MBSC NMS User Manual

For

Fiber Intergraded Distributed Antenna System

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The "mBSC NMS" is designed to operate according to the specification of this User Manual.

Improper installation and operation of this software beyond the installation procedures, beyond the designed operating specifications, and not in compliance with regulatory requirements will revoke any warranty.

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1 Introduction

mBSC Network Monitor System("NMS") is used to monitor and manage the system operational parameters at the mBSC units. NMS consists of NMS Server, NMS Web Client(s) and mBSC units.



Figure 1 NMS(Network Monitoring System) Deployment

mBSC NMS can realize the monitor function for the whole system. It can also get convenient and high efficiency monitor and configuration function by changing parameter configuration. The device monitor and parameter setting solutions provided highly improved the security guarantee of system.

Note:

- 1. While using MBSC network monitor client, different users have different access limit to guarantee the whole system working properly.
- 2. Before setting any parameter, the NMS users should have a good understanding on functions and configurations of NMS system and be familiar with the settings and function of every parameter. Due to some parameters will affect the normal operation of device directly; therefore the users must be very cautious before such operating. NMS will record each event into the log database for check in future. Please check <9 Log Management> for detail. And the function of parameters modification is open to the senior users only.
- 3. Users should keep the user ID and password safely to avoid any unauthorized user(s) login the NMS system, and the system being damaged caused by misoperation.
- 4. Before any re-configuration of the mBSC net, make sure the administrator know well both of the net and operation. Otherwise the NMS system will be in mess and can't present the real mBSC net as well.

2 Install the NMS Software

The following steps describe how to correctly set up the NSM Server.

Step 1: Obtain the latest NMS installation zipped file, and unzip the file.

<u>Step 2</u>: Install the NMS software on the local computer using the "setup.exe" file. Then follow the below steps to finish the whole installation process.

InstallShield Wizar	d
MMS Softw. guide you th	are Setup is preparing the InstallShield Wizard which will rrough the program setup process. Please wait.
Checking Windows(R) Installer Version
	Cancel
Windows Installer	
Preparing to i	install
	Cancel
NMS Software - InstallShie	ld Wizard
	Welcome to the InstallShield Wizard for NMS Software
	The InstallShield(R) Wizard will install NMS Software on your computer. To continue, click Next.
	WARNING: This program is protected by copyright law and international treaties.
	< Back Next > Cancel

Figure 2 Installation Wizard



🖥 NMS Software - InstallShield Wizard			X
Customer Information Please enter your information.			
User Name:			
Administrator			
Organization: BTI			
Install this application for:			
 Anyone who uses this construction Only for me (yanzixun) 	omputer (all users)		
InstallShield			
	< <u>B</u> ack	<u>N</u> ext >	Cancel

Figure 3 Installation Registration

🙀 NMS Software - InstallShield Wizard
Ready to Install the Program The wizard is ready to begin installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard. Current Settings:
Setup Type:
Destination Folder:
C:\Program Files\Bravo\NMS Monitor\
User Information:
Name: Administrator
Company: BTI
I InstallShield
< <u>B</u> ack Install Cancel

Figure 4 Installation Path Confirmation

🙀 NMS Soft	ware - InstallShield Wizar	d	
Installing The prog	NMS Software gram features you selected are	being installed.	
1 1 1	Please wait while the InstallS take several minutes.	hield Wizard installs NMS Software. This may	
	Status:		
	Copying new files		
InstallShield -			
		< Back Next >	Iancel

Figure 5 Installation in Process



Figure 6 Installation Completed

While the installation is finished, there's a shortcut icon of "NMS Software" in the computer's desktop like below:



3 System Configuration

System configuration refers to the parameters settings of system operation environment, which include language selection, connection mode, record storage time, alarm voice, monitor time, command repeat, frequent alarm and modem overtime.



Figure 7 Menu-System Parameter

3.1 Language

NMS nowadays supports both English and Chinese.

🎎 System Config	×
Parament List Language	Parament Information
Record Storage Time Alarm Voice Monitor Time	Language: English 👤 中文
Command Repeat Frequent Alarm Modem Overtime	English To Change this item need restart program !
	✓ Apply 🕼 🕞 Return
L	

Figure 8 System Config-Language

3.2 Connection Mode

NSM provides 2(two) access types: Network and Serial port.

'Network': NMS client connects NMS server through IP address over LAN/Internet.



System Config		
Parament List	Parament Information	
Language Connecting Mode Record Storage Time	Connecting Made: Netwo	rk 🔻
Alarm Voice Monitor Time	Netwo	rk
Command Repeat	Serial	port
Frequent Alarm		
Modem Overtime		
		1
	🖌 🗸 Apply	🗊 Return

'Serial port': NMS client connects NMS server by using serial port directly.

Figure 9 System Config-Connecting Mode

3.3 Record Storage Time

NMS will keep all the alarm & system logs for the specified period. All the overdue record will be deleted automatically.



Figure 10 System Config-Record Storage Time

3.4 Alarm Voice

In the event of any fault occurring, the NMS is able to alert with necessary audio alarm. This feature could be disabled.

🔅 System Config		×
Parament List Language Connecting Mode Record Storage Time Alarm Voice Monitor Time Command Repeat Frequent Alarm Modem Overtime	Parament Information	None
System Config	Apply	∎⊃⇒ Return
Parament List Language Connecting Mode Record Storage Time Alarm Voice	Alarm Voice:	Voice
Monitor Time Command Repeat Frequent Alarm Modem Overtime	High Voice:	High.wav Try
	Middle ∀oice:	Middle.wav Try
	Low Voice: Apply	Low.wav Try

Figure 11 System Config-Alarm Voice

3.5 Monitor Time

It means the polling function which can be activated manually and automatically with pre-defined time(s) to check the status of the devices. The periodical time can be set to 4, 8, 12, 16, 20 and 24 hours.

