

2.4.2 Überspannungsschutz

Verwenden Sie den Überspannungsschutz, um Ihr Gerät und Ihre Daten gegen Stromstöße zu schützen.

So verbinden Sie die Kabelabschirmung mit dem Erdungsanschluss des Überspannungsschutzes:

1. Entfernen Sie die Abdeckung des Überspannungsschutzes.
2. Führen Sie das Ethernet-Kabel durch die Öffnung an der rechten Seite in den Überspannungsschutz ein.
3. Messen Sie ca. 12,5 cm (5 Zoll) vom Ende des Kabels, das Sie in die Öffnung eingeführt haben.
4. Ritzen Sie das Kabel am Messpunkt ein.
5. Schneiden Sie vorsichtig durch die Isolierung.

Hinweis: Schneiden Sie NICHT durch die Metallabdeckung, die die Drähte umgibt.

6. Schneiden Sie die Isolierung bis zum Messpunkt ab.
7. Entfernen Sie die Isolierung vom Kabel.
8. Biegen Sie die Metallabdeckung in einen Erdungsstreifen.
9. Formen Sie mit den Drähten ein Durchgangskabel.

Hinweis: Stellen Sie sicher, dass der Metallerdungsstreifen nicht beschädigt wird.

10. Lösen Sie den Erdungsbolzen an der rechten Seite des Überspannungsschutzes.
11. Wickeln Sie den Erdungsstreifen um den Erdungsbolzen.
12. Schrauben Sie den Erdungsbolzen wieder am Überspannungsschutz an.
13. Stecken Sie das PoE-Kabel (Power over Ethernet) durch die linke Öffnung in den Überspannungsschutz.
14. Formen Sie mit den Drähten ein Durchgangskabel.
15. Stecken Sie die Kabel in die entsprechenden Anschlüsse ein.
16. Bringen Sie die Abdeckung des Überspannungsschutzes wieder an.
17. Beenden Sie die Netzwerkverbindung. Siehe "Erden der Basisstation".

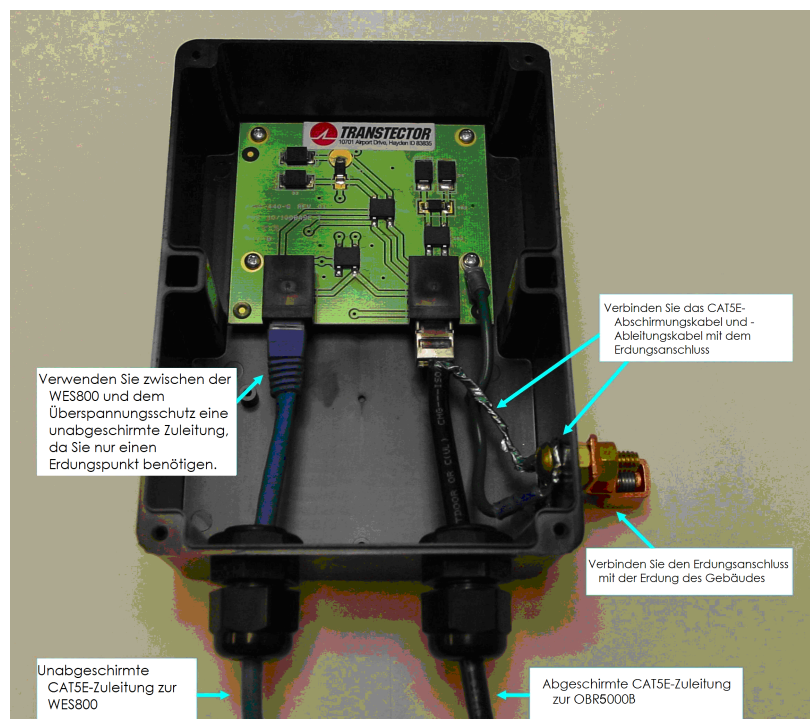


Figure 2-15 Abbildung 2.10: Montierter Überspannungsschutz

2.4.3 Grounding the Base Station

Vecima recommends grounding the base station using one of the following procedures depending on your configuration. If you are unsure which procedure to use, use procedure B.

