

5.5 Assigning OML Link IP Address and a Static IP Address to the microBTS

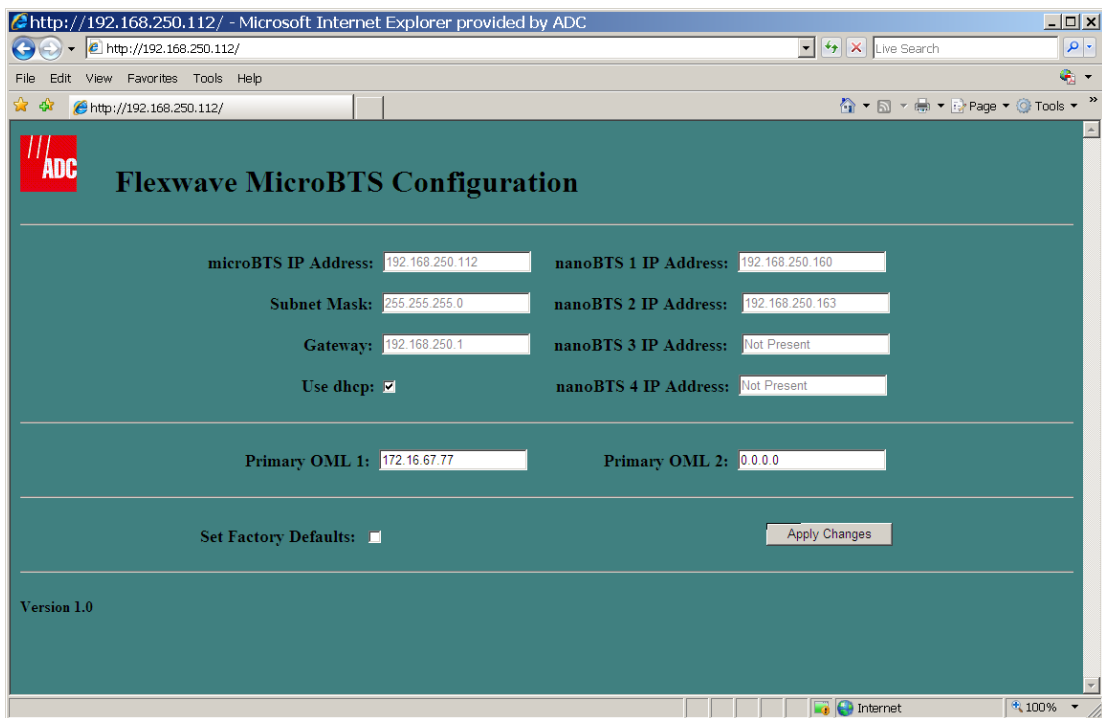
Depending upon your networks requirements, a network IP address will need to be assigned to the microBTS and each TRX. IP addresses should be obtained from your network administrator. Use the following step-by-step procedure to assign a new IP address to the microBTS.

- 1 Find the IP address of the microBTS corresponding to the micro controller.

The last MAC address listed on the exterior label will be the micro controller as shown in [Figure 5-7](#).

Match this MAC address with the DHCP assigned IP address as shown in [Figure 5-12](#). Open a Web browser such as Explorer, Mozilla, etc. and using the familiar browser command: **http:// xxx.xxx.xxx.xxx** where xxx.xxx.xxx.xxx is the IP address assigned to the micro controller.

The following screen will appear. Refer to [Figure 5-15](#).



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Figure 5-15: FlexWave microBTS Configuration Screen

- 2 Using the configuration screen, type in the following information as shown in [Table 5-1](#)

Table 5-1: Configuration Parameters

Parameter	Variable
microBTS Address	Use an IP address assigned by your system administrator
Subnet Mask	Use an IP address assigned by your system administrator
Gateway	Use an IP address assigned by your system administrator
nanoBTS 1	Use an IP address assigned by your system administrator
nanoBTS 2	Use an IP address assigned by your system administrator
Primary OML (operations and maintenance link) 1	Use the IP address assigned to the Abis link on which your BSC is operating
Primary OML (operations and maintenance link) 2	Use the IP address assigned to the Abis link on which your BSC is operating a secondary link
Use DHCP	This is selected when a DHCP address needs to be assigned to the microBTS. <u>Make sure that this is not selected</u> if you are assigning static IP addresses

5.6 Configuring a New Site Using the BSC Configuration Manager Utility

Once the microBTS is configured with IP addresses, use the following procedure to launch, configure and verify that the microBTS is connected and functioning.

- 1 Launch the BSC Configuration Manager from the PC's desktop or file folder as shown in Figure 5-16.

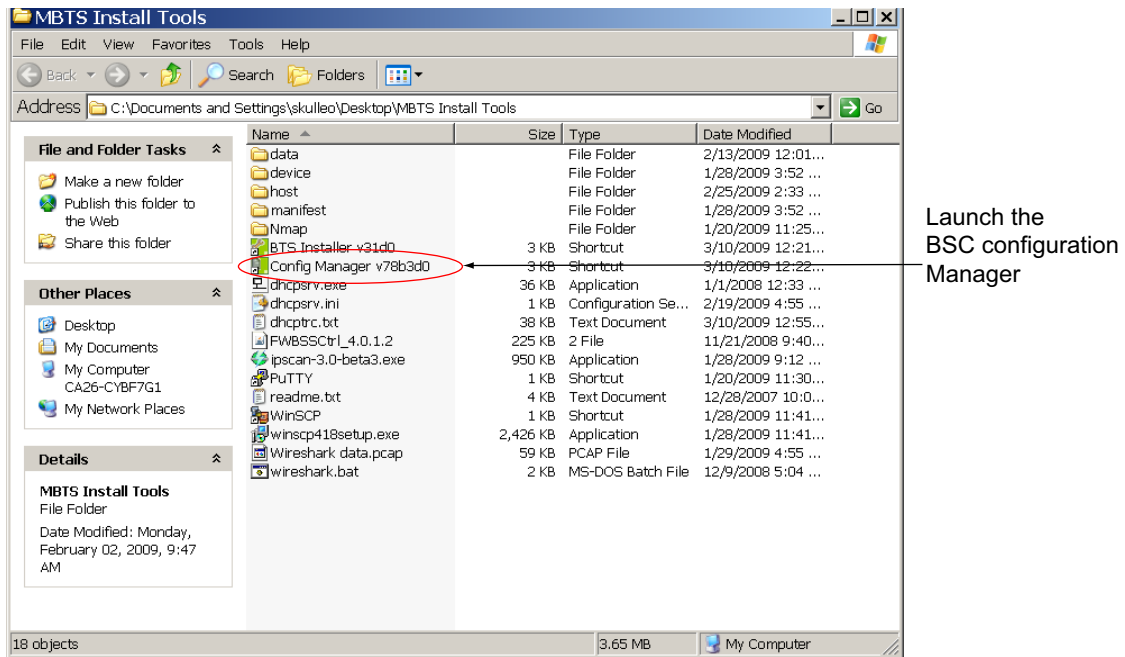
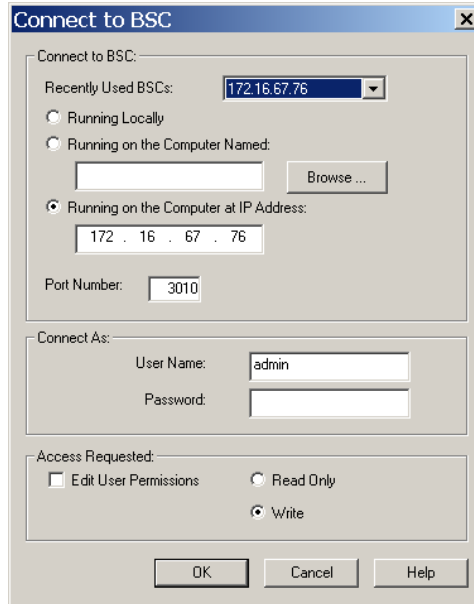


Figure 5-16: Launching the BSC Configuration Manager from a PC Desktop

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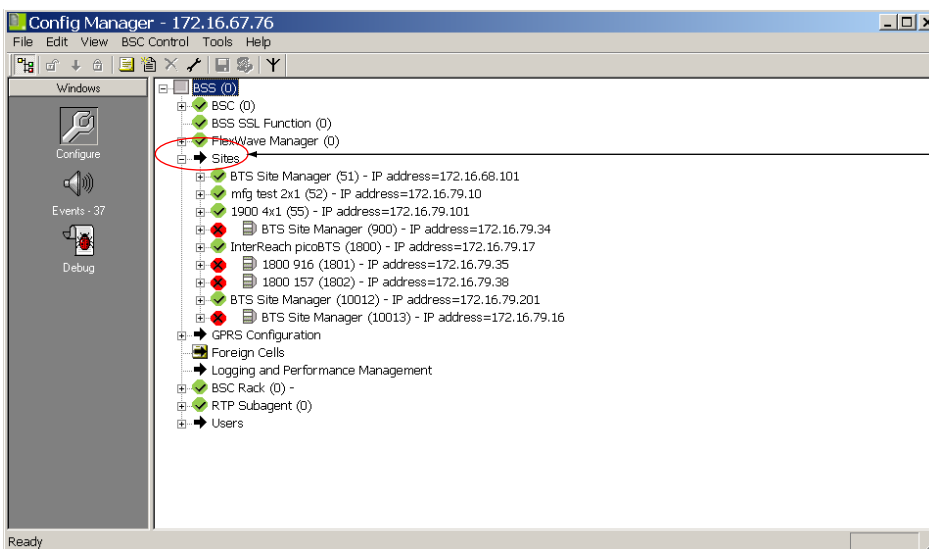
- 2 After the BSC Configuration Manager is launched, a connection screen will appear as shown in [Figure 5-17](#). Type in the IP address of the BSC you wish to communicate with. Enter the password and click **OK**.



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Figure 5-17: Connecting to the BSC screen

- 3 A “tree” representation of your network will appear as shown in [Figure 5-18](#). Click on the sites + symbol. This will show each BTS site on your network.



Click on the Sites “+”Symbol To Reveal the BTS Sites on the Network

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Figure 5-18: Reviewing the BTS Sites on the Network

- 4 A new site must be created for the microBTS configured in the previous sections. Right click on Sites and select **Create**. A **Create SITE** dialog box will appear as shown in [Figure 5-19](#).

