IBM TotalStorage SAN Switch Fabric Manager Call Home Service Alert Readme

Version 1.3

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TABLE OF CONTENTS

Notes and Guidelines

Note: Notes emphasize important information.

Guideline: Guidelines are recommendations for consideration. The adoption of these guidelines is a function of the user's ability to interpret and correlate relevant SAN information and make decisions based upon their organization and SAN requirements.

Warning: Warnings alert you to potential damage to hardware, firmware, software, or data.

1. Overview and Objectives

This document is directed at IBM Customer Engineers, IBM Partners and IBM End Users who are planning on implementing the IBM TotalStorage SAN Switch Fabric Manager Call Home Service Alert. It is meant as a supplement to the Brocade Fabric Manager User's Guide Version 4.1.0 (Part Number 53-0000823-04). The first sections provide an overview of the IBM TotalStorage SAN Switch Fabric Manager Call Home Service and the final section explains how to configure Fabric Manager to send Call Home Service Alerts.

You should print and review the contents of this readme file before using the IBM TotalStorage SAN Switch Fabric Manager Call Home Service Alert.

You can find additional documentation at the following Web site:

http://www.storage.ibm.com/ibmsan/products/2109/library.html#support

2. IBM TotalStorage SAN Switch Fabric Manager Call Home Service Alert Description

The IBM TotalStorage SAN Switch Fabric Manager Call Home Service Alert (hereafter called FM Service Alert) is a feature of the IBM TotalStorage SAN Switch Fabric Manager product that monitors switch health and automatically notifies the IBM Support Center when problems occur. FM Service Alert sends an e-mail to a call management center that identifies your system and captures any error information that can identify the problem. The IBM support center analyzes the contents of the e-mail alert and contacts you with the appropriate service action.

3. Fabric Manager Call Home Service Alert Requirements

The following is an overview of the requirements for implementing the FM service alert feature.

The following prerequisites must be met:

- The switch type(s), model(s), and serial number(s) are provided to IBM.

  Warning: If the IBM Serial Number is not programmed into the IBM TotalStorage SAN Switch products then the automated support call will be rejected. To ensure the IBM Serial Number is stored in the correct firmware location please read Appendix B for the procedure to verify and set the Software Readable Serial Numbers. These need to be identified to ensure entitlement for the IBM Fabric Manager Call Home Support feature. New switches shipping from the factory pre-program these values, but there are cases where switches in the past were not pre-programmed with these values.

  Note: IBM does not support the automated Fabric Manager Call Home Feature on non-IBM branded switches. If the customer has non-IBM branded switches they may choose to create a separate Call Home configuration and send those automated support Calls to a different e-mail address internal to their company.

- A management station would require Fabric Manager version 4.1 be installed. Fabric Manager 4.1 will support both server and client sides for Windows 2000, XP, NT and Solaris 2.7 & 2.8.
- The IBM TotalStorage SAN Switch firmware level would have to be IBM supported and at least above v2.2.x.
- The Fabric Manager 4.1 management station requires Internet access and e-mail capability.

You can download the latest available switch firmware from the following Web site:

http://www.storage.ibm.com/ibmsan/products/2109/library.html#support

4. Activating the Fabric Manager Call Home Service

To activate the Fabric Manager Call Home Service, you must do the following tasks:

- Configure the e-mail server (this is done during software installation of Fabric Manager)
- Create a Call Home configuration in Fabric Manager 4.1
- Choose the switches to monitor
- Configure the alert destination (choose email address that data is sent to)
- Validate the installation (this is automatically tested by the Fabric Manager Call Home feature)
- Test the system

## 4.1 Placing User Data in the Call Home Configuration Name

User Data can be included in the Call Home configuration name and should contain the Customers individual contact information. It is placed in the Subject field of the e-mail that the Fabric Manager Call Home Service Alert generates.

Use the following as an example of the type of Configuration Name that should be created in the Fabric Manager Call Home feature:

- **IBM Call Home TotalStorage SAN Switch F08 contact Company ABC John Doe at 1-800-123-4567**

- **IBM Call Home TotalStorage SAN Switch F32 contact Firma XYZ John Smith at +49 +1234 567890**

There should always be the following information in the Configuration Name. The first part should always be " IBM Call Home TotalStorage SAN Switch". The next part should contain the company name, contact name, and contact phone number. The configuration name can be at least 500 characters in size.

Figure 4-1 Example of Customer Contact information in the Call Home Configuration name.
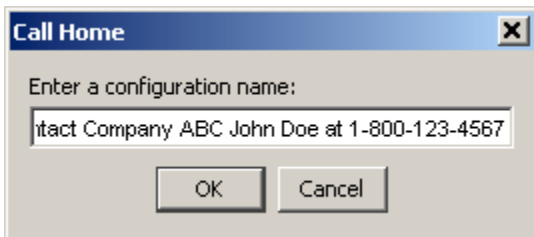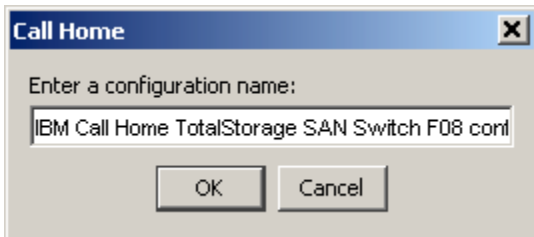
4.2 Identifying the Switch Type and Serial Number

When you register for the Fabric Manager Call Home Service Alert, there will be a switchType field in the Call Home e-mail that will identify the type of IBM TotalStorage SAN switch. FM Call Home Service Alert uses this switchType to identify which TotalStorage SAN switch has generated the problem e-mail. There is also a serial number identification field (supplierSerialNumber), which indicates which IBM serial number the FM Call Home Service Alert came from. The IBM serial number is 7 digits long. The form of the serial number is always numerical digits for the 7 characters.

The following is a list of IBM TotalStorage SAN switch types that can be used for reference:

switchType	IBM Name	Description
2	2109-S16 SAN FC Switch	(16 port 1 Gbit/sec)
3	2109-S08 SAN FC Switch	(8 port 1 Gbit/sec)
4	3534-1RU SAN Managed Hub	(8 port 1 Gbit/sec)
9	2109-F16 SAN FC Switch	(16 port 1 Gbit/sec and 2 Gbit/sec)
10	2109-M12 SAN FC Switch	(64/128 port 1 Gbit/sec and 2 Gbit/sec)
12	2109-F32 SAN FC Switch	(32 port 1 Gbit/sec and 2 Gbit/sec)
16	3534-F08 SAN FC Switch	(8 port 1 Gbit/sec and 2 Gbit/sec)

## 4.3 Synchronizing the Time on the switches (optional)

To synchronize the time on the IBM TotalStorage SAN switches with the time on the Fabric Manager Call Home Server. One can use the set time feature in Fabric Manager to push the Fabric Manager Server Time to the IBM TotalStorage SAN switches.