Procedure A: Grounding the base station so that the building and the tower share the same earth ground:

1. Connect the chassis of the OBR5000B to the tower via the grounding lug on the back of the unit. See “Grounding the Base Station” on page 2-11.
2. Use a shielded CAT5 cablefeed to connect the OBR base station to the surge suppressor.
3. Use an inline surge suppressor for all OBR5000B cablefeed installations. Connect the shield of the cablefeed to the ground lug of the surge suppressor. The purpose of the surge suppressor is to shunt to ground any over voltage [>60] transients that may be induced on the CAT5E cablefeed via lightning or other high voltages.

Base Station Grounding

Option A: Building ground = Tower/Earth ground

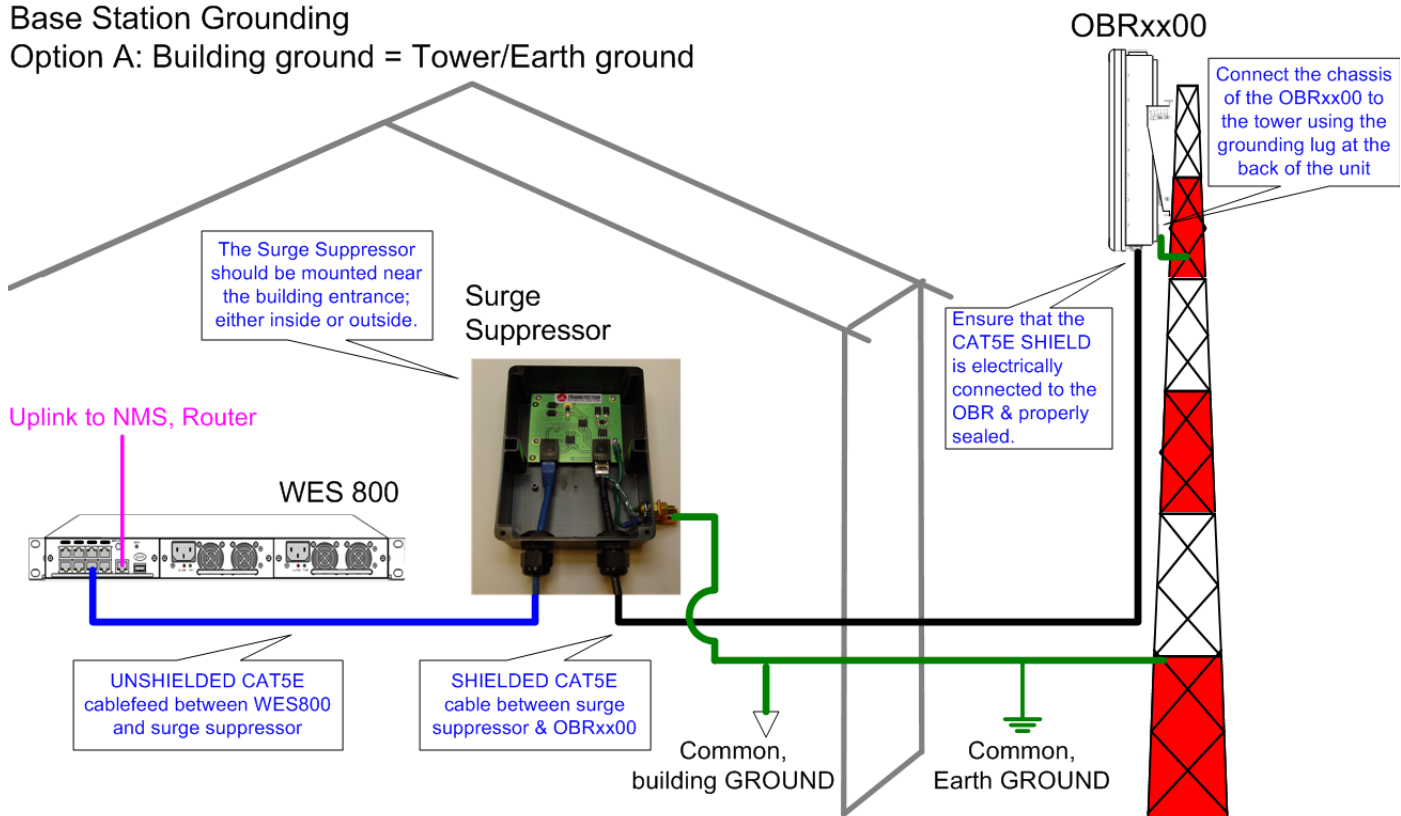


Figure 2-16 Base Station Grounding - building ground is same as tower ground

Procedure B: Grounding the base station so that the building and the tower use different earth grounds:

1. Connect the chassis of the OBR5000B to the tower via the grounding lug on the back of the unit. See “[Grounding the Base Station](#)” on page 2-11.
2. Use a shielded CAT5 cablefeed to connect the OBR base station to the surge suppressor.
3. Use two inline surge suppressors, one for all OBR5000B cablefeed installations at the base of the tower and another for the first surge suppressor and the WES800. Connect the shield of the cablefeed to the ground lug of the surge suppressor. The purpose of the surge suppressor is to shunt to ground any over voltage [>60 V] transients that may be induced on the CAT5E cablefeed via lightning or other high voltages.