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Figure 5-19: Creating a New Site

- 5 A number of parameters will need to be input in the **Create SITE** dialog box as shown in [Table 5-2](#):

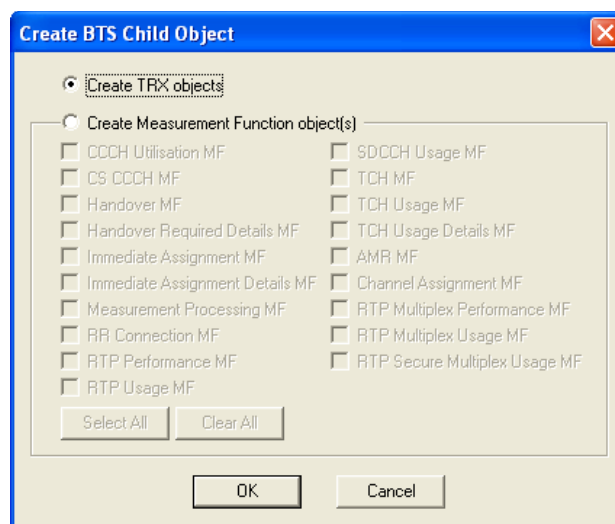
Table 5-2: Configuration Parameters

Parameter	Variable
BTS Class	From this pull-down menu, select the type of TRX(s) installed in the microBTS
Site Name	Select a site name according to the needs of your network
Site Identifier	This number is normally assigned by a network administrator depending upon the needs of the network. The number must be unique to each site and can not be duplicated within a network.

Table 5-2: Configuration Parameters

Parameter	Variable
BTS Name	Select a BTS name that is associated to the site name in your network
Frequency Band	Select the appropriate frequency band from the pull-down menu
MCC	Select an AFRCN channel number according to the needs of the network
MNC	Per network requirement
Location Area Code (LAC)	Per network requirement
Cell Identity	Per network requirement
PLMN-CC	Per network requirement
BS-CC	Per network requirement

- 6 Once all of the above items are configured, click **Finish** and a new BTS site will be created.
- 7 A new site will appear in the configuration “tree.”
Note: For 2 x 1 configured microBTS a “slave TRX” must be added.
- 8 Right click on the site object and select **Create** from the pull-down menu.
- 9 A **Create BTS Child Object** screen will appear. Select **Create TRX objects** and click on **OK**. Refer to [Figure 5-20](#).



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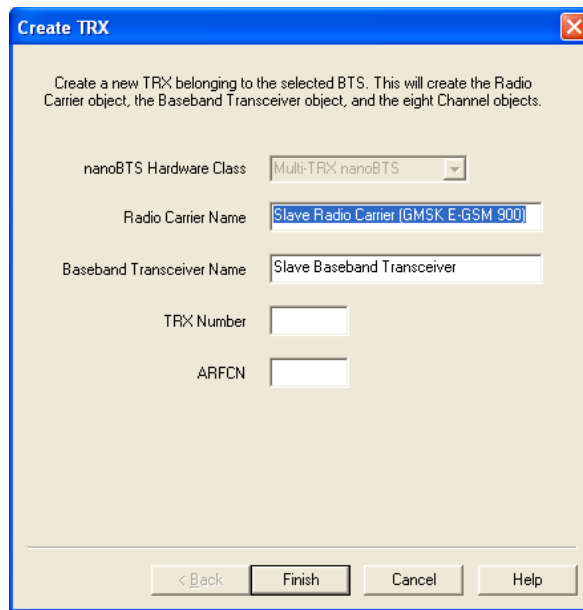
Figure 5-20: Create BTS Child Object Screen

- 10 A **Create TRX** screen will appear. Refer to [Figure 5-21](#).
- 11 Fill in the dialog boxes with the information appropriate to your system. Refer to [Table 5-2](#).

Table 5-3: Configuration Parameters

Parameter	Variable
nanoBTS Hardware Class	From this pull-down menu, select the type of TRX(s) installed in the microBTS
Radio Carrier Name	Select a Radio Carrier Name according to the needs of your network
Baseband Transceiver Name	Select a Baseband Transceiver Name according to the needs of your network
TRX Number	In a 2 TRX system the Master = 0, the Slave = 1.

- 12 Once this information is added.
- 13 Click **Finish** to complete the process of adding a slave TRX.

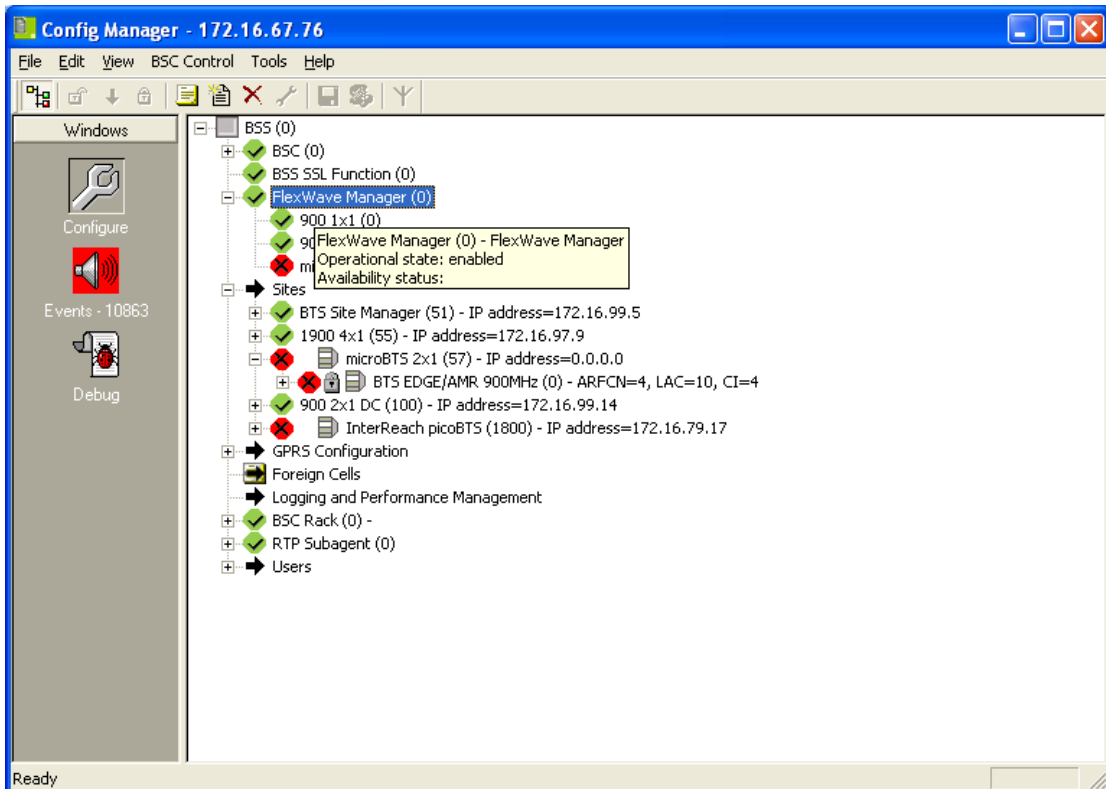


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Figure 5-21: Create TRX Screen

5.7 Creating the FlexWave Manager

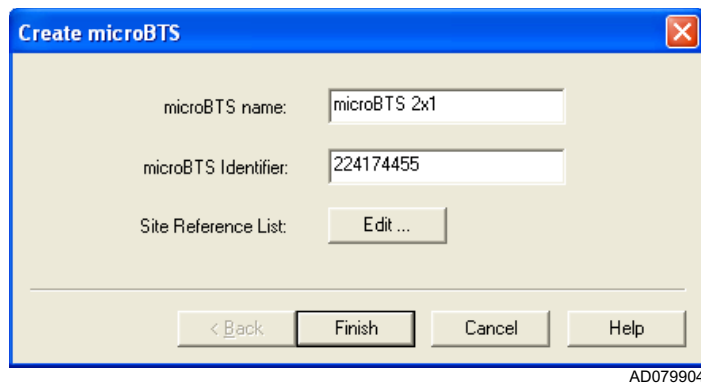
- 1 Right click on the FlexWave Manager object on the “tree” screen as shown in [Figure 5-22](#). Select **Create** from the pull-down menu.



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Figure 5-22: Using the FlexWave Manager Object to Launch the Create TRX Screen

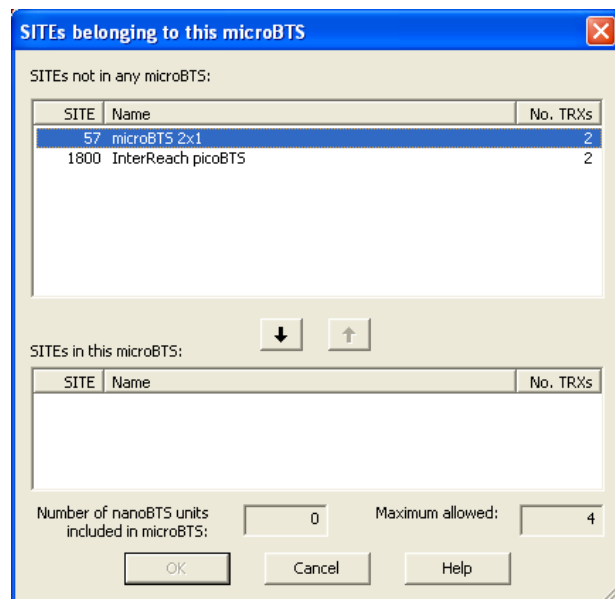
- 2 A **Create microBTS** screen will appear.
- 3 Enter the name (the name will be chosen according to the needs of your network) and site identifier (the serial number located on the exterior label of the microBTS) in the dialog boxes indicated. Click **Edit** once the information is input. Refer to [Figure 5-23](#).



AD079904

Figure 5-23: Create TRX Screen

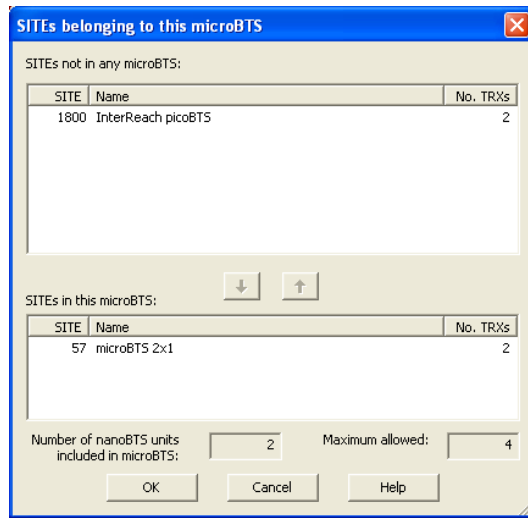
- 4 A **Sites belonging to this microBTS** dialog screen will appear. The site name entered in the previous steps will appear in the top portion of the screen.
- 5 Click on the new site to highlight it.
- 6 Click on the **down arrow** to move this site into the SITES in this microBTS: shown on the lower portion of the screen and click **OK**. Refer to [Figure 5-24](#).



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Figure 5-24: Sites Belonging to this microBTS Screen

- 7 A confirmation screen will appear that indicates the created site has been moved into the FlexWave Manager register. Refer to [Figure 5-25](#).