For a particular Fabric from the Action Menu choose "Set Time". The following dialog box appears and the time on the Fabric Manager Server will be pushed to the switch.

Figure 4-3 Synchronizing the time on the Fabric Manager server with the time on the switches.
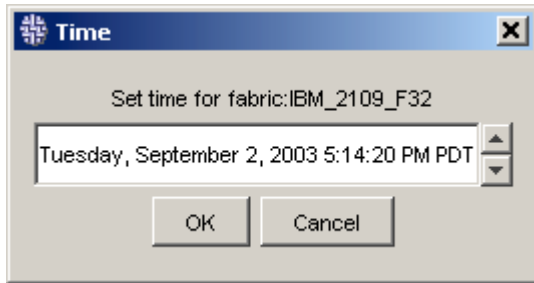
If setting the time was successful the following box appears.
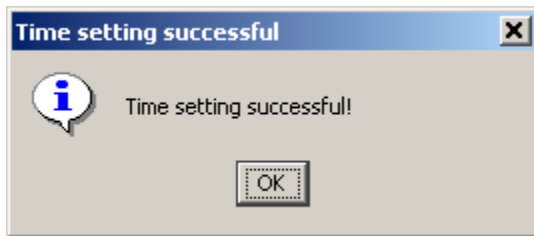
This step is optional. If performed, it facilitates the trouble-shooting session because the time that the alert e-mail is sent is about the same as the time that the errors occurred in the switch.

Note: This procedure is not applicable in a Secure Fabric OS environment or an environment where configuration of an NTP (Network Time Protocol) service has been configured. For more reference on NTP time service configuration and Secure Fabric OS time configuration please read the following manuals :

Brocade Fabric OS Procedures Guide Version 4.1.0 (publication number 53_0000518_02)
Brocade Fabric OS Reference Version 4.1.0 (publication number 53_0000519_02)
Brocade Secure Fabric User's Guide Version 3.1.0-4.1.0 (publication number 53_0000526_02)

4.4 Configuring the E-Mail Server

You must configure Fabric Manager to communicate with an e-mail server to enable it to send alerts. The configuration of the e-mail server occurs during Fabric Manager Installation:

1. Configure Mail Server Options:

   Mail SMTP Host: This is the name of the mail server that forwards the e-mail to the configured IBM e-mail alert destination. This server must be able to route data to the Internet domain.

   Mail From field: Mail From is the address that call home notifications will be coming from. This address is displayed on every mail message that is sent to the configured e-mail alert destination. Also any bounced emails will be returned to this email address. This should not be an individuals email address but any email returned to this address should be forwarded on to an employee to investigate the bounced email. For example: IBMTotalStorageCallHomeService@yourcompany.com.

   These fields cannot be empty. Click "Next" button when both fields are filled.

Figure 4-4 E-Mail Server Configuration during Fabric Manager installation process.
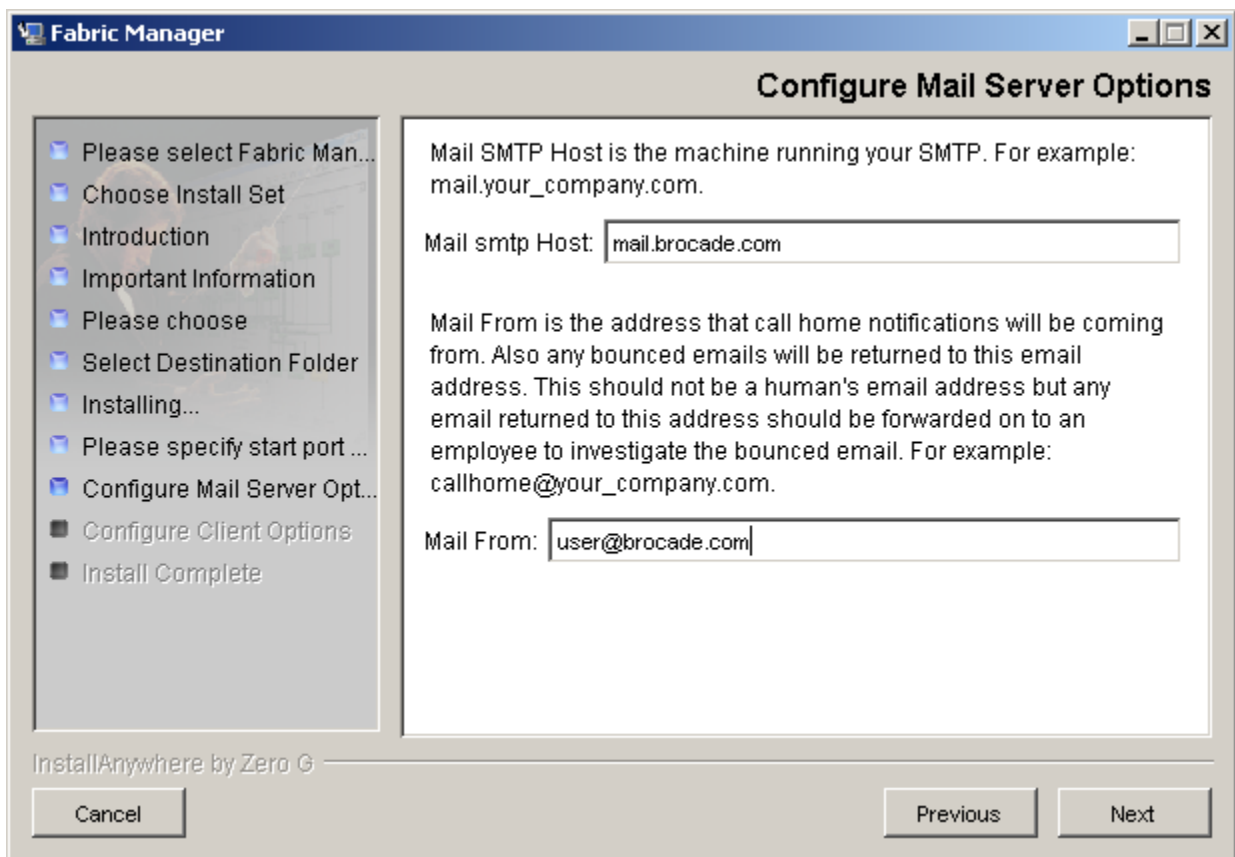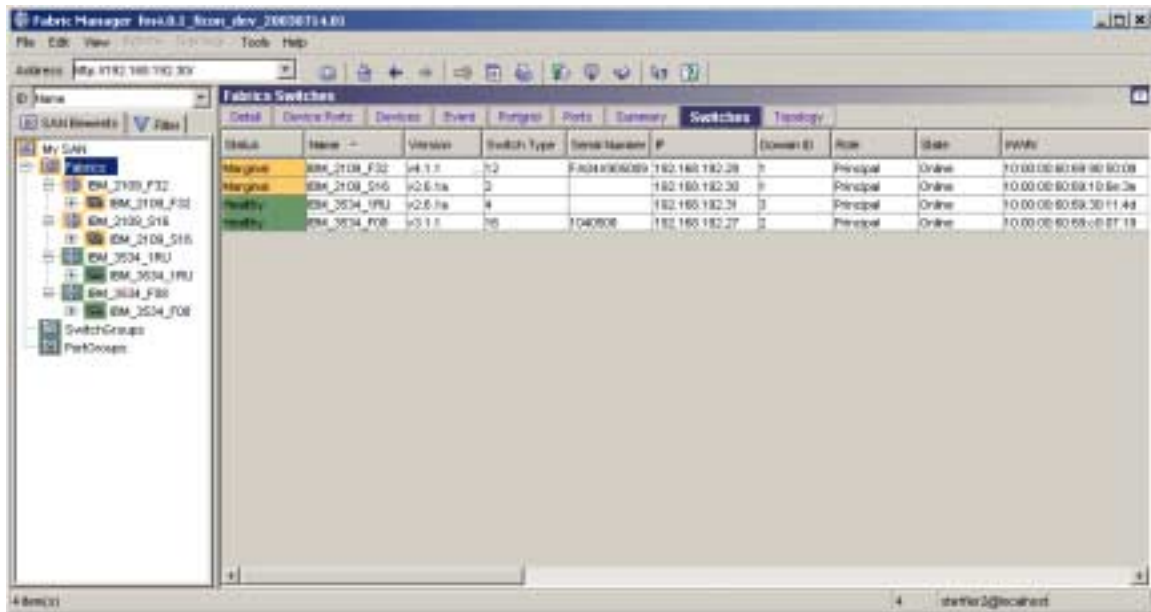
4.5 Creating the Call Home Configuration