Base Station Grounding

Option B: Building ground DIFFERENT than Tower/Earth ground

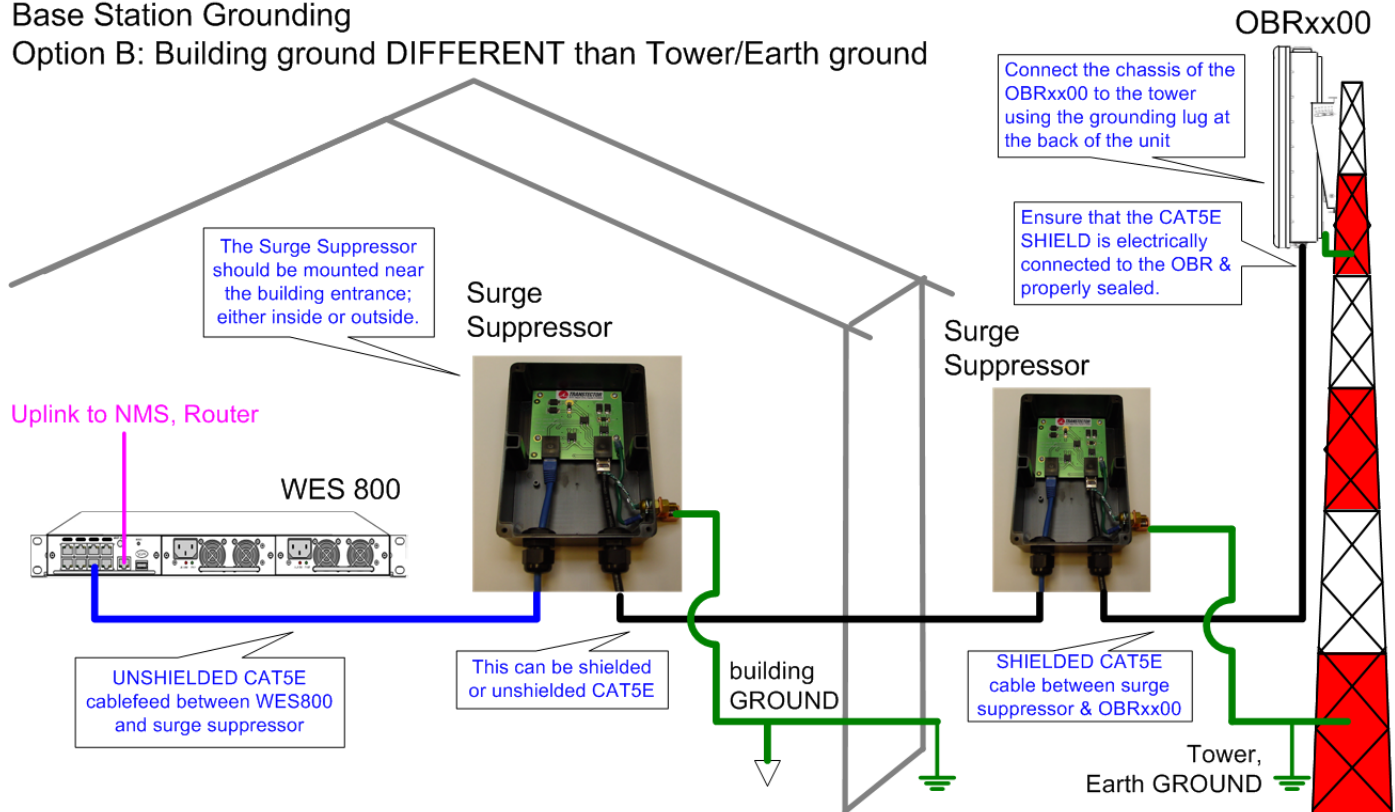


Figure 2-17 Base Station Grounding - building ground different than tower ground

2.4.3 Erden der Basisstation

Vecima empfiehlt die Erdung der Basisstation abhängig von der Konfiguration mit einem der folgenden Verfahren. Wenn Sie nicht sicher sind, welches Verfahren geeignet ist, führen Sie Verfahren B aus.

Verfahren A: Erden der Basisstation, damit das Gebäude und der Tower die gleiche Erdung verwenden:

1. Verbinden Sie das Gehäuse der OBR5000B über den Erdungsanschluss an der Rückseite mit dem Tower. Siehe "Erden der Basisstation"
2. Verwenden Sie eine abgeschirmte CAT5-Zuleitung, um die OBR-Basisstation mit dem Überspannungsschutz zu verbinden.
3. Verwenden Sie für alle OBR5000B-Zuleitungsinstallationen einen Inline-Überspannungsschutz. Verbinden Sie die Abschirmung der Zuleitung mit dem Erdungsanschluss des Überspannungsschutzes. Der Überspannungsschutz überbrückt Überspannungen [>60 V], die in der CAT5E-Zuleitung durch Blitzschläge oder andere Hochspannungen verursacht werden können.

