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 where xxx.xxx.xxx is the IP address assigned to the micro controller.

The following screen will appear. Refer to Figure 5-15.

http://192.168.250.112/ - Microsoft Internel	Explorer provided by ADC			<u>- 🗆 ×</u>
G → ℓ http://192.168.250.112/			💌 🔄 🗙 Live Search	₽ ▼
File Edit View Favorites Tools Help				🍖 👻
😭 🍄 🏉 http://192.168.250.112/			🟠 🔻 🗟 👻 🖶 🖬 Pag	ge 🕶 🍥 Tools 👻 🎽
Flexwave MicroBTS	Configuration			
microBTS IP Address:	192.168.250.112 nano	BTS 1 IP Address:	192.168.250.160	
Subnet Mask:	255.255.255.0 nano	BTS 2 IP Address:	192.168.250.163	
Gateway:	192.168.250.1 nano	BTS 3 IP Address:	Not Present	
Use dhcp:	✓ nano	BTS 4 IP Address:	Not Present	
Primary OML 1:	172.16.67.77	Primary OML 2:	0.0.0.0	
Set Factory Defaults:			Apply Changes	
Version 1.0				
				
			📄 🕞 Internet	€ 100% ▼ //

AD030908

Figure 5-15: FlexWave microBTS Configuration Screen

2 Using the configuration screen, type in the following information as shown in Table 5-1

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		

Table 5-1: Configuration Parameters

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.



AD069909

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

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**.

Connect to BSC	×
Connect to BSC:	
Recently Used BSCs: 172.16.67.76	
C Running Locally	
C Running on the Computer Named:	
Browse	
 Running on the Computer at IP Address: 	
172 . 16 . 67 . 76	
Port Number: 3010	
Connect As:	
User Name: admin	
Password:	
Access Requested:	
Edit User Permissions C Read Only	
(• Write	
OK Cancel Help	
ADC	69902

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.



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.

Create SITE	×
Create a new SITE and BTS.	
BTS Class (SR2.x) BTS (SR2.x)	
Site Name BTS Site Manager	
BTS Name BTS (SR2.x)	
Site Identifier BTS Number	
Frequency Band DCS 1800 MHz	
ARFCN	
Cell Global Identity	
MCC 300 MNC 31	
Location Area 0 Cell Identity 0	
Base Station Identity Code	
PLMN-CC 0 BS-CC 0	
The Help displayed for this Wizard depends on the BTS Class	
that class.	
< Back Finish Cancel Hel	р
Α	00690

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	Configu	ration	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 Indentifier	This number is normally assigned by a network admin- istrator depending upon the needs of the network. The number must be unique to each site and can not be duplicated within a network.

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	
МСС	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	

Table 5-2: Configuration Parameters

- 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.

Create BTS Child Object	
Create TRX objects	
Create Measurement Function obje	ect(s)
	 SDCCH Usage MF TCH MF TCH Usage MF TCH Usage Details MF AMR MF Channel Assignment MF RTP Multiplex Performance MF RTP Multiplex Usage MF RTP Secure Multiplex Usage MF
ОК	Cancel

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.

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 .

Table 5-3: Configuration Parameters

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

Create TRX	X
Create a new TRX belonging to Carrier object, the Baseband Tran	the selected BTS. This will create the Radio sceiver object, and the eight Channel objects.
nanoBTS Hardware Class	Multi-TRX nanoBTS
Radio Carrier Name	Slave Radio Carrier (GMSK E-GSM 900)
Baseband Transceiver Name	Slave Baseband Transceiver
TRX Number	
ARFCN	
< <u>B</u> ack	Finish Cancel Help
	AD07990

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.



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 choosen 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.

Create microBTS	×
microBTS name: microBTS Identifier:	microBTS 2x1
Site Reference List:	Edit
< <u>B</u> ack	Finish Cancel Help

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.

SITEs belonging to this microBTS	×
SITEs not in any microBTS:	
SITE Name	No. TRXs
57 microBTS 2x1	2
1800 InterReach picoBTS	2
SITEs in this microBTS:	
SITE Name	No. TRXs
Number of nanoBTS units 0 Maximum allowed: included in microBTS:	4
OK Cancel Help	
	۵۵۷۵۹۹

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.