		-
Parament List	Parament Information	_
Language Connecting Mode Record Storage Time Alarm Voice Monitor Time Command Repeat Frequent Alarm Modem Overtime	Monitor Real-Time: No	
System Config Parament List Language Connecting Mode Record Storage Time	Parament Information	×
Alarm Voice Monitor Time Command Repeat Frequent Alarm Modem Overtime	Interval (ms): 2000 For Example: 1000	
	✓ Apply 🖙 Return	

Figure 12 System Config-Monitor Time

3.6 Command Repeat

In case there's no ACK back from mBSC units, NMS will resend the command at the pre-defined times and interval.

'Repeat Number' means the repeat times while the command is being sent.

'Repeat Interval(ms)' means the interval time(millisecond) between the command sending.

🥵 System Config	×
Parament List	Parament Information
Language Connecting Mode Record Storage Time Alarm Voice	Command Repeat:
Monitor Time Command Repeat Frequent Alarm Modem Overtime	Repeat Number: 3
	Repeat Interval(ms)
	✓ Apply 🕼 Return

Figure 13 System Config-Command Repeat

3.7 Frequent Alarm

In 'Frequent Alarm' the administrator may configure the lasting time of the alarm, and the alarm times sent by the system in this period.

'Time' means the alarm lasting time which could be set as 1, 2, 3, 4, 5 and 6 hours.

'Number' means how many times that the alarm message will be sent in the certain time.

🅵 System Config		X
Parament List	Parament Information-	
Connecting Mode Record Storage Time Alarm Voice Monitor Time	Frequent Alarm	
Command Repeat Frequent Alarm	Time:	1 hour
Modem Overtime	Number:	60
	🖌 Apply	© ⇒ Return

Figure 14 System Config-Frequent Alarm

3.8 Modem Overtime

Here, administrator can set the overtime of the modem connection as well as the reconnection time interval while the system will dial up automatically.

'Modem Overtime' means the modem nonresponse lasting time witch the system will close the connection and start reconnect.

'Reconnect Time(s)' means the time later while the modem will restart the connection.

🐫 System Config	×
Parament List	Parament Information
Language Connecting Mode Record Storage Time Alarm Voice Monitor Time Command Repeat	Modem Overtime : 3 min
Frequent Alarm Modem Overtime	
	Austria To Datum
	V Apply



Figure 15 System Config-Modem Overtime

Whatever setting is changed, do not forget clicking "Apply" button to save the settings, or click "Return" to quit the "System Config" window to keep all the original settings.



4 Port Configuration

Before running the NMS, we need to the set the communication port between the NMS Server and mBSC Master Units. Open the 'Config Port' window as below to assign the target IP address and port.



Figure 16 Menu-Config Port

1	Config Port		×
	-Network target IF	o address	
	IP address:	128.0.2.28	
	IP port:	8192	
	🖌 Apply	📄 👘 Re	turn

Figure 17 Port Setting Interface

5 User Management

There are 2(two) user levels in NMS, senior user and normal user. Senior user is the administrator of the system, and they have no limit of access and operation. Normal user is defined by the senior user, their operation is restricted most for browse the devices status only. Normal users can not set the parameters, edit the active units, or add new users etc. All the NMS users are deployed with user ID(identification) and password. All data held within the NMS are protected from access by unauthorized users.

When normal user comes up with problem while using, he should report this problem to the senior user. If senior still can't solve the problem, please contact BTI support team directly.

The operating interface is shown below.



Figure 18 Menu-User Management

5.1 Senior User Authorization

NMS offers 2 default user IDs for senior user and normal user each.

User ID	Password	User Level
Manager	1	Senior User
User	1	Normal User

Click the 'Advance' checkbox in the login window, login with the default senior user ID.

💋 Login	×
User :	Manager
Password :	
	Advance
🗸 ок	📕 Exit

Figure 19 Login Window-Senior Users

In the "User Manager", administrators are able to view and edit all the users' information.

5.1.1 Add New User

Input the new user's ID, password and level information in the 'User Information' section, click the 'Add' button, then a new user is created in NMS system successfully.

User Manager		X
User List	User Infomation	
Manager User	User :	Adminstrator01
	Password :	Admin0602
	Level :	senior 💌
		/
	Add	🦉 Modify
	X Delete	∎©⇒ Return
]		

Figure 20 Add New User

5.1.2 Edit User

Senior users can edit the users' authorization information, which includes its user ID, password and its access level. You can modify all of the three items at one time or either of them as needed.

🚡 User Manager		×
User List	User Infomation—	
User Adminstrator01	User :	Adminstrator02
	Password :	Admin0704
	Level :	General 🔽
	🕒 Add	C Modify
	X Delete	IC ⇒ Return

Figure 21 Edit User

5.1.3 Delete User

Senior users are able to delete the unuseful user account(s). Select the user ID in the left 'User List', click the 'Delete' button. Then this user ID will be removed from the system, and you can not see it in the 'User List'. Also nobody is able to login the NMS with this ID.

User Manager		×
User List	User Infomation	
Variager User Adminstrator02	User :	Adminstrator02
	Password :	Admin0704
	Level :	General
	🕒 Add	🥻 Modify
	X Delete	∎t≫ Return

Figure 22 Delete User

5.2 Normal User Authorization

Unclick the 'Advance' checkbox, login by using the normal user ID to enter the pre-defined limited information windows.

Login	×
User :	User
Password :	*
□.	Advance
✓ ОК	Exit

Figure 23 Login Window-Normal Users

For normal users, they can only see their own ID in the 'User Manage' window. Also they have no right to add or delete any user IDs. But normal users are able to change their password as needed.



Figure 24 Normal Users-Limit Access

6 mBSC Units Net

NMS is able to monitor all the activated mBSC units. Therefore first of all, the administrator needs to setup the mBSC units' properties in the NMS 'System Net' window.

Login the NMS system by using either senior user ID. Go to the menu and select 'Net Manager' to open the mBSC Units' Net configuration window.