Erdung der Basisstation

Verfahren A: Gebäudeerdung = Turm-/Bodenerdung

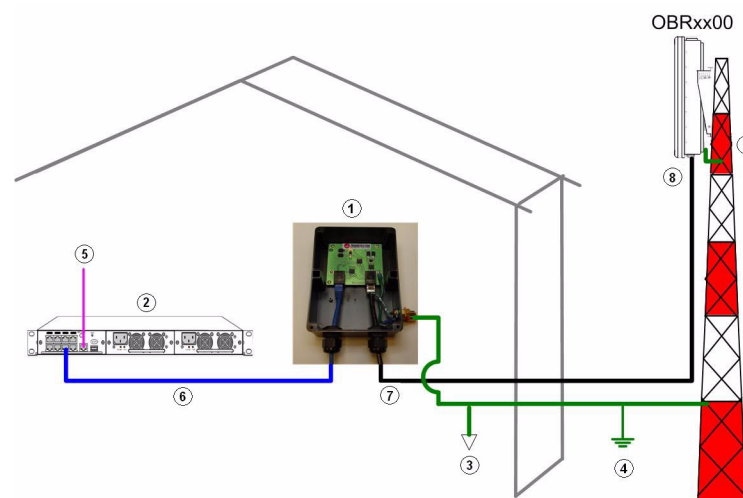


Abbildung 2-18: Erdung der Basisstation (die Gebäudeerdung entspricht der Towererdung)

Abbildung 2-11: Erdung WES800

1. Das Überspannungselement sollte in der Nähe des Gebäudeeingangs montiert sein, entweder innen oder aussen
2. WES800
3. Gemeinsame Gebäudeerdung
4. Gemeinsame Bodenerdung
5. Anschluss zum NMS (Netzwerk Management Server), Router
6. Ungeschütztes Kategorie 5E Einspeisungskabel zwischen WiMAX Ethernet Switch 800 und Überspannungsschutzelement
7. Geschütztes Kategorie 5E Kabel zwischen Überspannungsschutzelement und OBR (Aussenliegender Basisstation-Transceiver)xx00
8. Stellen Sie sicher, dass das geschützte Kategorie 5E Kabel an den OBR angeschlossen und richtig abgedichtet ist
9. Anschliessen des Chassis der OBRxx00 an den Turm durch Nutzung der Erdungshaltevorrichtung