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Figure 5-25: Conformation SITES Belonging to this Screen

- 8 Return to the Create microBTS screen as shown in [Figure 5-23](#) and click **Finish**.
- 9 Return to the main screen and the new FlexWave Manager site object will appear as shown in [Figure 5-26](#).

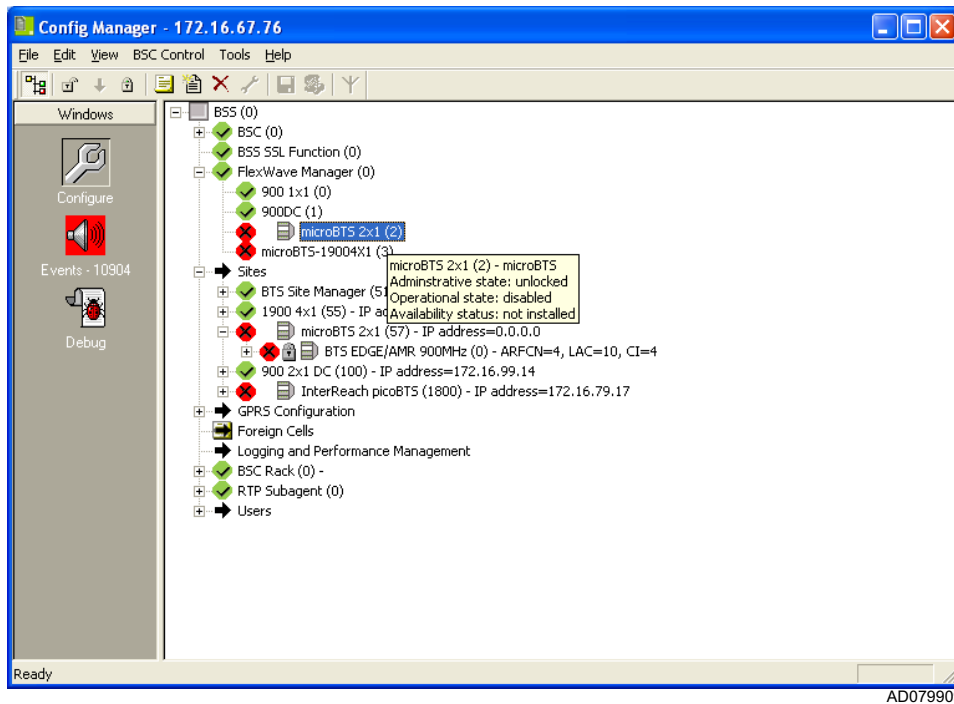
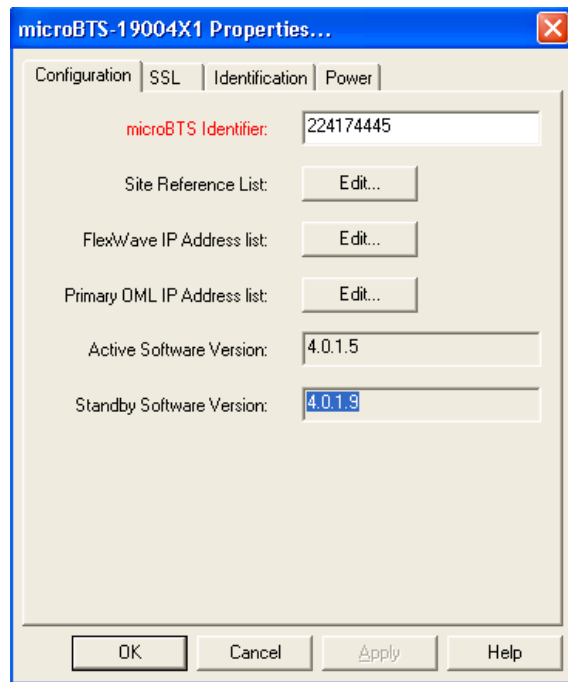


Figure 5-26: New Site Object Appears on Configuration Manager “Tree”

- 10 Right click on the new site and select **Properties**. A configuration screen titled **microBTS- (name of model) Properties...** will appear.

Select the **Configuration** tab. Refer to [Figure 5-27](#).



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Figure 5-27: Configuration Tab of the Site Properties Screen

- 11 Verify the serial/ identification number from the exterior model label of the microBTS matches the one obtained in [Step 2](#).
- 12 Click on the FlexWave IP Address List **Edit** button and enter the OML Link IP address for your network. Click **OK**. Refer to [Figure 5-28](#).



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Figure 5-28: Verifying the FlexWave IP Address List

- 13 Click on the Primary OML Address List Edit button and enter the OML Link IP address for your network. Click **OK**. Refer to [Figure 5-29](#).



AD078903

Figure 5-29: Verifying the Primary OML Address List

5.8 Verifying BTS Functionality Using the BSC Configuration Manager

To verify the installed BTS is functioning, use the following procedure:

- 1 Right click on the new site shown on the BSC Configuration Manager “tree” and a dialog box will appear. Select **Unlock**.

The BTS will now begin transmitting on the AFRCN number selected in the previous steps. This can be verified at the site by means of an external power meter and frequency counter or a spectrum analyzer if available.

Make a phone call by working in conjunction with the system administrator.

Note: Further information regarding the configuration of the microBTS TRX units can be found in the instructions set forth in ADC publication ADCP-75-310

Appendix A - Software Upgrade Procedure

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A.1 Introduction

From time-to-time ADC may issue software upgrades in the interest of product improvement. The following upgrade procedure should be performed by an experienced field service technician who is familiar with linux operating systems.



Caution: Failure to execute the procedure(s) exactly as given may render the microBTS inoperative.

A.2 Upgrading Micro Controller Software from 4.0.x.x

The micro controller unit within the microBTS contains upgradable software, which from time-to-time may be upgraded.

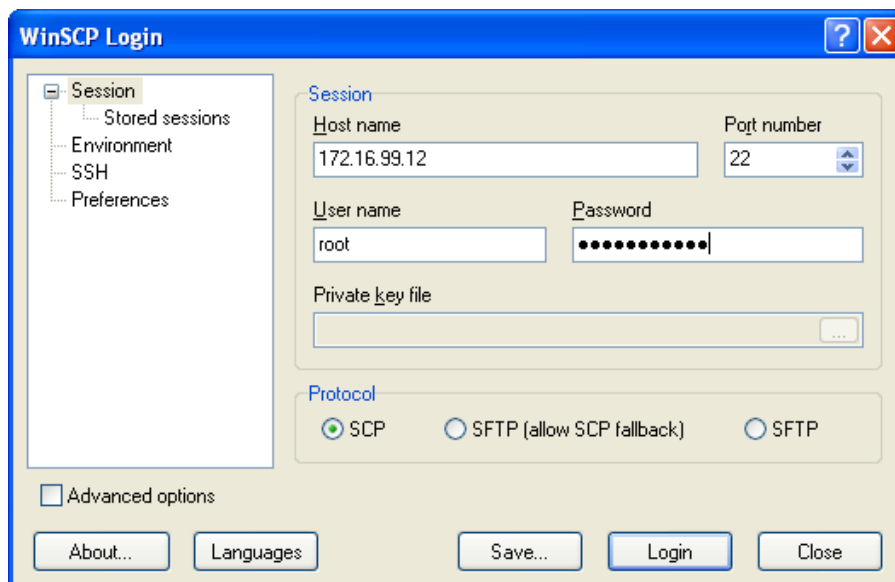


Note: The following procedure will require that the microBTS being upgraded be taken out of service for the duration of the upgrade process.

This procedure provides two methods for upgrading the micro controller software. An “automatic” upgrade (preferred method) is accomplished through the use of a GUI type interface. The “manual” procedure relies on linux commands to accomplish the upgrade task. The “manual” upgrade method should only be used when circumstances preclude the use of the “automatic” upgrade and should be performed by an experienced linux operator.

A.2.1 Automatic Upgrading of the microBTS Controller

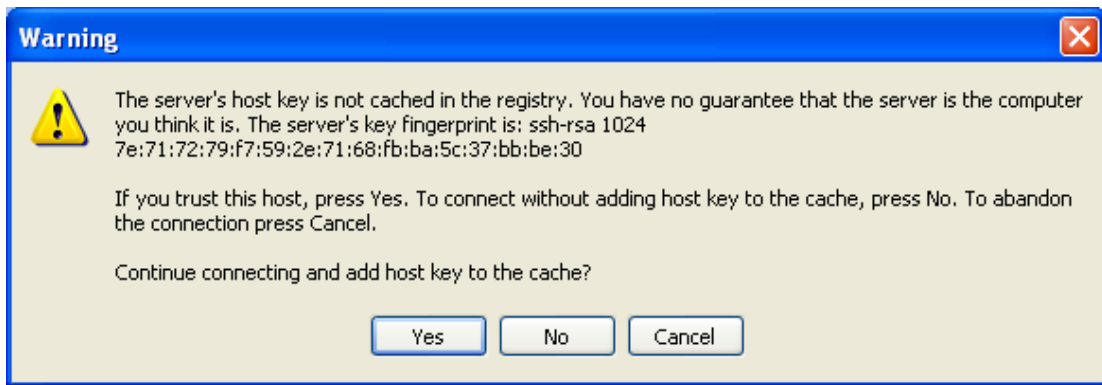
- 1 Launch a WinSCP session from the PC desktop and the **WinSCP Login** screen will appear. Refer to [Figure A-1](#).
- 2 Enter the **Host name** which is the IP address assigned to the micro controller unit of the microBTS being upgraded.
- 3 Enter **root** in the **User name** dialog box, and your password in the **Password** dialog box.
- 4 Click on **Login** when complete.



AD091911

Figure A-1: WinSCP Login Screen

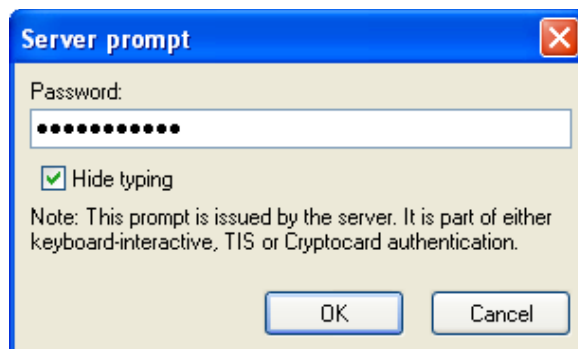
- 5 A **Warning** screen will appear (if this is your first login). Select **Yes**. Refer to [Figure A-2](#).