Figure 25 Menu-Net Manager

There're two parts in the 'System Net' window, the left is the mBSC units' net tree map, and the relevant district and site information is in the right. Only the Senior Users can edit all the properties of the location and site. Before NMS runs for the whole mBSC net monitoring, all the active mBSC units need to be setup in 'System Net'.

🐺 System Net	X
System Net	Information
	O District © Equipment
in 😓 Area03	Provine : HongKong
	District Caption : Test
	District Code : 2
	Select Equipment
	O MU ⊙ RU
	RU Caption : RU-01
	MU NO. : 1
	Equipment Code : 1
	IP Address : 128.0.2.28
	IP Port : 8192
	Add 🛃 Modify
	X Delete IC⇒ Return
RU-01	

Figure 26 System Net

6.1 Edit District

If the mBSC units are located in different areas, so you need to set up the district to identify these units.

6.1.1 Add New District

If there's no district which the mBSC unit belongs to, you need to first create the district. Select the

'District' in the right top, input the caption and code name of the new district, then click save as shown below:

🐺 System Net	×
System Net	-Information
🖭 🚛 Test	Select item
🗄 🏭 Area03	O Equipment
Area04	
	Provine : HongKong
	District Continue Area06
	District Code : 6
	Input the District
	information
	/
	🖹 Add 🛛 🦉 Modify
	Y Delate
P	
System Net	

Figure 27 System Net-Add District

6.1.2 Modify District

According the changes of the district, its caption and code information is allowed to be modified by the

senior user. Select the district name, then input the updated information and click to save the changing.

🛃 System Net	×
System Net System Net MU-01 Area03 Area04 1) Select the District caption in the left list.	Information Select item • District • District • C Equipment Provine : HongKong District Caption : Test District Code : 2 2) Edit the District information.
Test	Add C Modify

Figure 28 System Net-Edit District

6.1.3 Delete District

To delete the district in the tree, just select the target district name then click button. Please note all the site under the district will be removed at the same time with the district deletion.

🕎 System Net		×
System Net Test Area03 Area04 1) Select the District Caption in the left list.	Information Select item © District © Equipment Provine : HongKong District Caption : Area04 District Code : 4	
Warning This operation will delete all <u>Yes</u> 3) Confirm the	site in the district ! Are you sure ?	
2) Click the 'Delete' buttor Area04	Add X Delete Return	

Figure 29 System Net-Delete District

6.2 Edit Equipment

After the setup of the District, the senior users may add the information of the equipments.

6.2.1 Add New Equipment

Go to the main menu bar and click 'Net' to enter the Equipment configuration window as below. The MU(Master Unit) need to be added first, otherwise the RU(Remote Unit) is not able to be created.

6.2.1.1 Add New MU

In the 'System Net' window,

- 1. Select the district name in the left 'System Net' section which the site is located;
- 2. Select the 'Equipment' radio box in the right top 'Select Item' section or click the equipment name directly under the District caption in the left menu tree;
- 3. Select the radio box of 'MU', and then input the MU Caption, MU No. and MU IP address.
- 4. After confirmation, click button to save and finish the new MU creation.

🐺 System Net			×
System Net		Information 2	?) Select the
🕀 😓 Test		Select item	
		 District 	 Equipment
Area04 1) Select name in th	the District ne left list.	Provine : District Caption	HongKong : AreaO4
		District Code :	4
	3) Select 'MU' radio box.	Select Equipme	C RU
		MU Caption :	MU4-01
	4) Input the MU's information.	MU NO. :	4
		Equipment Code	e: O
		IP Address :	192.168.4.1
		IP Port :	8192
5) to	Click 'Add' button save the creation.	🗎 Add	C Modify
		X Delete	rt≫ Return
Area04			

Figure 30 System Net-Add New MU

6.2.1.2 Add New RU

After the MU is created, you can add the RU carried by the MU.

- 1. Select the MU name in the left 'System Net' section;
- 2. Select the 'RU' radio box;
- 3. Input the information of the RU which includes RU Caption, RU No. and Equipment code;
 - Click Add

4.

button to save the addition.

🐺 System Net			×
System Net	In	formation	
E lest E 4 Area03 E 4 Area04		Select item C District	Equipment
1) Selection name in	t the MU the left list.	Provine :	HongKong
		District Caption :	Area04
		District Code :	4 2) Select 'RU'
		Select Equipment	radio box.
		C MU	© RU
	3) Input the RU	RU Caption :	RU4-1-1
	information.	MU NO. :	41
		Equipment Code :	411
		IP Address :	192.168.4.1
		IP Port :	8192
	4) Click 'Add' button to save	Add 🕒	🖉 Modify
	the creation.	X Delete	Return
MU4-1			

Figure 31 System Net-Add New RU

6.2.2 Modify Equipment

Also, the administrator can change the site properties of the equipment. Go to select the MU or RU name in the 'System Net' list, and input the updated relevant information in the right form as shown below. Finally, click 'Modify' button to save all the changes.

6.2.2.1 Modify MU

Go to the 'System Net' window as shown below,

- 1. Select the MU caption in the left list tree;
- 2. Edit the MU information in the right form;
- 3. Click the

🏹 Modify

button to save the changes.