Verfahren B: Erden der Basisstation, damit das Gebäude und der Tower unterschiedliche Erdungen verwenden:

1. Verbinden Sie das Gehäuse der OBR5000B über den Erdungsanschluss an der Rückseite mit dem Tower. Siehe "Erden der Basisstation"
2. Verwenden Sie eine abgeschirmte CAT5-Zuleitung, um die OBR-Basisstation mit dem Überspannungsschutz zu verbinden.
3. Verwenden Sie einen Inline-Überspannungsschutz für alle OBR5000B-Zuleitungsinstallationen am Unterteil des Towers und einen anderen Überspannungsschutz für den ersten Überspannungsschutz und die WES800.

Erdung der Basisstation

Verfahren B: Erden der Basisstation, damit das Gebäude und der Tower unterschiedliche Erdungen verwenden:

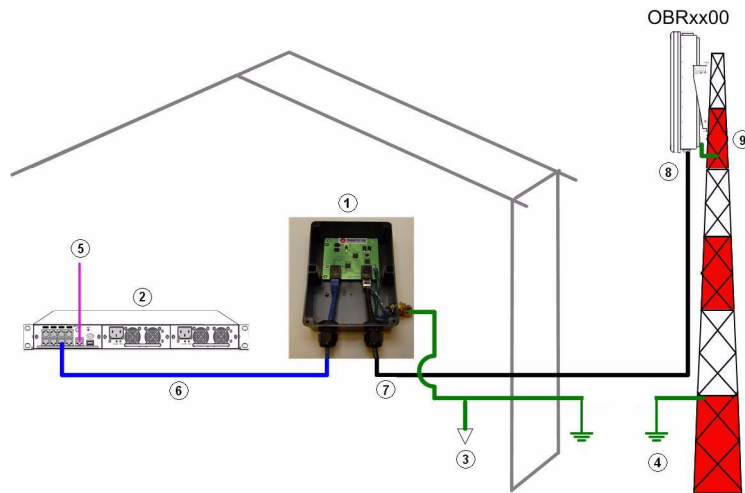


Abbildung 2-19: Erdung der Basisstation (die Gebäudeerdung entspricht der Towererdung)

Abbildung 2-12: Erdung WES800

1. Das Überspannungselement sollte in der Nähe des Gebäudeeingangs montiert sein, entweder innen oder aussen
2. WES800
3. Gemeinsame Gebäudeerdung
4. Gemeinsame Bodenerdung
5. Anschluss zum NMS (Netzwerk Management Server), Router
6. Ungeschütztes Kategorie 5E Einspeisungskabel zwischen WiMAX Ethernet Switch 800 und Überspannungsschutzelement
7. Geschütztes Kategorie 5E Kabel zwischen Überspannungsschutzelement und OBR (Aussenliegender Basisstation-Transceiver)xx00
8. Stellen Sie sicher, dass das geschützte Kategorie 5E Kabel an den OBR angeschlossen und richtig abgedichtet ist
9. Anschliessen des Chassis der OBRxx00 an den Turm durch Nutzung der Erdungshaltevorrichtung

3.0 Getting Started with OBR5000B

3.1 Before You Begin

The OBR5000B provides the base station component of the Vecima VistaMAX system. To set up and configure the base station, you require the following:

- One VistaMAX OBR5000B base station with a stand-alone Power over Ethernet (PoE) or WES800 Ethernet Switch
- One VistaMAX outdoor subscriber station or indoor subscriber station such as the OSR5000.
- One of the following components to provide the DHCP and TFTP server:
 - Vecima's Network Management 8000
 - A third-party DHCP and TFTP server as per the WiMAX standard. This setup is not covered in this manual.