AD091912

Figure A-2: WinSCP Warning Screen

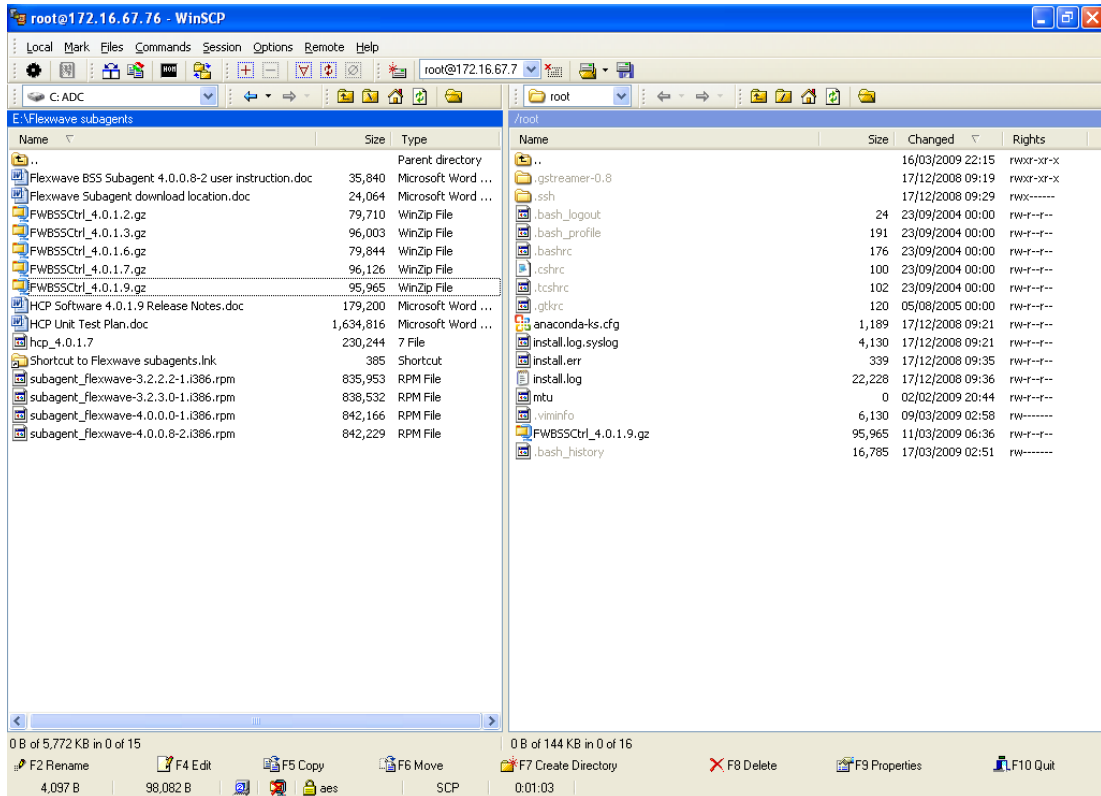
- 6 A **Server prompt** screen will appear. Enter your Password in the dialog box indicated and click **OK**. Refer to [Figure A-3](#).



AD091913

Figure A-3: WinSCP Server Prompt Screen

- 7 The main WinSCP will appear showing the contents of the drive on which the compressed .gz upgrade file is located and the root directory showing the files currently contained in the microBTS controller. Copy the upgrade files similar to **FWBSSCtrl_4.0.x.x.gz** to the root directory. Refer to [Figure A-4](#).



AD091903

Figure A-4: Main WinSCP Screen

- 8 Close the WinSCP window and open a PuTTY session with the BSC by entering the BSC IP address. Login as **root**. Enter your password. Refer to [Figure A-5](#).



AD091904

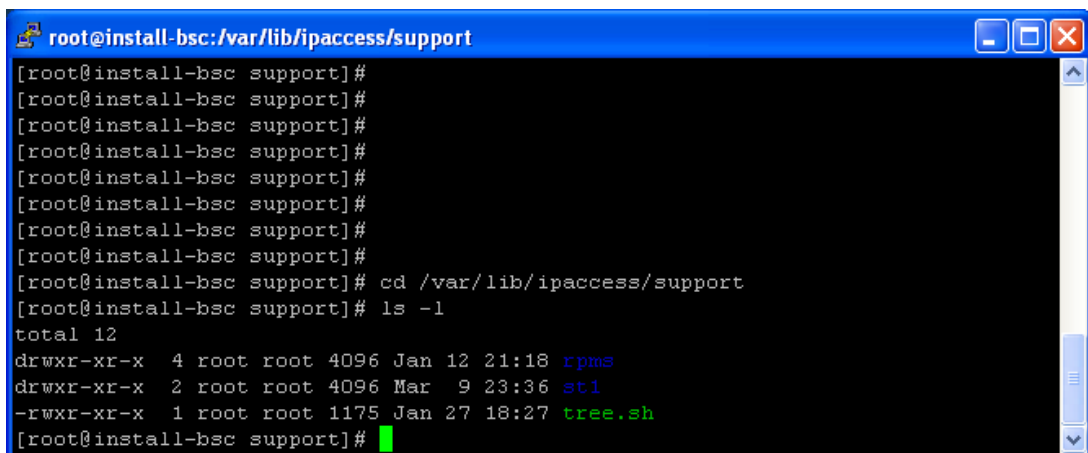
Figure A-5: PuTTY Login Screen

- 9 At the command prompts, type the following commands:

```
cd /var/lib/ipaccess/support
```

```
ls -l
```

Refer to [Figure A-6](#).



AD091905

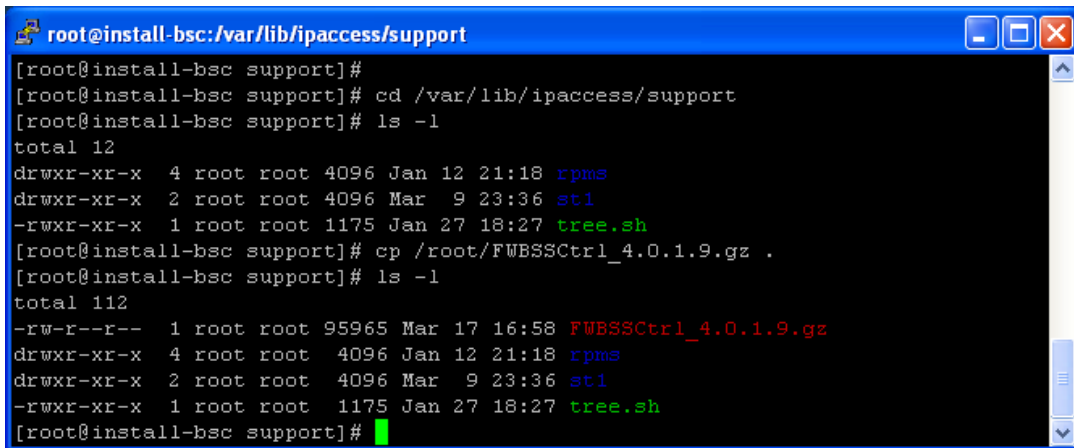
Figure A-6: Entries on Command Line

10 At the command line, type the following commands:

```
cp /root/FWBSSCtrl_4.0.x.x.gz .
```

```
ls -l
```

Refer to [Figure A-7](#).

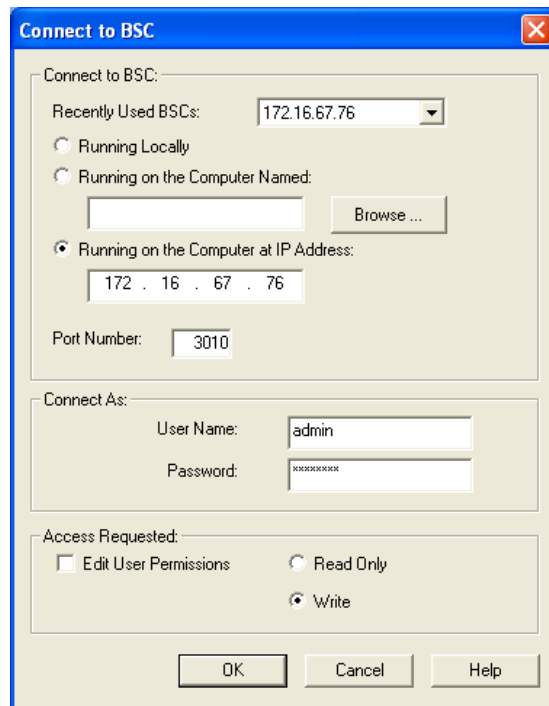
A screenshot of a PuTTY terminal window. The title bar reads 'root@install-bsc:/var/lib/ipaccess/support'. The terminal shows the following commands and output:

```
[root@install-bsc support]#  
[root@install-bsc support]# cd /var/lib/ipaccess/support  
[root@install-bsc support]# ls -l  
total 12  
drwxr-xr-x  4 root root 4096 Jan 12 21:18 rpms  
drwxr-xr-x  2 root root 4096 Mar  9 23:36 st1  
-rwxr-xr-x  1 root root 1175 Jan 27 18:27 tree.sh  
[root@install-bsc support]# cp /root/FWBSSCtrl_4.0.1.9.gz .  
[root@install-bsc support]# ls -l  
total 112  
-rw-r--r--  1 root root 95965 Mar 17 16:58 FWBSSCtrl_4.0.1.9.gz  
drwxr-xr-x  4 root root  4096 Jan 12 21:18 rpms  
drwxr-xr-x  2 root root  4096 Mar  9 23:36 st1  
-rwxr-xr-x  1 root root  1175 Jan 27 18:27 tree.sh  
[root@install-bsc support]#
```

AD091906

Figure A-7: PuTTY Login Screen

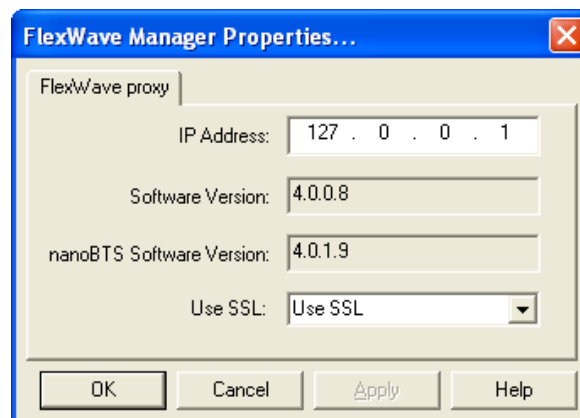
- 11 Close the PuTTY window and launch BTS Configuration Manager.
- 12 Select **Connect to BSC** from the task bar.
- 13 Enter the IP address of the BSC and click **OK**. Refer to [Figure A-8](#).



AD091907

Figure A-8: Connect to BSC Screen

- 14 Right click on the FlexWave Manager object and select **Properties**. The **FlexWave Manager Properties** screen will appear. Verify that the **nanoBTS Software Version** dialog box contains the updated software version number. Refer to [Figure A-9](#).



AD091908

Figure A-9: FlexWave Manager Properties Screen Confirming the New Software Load

- 15 Return to the BSC Configuration Manager screen and find the BTS upgraded on the configuration “tree.”
- 16 Right click on the site and select **Properties**. The **microBTS Properties** screen will appear (this may take up to 10 minutes) showing the **Active Software Version** and the **Standby Software Version**.
- 17 Confirm the **Standby Software Version** is the version loaded on this procedure. After determining it is correct, Click **OK**. Refer to [Figure A-10](#).