SITEs belonging to this microBTS	X
SITEs not in any microBTS:	
SITE Name	No. TRXs
1800 InterReach picoBTS	2
SITEs in this microBTS:	
SITE Name	No. TRXs
57 microBTS 2×1	2
Number of nanoBTS units 2 Maximum allowed: included in microBTS:	4
OK Cancel Help	
	AD07990

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.

microBTS-19004X1 Propertie	s 🔀
Configuration SSL Identificatio	n Power
microBTS Identifier:	224174445
Site Reference List:	Edit
FlexWave IP Address list:	Edit
Primary OML IP Address list:	Edit
Active Software Version:	4.0.1.5
Standby Software Version:	4.0.1.9
OK Cancel	Apply Help
	40075004

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.

172.16.99.1	New
	Edit
	Delete
	Move Up
	Move Down
ок	Cancel

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.

172.16.99.1	New
	Edit
	Delete
	Move Up
	Move Down
ок	Cancel

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

Conter	nt		Page
A.1	Introduc	stion	
A.2	Upgradi	ng Micro Controller Software from 4.0.x.x	
	A.2.1	Automatic Upgrading of the microBTS Controller	
	A.2.2	Manual Upgrade Procedure	
A.3	Upgrade	e Procedure for Micro Controller Software 3.2.x to Version 4.0.1.x.	

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.

WinSCP Login				? 🛛
 Session Stored sessions Environment SSH Preferences 	Session <u>H</u> ost name 172.16.99.12 <u>U</u> ser name root Private <u>k</u> ey fill Protocol ⊙ SCP	e O SFTP (allo	Password	Port number 22
Advanced options				
About Langua	ges	Save	Login	Close

Figure A-1: WinSCP Login Screen

FlexWave microBTS Installation and Commissioning Guide

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

Warnin	e 🔀
1	The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is. The server's key fingerprint is: ssh-rsa 1024 7e:71:72:79:f7:59:2e:71:68:fb:ba:5c:37:bb:be:30
	If you trust this host, press Yes. To connect without adding host key to the cache, press No. To abandon the connection press Cancel.
	Continue connecting and add host key to the cache?
	Yes No Cancel
	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.

Server prompt
Password:
•••••
✓ Hide typing
Note: This prompt is issued by the server. It is part of either keyboard-interactive, TIS or Cryptocard authentication.
OK Cancel
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.

🔓 root@172.16.67.76 - WinSCP						_ B 🗙
Local Mark Files Commands Session Options Re	mote Help					
	\$ Ø :	toot@172.16.	67.7 🔽 🍋 🔫 🚔			
G: ADC	i 🖻 🕅 -	1 🕅 🖻	i 🗀 root 🗸 i 🔶 - =	ə - i 🖻 🗖 🚮 🕤 🚞		
E:\Flexwave subagents			/root			
Name \(\name \)	Size	Туре	Name	Size	Changed 🗸	Rights
P		Parent directory	A		16/03/2009 22:15	rwxr-xr-x
Flexwave BSS Subagent 4.0.0.8-2 user instruction.doc	35,840	Microsoft Word	gstreamer-0.8		17/12/2008 09:19	rwxr-xr-x
Flexwave Subagent download location.doc	24,064	Microsoft Word	🛅 .ssh		17/12/2008 09:29	rwx
FWBSSCtrl_4.0.1.2.gz	79,710	WinZip File	bash_logout	24	23/09/2004 00:00	rw-rr
FWBSSCtrl_4.0.1.3.gz	96,003	WinZip File	bash_profile	191	23/09/2004 00:00	rw-rr
FWBSSCtrl_4.0.1.6.gz	79,844	WinZip File	bashrc	176	23/09/2004 00:00	rw-rr
EWBSSCtrl_4.0.1.7.gz	96,126	WinZip File	📄 .cshrc	100	23/09/2004 00:00	rw-rr
EWBSSCtrl_4.0.1.9.gz	95,965	WinZip File	tcshrc .	102	23/09/2004 00:00	rw-rr
HCP Software 4.0.1.9 Release Notes.doc	179,200	Microsoft Word	gtkrc	120	05/08/2005 00:00	rw-rr
HCP Unit Test Plan.doc	1,634,816	Microsoft Word	📴 anaconda-ks.cfg	1,189	17/12/2008 09:21	rw-rr
d hcp_4.0.1.7	230,244	7 File	🔲 🚾 install.log.syslog	4,130	17/12/2008 09:21	rw-rr
🔂 Shortcut to Flexwave subagents.lnk	385	Shortcut	🗖 install.err	339	17/12/2008 09:35	rw-rr
subagent_flexwave-3.2.2.2-1.i386.rpm	835,953	RPM File	📋 install.log	22,228	17/12/2008 09:36	rw-rr
subagent_flexwave-3.2.3.0-1.i386.rpm	838,532	RPM File	🗖 mtu	0	02/02/2009 20:44	rw-rr
subagent_flexwave-4.0.0.0-1.i386.rpm	842,166	RPM File	.viminfo	6,130	09/03/2009 02:58	rw
subagent_flexwave-4.0.0.8-2.i386.rpm	842,229	RPM File	FWBSSCtrl_4.0.1.9.gz	95,965	11/03/2009 06:36	rw-rr
			bash_history	16,785	17/03/2009 02:51	rw
		>				
0 B of 5,772 KB in 0 of 15			0 B of 144 KB in 0 of 16			
🖋 F2 Rename 🛛 📝 F4 Edit 🛛 🗳 F5 Cop	y f	F6 Move	F7 Create Directory	🗙 F8 Delete 👘 F9 Prop	erties 🤳	LF10 Quit
4 097 B 98 082 B 🔊 🛆	aes	SCP	0.01.03			
		201				
						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 -1