System Net Information Image: Test Select item Image: Area03 Image: District Image: RU3-1 1) Select the MU Image: RU4-1-1 1 Image: RU4-1-1 1 Select Equipment Image: RU4-2 Image: RU4-2 1 Image: RU4-2	🚚 System Net	×
Select item MU3-1 RU3-1 RU4-1-1 1) Select the MU name in the left list. Select Equipment Select Equipment Select Equipment MU	System Net	Information
MU3-1 RU3-1 RU3-1 RU3-1 MU4-1 N Select the MU name in the left list. 2) Edit the MU information. C District C puipment Provine : HongKong District Caption : Area04 Select Equipment C MU MU Caption : MU4-2 MU4-2 MU NO. : 42	Test	Select item
Provine : HongKong District Caption : Area04 District Caption : Area04 District Code : 4 Select Equipment © RU Information. MU4-2 MU4-1 MU4-2 MU4-1 MU4-2 Image: RU4-1-1 MU NO, :	🖃 🖚 MU3-1	C District © Equipment
Image: WU4-1 mame in the left list. District Caption : Area04 District Code : 4 Select Equipment Image: WU4-2 Image: Comparison of the MU information. MU Caption : MU4-2 MU NO. : 42	RU3-1	Provine : HongKong
2) Edit the MU information. MU RU MU Caption : MU4-2 MUV0. :	BU4-1 1) Select the MU	District Cantion Area04
2) Edit the MU information.	name in the left list.	District Cada : 4
2) Edit the MU information.		Orland Environment
2) Edit the MU information. MU Caption : MU4-2 MU NO. : 42		
2) Edit the MU information. MU Caption : MU4-2 MU NO. : 42		· MO ORO
information.	2) Edit the MU	MU Cantion MU4-2
MU NO. : 42	information.	
		MU NU. : 12
Equipment Code : U		Equipment Code : J
IP Address : 192.168.4.1		IP Address : 192.168.4.1
IP Port : 8192		IP Port : 8192
3) Click 'Modify' Add	3) Click 'Modify'	🖹 Add 🔀 Modify
changes. X Delete Creater	changes.	X Delete
MU4-1	MU4-1	

Figure 32 System Net-Modify MU

6.2.2.2 Modify RU

3.

Go to the 'System Net' window as shown below,

- 1. Select the RU caption in the left list tree;
- 2. Edit the RU information in the right form;

Click the

button to save the changes.

You can not change the MU NO. here in RU modification.

🐺 System Net			×
System Net Test Area03 MU3-1 KU3-1 Area04 MU4-1 RU4-1-2	1) Select the RU caption in the left	Information Select item District Provine : District Caption : District Code :	 ✓ Equipment HongKong Area04 4
	list. 2) Edit the RU	Select Equipment	© RU RU4-1-2
	Information.	MU NO. : Equipment Code : IP Address : IP Port :	41 412 192.168.4.1 8192
	3) Click 'Modify' to save the changes.	Add	Kar Modify
RU4-1-2			

Figure 33 System Net-Modify RU

6.2.3 Delete Equipment

Same, in the 'System Net' window, the site could be removed from the list by the administrator as below steps:

1. Go to select the MU or RU name in the left section;

```
2. Click X Delete button.
```

Please note the deleted site is not able to be retrieved only after you create a new site. Also, all the RU(s) under the certain MU will be removed while this MU is deleted.

🐺 System Net		×
System Net	Information	
E test	Select item	
E → MU3-1	O District	Equipment
– ∰ RU3-1 ⊨-Щ Area04 ⊨-ጭ MU4-1	Provine :	HongKong
RU4-1-2	District Caption :	Area04
	District Code :	4
	Select Equipment	1
Warning	© MU	O RU
Are you sure to dek	ete the site ? tion :	MU4-1
<u>Yes</u> <u>N</u> e	ent Code :	0
. 7 .	IP Address :	192.168.4.1
	IP Port :	8192
Confirm to remove the MU.	🖹 Add	🛃 Modify
	X Delete	∎©⇒ Return
MU4-1		

Figure 34 System Net-Delete Equipment

7 Device Monitoring & Configuration

NMS provides detailed and complete mBSC system status monitoring in the main window. The NMS Monitor Centre offers the mBSC units status in 6(six) categories:

Information Center Parameter Alarm Status Alarm Enabled Parameter Sampling

Figure 35 Device Monitoring & Configuration Pages

Following are the function property:

#	Category	Function Property
1	Information	Read
1	Information	Set (only in the connection mode of 'Serial port')
S	Contor Paramotor	Read
2	Center Parameter	Set
2	Alorm Status	Read
3 Alarm Status		Report
4	Alarm Enabled	Read
-		Set
5	Parameter	Read
5	i arameter	Set
6	Sampling	Read only

7.1 Information

Information displays the device information of the selected unit. The device information items are same both for MU and RU.

MU : MU-01 RU : Monitor Last Time: 2008-05-24/17:42:40 Parament List					
Selected	ltem	Current Value	Edit Value	Edit Rule	
	Manufacturer Code	1		Number , 0 <= X <= 255	
	Device Type	25		Number , 0 <= X <= 255	
	Device Mode	Subway_ICS		Character ShortString , Maxima	
	Device S/N	MU_2008051500001		Character ShortString , Maxima	
	Channel Number	1		Number , 0 <= X <= 255	
	Longitude	E103.12345678		Character ShortString , Maxima	
	Latitude	N103.12345678		Character ShortString , Maxima	
	Monitor Version	SOFT 1.000 20080515		Character ShortString , Maxima	

Figure 36 Device Information

There's a button Parament List in the right top in blue words. After a new mBSC unit(MU or RU) is added into the whole net. The administrator has to press this button manually to trigger the data connection between the NMS system and the unit. It's only used once at the beginning, thereafter the system will get the device's state information automatically.

And these items are able to be edit only in the Connection Mode of 'Serial port'.

Edit steps:

- 1. Select the target item and click <u>Select</u> button;
- 2. Click Edit button;
- 3. Input the new value in the 'Edit Value' form. (Please refer to rule description in the right 'Edit Rule' column);
- 4. Click set button to save the change.



Figure 37 Device Information Items Editing

7.2 Center Parameter

Center Parameter displays the site and device number, IP address and port of the monitor center and the date format.