To configure Call Home, perform the following steps:

1. From the Main Fabric Manager Page click on the Tools tab. From the **Tools** menu, select **Call Home**. The **Call Home** window opens.

Figure 4-5a Main Fabric Manager Page.

The following Call Home configuration window appears Figure 4-5b. There are 3 elements to this configuration page. There is a "Configurations" pane on the left that lists the Call Home Configurations that have been created. The pane in the middle "Select switches to monitor" provides a way to enter the switches into a particular Call Home configuration. One could create one Call Home Configuration with all the switches or smaller Call Home Configurations with particular switches or switch platforms (for example all F08s in one call home configuration, all F16s in another etc..). The pane on the right titled "Email Addresses" allows one to place one or several email addresses that each Call Home configuration will send the notifications to.

Figure 4-5b Call Home Configuration Page.
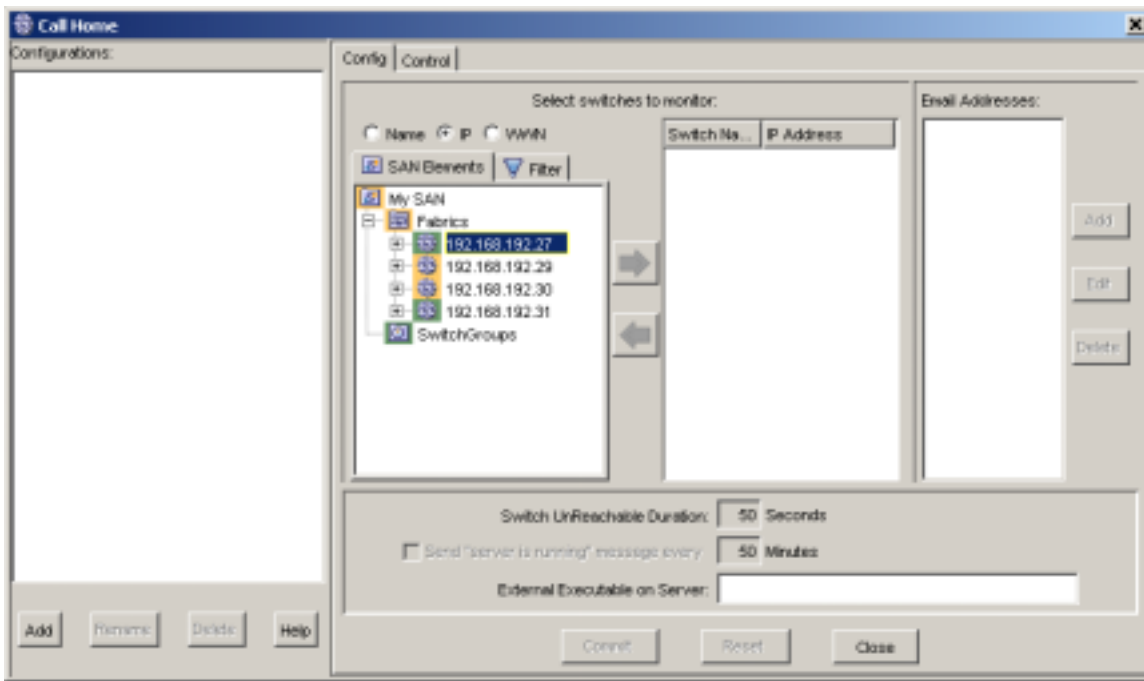
2. Under the **Configurations** field on the left-hand side of the display, click **Add**. A **Call Home** dialog opens.

Figure 4-5c Call Home Configuration dialog window.
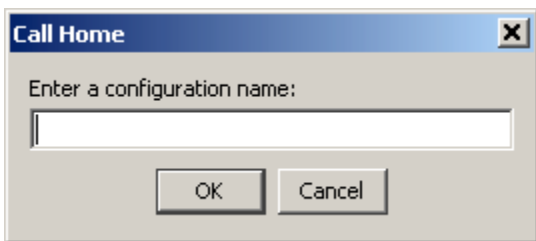
3. In the **Enter a configuration name** field, enter a name for your new configuration and click **OK**. Use the following as an example of the type of Configuration Name that should be created in the Fabric Manager Call Home feature :

IBM Call Home TotalStorage SAN Switch F08 contact Company ABC John Doe at 1-800-123-4567

There should always be the following information in the Configuration Name. The first part should always be " IBM Call Home TotalStorage SAN Switch". The next part should contain the company name, contact name, and contact phone number.

