Selecting this option tells Failover that if *any one* of the selected services goes down, the primary WhatsUp Gold machine is considered to be in a failed state and the secondary WhatsUp Gold machine takes over network polling duties.

2   Select the service(s) that you want to apply to the Failover Service.

  WhatsUp Gold services:

  - Polling Engine (`nmservice.exe`)

  - Flow Collector (`bwcollector.net.exe`)

  - Alert Center (`alertcenterservice.exe`)

  - Configured (`networkconfigservice.exe`)

  - Discovery (`discoveryservice.exe`)

  - Failover Manager (`nmfailover.exe`)

  - API (`nmapi.exe`)

  - Connected Data Service (`networkviewerdataservice.exe`)

  - Virtual Service (`whatsvirtualservice.exe`)

  - Service Bus (`nmservicebus.exe`)

  - Polling Controller (`nmpollingcontroller.exe`)

  - Data Collector (`nmdatacollector.exe`)

  - Active Monitor Manager (`nmmanagers.exe`)

  - Poller (`nmpoller.exe`)

  - Task Controller (`nmtaskcontroller.exe`)

  - Wireless (`nmwireless.exe`)

  - WhatsUp Configuration API (`nmconfigurationmanager.exe`)

  - WhatsUp Message Server (`nmmessageserver.exe`)

> **Note**: The Flow Collector, WhatsConnected, WhatConfigured, and WhatsVirtual services only appear if you have a license for the Flow Monitor, WhatsUp Gold WhatsConnected, WhatsUp Gold WhatsConfigured, or WhatsVirtual plug-in.

The description at the bottom of the dialog explains how the services you choose relate to your configuration of WhatsUp Gold Failover.

> **Important**: Click **Advanced** to configure the Failover Service's advanced settings, including whether the primary machine is automatically restarted when it returns to a normal state.

3 Click **OK** to save changes.

Configuring Advanced Settings

To configure Advanced Failover Settings:

1 Enter or select the appropriate information:

- **Primary Automatic Restart**. When this option is selected and the primary machine returns to a normal state after a previous failed state, WhatsUp Gold starts the required WhatsUp services and the primary machine automatically resumes network polling duties. If this option is not selected and polling switches to the secondary machine, when the primary machine returns to a normal state, you must manually enable the Primary machine with the **Set Active** option, located on the Failover Console's main dialog.

- **Failure duration (minutes)**. Enter the amount of time in minutes that the Primary WhatsUp machine should be considered in a failed state before Failover switches network polling duties to the Secondary machine.

- **Status Query Interval (minutes)**: Specify the amount of time in minutes that indicates how often the Primary and Secondary WhatsUp Gold machines ping one another for a heartbeat status.

- **Primary Credentials**. Select the set of Windows credentials the secondary machine will use to communicate with the primary WhatsUp Gold machine. If you do not see the appropriate credentials, browse (**...**) to the Windows Credentials Library to configure a set of Windows credentials.

- **Secondary Credentials**. Select the set of Windows credentials the primary machine will use to communicate with the secondary WhatsUp Gold machine. If you do not see the appropriate credentials, browse (**...**) to the Windows Credentials Library to configure a set of Windows credentials.

2 Click **OK** to save changes.

Configuring Windows credentials

The Windows Credential Library stores login information necessary for heartbeat communications between the primary and secondary Failover machines. You need to

configure appropriate Windows credentials for both the primary and secondary machines in order for WhatsUp Gold Failover to successfully implement your Failover solution.

To configure Windows Credentials:

1   Open the Windows Credentials Library:

    a)   From the main menu of the WhatsUp Gold console, select **Tools > Failover Console**. The WhatsUp Gold Failover Console appears.

    b)   Click **Configure**. The Failover Service Configuration dialog appears.

    c)   Click **Advanced**. The Advanced Failover Settings dialog appears.

    d)   Next to **Primary credentials**, click the browse (**...**) button. The Windows Credentials Library appears.