MU has the information of IP address.

nformation	mation Center Parameter Alarm Status Alarm Enabled Parameter Sampling			
MU : MU-01 RU : Monitor Last Time: 2008-05-24/17:42:40				
Selected	ltem	Current Value	Edit Value	Edit Rule
	Site No.	00020001		Number , 0 <= X <= 4294967295
	Device No.	0		Number , 0 <= X <= 255
	Monitor centre IP address	128.0.0.15		128.0.2.28
	Monitor centre IP port	8192		Number , 0 <= X <= 65535
	Report type	3		Number , 0 <= X <= 255
	Date & Time	2008-05-15/12:05:50		Number ShortString , 2006-01-01/12:00:00

Figure 38 Center Parameter-MU

But there's no IP address for RU.

formation	Center Parameter 🛛 A	larm Status Alarm Enabled	Parameter Sampling		
MU : MU-01 RU : RU-01 Monitor Last Time: 2008-05-24/17:42:38					
Selected	ltem	Current Value	Edit Value	Edit Rule	
	Site No.	00020001		Number , 0 <= X <= 429496	
	Device No.	1		Number , 0 <= X <= 255	
	Report type	3		Number , 0 <= X <= 255	
	Date & Time	2008-03-31/15:00:10		Number ShortString , 2006-0	

Figure 39 Center Parameter-RU

The Center Parameter items are able to be changed. Please refer to <7.1 Information> for the Edit Step.

7.3 Alarm Status

Alarm Status displays the mBSC units alarm information. In the MU's Alarm Status page, you may check the FDDI transmit state to the linked RUs. All the alarm item value is in RED letters to be recognised easily and quickly.

Information Center Parameter Alarm Status Alarm Enabled Parameter Sampling				
MU : MU-01 RU : Monitor Last Time: 2008-05-24/17:42:40				
Item	Current Value			
RU1 FDDI transmit alarm	Alarm			
RU1 FDDI receival alarm	Alarm			
RU2 FDDI transmit alarm	Normal			
RU2 FDDI receival alarm	Normal			
RU3 FDDI transmit alarm	Normal			
RU3 FDDI receival alarm	Normal			
RU4 FDDI transmit alarm	Normal			
RU4 FDDI receival alarm	Normal			
	Center Parameter Alarm Status Alarm Enabled Parameter S 01 RU : Monitor Last Tir Item Item RU1 FDDI transmit alarm RU1 FDDI transmit alarm RU1 FDDI receival alarm RU2 FDDI transmit alarm RU2 FDDI transmit alarm RU3 FDDI receival alarm RU3 FDDI transmit alarm RU3 FDDI transmit alarm RU4 FDDI receival alarm RU4 FDDI transmit alarm RU4 FDDI transmit alarm			

Figure 40 Alarm Status-MU

For the RUs, system offers the following items alarm status:

#	Alarm Item	Value	Description
1	DC fail alarm	Normal Alarm	DC power supply status
2	Entrance guard alarm	Normal Alarm	It alarms while the front door is open.



З	Downlink OverDrive alarm	Normal Alarm	This alarm occurs while the system input power is over the
5		Normai Alaim	defined value.
4	Downlink OverDower clarm	Normal Alarm	It alarms while the output power of the downlink PA is over
4	Downlink OverPower alarm		the limit.
_			It alarms while the output power of the uplink PA is over the
5	Uplink OverPower alarm	Normal Alarm	limit.
~		Normal Alarm	Generally, Over VSWR alarm and shut down @ 5.0
6	Downlink VSWR alarm		Over VSWR restart @ 3.0
			Over temperature alarm and shut down power amplifier:
7	Downlink OverTemperature alarm	Normal Alarm	≥95° C
			Over temperature restart @ 75°C
			Over temperature alarm and shut down power amplifier:
8	Uplink OverTemperature alarm	Normal Alarm	≥95° C
		-	Over temperature restart @ 75°C

MU : MU-01 Monitor Last Time: 2008-05-24/17:42:38					
Selected	Item	Current Value	-		
	DC fail alarm	Normal			
	Entrance guard alarm	Normal			
	GSM downlink OverDrive alarm	Normal			
	GSM downlink OverPower alarm	Normal			
	GSM uplink OverPower alarm	Normal			
	GSM downlink ∀SWR alarm	Normal			
	PCS downlink OverDrive alarm	Normal			
	PCS downlink OverPower alarm	Normal			
	PCS uplink OverPower alarm	Normal			
	PCS downlink VSWR alarm	Normal			
	UMTS downlink OverDrive alarm	Normal			
	UMTS downlink OverPower alarm	Normal			
	UMTS uplink OverPower alarm	Normal			
	UMTS downlink VSWR alarm	Normal			
	GSM downlink OverTemperature alarm	Normal			
	GSM uplink OverTemperature alarm	Normal			

Figure 41 Alarm Status-RU

7.4 Alarm Enabled

Alarm Enabled displays the working status of the alarm items. Here the administrator can enable or disable the alarm items. Only the enabled alarm items could be checked in the Alarm Status page. Please refer to <7.1 Information> for the Edit Step.

MU : MU-	01 RU :	Monitor Last Time: 2008-05-24/17:42:40		
Selected	Item	Current Value	Edit Value	Edit Rule
	RU1 FDDI transmit alarm enable	Enabled		Boolean logic
	RU1 FDDI receival alarm enable	Enabled		Boolean logic Boolean logic
	RU2 FDDI transmit alarm enable	Enabled	Enabled	
	RU2 FDDI receival alarm enable	Enabled		Boolean logic
	RU3 FDDI transmit alarm enable	Enabled		Boolean logic
	RU3 FDDI receival alarm enable	Enabled		Boolean logic Boolean logic
	RU4 FDDI transmit alarm enable	Enabled		
	RU4 FDDI receival alarm enable	Enabled		Boolean logic

manual -

Figure 42 MU's Alarm Items Setting Screen

- - - - 1

J : MU-	01 RU : RU-01	Monitor	Monitor Last Time: 2008-05-24/17:42:38		
Selected	Item	Current Value Edit Value		Edit Rule	
	DC fail alarm enable	Disable		Boolean logic	
	Entrance guard alarm enable	Disable		Boolean logic	
	GSM downlink OverDrive alarm enable	Disable		Boolean logic	
	GSM downlink OverPower alarm enable	Disable		Boolean logic	
	GSM uplink OverPower alarm enable	Disable		Boolean logic	
	GSM downlink VSWR alarm enable	Disable		Boolean logic	
	PCS downlink OverDrive alarm enable	Disable		Boolean logic	
	PCS downlink OverPower alarm enable	Disable		Boolean logic	
	PCS uplink OverPower alarm enable	Disable		Boolean logic	
	PCS downlink VSWR alarm enable	Disable		Boolean logic	
	UMTS downlink OverDrive alarm enable	Disable		Boolean logic	
	UMTS downlink OverPower alarm enable	Disable		Boolean logic	
	UMTS uplink OverPower alarm enable	Disable		Boolean logic	
	UMTS downlink VSWR alarm enable	Disable		Boolean logic	
	GSM downlink OverTemperature alarm enable	Disable		Boolean logic	
	GSM uplink OverTemperature alarm enable	Disable		Boolean logic	
	GSM unlink VSWP alarm enable	Dieshle		Boolean Iogic	

Figure 43 RU's Alarm Items Setting Screen

7.5 Parameter

Parameter displays the mBSC devices' parameters values and working status. Parameter page is only available for RU.