Figure 4-5d Call Home Configuration dialog window sample name.
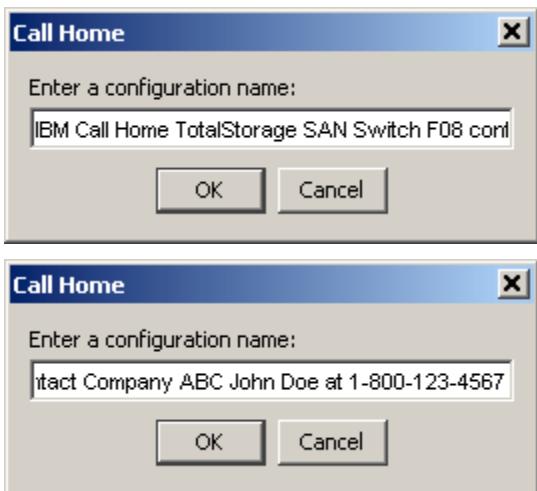
Note: Call Home configurations act independently of each other. No configuration ever impacts another configuration.

4. From the **SAN Elements** tab, select the switches that you want to monitor with Call Home

Figure 4-5e Select switches for a particular configuration.

5. Click the right-pointing arrow to move them to the central window.

Figure 4-5e Select switches for a particular configuration.

6. This step configures an alert destination e-mail address. In the **Email Addresses** pane of the display, click the **Add** button. A **Call Home** dialog opens:
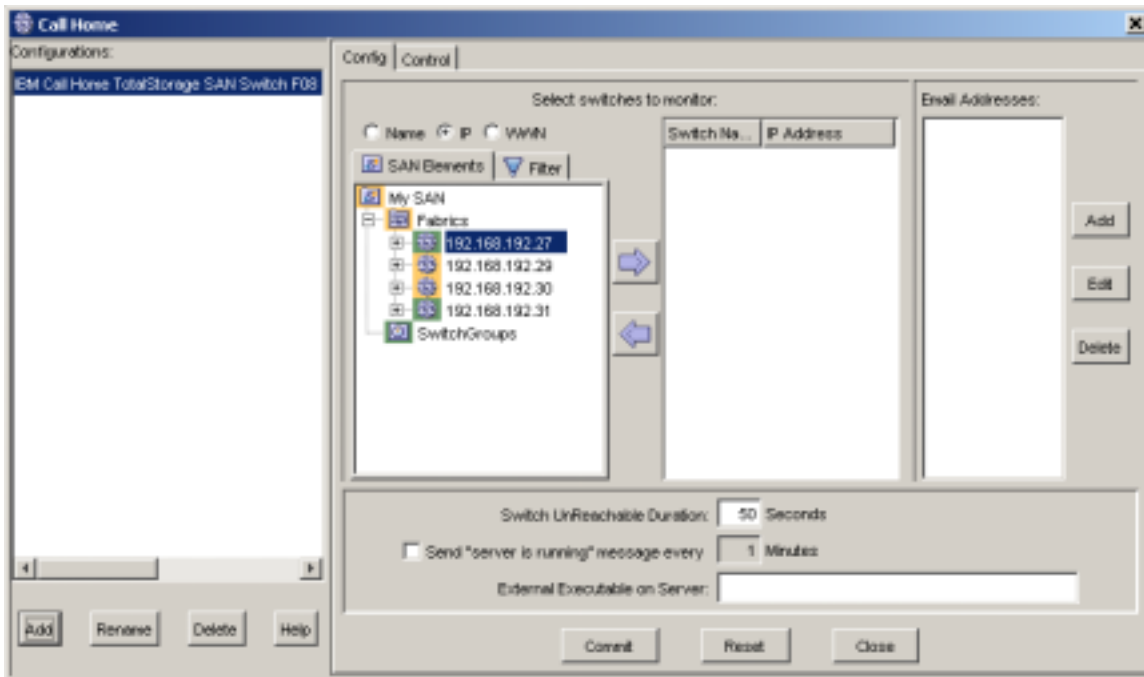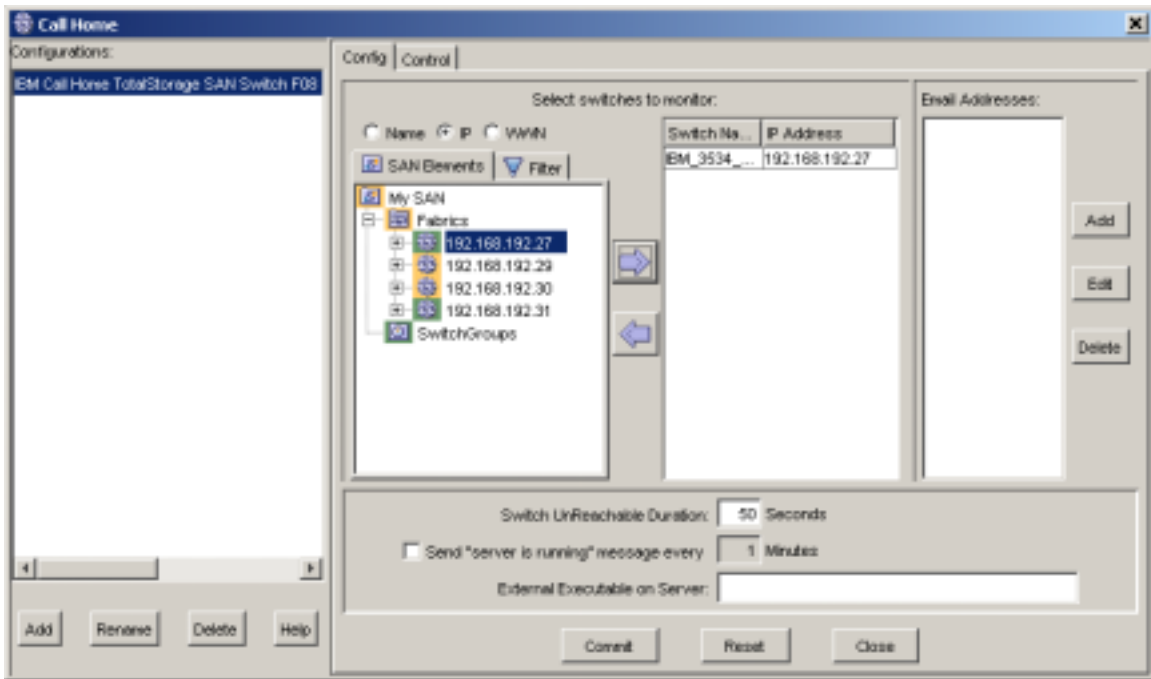
The Call Home email address dialog window opens.