2   Click **New** to create a new Windows credential to add to the library. The Windows Credential dialog appears.

3   Enter or select the appropriate information:

- **Name**. Enter a name for the set of credentials. This name appears in the Windows Credentials Library.

- **Description**. Enter a short description for the set of credentials. This description is displayed next to the credential name to help you differentiate credential sets.

- **Domain\User ID**. Enter the domain or user ID associated with the machine to which you want to connect.

- **Password**. Enter the password associated with the domain or user ID listed above.

- **Confirm Password**. Re-enter the password.

4   Click **OK** to save changes.

Configuring WhatsUp Gold Failover

After you have installed and configured WhatsUp Gold Failover Manager, you are ready to begin configuring WhatsUp Gold to manage and monitor your network. See the *WhatsUp Gold Getting Started Guide* (*http://www.whatsupgold.com/wug163gsg*) for an overview of the steps you should take to configure the application for your specific monitoring needs.

Viewing Failover Data

In This Chapter
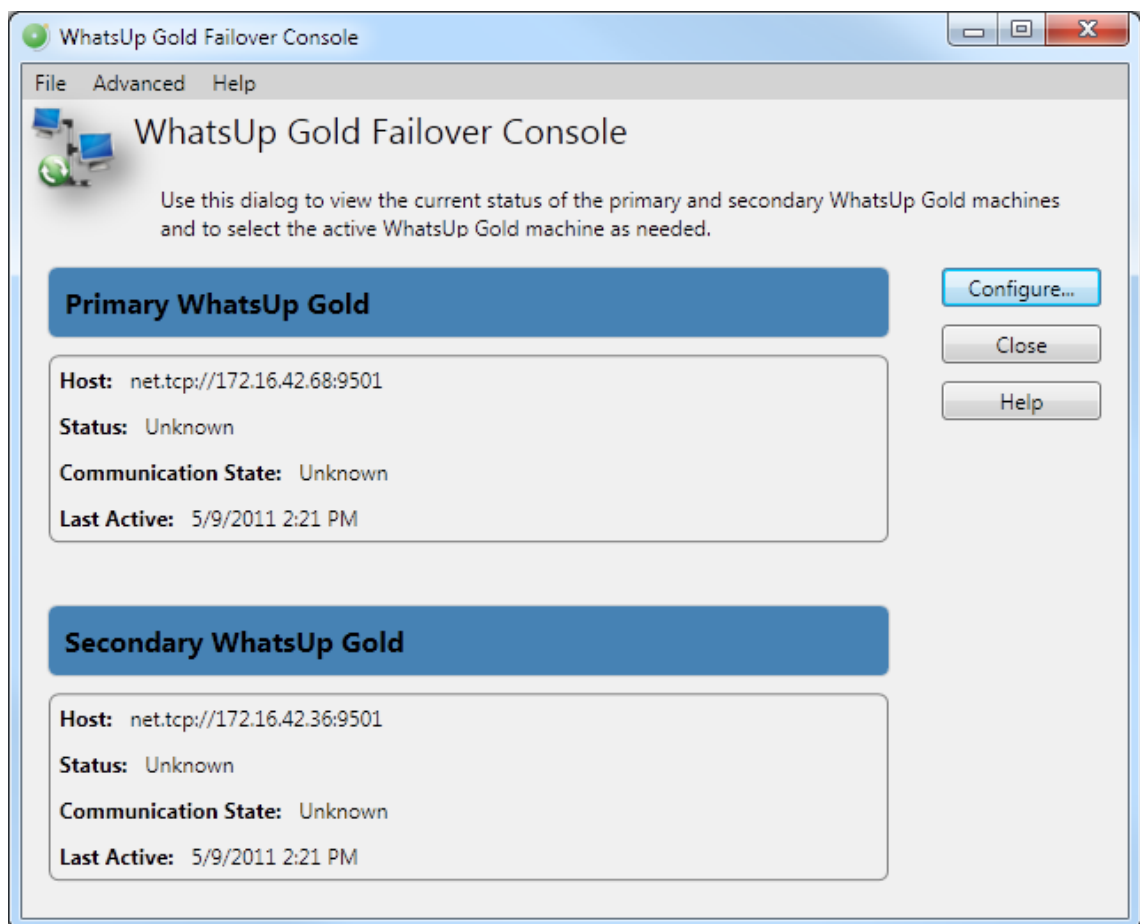
About the Failover Console