The RU's parameters are as below:

#	Parameter Item	Value
1	Uplink PA	Enabled Disabled
2	Downlink PA	Enabled Disabled
3	Uplink Attenuation	**dB
4	Downlink Attenuation	**dB
5	Downlink OverDrive alarm threshold	**dBm

6	Downlink OverPower alarm threshold	**dBm
7	Uplink OverPower alarm threshold	**dBm
8	Downlink VSWR alarm threshold	** *
9	Downlink OverTemperature alarm threshold	**°C
10	Uplink OverTemperature alarm threshold	**°C
11	Uplink OverPower alarm threshold	** *
12	Remote control power ON/OFF	Enabled Disabled

Please refer to <7.1 Information> for the Edit Step.

MU : MU-	01 RU : RU-01	Monitor	Last Time: 200	8-05-24/17:42:38	
Selected	Item	Current Value	Current Value Edit Value		
	GSM uplink PA Enable/Disable	Enabled		Boolean logic	
	PCS uplink PA Enable/Disable	Enabled		Boolean logic	
	UMTS uplink PA Enable/Disable	Enabled Enabled		Boolean logic	
	GSM downlink PA Enable/Disable			Boolean logic	
PCS downlink PA Enable/Disable UMTS downlink PA Enable/Disable		Enabled Enabled		Boolean logic Boolean logic	
	GSM downlink Attenuation	55 dB		Number , 0 <= X <=	
	PCS uplink Attenuation	55 dB		Number , 0 <= X <=	
PCS downlink Attenuation		55 dB		Number , 0 <= X <=	
	UMTS uplink Attenuation	55 dB		Number , 0 <= X <=	
	UMTS downlink Attenuation	55 dB		Number , 0 <= X <=	
	GSM downlink OverDrive alarm threshold	23 dBm		Number , -128 <= X	
	GSM downlink OverPower alarm threshold	70 dBm		Number , -128 <= X	
GSM uplink OverPower alarm threshold		70 dBm		Number , -128 <= X	
	GSM downlink VSWR alarm threshold	10.2		Float , 0 <= X <= 25	

Figure 44 Device Parameters

7.6 Sampling

Sampling page displays the remote units' functions parameters which are requested manually. Administrator can check either of the list items or all the items at one time.

1. Select the parameter item and click Select button;

2. Then click Read button, the NMS will get the up to date value from the designated unit.

Also, you can ask to display either function parameter values of the multiple bands or all by choosing the band radio box before the above steps.

elected	Item	Current Value
I	GSM downlink Gain	0 dBm
	GSM downlink output power	0 dBm
	GSM uplink output power	0 dBm
	GSM downlink ∀SWR	0
	GSM downlink PA temperature	0 'C
	GSM uplink PA temperature	0 'C
	GSM uplink ∀SWR	0
	GSM downlink PA communication status	Normal
	GSM uplink PA communication status	Normal
	GSM downlink PA run status	Normal
	GSM uplink PA run status	Normal
	GSM uplink Gain	0 dBm
Band	selection bar.	

Figure 45 Monitoring State Sampling

8 Alarm Management

Alarm management provides detailed and complete system alarm inquiry. Administrator can check the alarm status freely by different filtering conditions and then manage the operation status of all devices in the system.



Figure 46 Menu-Alarm Manager

Alarm management consists of 6(six) pages about Active Alarm, Cleared Alarm, Frequent Alarm, Query Alarm, Statistic Alarm and Level Custom.

Active Alarm Cleared Alarm Frequent Alarm Query Alarm Statistic Alarm Level Custom

Figure 47 Alarm Pages

8.1 Active Alarm

Active Alarm page displays all the current alarms in the whole mBSC net.

Station	Equipmer	Level	Reason	Starting Time	
00030002	0	0	RU1 FDDI transmit alarm	2008-5-24/16:	All
00030002	0	0	RU1 FDDI receival alarm	2008-5-24/16:	Station
00030002	1	0	DC fail alarm	2008-5-24/16:	Date
00030002	1	0	Entrance guard alarm	2008-5-24/16:	
00020001	0	0	RU1 FDDI transmit alarm	2008-5-24/16:	
00030001	1	0	Entrance guard alarm	2008-5-24/16:	
00030001	0	0	RU1 FDDI transmit alarm	2008-5-24/16:	Alarm Total: 15
00030001	0	0	RU1 FDDI receival alarm	2008-5-24/16:	
02000100	0	0	RU1 FDDI transmit alarm	2008-5-24/17:	
02000100	0	0	RU1 FDDI receival alarm	2008-5-24/17:	En Save
02000100	1	0	Entrance guard alarm	2008-5-24/17:	
01020001	1	0	Entrance guard alarm	2008-5-24/17:	
0000200	0	0	RU1 FDDI transmit alarm	2008-5-24/17:	
0000200	0	0	RU1 FDDI receival alarm	2008-5-24/17:	
01000200	1	0	Entrance guard alarm	2008-5-24/17:	History
					∎c≫ Return

Figure 48 Active Alarm

8.1.1 Data Sort

All the active alarm data could be sorted by Station or Date. In the sort of Station, there're still 3(three) sub-level to sort the data much more accurately.