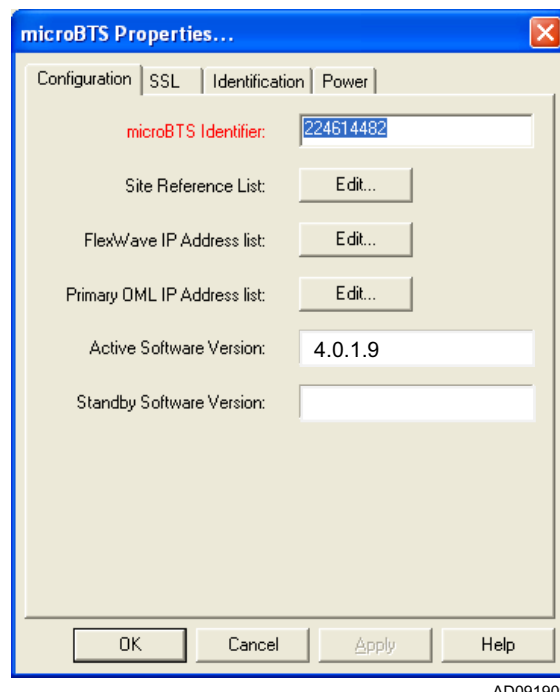
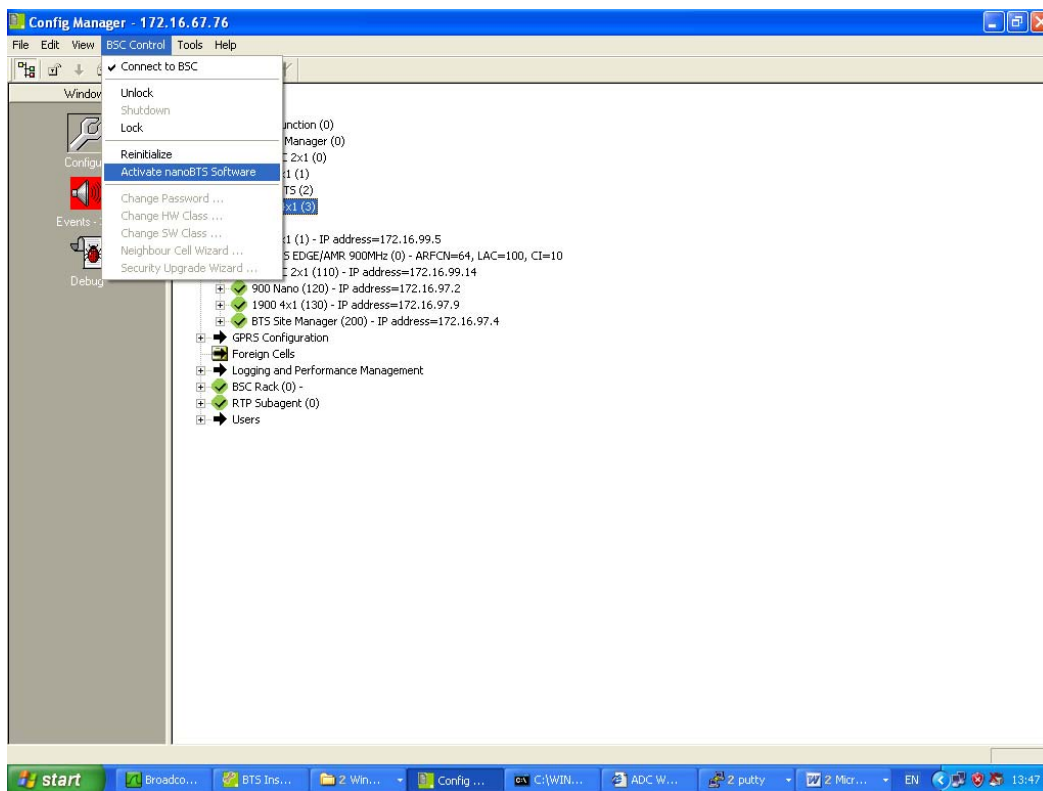


Figure A-10: microBTS Properties Screen Confirming the Active and Standby Software Loads

- 18 Return to the BSC Configuration Manager main screen and select **BSC Control** from the menu bar as shown in [Figure A-11](#).
- 19 With the FlexWave Manager Object still selected, select **Activate nanoBTS Software** from the drop down menu.
- 20 When prompted to activate the new software click **OK**.



AD091910

Figure A-11: Activating the nanoBTS Software From the BSC Configuration Manager Main Screen

- 21 The microBTS is now upgraded with the new software load. The site can now be returned to normal operation.

A.2.2 Manual Upgrade Procedure

Upgrading of the micro controller software can be done using a procedure using linux commands to accomplish the upgrade task. The manual upgrade method should only be used when circumstances preclude the use of the “automatic” upgrade and should be performed by an experienced linux operator. Use the following step-by-step procedures:

- 1 Launch a WinSCP session from the PC desktop and the **WinSCP Login** screen will appear. Refer to [Figure A-12](#).
- 2 Enter the **Host name** which is the IP address assigned to the micro controller unit of the microBTS being upgraded.
- 3 Enter `root` in the **User name** dialog box, and your password in the **Password** dialog box. Click on **Login** when complete.

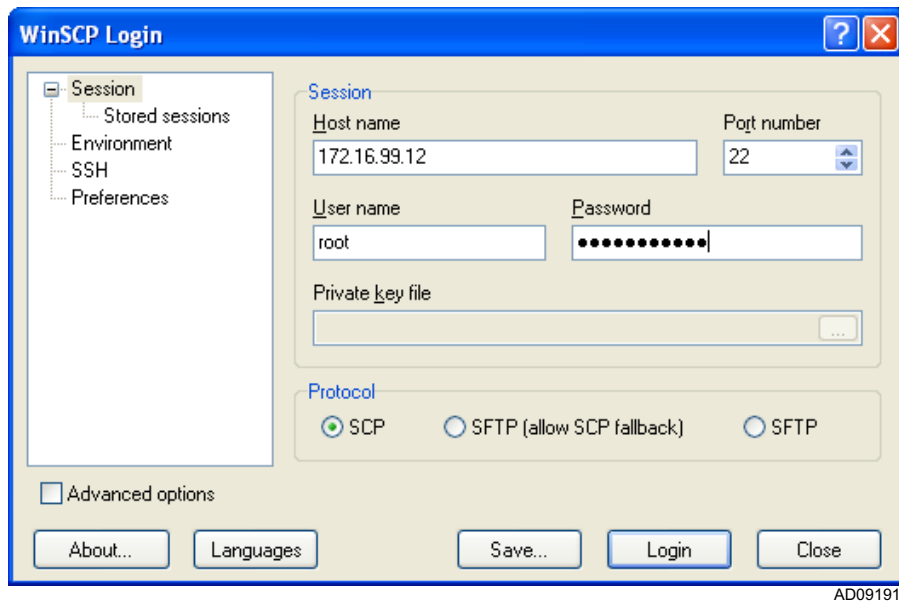


Figure A-12: WinSCP Login Screen

- 4 A **Warning** screen will appear. Select **Yes**. Refer to [Figure A-13](#).

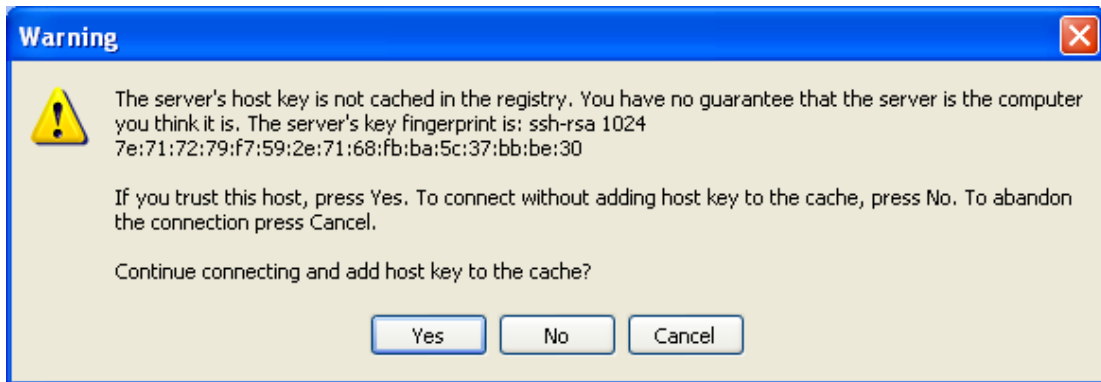


Figure A-13: WinSCP Warning Screen

- 5 A **Server prompt** screen will appear. Enter your Password in the dialog box indicated and click **OK**. Refer to [Figure A-14](#).

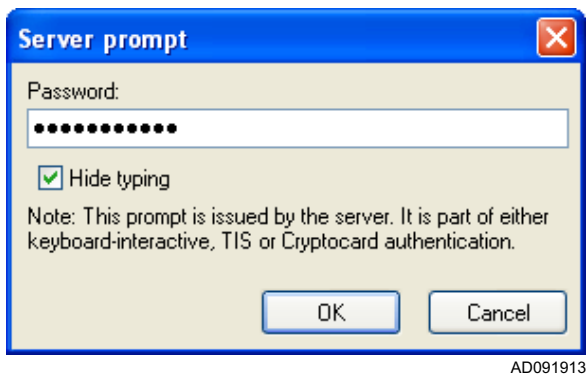
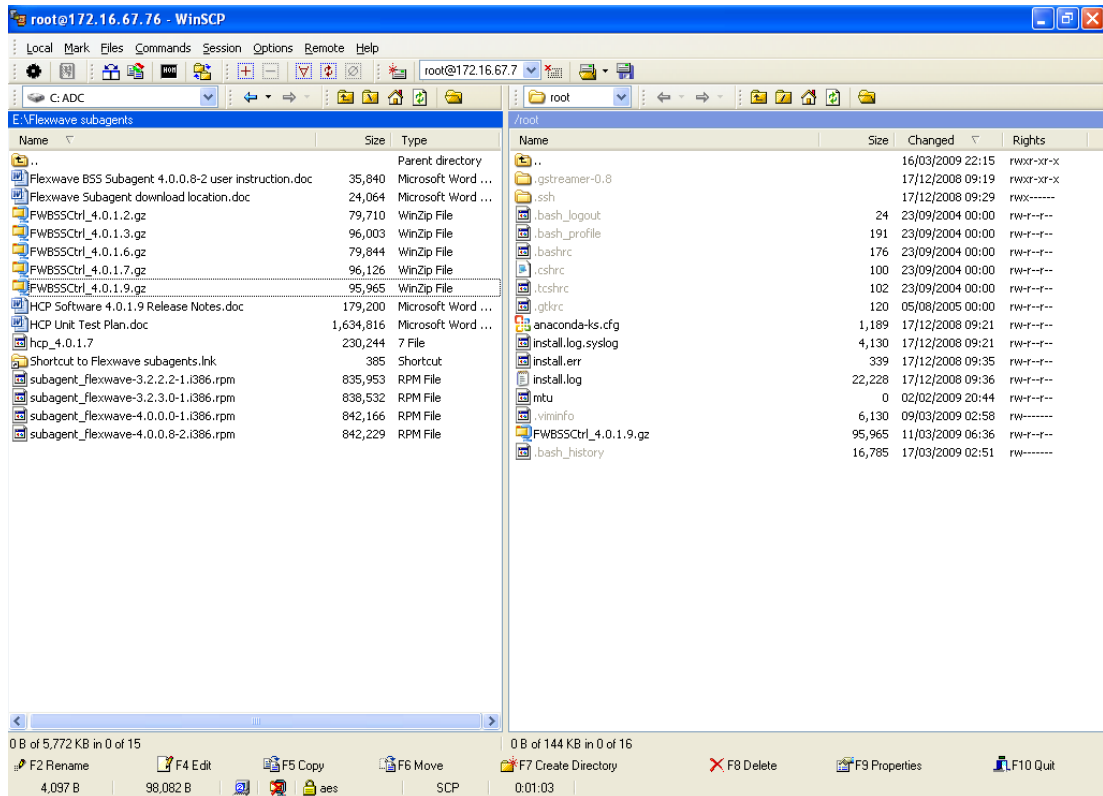