The main dialog of the Failover Console displays important status information for both the primary and secondary WhatsUp Gold machines.

The dialog displays the following information for the primary and secondary WhatsUp Gold machines:
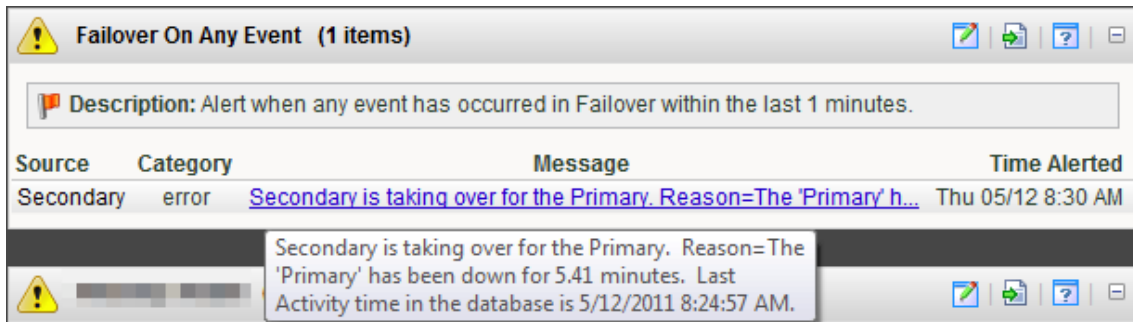
- **Host**. The machine's host address.

- **Status**. The machine's current status. Can either be:

  Active - currently polling the network.

  Standby - ready to assume network polling duties if/when the active machine goes down.

  Down - unable to perform network polling duties.

  Unknown - status is not known to Failover.

- **Communication State**. The communication state is listed from the point of view from the other machine. For example, if the primary machine has attempted to communicate with the secondary machine and is unable to for some reason, the communcation state is listed as *Unknown*. Can either be:

  Unknown - a machine is unable to communicate with the other machine for an unknown reason.

  Connection failed - a machine is unable to communcate with the other machine because the other machine is not known to exist from the machine's standpoint (no known host, etc.).

  Service running - a machine has communicated with the other machine and finds that the Failover service is running.

  Good credential - a machine has communicated with the other machine and finds a good credential for further heartbeat communication.

  Bad credential - a machine has communicated with the other machine and while the machine does in fact exist, the credentials provided for communication are bad.

- **Last Active**. The last time the machine successfully sent a heartbeat message to the other machine.

Tip: In addition to viewing status information, you can use the Failover Console's main dialog to access Failover Service configuration dialogs and to set the active WhatsUp Gold machine.

About the Alert Center Failover Threshold report

The Alert Center includes a default Failover Threshold that notifies you of any Failover Service events that occur. A dashboard report for the threshold displays on the Alert Center Home page.

The report includes the following Failover event data:

- **Source**. The machine on which the failover event took place.

  Tip: Click a source to view the Alert Center Item Details for that device.

- **Category**. The category of activity and message; either *information* or *error*.
- **Message**. The message generated as a result of the failover event.

  Tip: Hover over a message with your mouse to view the message in its entirety.

  Tip: Click an entry in the Message column to view the General Error Log.

▪ **Time Alerted**. The time the Alert Center discovered the failover event.

Note: While WhatsUp Gold Failover includes a default Alert Center threshold, it does not include a default notification policy. If you want to receive notifications for this threshold, configure and/or associate a notification policy with the threshold from the New/Edit Failover Threshold dialog.