Figure 4-5f Alert destination e-mail address.
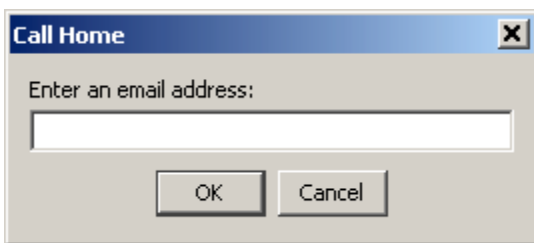
7. Enter the email address that you want Call Home to send mail to when an event occurs, in the "Enter an email address" text box.

There are 2 destination e-mail addresses depending on your geographic location :

- For customers in USA, Canada, Latin America and South America use callhome1@de.ibm.com
- For customers in Africa, Asia, Australia and Europe and rest of the world use callhome0@de.ibm.com

Figure 4-5g Alert destination e-mail address.

Click OK.

Note : If the End User should also wish to be notified of a Call Home event they can continue to add additional E-Mail addresses to the configuration, by repeating these steps.
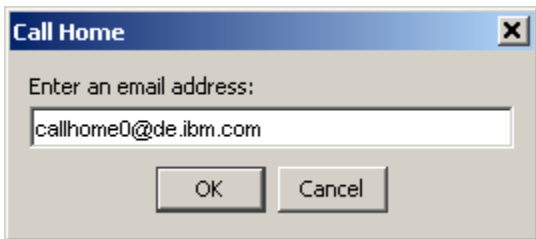
8. In the **Switch UnReachable Duration** field, enter how long (in seconds) the server must fail to contact the switch before Call Home sends an email alert. The duration defaults to 50 seconds. Fabric Manager does not accept a value less than 40 seconds.

9. (Optional) There is a checkbox to prompt the server to send a "server is running" message at intervals, and configure the time interval between messages. These messages let one know that the Call Home feature continues to function properly. The interval defaults to one minute. Fabric Manager does not accept a value of less than 1 minute. It is suggested that this not be used with the IBM TotalStorage Call Home Service Alert, as it will simply send a problem ticket to the support center when the event is only for informational state of the service itself, or perhaps make arrangements with the IBM TotalStorage Support Office if monitoring of the Fabric Manager Call Home Server is required.

Note : The IBM recommended value for this field is 10080 minutes or 1 week. (This feature is still under development.)

10. (Optional) In the **External Executable on Server** field, one can enter a path to user created executable that resides on the Fabric Manager server that runs a user created custom script when Call Home sends an email alert. For more information, refer to *Call Home External Executable Reference* on page J-1 of the *Brocade Fabric Manager Users Guide Version 4.0*. The IBM TotalStorage Fabric Manager Call Home Service Alert Program does not use this feature.

11. Click **Commit**.

Note: You cannot commit a configuration until you add at least one switch (step 4) and one email address (step 6).

Figure 4-5h Committing new call home configuration message.
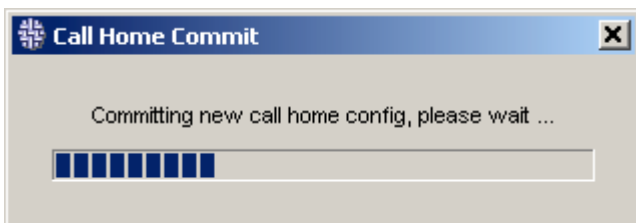
The following message confirms that the Call Home configuration was committed successfully.

Figure 4-5i Commit message.
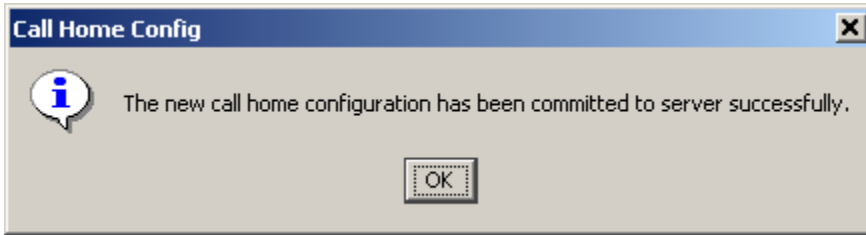
Here is an example showing 4 Call Home Configurations created, one for each different platform (i.e. 1RU, S16, F08, and F32). One could just as easily have created one call home configuration for all the switches that Fabric Manager has access to.

Figure 4-5j Final Call Home configuration screen.

4.7 Testing the Call Home Feature

After all previous tasks have been completed; you are ready to test your switch for the IBM TotalStorage SAN Switch Fabric Manager Call Home Service.

Call your IBM Support Center. Tell the representative that you are ready to test the Fabric Manager Service Alert process. The IBM representative will work with you to test your switch and ensure that IBM TotalStorage SAN Switch Fabric Manager Call Home Service Alert is working properly.

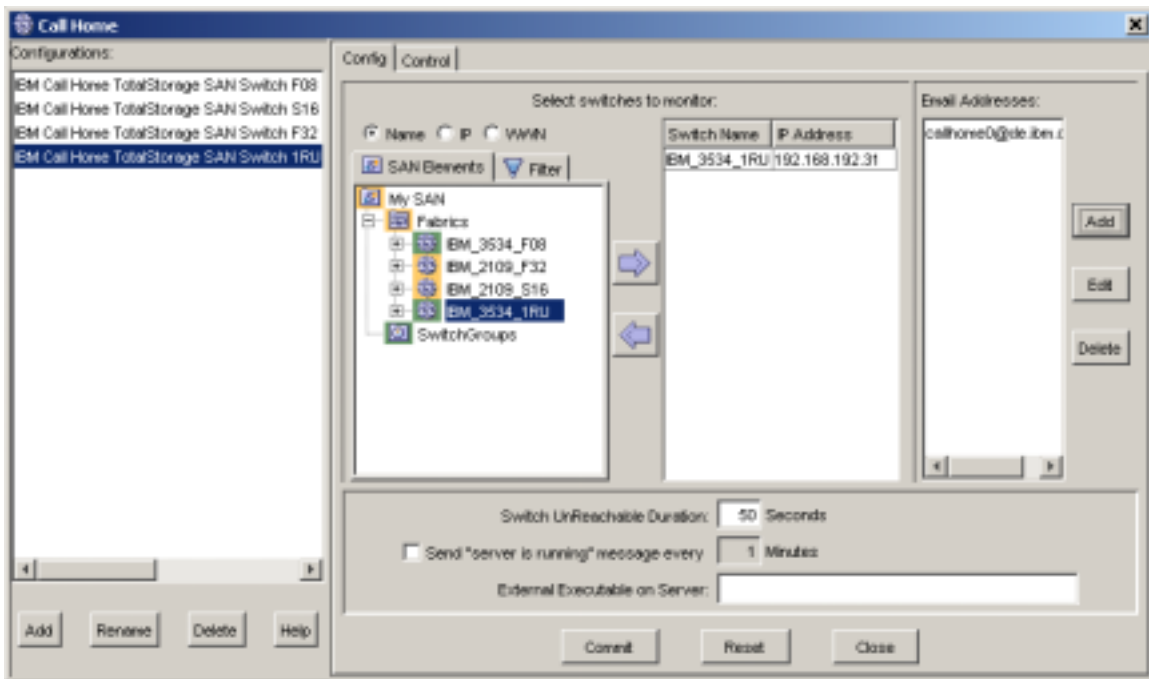A test that you will perform, with the help of the Support Center, is to remove the Ethernet cable for at least 50 seconds or the value entered into the Switch UnReachable Duration field in step 8 from a switch in the Call Home configuration. A Service Alert should be sent to the IBM e-mail address that you specified in step 6 and 7.