Figure A-14: WinSCP Server Prompt Screen

- 6 The main WinSCP will appear showing the contents of the drive on which the compressed .gz upgrade file is located and the root directory showing the files currently contained in the microBTS controller. Copy the upgrade files which will appear similar to **FWBSSCtrl_4.0.x.x.gz** to the root directory. Refer to [Figure A-15](#).



AD091903

Figure A-15: Main WinSCP Screen

- 7 Close the WinSCP window and open a PuTTY session with the BSC by entering the BSC IP address. Login as **root**. Enter your password. Open a PuTTY session and login as **root**.

- 8 At the command line enter:

```
hcp -v
```

This will display the current version of the micro controller software. For example:

```
hcp: version 4.0.1.3
```

- 9 At the command prompt enter:

```
ls -l
```

The output will appear similar to the following:

```
total 105
-rw-r--r--  1 root root 95965 2009-03-11 01:36
FWBSSCtrl_4.0.1.9.gz
-rw-r--r--  1 root root      1 2009-03-10 22:23 gothcp
-rw-r--r--  1 root root  2485 2009-03-10 22:43 got_info
```

10 At the command line enter:

```
cd /usr/local/sbin
```

```
ls
```

Text similar to the following will appear showing the various files in the directory:

```
batch.pem changeHcpVersion cluster_000810164.tgz hcp
ca.pem cluster_000810156.tgz cluster-cert.pem oem.pem
certChainFile.pem cluster_000810158.tgz cluster-key.pem
```

11 Make a temporary directory:

```
mkdir tmp
```

12 Change to the temporary directory by entering:

```
cd tmp
```

13 At the command line enter:

To copy the upgrade file to the temporary directory

```
cp /root/FWBSSCtrl_4.0.1.9.gz
```

14 To unpack the tar file, type:

```
tar -zxvf FWBSSCtrl_4.0.1.9.gz
```

The following output will appear:

```
adc.GIF
hcp
hcpInstall
microBTS
updatePod
```

15 Install the upgrade files by entering:

```
./hcpInstall
```

The following output will appear:

```
ln: `/var/www/index.html': File exists
Stopping hardware control process: hcp.
```

- 16 To change directories enter:

```
cd ..
```

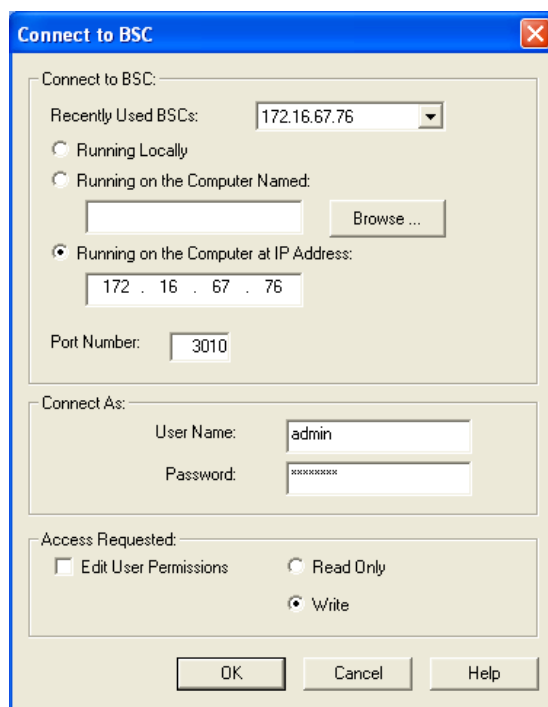
- 17 At the command line enter:

```
hcp -v
```

This will display the version number of the software upgrade loaded in this procedure. For example:

```
hcp: version 4.0.1.9
```

- 18 This completes the manual upgrade procedure. Verify the new software is loaded by Closing the PuTTY window and launching BSC Configuration Manager. Select **Connect to BSC** from the task bar. Enter the IP address of the BSC and click **OK**. Refer to [Figure A-16](#).



AD091907

Figure A-16: Connect to BSC Screen

- 19 Right click on the FlexWave Manager object and select **Properties**. The **FlexWave Manager Properties** screen will appear. Verify that the **nanoBTS Software Version** dialog box contains the updated software version number. Refer to [Figure A-17](#).

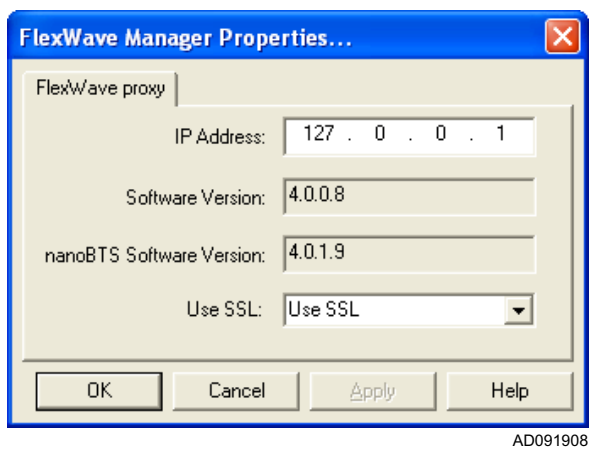
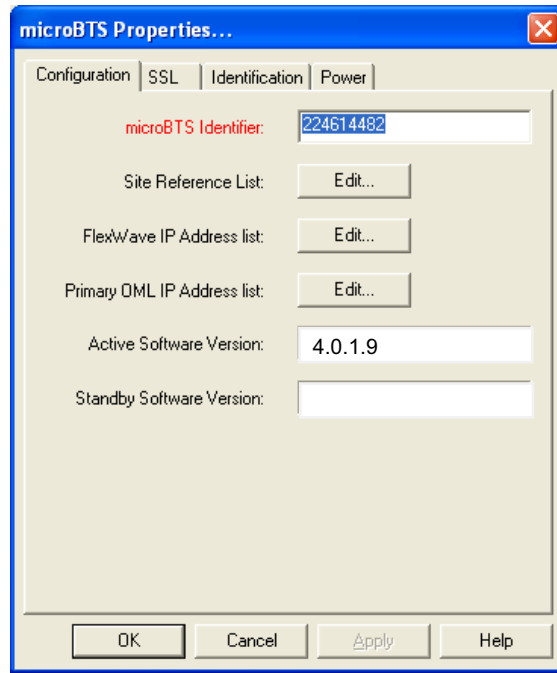


Figure A-17: FlexWave Manager Properties Screen Confirming the New Software Load

- 20 Return to the BSC Configuration Manager screen and find the BTS upgraded on the configuration “tree.”
- 21 Right click on the site and select **Properties**.
- 22 The **microBTS Properties** screen will appear showing the **Active Software Version** and the **Standby Software Version**. Confirm the **Standby Software Version** is the version loaded in this procedure.
- 23 After determining it is correct, Click **OK**. Refer to [Figure A-18](#).



AD091909

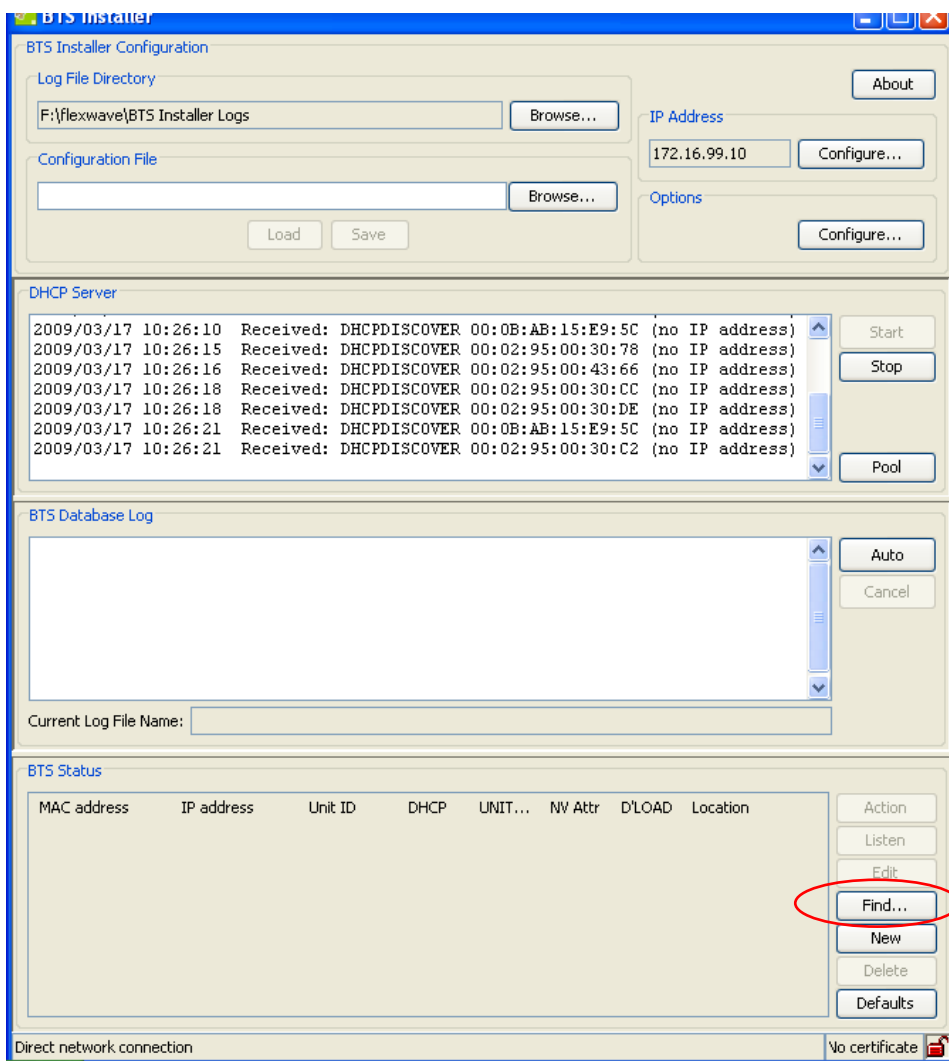
Figure A-18: microBTS Properties Screen Confirming the Active and Standby Software Loads

24 The manual upgrade of the microBTS controller is now complete.

A.3 Upgrade Procedure for Micro Controller Software 3.2.x to Version 4.0.1.x.