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.

🚰 root@install-bsc:/var/lib/ipaccess/support	
[root@install-bsc support]#	^
[root@install-bsc support]# cd /var/lib/ipaccess/support	
[root@install-bsc support]# ls -1	
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 stl	
-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 -1	
total 112	
-rw-rr 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 stl	=
-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.

Connect to BSC
Connect to BSC:
Recently Used BSCs: 172.16.67.76
C Running Locally
C Running on the Computer Named:
Browse
Running on the Computer at IP Address:
172 . 16 . 67 . 76
Port Number: 3010
Connect As:
User Name: admin
Password: XXXXXXXX
Access Requested:
Cultoser emissions Write
** WIRG
OK Cancel Help
AD09190

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.

FlexWave Manager Prope	erties	$\mathbf{\times}$
FlexWave proxy		
IP Address:	127 . 0 . 0 . 1	
Software Version:	4.0.0.8	
nanoBTS Software Version:	4.0.1.9	
Use SSL:	Use SSL 💌	
	1	
OK Cancel	Apply Help	
	ADO	091908

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.

microBTS Properties	X
Configuration SSL Identificatio	n Power
microBTS Identifier:	224614482
Site Reference List:	Edit
FlexWave IP Address list:	Edit
Primary OML IP Address list:	E dit
Active Software Version:	4.0.1.9
Standby Software Version:	
UK Cancel	Apply Help

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**.



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.

WinSCP Login				? 🗙
Session Stored sessions Environment SSH Preferences	Session <u>H</u> ost name 172.16.99.12 <u>U</u> ser name root Private <u>k</u> ey file	3	Password	Po <u>r</u> t number 22
	SCP	🔿 SFTP (allo	ow SCP fallback)	◯ SFTP
Advanced options				
About Languag	jes	Save	Login	Close

Figure A-12: WinSCP Login Screen

4 A Warning screen will appear. Select Yes. Refer to Figure A-13.

Warnin	g 🛛 🛛
♪	The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is. The server's key fingerprint is: ssh-rsa 1024 7e:71:72:79:f7:59:2e:71:68:fb:ba:5c:37:bb:be:30
	If you trust this host, press Yes. To connect without adding host key to the cache, press No. To abandon the connection press Cancel.
	Continue connecting and add host key to the cache?
	Yes No Cancel
	AD091912

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.