4.8 Planned Downtime

In the event that you wish to perform scheduled service to the switches in your fabric that have been configured for the Call Home service. Please disable the Call Home Configuration temporarily until the service is complete.

To perform this task. Choose the appropriate Call Home Configuration that has already been created and click on the Control Tab. From there Click the "Disable" button.

Figure 4-8 Disabling a Call Home configuration.
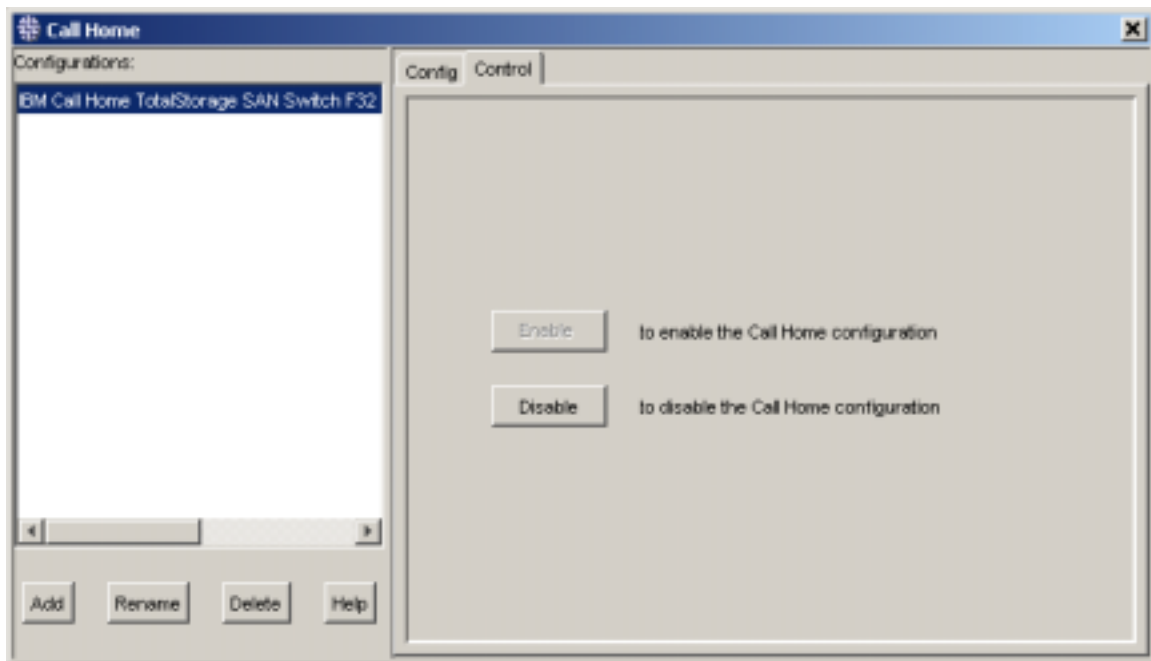
To re-enable the appropriate Call Home Configuration after the scheduled service is complete, click on the Control Tab. From there Click the "Enable" button.

Figure 4-8 Enabling a Call Home configuration.

A.1. Fabric Manager Documentation

The following related publications are provided on the IBM web site. To access the document site go to *http://www.storage.ibm.com/ibmsan/products/2109/library.html#support* and click on the **Firmware downloads & software documentation** link. On the redirection site the document can be found at the following location:
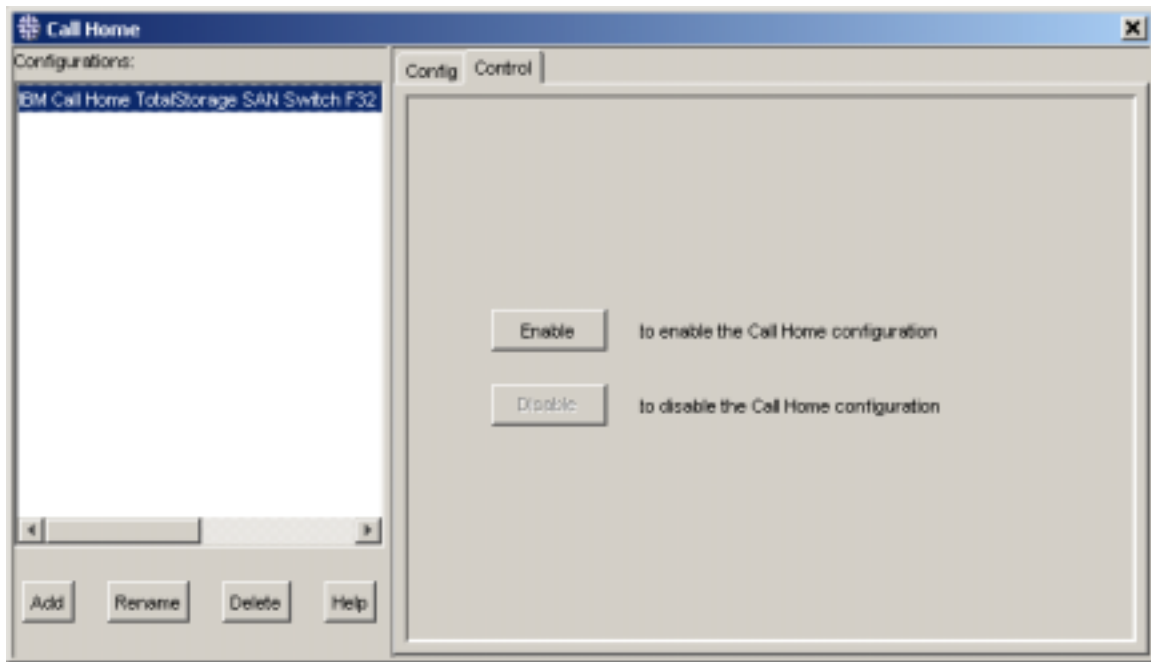
Home > Technical Resource Center > Documentation Library > Product Manuals > Fabric Manager >

Brocade Fabric Manager documentation

- *Brocade Fabric Manager Use's Guide Version 4.1.0 (publication number 53_0000823_04)*

A.2. Additional Resource Information

The following related publications are provided on the Brocade Partner web site and are an excellent resource for additional information on LAN design considerations for Brocade fabric switches and general SAN Design, Deployment and Management considerations.