Use the following “manual” upgrade procedure to upgrade microBTS controller software from version 3.2.x to 4.0.1.x.

- 1 3.2.x versions of the micro controller software will not display IP or MAC addresses on the BTS Installer Utility. The MAC and IP addresses for the micro controller can be found using the following methods:
- 2 Launch the BTS Installer Utility as shown in [Figure A-19](#) and click on the **Find** button.



AD098901

Figure A-19: Selecting Find on the BTS Installer Utility

- 3 A **Select nanoBTS** screen will appear. The MAC and IP addresses of the nano TRX’s with in the microBTS will be shown. Refer to [Figure A-20](#).

- 4 Confirm that the MAC addresses shown match those shown on the exterior label of the microBTS. The IP address for the micro controller is normally one digit higher than the highest IP address of the nano TRX's. In the sample shown, the highest nano TRX is 172.16.79.15. It is likely that the micro controller address will be 172.16.79.16. Record this number for use in the next step.

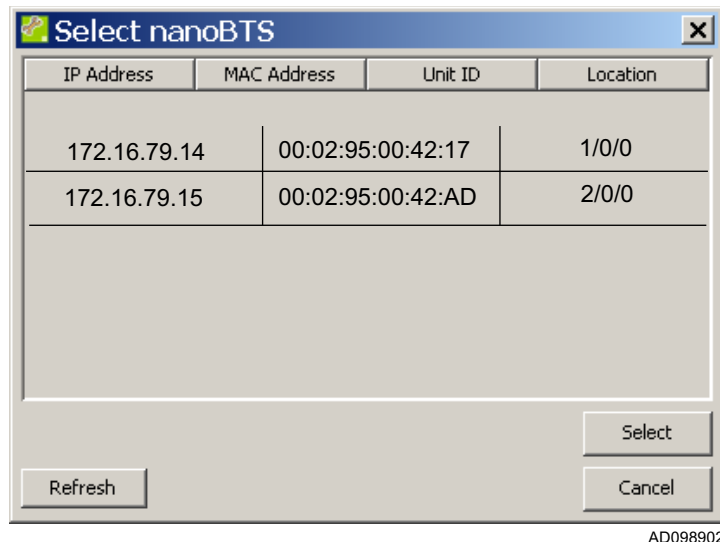
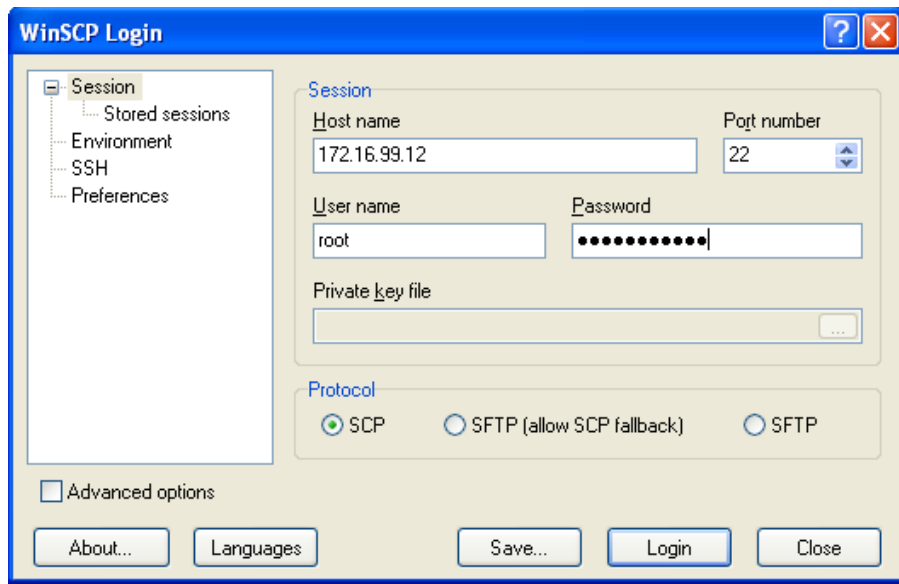


Figure A-20: Select nanoBTS Screen Showing the MAC and IP Addresses for the nano TRX's

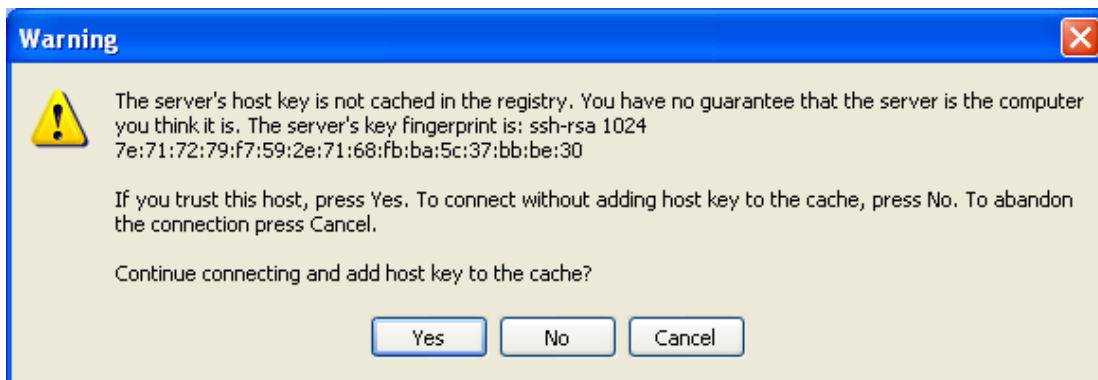
- 5 Use the IP address from the previous step to launch the WinSCP session in the next step. If the IP address does not work, use Wireshark, Angry IP or similar IP discovery tool to obtain the micro controller IP address.
- 6 Launch a WinSCP session from the PC desktop and the **WinSCP Login** screen will appear. Refer to [Figure A-21](#).
- 7 Enter the **Host name** which is the IP address assigned to the micro controller unit of the microBTS being upgraded.
- 8 Enter `root` in the **User name** dialog box, and your password in the **Password** dialog box.
- 9 Click on **Login** when complete.



AD091911

Figure A-21: WinSCP Login Screen

10 A **Warning** screen will appear. Select **Yes**. Refer to [Figure A-22](#).



AD091912

Figure A-22: WinSCP Warning Screen

11 A **Server prompt** screen will appear. enter your Password in the dialog box indicated and click **OK**. Refer to [Figure A-23](#).



AD091913

Figure A-23: WinSCP Server Prompt Screen

- 12 The main WinSCP will appear showing the contents of the drive on which the compressed .gz upgrade file is located and the root directory showing the files currently contained in the microBTS controller. Copy the upgrade files which will appear similar to **FWBSSCtrl_4.0.x.x.gz** to the root directory. Refer to [Figure A-24](#).

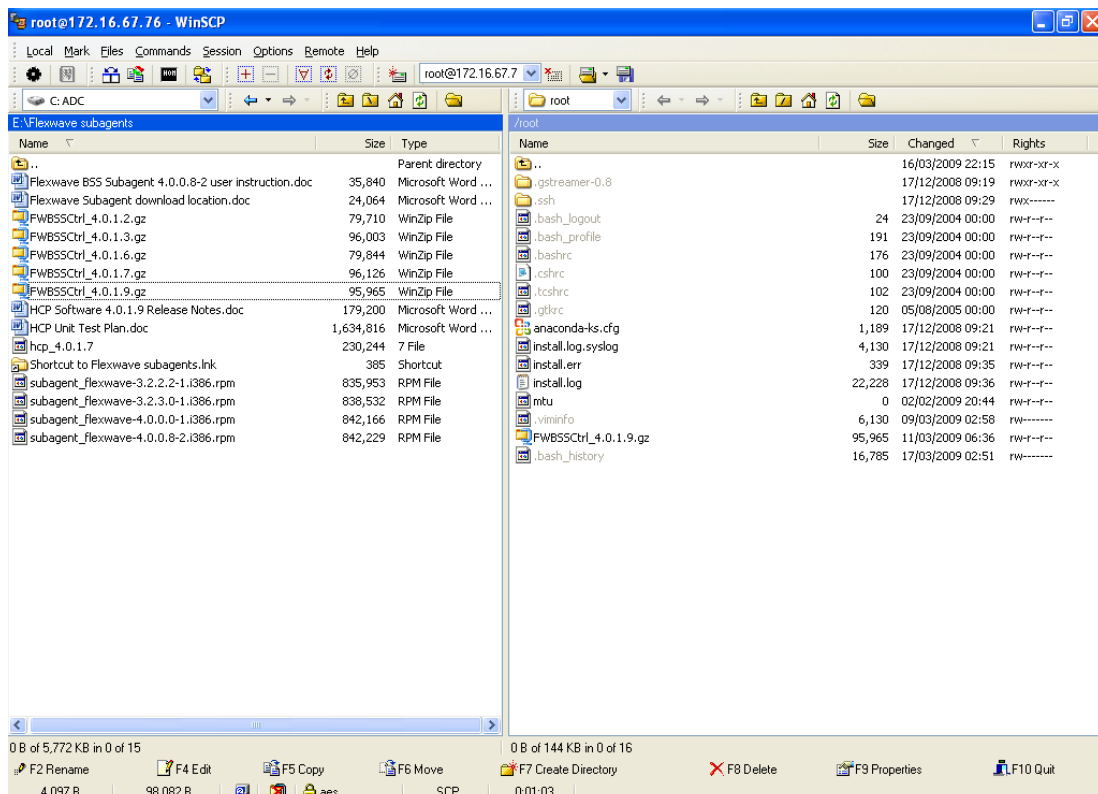


Figure A-24: Main WinSCP Screen

- 13 Close the WinSCP window and open a PuTTY session with the BSC by entering the BSC IP address. Login as **root**. Enter your password. Refer to [Figure A-25](#).