Backing Up and Restoring

In This Chapter

Backing up the WhatsUp databases

> ⚠️ **Caution**: Any data collected from the time you back up the databases to when you restore them on the new server will be lost. We recommend executing these steps during non-peak times, when minimal downtime can be tolerated.

To back up the databases:

1 Back up the WhatsUp Gold database.

   a) From the WhatsUp Gold console, select **Tools> Database Utilities > Back Up WhatsUp SQL Database**. The Save Database As dialog appears.

   b) Enter a name for the database backup file, such as `whatsup_backup.bak`, then click **Save**.

2 Back up the Flow Monitor database.

   a) From the WhatsUp Gold console, select **Tools> Database Utilities > Back Up Flow Monitor SQL Databases > Back Up Flow Monitor Current Database**. The Save Database As dialog appears.

   b) Enter a name for the database backup file, such as `nf_backup.bak`, then click **Save**.

3 Back up the Flow Monitor archive database.

   a) From the WhatsUp Gold console, select **Tools> Database Utilities > Back Up Flow Monitor SQL Databases > Back Up Flow Monitor Archive Database**. The Save Database As dialog appears.

   b) Enter a name for the database backup file, such as `nfarchive_backup.bak`, then click **Save**.

4 Close the WhatsUp Gold console.

> 📝 **Note**: These operations may take some time depending on the size of your database.

> **Note**: Even if you do not use the WhatsUp Gold Flow Monitor plug-in, you need to back up the Flow Monitor databases.

Restoring databases to Failover Scenario 1

> **Note**: You can only restore the database from a local drive; you cannot restore a database from a network drive.

To restore the backed-up databases over the new server's default databases:

1 Restore the WhatsUp Gold database.

    a) From the WhatsUp Gold console, select **Tools> Database Utilities > Restore WhatsUp SQL Database**. The Restore Database From dialog appears.

    b) Locate and select the database backup file that you moved from the existing WhatsUp Gold server, then click **Open**.

> **Note**: If a dialog appears informing you that the WhatsUp service must be stopped and restarted during a database restore, click **Yes**.

2 Restore the Flow Monitor database.

    a) From the WhatsUp Gold console, select **Tools> Database Utilities > Restore Flow Monitor SQL Databases > Restore Flow Monitor Current Database**. The Restore Database From dialog appears.

    b) Locate and select the database backup file that you moved from the existing WhatsUp Gold server, then click **Open**.

> **Note**: If a dialog appears informing you that the Flow Monitor service must be stopped and restarted during a database restore, click **Yes**.

3 Restore the Flow Monitor Archive database.

    a) From the WhatsUp Gold console, select **Tools> Database Utilities > Restore Flow Monitor SQL Databases > Restore Flow Monitor Archive Database**. The Restore Database From dialog appears.

    b) Locate and select the database backup file that you moved from the existing WhatsUp Gold server, then click **Open**.

> **Note**: If a dialog appears informing you that the Flow Monitor service must be stopped and restarted during a database restore, click **Yes**.

Creating and restoring databases for use in WhatsUp Gold Failover Scenario 2

To restore a previously backed up database, execute this procedure on the computer on which you have installed the **database machine for Failover Scenario 2**:

Note: If your WhatsUp database has a name other than the default, use your custom database name where the database called "WhatsUp" is indicated in the following command line steps.

1 Open a command prompt.

2 Create the three databases into which you will restore the backups from your previous non-Failover installation of WhatsUp Gold. To create these databases, execute the following case-sensitive commands:

- To create the WhatsUp database:

  ```
  sqlcmd -E -S "(local)\whatsup" -Q "CREATE DATABASE WhatsUp"
  ```

- To create the Flow Monitor database:

  ```
  sqlcmd -E -S "(local)\whatsup" -Q "CREATE DATABASE NetFlow"
  ```

- To create the NFArchive datbase:

  ```
  sqlcmd -E -S "(local)\whatsup" -Q "CREATE DATABASE NFArchive"
  ```

Important: The database names must exactly match the database names from the backups you made of your previous installation of WhatsUp Gold. By default, these names are: WhatsUp, NetFlow, and NFArchive.