Figure 49 Alarm Sort

8.1.2 Data Saving

Administrator(s) can save the active alarm data manually.

- 1. Sort the active alarms as needed;
- 2. Click button, input the file name in the popup window below, the default file name is the current date;

Save Record	,	×
Please input a file name :		
2008-06-25		
OK	Cancel	

3. After a few seconds, there will popup the saving result window with the file information.

MS Software	×
Saved Success ! File Name : 2008-06-25.act File Path : C:\Program Files\Bravo\NMS Monitor\Sa	ive\
OK	

4. If you want to check the saved active alarms record(s), go into the Active Alarm page and click

button to open the saved file(s) before.



8.1.3 Data Printing

Except saving the active alarms, the data can be also printed out.

- 1. Sort the active alarms as needed;
- 2. Click button, the system will popup the Print Review window as shown below. You can check and zoom the reviewed page(s);

			NMS Monitor Center V	2.4.1 Record			
Active Alarm Record 2008-6-25/17:30:19							
Station	Equipmen	t Level	Reason	Start Time	Cleared Time	Remark	
00030002	0	0 F	RU1 FDDI transmit alarm	2008-5-24/16:35:01			
00030002	0	0 F	RU1 FDDI receival alarm	2008-5-24/16:35:01			
00030002	1	0 [DC fail alarm	2008-5-24/16:35:15			
00030002	1	0 E	Entrance guard alarm	2008-5-24/16:35:15			
00020001	0	0 F	RU1 FDDI transmit alarm	2008-5-24/16:36:17			
00030001	1	0 E	Entrance guard alarm	2008-5-24/16:42:46			
00030001	0	0 F	RU1 FDDI transmit alarm	2008-5-24/16:42:48			
00030001	0	O F	RU1 FDDI receival alarm	2008-5-24/16:42:48			
02000100	0	0 F	RU1 FDDI transmit alarm	2008-5-24/17:18:34			
02000100	0	0 F	RU1 FDDI receival alarm	2008-5-24/17:19:42			

3. Click the print icon in the Print Review window. Here you can save the output printed active alarms report to whatever storage disk(like hard disk, memory stick, flash memory etc.), or open another saved report(s) to check and/or print;

🏷 Print Preview			
	•	¥	N 📕 🛃 🖬 🖆 门 ose
			and the second sec

4. Click 'Close' button to quit the Print Review window without printing.

8.2 Cleared Alarm

Cleared Alarm page displays all the alarm events witch are restored in the whole mBSC net.

<mark>larm Manag</mark> ctive Alarm	Cleared A	larm	Frequent Alarm Query Alarm Stati	stic Alarm Leve	el Custom
Station	Equipmen	Level	Reason	Starting Time	First Index: All
00020001	0	0	RU1 FDDI receival alarm	2008-5-24/16	All
00020001	1	0	DC fail alarm	2008-5-24/16	Station
00020001	1	0	Entrance guard alarm	2008-5-24/16	Date
00030001	1	0	DC fail alarm	2008-5-24/16	
					Alarm Total: 4
•				Þ	nc≫ Return

Figure 50 Cleared Alarm

Same, all the Cleared Alarm data can be sorted, saved, printed. Please refer to <8.1 Active Alarm> for the operation in detailed.

8.3 Frequent Alarm

Frequent Alarm page displays the alarms which are occurred frequently in the system.

🕈 Alarm Manage	er							X
Active Alarm	Cleared Ala	arm Frequent	t Alarm Quer	y Alarm	Statistic A	larm Level	Custom	1
Index	Caption	Station	Equipment	Туре	Status	Star	First Index: All All Station	
							Alarm Total: 0	
							Print	
						Þ	∎t≫ Return	

Figure 51 Frequent Alarm

Same, all the Cleared Alarm data can be sorted, saved, printed. Please refer to <8.1 Active Alarm> for the operation in detailed.

8.4 Query Alarm

In the Query Alarm page, you can check all the current the alarm queries in the NMS. It also supports sorting, saving and printing. Please refer to <8.1 Active Alarm> for the operation in detailed.

Chatlan	In		D	lover time Time				
Station	Equipmen	Level	Reason	Starting Time	Cleared Time	First In	ndex:	All
00030002	0	U	RU1 FDDI transmit ala	2008-5-24/16				All
00030002	U	U	RU1 FDDI receival alar	2008-5-24/16:				Level
00030002	1	U	DC fail alarm	2008-5-24/16:				Starting Time
00030002	1	0	Entrance guard alarm	2008-5-24/16:				Netive Bluids
00020001	0	0	RU1 FDDI transmit ala	2008-5-24/16:				
00020001	0	0	RU1 FDDI receival alar	2008-5-24/16:	2008-5-24/17:			10
00020001	1	0	DC fail alarm	2008-5-24/16:	2008-5-24/17:	Alarm	Total:	119
00020001	1	0	Entrance guard alarm	2008-5-24/16:	2008-5-24/17:			
00030001	1	0	DC fail alarm	2008-5-24/16:	2008-5-24/16:		D	
00030001	1	0	Entrance guard alarm	2008-5-24/16:				Save
00030001	0	0	RU1 FDDI transmit ala	2008-5-24/16:				
00030001	0	0	RU1 FDDI receival alar	2008-5-24/16:			G	
02000100	0	0	RU1 FDDI transmit ala	2008-5-24/17:			É	Print
02000100	0	0	RU1 FDDI receival alar	2008-5-24/17:				
02000100	1	0	Entrance guard alarm	2008-5-24/17:				
01020001	1	0	Entrance guard alarm	2008-5-24/17:				riistory
00000200	0	0	RU1 FDDI transmit ala	2008-5-24/17:				
00000200	0	0	RU1 FDDI receival alar	2008-5-24/17:			1	Poturn
01000200	1	0	Entrance guard alarm	2008-5-24/17				Kerdin

Figure 52 Query Alarm

8.5 Statistic Alarm

NMS provides the alarm statistics chart and output. Go to the Statistics Alarm page in Alarm Manager as shown below. There's the chart in line with data markers. In the right panel, you can change the chart X, Y range and choose the alarm types which need to be collected in the chart.