🔓 root@172.16.67.76 - WinSCP						- P 🛛
Local Mark Files Commands Session Options Re	mote <u>H</u> elp					
: • 🕅 : 🟦 📽 📼 😤 : 🛨 🖃 🔽	\$ Ø :	toot@172.16.6	7.7 🔽 🍋 🗧 📲			
🔆 🖙 C: ADC	i 🗈 🕅 1	🖞 🙆 🖿	🕴 🗀 root 🛛 🗸 🗧 🗸			
E:\Flexwave subagents			/root			
Name \(\name \)	Size	Туре	Name	Siz	e Changed ⊽	Rights
🛍		Parent directory	È		16/03/2009 22:15	rwxr-xr-x
Flexwave BSS Subagent 4.0.0.8-2 user instruction.doc	35,840	Microsoft Word	📄 .gstreamer-0.8		17/12/2008 09:19	rwxr-xr-x
Flexwave Subagent download location.doc	24,064	Microsoft Word	🛅 .ssh		17/12/2008 09:29	rwx
EWBSSCtrl_4.0.1.2.gz	79,710	WinZip File	bash_logout	2	4 23/09/2004 00:00	rw-rr
EWBSSCtrl_4.0.1.3.gz	96,003	WinZip File	bash_profile	19	1 23/09/2004 00:00	rw-rr
EWBSSCtrl_4.0.1.6.gz	79,844	WinZip File	🗖 .bashrc	17	6 23/09/2004 00:00	rw-rr
EWBSSCtrl_4.0.1.7.gz	96,126	WinZip File	📄 🖻 .eshre	10	0 23/09/2004 00:00	rw-rr
FWBSSCtrl_4.0.1.9.gz	95,965	WinZip File	🗖 .teshre	10	2 23/09/2004 00:00	rw-rr
HCP Software 4.0.1.9 Release Notes.doc	179,200	Microsoft Word	.gtkrc	12	0 05/08/2005 00:00	rw-rr
HCP Unit Test Plan.doc	1,634,816	Microsoft Word	🔡 anaconda-ks.cfg	1,18	9 17/12/2008 09:21	rw-rr
hcp_4.0.1.7	230,244	7 File	🖬 install.log.syslog	4,13	0 17/12/2008 09:21	rw-rr
🔂 Shortcut to Flexwave subagents.lnk	385	Shortcut	🖬 install.err	33	9 17/12/2008 09:35	rw-rr
d subagent_flexwave-3.2.2.2-1.i386.rpm	835,953	RPM File	🗒 install.log	22,22	8 17/12/2008 09:36	rw-rr
subagent_flexwave-3.2.3.0-1.i386.rpm	838,532	RPM File	🖬 mtu		0 02/02/2009 20:44	rw-rr
subagent_flexwave-4.0.0.0-1.i386.rpm	842,166	RPM File	🗖 🖬 . viminfo	6,13	0 09/03/2009 02:58	rw
subagent_flexwave-4.0.0.8-2.i386.rpm	842,229	RPM File	FWBSSCtrl_4.0.1.9.gz	95,96	5 11/03/2009 06:36	rw-rr
			bash_history	16,78	5 17/03/2009 02:51	rw
r - 14						
		>				
0 B of 5,772 KB in 0 of 15			0 B of 144 KB in 0 of 16			
🧬 F2 Rename 🛛 📝 F4 Edit 🛛 🗳 F5 Cop	y D	F6 Move	💣 F7 Create Directory	🗙 F8 Delete 🛛 📑 F9 Pr	operties 🧕	LF10 Quit
4,097 B 98,082 B 🕺 🗐 合	aes	SCP	0:01:03			
						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/FWBBSSCtrl_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.

Connect to BSC	×
Connect to BSC:	
Recently Used BSCs: 172.16.67.76	
C Running Locally	
C Running on the Computer Named:	
Browse	
 Running on the Computer at IP Address: 	
172 . 16 . 67 . 76	
Port Number: 3010	
Connect As:	
User Name: admin	
Password:	
Access Requested:	
Edit User Permissions C Read Only	
OK Cancel	Help

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.

FlexWave Manager Prope	erties	×
FlexWave proxy		
IP Address:	127 . 0 . 0 . 1	
Software Version:	4.0.0.8	
nanoBTS Software Version:	4.0.1.9	
Use SSL:	Use SSL 💌	
OK Cancel	<u>Apply</u> Help	
	AD	09190

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.

microBTS Properties	
Configuration SSL Identificatio	n Power
microBTS Identifier:	224614482
Site Reference List:	Edit
FlexWave IP Address list:	Edit
Primary OML IP Address list:	Edit
Active Software Version:	4.0.1.9
Standby Software Version:	

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.