3 For each of the three databases, import the backup file into the new database. Use this case-sensitive command:

Important: The entire command should be entered on a single line in the command prompt.

```
sqlcmd -E -S "<SQL server name>" - Q "RESTORE DATABASE <database
name> FROM DISK='<location of .dat file>' WITH REPLACE, MOVE
'<database name>' TO '<location of data file for SQL database>',
MOVE '<database log>' TO '<location of log file for SQL
database>'"
```

Note: The value of `<database name>` for the WhatsUp database is usually `WhatsUp`. However, if you are upgrading a database created by WhatsUp Gold v12.0.2 or earlier, use `WhatsUp_dat`. For `<database log>`, always use `WhatsUp_log`.

> **Note**: If you do not know the location of the data and log files for the databases, you can use SQL Server Management Studio to find this information. In SQL Server Management Studio, right-click the database, select Properties, then select the Files page. You can identify which file is the data file by the value in the File Type column. The locations for the data and log files are under the Path column.
>
> If you do not have SQL Server Management Studio available and need to know the location of the data and log files for the databases, you can execute the following case-sensitive command replacing the database name as needed:
> ```
> sqlcmd -S "<SQL server name>" -U <user name> -P <password> -Q "USE
> <database name>; SELECT physical_name FROM sys.database_files;"
> ```

For example:

> **Note**: These examples assume that you are restoring to the named "WhatsUp" instance created within Microsoft SQL Server Express during the WhatsUp Gold Failover installation, and that the paths to data and log files were not changed from the default values.

To import the WhatsUp database, enter the following command on a **single line** in the command prompt:

```
sqlcmd -E -S "(local)\whatsup"

-Q "RESTORE DATABASE WhatsUp

FROM DISK='D:\database.dat' WITH REPLACE,

MOVE 'WhatsUp_dat'

TO 'C:\Program Files\Microsoft SQL Server\

MSSQL.1\MSSQL\Data\WhatsUp.mdf',

MOVE 'WhatsUp_log'

TO 'C:\Program Files\Microsoft SQL Server\

MSSQL.1\MSSQL\Data\WhatsUp_log.ldf'"
```

> **Note**: If you are migrating a database created by WhatsUp Gold v12.3 or later, replace `WhatsUp_dat` with `WhatsUp` in the example above.

To import the Flow Monitor database, enter the following command on a **single line** in the command prompt:

```
sqlcmd -E -S "(local)\whatsup"

-Q "RESTORE DATABASE NetFlow
```

```
FROM DISK='D:\NetflowCurrentDatabase.dat' WITH REPLACE,

MOVE 'NetFlow'

TO 'C:\Program Files\Microsoft SQL Server\

MSSQL.1\MSSQL\Data\NetFlow.mdf',

MOVE 'NetFlow_log'

TO 'C:\Program Files\Microsoft SQL Server\

MSSQL.1\MSSQL\Data\NetFlow_log.ldf'"
```

To import the NFArchive database, enter the following command on a **single line** in the command prompt:

```
sqlcmd -E -S "(local)\whatsup"

-Q "RESTORE DATABASE NFArchive

FROM DISK='D:\NetflowArchiveDatabase.dat' WITH REPLACE,

MOVE 'NFArchive'

TO 'C:\Program Files\Microsoft SQL Server\

MSSQL.1\MSSQL\Data\NFArchive.mdf',

MOVE 'NFArchive_log'

TO 'C:\Program Files\Microsoft SQL Server\

MSSQL.1\MSSQL\Data\NFArchive_log.ldf'"
```

Important: You must import all three databases.

After you receive the response that the database was successfully restored for each of the three databases, close the command prompt.