Figure 53 Statistic Alarm

8.5.1 Chart Saving

Pursuant the following steps to save the alarm statistic chart:

- 1. Set the chart X,Y range
- 2. Select the alarm types;
- 3. Click button and input the chart image file name in the popup window below;

Please input a file r	name :		
2000 0C 2C here			
2000-06-20.0mp			
			_
		Cancel	

4. The system will save the chart screen in .bmp image in the path of C:\Program Files\Bravo\NMS Monitor\Save.

8.5.2 Chart Printing

The line chart could be printed out directly by click button. You was same as the saved image.

button. You will get the WYSWG chart

9 Log Management

NMS records all the users operations and system events in the database. Go to the menu and select 'Record' to enter the log window.

Config(C) Ne	t Manager (N)	Alarm Ma	mager (A)	Record (E)	Help(H)	-
æ	2	2	₹	Record	L.	2
Config Port	User	Net	Alam	Save As	Excel	elp 🦽
E 🛃 Te	st		In	formation	Center Pa	eme
8	MU-01			MU - ML	L01	



The administrator can check, sort, save and print the log information.

				Index		
User	Туре	Content	4			
Manager	User Login	User Login		First :		
Manager	User Login	User Login			All	
Manager	User Login	User Login			User	
Manager	User Login	User Login			Date	
Manager	User Login	User Login				
Manager	User Login	User Login				
Manager	User Login	User Login				
Manager	User Login	User Login				
Manager	System Net	Add District:Test2				
Manager	System Net	Delete District:Test2		-Function k	<eys< td=""><td></td></eys<>	
Manager	System Net	Add Station:01(00040004-0)				
Manager	System Net	Delete Site:01			1	
Manager	System Net	Add Station:MU4-1(00040041-0)			🖺 Save	
Manager	System Net	Add Station:RU4-1-1(00040041-411)				
Manager	System Net	Modify Site:Site No.:41->412;Site Capt				
Manager	System Net	Delete Site:MU4-1			P. Drint	
Manager	Port Manager	Prot:192.168.4.1->128.0.2.28;				
Manager	User Login	User Login				
					rc≠ Return	

Figure 55 Record Manager

9.1 Log Saving

NMS will keep the log data as the defined time, please refer to <3.3 Record Storage Time> for the setting. The overdue logs will be deleted automatically in the system. Therefore timely manual storage is recommended.

9.1.1 Saving as System Format(.rcd)

1. Sort the logs as needed;

2. Click button, input the file name in the popup window below, the default file name is the current date;



3. After a few seconds, there will popup the saving result window with the file information.

NMS Software	×
Saved Success I File Name : 2008-06-26.rcd File Path : C:\Program Files\Bravo\NMS Monitor	r\Save\
(OK)	

- 4. The log data file will be saved in the default path. You'd better keep it in some other safe place as record.
- 9.1.2 Saving as Excel Format(.xls)
 - 1. Select 'Save As Excel' in the main menu of 'Record';

🖏 NES 🗉	onitor Cent	er ¥2.1.3	3			ð
Config(C)	Net Manager (<u>N</u>) Alarm Ma	nager (<u>A</u>)	Record (<u>R</u>)	Help(<u>H</u>)	
Ť	2	A	-) 7:	<u>R</u> ecord		Ra 🔪
Config Po	rt User	Net	Alarm	<u>S</u> ave As	Excel	Help
	t		Ir	formation	Center	vrame
	iest 😰 Mill-01					~
、		1	Sure .	MU : MU	-01	

2. Input the file name in the popup window below, the default file name is the current date;



3. After a few seconds, there will popup the saving result window with the file information.

NES Monitor Center	×
Saved Success ! File Name : RU-01_2008-09-18_Info.xls File Path : E:\Bti_pa\SubWay\NMS\Software\Save	A
<u>UK</u>	

4. The log data file will be saved in the default path. You'd better keep it in some other safe place as record.

9.2 Log Printing

The log data can be also printed out as well.

- 1. Sort the logs as needed;
- 2. Click button, the system will popup the Print Review window as shown below. You can check and zoom the reviewed page(s);

			MBSC Monitor Center V1.0 Record		
		Record		2008-6-26/13:50:59	
Inde	k User	Туре	Content	Date	Time
1	Manager	User Login	User Login	2008-6-8	23:28:24
2	Manager	User Login	User Login	2008-6-8	23:52:34
3	Manager	User Login	User Login	2008-6-9	00:20:50
4	Manager	User Login	User Login	2008-6-9	16:08:53
5	Manager	User Login	User Login	2008-6-9	16:14:39
6	Manager	User Login	User Login	2008-6-9	16:15:38
7	Manager	User Login	User Login	2008-6-24	17:15:02
8	Manager	User Login	User Login	2008-6-25	09:33:31
9	Manager	System Net	Add District: Test2	2008-6-25	10:07:04
10	Manager	System Net	Delete District: Test2	2008-6-25	10:07:12

3. Click the print icon in the Print Review window. Here you can save the output printed active alarms report to whatever storage disk(like hard disk, memory stick, flash memory etc.), or open another saved report(s) to check and/or print;

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			100 M

4. Click 'Close' button to quit the Print Review window without printing.

10Abbreviations

Abbreviation	Definition
DC	Direct Current
C°	Degree Celsius
COM	Serial Communication Port
dBm	Power measurement referenced to the specific power level of one watt
FDDI	Fiber Distributed Data Interface
GSM	Global System for Mobile Communication
MU	mBSC Optical Master Unit
NMS	Network Monitoring System
PA	Power Amplifier
PCS	Personal Communication Service
RF	Radio Frequency
RU	mBSC Optical Remote Unit
UMTS	Universal Mobile Telecommunications System
VSWR	Voltage Standing Wave Ratio
WYSWG	What You See, What You Get