AD091904

Figure A-25: PuTTY Login Screen

- 14 At the command line enter:

```
cd /usr/local/sbin  
ls
```

Text similar to the following will appear showing the various files in the directory:

```
batch.pem changeHcpVersion cluster_000810164.tgz hcp  
ca.pem cluster_000810156.tgz cluster-cert.pem oem.pem  
certChainFile.pem cluster_000810158.tgz cluster-key.pem
```

- 15 Make a temporary directory:

```
mkdir tmp
```

- 16 Change to the temporary directory by entering:

```
cd tmp
```

- 17 To copy the upgrade file to the temporary directory

```
cp /root/FWBSSCtrl_4.0.1.x.gz
```

- 18 To unpack the tar file

```
tar -zxvf FWBSSCtrl_4.0.1.x.gz
```

The following output will appear:

```
adc.GIF
hcp
hcpInstall
microBTS
updatePod
```

19 Display the software version number by entering:

```
hcp -v
```

This will display the current version of the micro controller software. For example:

```
hcp: version 3.2.7
```

20 Back up /etc/inventory files by changing directory to the etc directory. In the etc directory enter:

```
tar -cvf /root/inventory.tar /etc/inventory
```

21 At the command prompt enter:

```
cd /etc
```

22 Using a text editor such as vi modify the file in the /etc/inittab by commenting out the last line which should appear similar to this:

```
#hcp:2:respawn:/usr/local/sbin/hcp -nondaemon
```

If this line does not exist in the files proceed to the next step.

23 At the command prompt enter:

```
telinit q
```

This will stop the hcp (micro controller process).

24 Change the directory by entering:

```
cd thttpd
```

25 Verify the /etc/thttpd/thttpd.conf. Using a text editor such as vi, comment out the **chroot** line and changing the **cgipat** line at the bottom to include 2 asterisks instead of one:

```
cgipat=/cgi-bin/**
```

26 Change the directory to by entering:

```
cd /var/www
```

27 List the contents of the directory by entering:

```
ls -l
```

28 If no directory exists, create one by entering:

```
mkdir cgi-bin
```

- 29 Open the cgi-bin directory by entering:

```
cd cgi-bin
```

- 30 Copy the contents by entering:

```
cp /usr/local/sbin/tmp/* .
```

- 31 Change directories by entering:

```
cd /var/www
```

- 32 Create a cgi-bin subdirectory in the /var/www directory and place the three files from the Html sub-project “microBTS”, “updatePod”, and “adc.GIF” into the cgi-bin directory.

- 33 At the `:/etc/tthttpd#` prompt enter:

```
cd /var/www
```

- 34 Display the contents of the directory by entering:

```
ls -l
```

- 35 The screen will now show:

```
total 2
drwxr-xr-x  2 root root 1024 2009-04-08 01:26 cgi-bin
lrwxrwxrwx  1 root root   16 2009-04-08 01:26 index.html ->
cgi-bin/microBTS
drwxr-xr-x  2 root root 1024 2006-10-31 11:50 users
```

- 36 At the `:/var/www#` prompt enter:

```
cd cgi-bin/
```

- 37 At the `:/var/www/cgi-bin#` prompt enter:

```
ls -l
```

The screen will now show:

```
total 44
-rwxr--r--  1 root root  1690 2009-03-10 18:36 adc.GIF
-rwxr-xr-x  1 root root 18517 2009-03-10 18:36 microBTS
-rwxr-xr-x  1 root root 21191 2009-03-10 18:36 updatePod
```

- 38 Change the privledges on the ADC gif file by entering :

```
chmod 744 adc.GIF
```

- 39 Change the privledges on the microBTS file by entering :

```
chmod 775 microBTS
```

- 40 Change the privileges on the updatepod file by entering :

```
chmod 775 updatePod
```

- 41 At the `:/var/www/cgi-bin#` prompt enter:

```
ls -l
```

- 42 The screen will now show (make sure that the files shown have the permissions as listed below):

```
total 44
-rwxr--r-- 1 root root 1690 2009-03-10 18:36 adc.GIF
-rwxrwxr-x 1 root root 18517 2009-03-10 18:36 microBTS
-rwxrwxr-x 1 root root 21191 2009-03-10 18:36 updatePod
```

- 43 Change the directory by entering:

```
cd /etc
```

- 44 Modify the `/etc/inittab` back to its original state. Using a text editor such as `vi` works uncomment the last line so it appears as:

- 45 At the command prompt enter:

```
cd /usr/local/sbin
```

```
ls
```

Text similar to the following will appear showing the various files in the directory:

```
batch.pem          changeHcpVersion    cluster_000810164.tgz
hcp
ca.pem             cluster_000810156.tgz  cluster-cert.pem
oem.pem
certChainFile.pem cluster_000810158.tgz  cluster-key.pem
```

- 46 Make a temporary directory by entering:

```
mkdir tmp
```

- 47 Change to the temporary directory by entering:

```
cd tmp
```

- 48 Copy the upgrade package by entering:

```
cp /root/FWBSSCtrl_4.0.1.x.gz .
```

- 49 Unpack the upgrade package by entering:

```
tar -zxvf FWBSSCtrl_4.0.1.x.gz
```

The following output will appear:

```
adc.GIF
hcp
hcpInstall
microBTS
updatePod
```

50 At the command prompt enter:

```
./hcpInstall
```

The following output will appear:

```
ln: `/var/www/index.html': File exists
Stopping hardware control process: hcp.
```

51 At the command prompt enter:

```
hcp -v
```

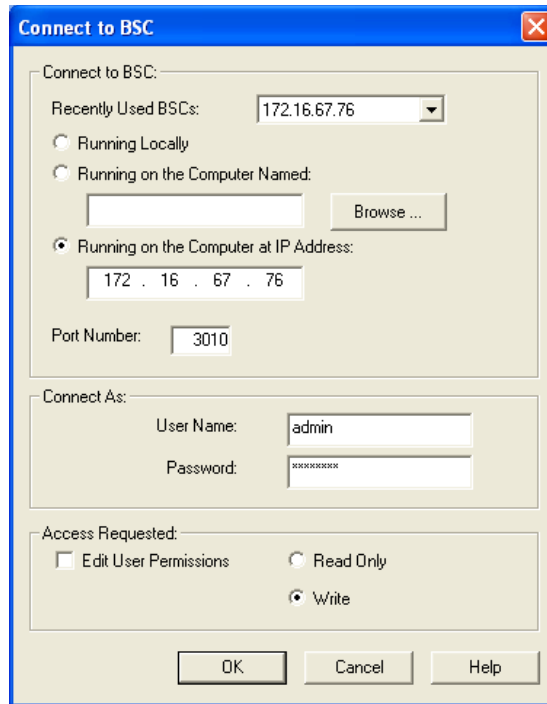
This will display the version number of the software upgrade loaded in this procedure. For example:

```
hcp: version 4.0.1.x
```

52 This completes the manual upgrade procedure. Verify the new software is loaded by closing the PuTTY window and launching BTS Installation Manager.

53 Select **Connect to BSC** from the task bar.

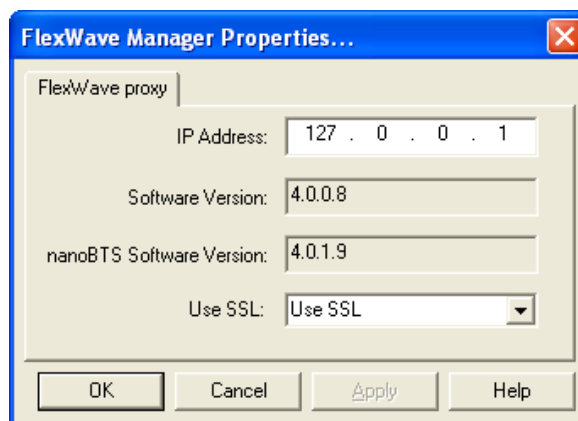
54 Enter the IP address of the BSC and click **OK**. Refer to [Figure A-26](#).



AD091907

Figure A-26: Connect to BSC Screen

- 55 Right click on the FlexWave Manager object and select **Properties**. The FlexWave Manager Properties screen will appear. Verify that the **nanoBTS Software Version** dialog box contains the updated software version number. Refer to [Figure A-27](#).

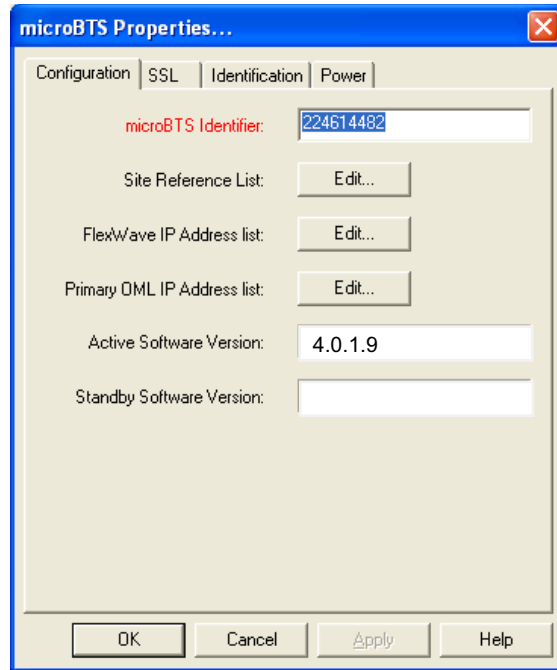


AD091908

Figure A-27: FlexWave Manager Properties Screen Confirming the New Software Load

- 56 Return to the BSC Configuration Manager screen and find the BTS upgraded on the configuration “tree.” Right click on the site and select **Properties**.

57 The **microBTS Properties** screen will appear showing the **Active Software Version** and the **Standby Software Version**. Confirm the **Standby Software Version** is the version loaded in this procedure. After determining it is correct, Click **OK**. Refer to [Figure A-28](#).



AD091909

Figure A-28: microBTS Properties Screen Confirming the Active and Standby Software Loads

Blank



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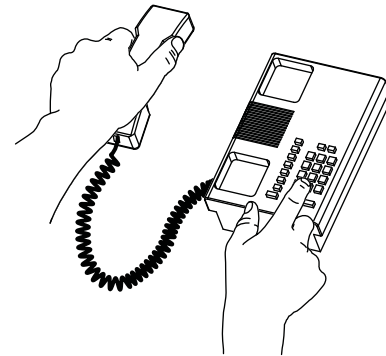
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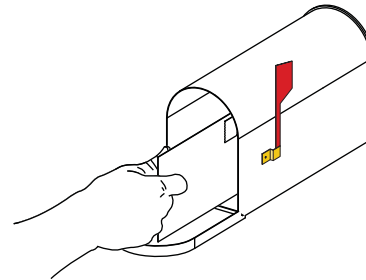
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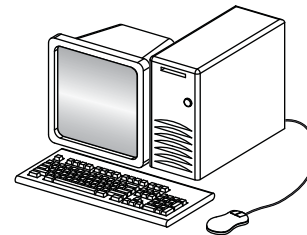
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