er bis installer	
BTS Installer Configuration	
Log File Directory	About
Evifieywaye)BTS Installer Loos	
Li - provinavojo i 5 inistalio i Logo	
Configuration File	Ionfigure
Browse	
Load Save	Configure
)
DHCP Server	
2009/03/17 10:26:10 Received: DHCPDISCOVER 00:0B:AB:15:E9:5C (no IP address)	Start
2009/03/17 10:26:15 Received: DHCPDISCOVER 00:02:95:00:30:78 (no IP address)	Stop
2009/03/17 10:26:16 Received: DHCPDISCOVER 00:02:95:00:43:66 (no IP address) 2009/03/17 10:26:18 Received: DHCPDISCOVER 00:02:95:00:30:CC (no IP address)	
2009/03/17 10:26:18 Received: DHCPDISCOVER 00:02:95:00:30:DE (no IP address)	
2009/03/17 10:26:21 Received: DHCPDISCOVER 00:0B:AB:15:E9:5C (no IP address)	
2009/03/17 10:26:21 Received: DHCPDISCOVER 00:02:95:00:30:C2 (no IP address)	Pool
BTS Database Log	
	Auto
	Cancel
Current Log File Name:	
BTS Status	
MAC address IP address Unit ID DHCP UNIT NV Attr D'LOAD Location	Action
	Listen
	Edit
	Find
	New
	Delete
	Defeulte
	Deraults
Direct network connection	No certificate 📑
	400000

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.

🕙 Select nan	oBTS		>
IP Address	MAC Address	Unit ID	Location
172.16.79.14	4 00:02:9	5:00:42:17	1/0/0
172.16.79.15	5 00:02:9	5:00:42:AD	2/0/0
			Select
Refresh			Cancel
			AD098

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.

WinSCP Login				? 🗙
Session Stored sessions Environment SSH Preferences	Session <u>H</u> ost name 172.16.99.12 <u>U</u> ser name root Private <u>k</u> ey file Protocol ⊙ SCP	s O SFTP (all	Password ••••••••••••••••••••••••••••••••••••	Port number 22
Advanced options				
About Langua	ges	Save	Login	Close

Figure A-21: WinSCP Login Screen

10 A Warning screen will appear. Select Yes. Refer to Figure A-22.

Warnin	e 🔀		
♪	The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is. The server's key fingerprint is: ssh-rsa 1024 7e:71:72:79:f7:59:2e:71:68:fb:ba:5c:37:bb:be:30		
	If you trust this host, press Yes. To connect without adding host key to the cache, press No. To abandon the connection press Cancel.		
	Continue connecting and add host key to the cache?		
	Yes No Cancel		
	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.

Server prompt	
Password:	
•••••	
🗹 Hide typing	
Note: This prompt is issu keyboard-interactive, TIS	ed by the server. It is part of either 5 or Cryptocard authentication.
	OK Cancel
	AD09191

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.