▪LAN Guidelines for Brocade SilkWorm Switches
This document covers topics that are related to the SilkWorm Ethernet interface and how it works with a SAN.

• *Brocade LAN Guidelines For Brocade SilkWorm Switches Version 1.1 (publication number 53-0000350-02), May 16, 2003*

▪Brocade SilkWorm Design, Deployment, and Management Guide SAN DDM Version 2.1
This document is focused on covering detailed "how to" information for Brocade products from a SAN design, deployment, and management perspective.

• *Brocade SilkWorm Design, Deployment, and Management Guide: SAN DDM Version 2.1 (publication number 53-0000366-02), August 14, 2003*

B.1. IBM TotalStorage SAN Switch Serial Number

The following indicates the label locations of the IBM Serial Number on the IBM TotalStorage SAN Switch products, that need to be identified to ensure entitlement for the IBM Fabric Manager Call Home Support feature. The Customer must ensure that the IBM Serial Number exists in a software readable location. If the software readable location in the switch firmware does not have the IBM Serial number, then the automated support call will be rejected.

Please follow these steps to ensure the software readable location has been programmed :

Step 1 : **Identify the IBM TotalStorage SAN Switch Serial Number**

The switch serial number label looks like this:

The switch serial number can be found in the following locations:

• *IBM 2109-S16, IBM 2109-S08 and IBM 3534-1RU switches:* Bottom of chassis and on one of the sides. This is a 7 digit Number.

• *IBM 3534-F08 switches:* Front of chassis (Port side), 7 digit Number.

• *IBM 2109-F16 switches:* Front of chassis (Port side), 7 digit Number. This Number is also located on the top of the chassis in a bar code readable format.

• *IBM 2109-F32 switches:* Front of chassis (Port side), 7 digit Number. This Number is also located on the top of the chassis in a bar code readable format.

• *IBM 2109-M12 switches:* Front of chassis (Port side), on the inner left hand side of chassis, to the left of the ports.

Step 2 : **Identify the IBM TotalStorage SAN Switch Serial Number in the Switch firmware.**

• *IBM 2109-S16, IBM 2109-S08, IBM 3534-1RU, IBM 3534-F08 and IBM 2109-F16 switches:*

    a)   Login as "**admin**". Enter Password i.e. "**password**".

    b)   Type the command "ssn". The soft serial number should be visible. In IBM's case it is a seven (7) digit numeric number.

        Example: IBM_3534_F08:admin> ssn

                         1040508

c) If the serial number is not visible or if it is different than the IBM Serial Number on the switch (in the example below it is the switches WWN) then you will need to program the IBM serial number into the "ssn" field. Type the command `ssn` *"Software Serial Number Value"*.

Example: IBM_3534_F08:admin> ssn

10:00:00:60:69:c0:07:19

IBM_3534_F08:admin> ssn "1040508"

Committing configuration...done.

IBM_3534_F08:admin> ssn

1040508

The change to Soft Serial Number is now complete.

d) Login off of the switch. The operation is complete.

• *IBM 2109-F32, and IBM 2109-M12 switches:*

a) Login as "**root**". Enter Password (The default password is user defined. When you first log into the switch it asks you to change your root password, complete this procedure and proceed).

Note : Do not lose your root password.

b) Type the command "chassisshow". The soft serial number should be visible after the field "Serial Num" at the end of the output. In IBM's case it is a seven (7) digit numeric number.

Example: IBM_2109_F32:root> chassisshow

<<Data omitted because of length>>

CHASSIS/WWN Unit: 1

Header Version: 2

Factory Part Num: 40-0300508-01

Factory Serial Num: FA04X905009

Manufacture: Day: 15 Month: 5 Year: 2003

Update: Day: 4 Month: 9 Year: 2003

Time Alive: 1 days

Time Awake: 0 days

Serial Num: **1080645**

c) If the serial number is not visible or if it is different than the IBM Serial Number on the switch then you will need to program the serial number into the "Serial Num" field. Type the command `fruinfoset chassis 1`. This will start an interactive menu from which you can enter the Serial Number into the FRU Header data field "`SN:`". Type the *enter* key where indicated to advance through the menu.

Example:
```
IBM_2109_F32:root> chassisshow

<<Data omitted because of length>>

CHASSIS/WWN  Unit: 1

Header Version:        2

Factory Part Num:      40-0300508-01

Factory Serial Num:    FA04X905009

Manufacture:           Day: 15  Month:  5  Year: 2003

Update:                Day:  4  Month:  9  Year: 2003

Time Alive:            1 days

Time Awake:            0 days

IBM_2109_F32:root> fruinfoset chassis 1
 ID: (none)  > <press enter>
 PN: (none)  > <press enter>
 SN: (none)  > 1080645
 RV: (none)  > <press enter>
 Chassis SN: (FA04X905009)  > <press enter>
New FRU Info for: chassis(wwn) 1
 ID: none
 PN: none
 SN: 1080645
 RV: none
 Chassis SN: FA04X905009
Updating ssn in config db...
Update complete.
IBM_2109_F32:root>
```

The change to Soft Serial Number is now complete.

d) Login off of the switch. The operation is complete.

C.1. Changing Mail Server Settings After Installation

To change the Mail Server settings after installation you must edit the "mail-service.xml" file and re-start the Fabric Manager Service. The default location of the file is :

C:\FMServer\server\FabricManagerServer\deploy\mail-service.xml

You must edit 2 lines in this file to change the mail server name that was entered at installation time. Change the item after the "value" parameter to the proper name.

```xml
<!-- Change to the mail server -->
  <property name="mail.pop3.host" value="mail.brocade.com" />

<!-- Change to the SMTP gateway server -->

  <property name="mail.smtp.host" value="mail.brocade.com" />
```

You must edit 1 line to change the mail from name that was entered at installation time. Change the item after the "value" parameter to the proper name.

```xml
<!-- Change to the address mail will be from -->
<property name="mail.from"
     value="IBMTotalStorageCallHomeService@brocade.com" />
```