a root@172.16.67.76 - WinSCP						_ 7 🛛		
Local Mark Files Commands Session Options Remote Help								
j 🔹 🔣 👔 🚘 隆 📰 隆 j 🖽 🖃 👿 🕼 🧃 j 🎥 mod@172.16.67.7 💌 🌆 🚭 📲								
😪 C: ADC 🛛 🗸 🗘 🗸	i 🛍 🕅 j	🖞 🕅 🖾 👘	i i i i i i i i i i i i i i i i i i i	🔿 - : 🖻 🗖 🚮 🔞				
E:\Flexwave subagents			/root					
Name \(\no\)	Size	Туре	Name	Size	Changed 🗸	Rights		
Ē		Parent directory	P		16/03/2009 22:15	rwxr-xr-x		
Flexwave BSS Subagent 4.0.0.8-2 user instruction.doc	35,840	Microsoft Word	astreamer-0.8		17/12/2008 09:19	rwxr-xr-x		
Flexwave Subagent download location.doc	24,064	Microsoft Word	🛅 .ssh		17/12/2008 09:29	rwx		
FWBSSCtrl_4.0.1.2.gz	79,710	WinZip File	.bash_logout	24	23/09/2004 00:00	rw-rr		
FWB55Ctrl_4.0.1.3.gz	96,003	WinZip File	.bash_profile	191	23/09/2004 00:00	rw-rr		
FWBSSCtrl_4.0.1.6.gz	79,844	WinZip File	.bashrc	176	23/09/2004 00:00	rw-rr		
FWBSSCtrl_4.0.1.7.gz	96,126	WinZip File	📄 .cshrc	100	23/09/2004 00:00	rw-rr		
FWB55Ctrl_4.0.1.9.gz	95,965	WinZip File	🖬 .teshre	102	23/09/2004 00:00	rw-rr		
HCP Software 4.0.1.9 Release Notes.doc	179,200	Microsoft Word	.gtkrc	120	05/08/2005 00:00	rw-rr		
HCP Unit Test Plan.doc	1,634,816	Microsoft Word	📴 anaconda-ks.cfg	1,189	17/12/2008 09:21	rw-rr		
🖬 hcp_4.0.1.7	230,244	7 File	🖬 install.log.syslog	4,130	17/12/2008 09:21	rw-rr		
🔂 Shortcut to Flexwave subagents.lnk	385	Shortcut	🖬 install.err	339	17/12/2008 09:35	rw-rr		
subagent_flexwave-3.2.2.2-1.i386.rpm	835,953	RPM File	🗐 install.log	22,228	17/12/2008 09:36	rw-rr		
subagent_flexwave-3.2.3.0-1.i386.rpm	838,532	RPM File	🗖 🖬 mtu	0	02/02/2009 20:44	rw-rr		
🔂 subagent_flexwave-4.0.0.0-1.i386.rpm	842,166	RPM File	🛛 🖬 . viminfo	6,130	09/03/2009 02:58	rw		
🖬 subagent_flexwave-4.0.0.8-2.i386.rpm	842,229	RPM File	FWBSSCtrl_4.0.1.9.gz	95,965	11/03/2009 06:36	rw-rr		
			bash_history	16,785	17/03/2009 02:51	rw		
0.0 - (5.772 / 0.1 - (15		2	0.0 - 6144 KD in 0 - 610					
UB OF 3,772 NB IN U OF 13	-		UB OF 144 NB IN U OF 15					
🖉 F2 Rename 🔄 F4 Edit 🕮 F5 Cop	ա հլ	F6 Move	F7 Create Directory	× F8 Delete Mar F9 Prop	erties 💄	LF10 Quit		
4,097 B 98.082 B 🕺 🗐 🔒	aes	SCP	0:01:03					

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.



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/FWBBSSCtrl_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 -1

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/thttpd# prompt enter:

cd /var/www

34 Display the contents of the directory by entering:

ls -1

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 privledges on the updatepod file by entering:

chmod 775 updatePod

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

ls -1

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/FWBBSSCtrl_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.

Connect to BSC					
Connect to BSC:					
Recently Used BSCs: 172.16.67.76					
C Running Locally					
C Running on the Computer Named:					
Browse					
 Running on the Computer at IP Address: 					
,					
Port Number: 3010					
Connect As:					
User Name: admin					
Password: *****					
1					
Access Requested:					
Edit User Permissions C Read Only					
 Write 					
OK Cancel Help					
AD09190					

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.

FlexWave Manager Properties					
FlexWave proxy					
IP Address:	127 . 0 . 0 . 1				
Software Version:	4.0.0.8				
nanoBTS Software Version:	4.0.1.9				
Use SSL:	Use SSL 💌				
OK Cancel	Apply Help				
	AD(10100			

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.

microBTS Properties					
Configuration SSL Identification Power					
microBTS Identifier:	224614482				
Site Reference List:	Edit				
FlexWave IP Address list:	E dit				
Primary OML IP Address list:	Edit				
Active Software Version:	4.0.1.9				
Standby Software Version:					
OK Cancel	Apply Help				
	40001000				

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

Blank





PHONE: U.S.A. or CANADA

Sales:	1-800-366-3691			
Extension				
Technical Assistance: 1-800-366-389				
Connectivity Extension: 7347				
Wireless Extension	on:73476			
EUROPE				
Sales Administration:	+32-2-712-65 00			
Technical Assistance:	+32-2-712-65 42			
EUROPEAN TOLL FRE	E NUMBERS			
Germany:	0180 2232923			
UK:	0800 960236			
Spain:	900 983291			
France:	0800 914032			
Italy:	0800 782374			
ASIA/PACIFIC				
Sales Administration:	+65-6294-9948			
Technical Assistance:	+65-6393-0739			
ELSEWHERE				
Sales Administration:	+1-952-938-8080			
Technical Assistance:	+1-952-917-3475			

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