The Fabric Manager Service must be restarted for the changes to take effect.
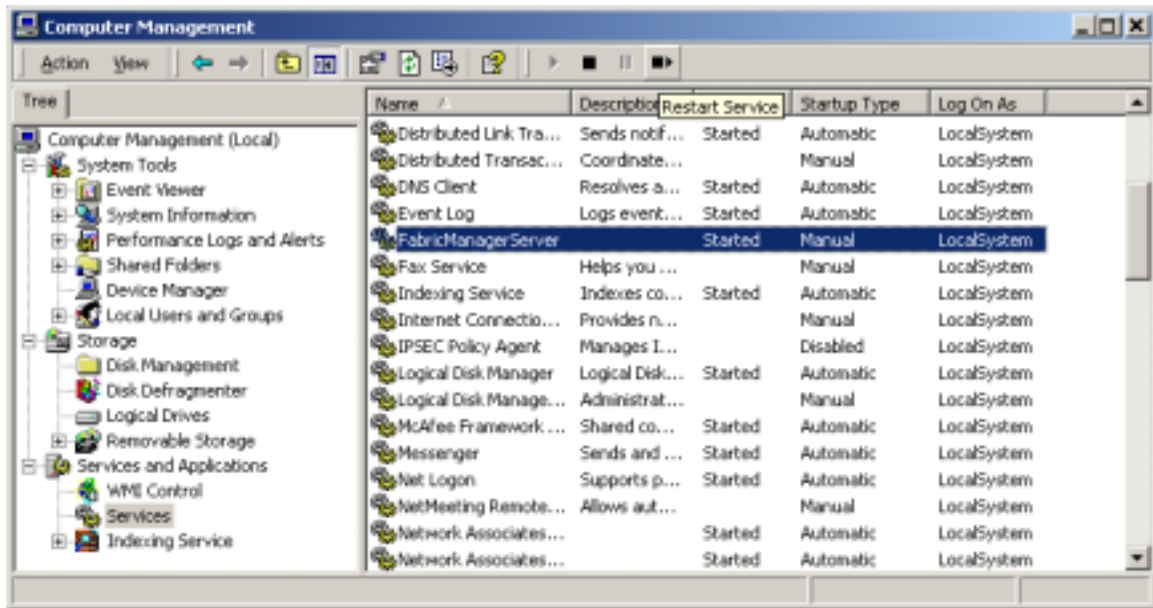
D.1. Call Home Notification Examples

There will be three different email message types that you might see when configuring Call Home.

The first email type is the "Notification". This message gets sent out after a Call Home Configuration is created. This message will indicate which Fabric Manager Call Home configuration will be sending notifications.

```
From: IBMTotalStorageCallHomeService@brocade.com
[mailto:IBMTotalStorageCallHomeService@brocade.com]
Sent: Friday, September 19, 2003 5:04 PM
To: callhome1@de.ibm.com
Subject: Notification

You are going to be receiving email if any of the switches listed in the 'IBM
Call Home TotalStorage SAN Switch F32 at Brocade contact John Doe 1-800-123-
4567' configuration becomes unhealthy.
```

The second email type is the "Call Home Notification". This is the Call Home message itself after an event occurs on a switch. Attached to this message is an xml file that includes the Error or Event Log information. This is the same information from the "errdump" command but in an xml format. In this particular example the Trigger Event of the Call Home notification was a bad Power Supply, and the IBM Serial Number of the unit was "1080645". The switchType indicates it is a model "12" or IBM 2109-F32. Additional information including ; the switch name, wwn, ethernet IP address, ethernet subnet mask, FC IP address, FC subnet mask, firmware version, domain ID and factory (Brocade) serial number are including in the Call Home notification. Other information to look for is the information in the Call Home Alert type field. In this example it indicates the switch status as "statusUnhealthy".

```
From: IBMTotalStorageCallHomeService@brocade.com
[mailto:IBMTotalStorageCallHomeService@brocade.com]
Sent: Tuesday, September 30, 2003 4:24 PM
To: callhome1@de.ibm.com
Subject: Alert about switch 10:00:00:60:69:90:50:09 (CallHomeConfig:IBM
Call Home TotalStorage SAN Switch F32 at Brocade contact John Doe 1-800-123-
4567)

<?xml version="1.0" encoding="UTF-8"?>
<CallHomeAlert type="statusUnhealthy" serverName="B103926"
serverIP="192.168.130.117" time="2003-09-30T16:24:22-0700"
epochTime="1064964262639" >
<Briefing>call home is triggered on switch IBM_2109_F32
(wwn=10:00:00:60:69:90:50:09 ip=192.168.192.29 fcIp=0.0.0.0) of group IBM Call
Home TotalStorage SAN Switch F32 at Brocade contact John Doe 1-800-123-4567
because switch status turns to Marginal</Briefing>
<TriggerEvent>
<StatusEvent status="Marginal" >
<Reason>    * 1 bad power supply triggered the Marginal/Warning
status</Reason>
</StatusEvent>
</TriggerEvent>
<Source>
<Switch name="IBM_2109_F32" wwn="10:00:00:60:69:90:50:09"
ethernetIP="192.168.192.29" ethernetIPMask="255.255.255.0" fcIP="0.0.0.0"
fcIPMask="0.0.0.0" firmware="v4.1.2" switchType="12" domainID="1"
factorySerialNumber="FA04X905009" supplierSerialNumber="1080645" />
</Source>
</CallHomeAlert>
```

The third email type is the "Server isAlive Notification". This is the notification sent indicating the Fabric Manager service itself is still running on the host. At the present time this message only indicates the switch name, ethernet IP address, FC IP address, and wwn. The Server status information is in the Call Home Alert type field. In this example it indicates the Fabric Manager server status as "isAlive".

```
From: IBMTotalStorageCallHomeService@brocade.com
[mailto:IBMTotalStorageCallHomeService@brocade.com]
Sent: Friday, September 19, 2003 5:05 PM
To: callhome1@de.ibm.com
Subject: FMServer status


<?xml version="1.0" encoding="UTF-8"?>
<CallHomeAlert type="isAlive" serverName="B103926" serverIP="192.168.130.117"
time="2003-09-19T17:04:35-0700" epochTime="1064016275471" >
<Briefing>call home is triggered by isAlive timer at server
B103926(ip=192.168.130.117) for group IBM Call Home TotalStorage SAN Switch F08
at Brocade contact John Doe 1-800-123-4567</Briefing>
<TriggerEvent>
<IsAliveEvent />
</TriggerEvent>
<Source>
<Server name="B103926" ip="192.168.130.117" >
<SwitchList>
<SwitchInfo name="IBM_3534_F08" ethernetIP="192.168.192.27" fcIP="none"
wwn="10:00:00:60:69:c0:07:19"  />
</SwitchList>
</Server>
</Source>
</CallHomeAlert>
```

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