Setting up the system using NMS8000

Using the NMS8000 as the provisioning tool for all OSR subscriber stations and hosts on the VistaMAX system is the most common scenario. The platinum, gold, silver, or bronze VistaMAX starter kits available from Vecima Networks includes an NMS8000.



NOTE

If you wish to connect Internet-accessible hosts to the VistaMAX system, you will need to provide a router with a public IP address and a valid DNS server. When you are connecting to Internet-accessible host and using the NMS8000, Vecima recommends connecting one of the NMS8000 Ethernet interfaces on a public routeable IP address.

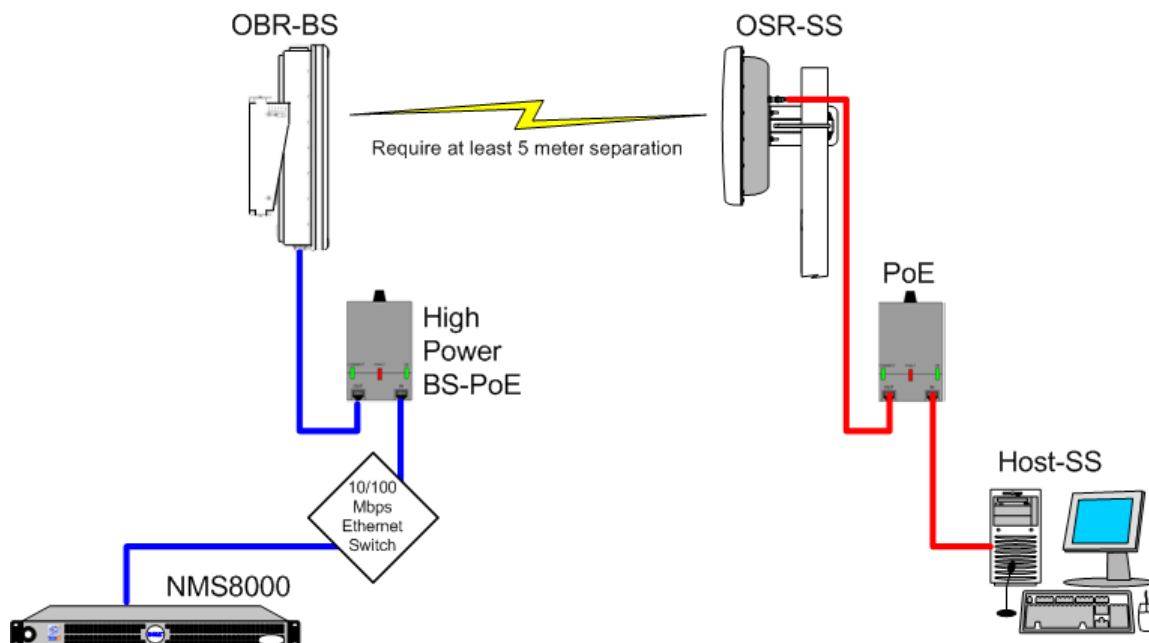


Figure 3-1 Using NMS8000 to Provision VistaMAX System

3.2 Overview of Configuration

The following steps outline the process for configuring a VistaMAX system operating at 5000 MHz. This process assumes that you are using an NMS8000.

-
- Step 1** Use CAT5 straight-through Ethernet cables to connect the physical components as shown in [Figure 3-1](#), on page 3-1.
 - Step 2** Use the Web-based interface to configure the IP addresses for the base station and subscriber station(s). If necessary, configure the IP addresses for the NMS8000.
 - Step 3** Use the Web-based interface to configure the radio parameters for the base station and subscriber station(s).
 - Step 4** If necessary, use the Web-based interface for the NMS8000 to add the subscriber stations on the NMS8000.
 - Step 5** Establish the link between the base stations and subscriber stations and verify that the subscriber stations are online.
-

The steps that pertain to the base station are described in more detail below. For more information, refer to the *NMS8000 & NMS8000/SSP Network Management Server Installation and Operation Guide* or related information listed under [Finding Related Documentation](#), on page iv.

3.3 Using the Web Based Interface

The Web interface of the OBR5000B system may be viewed with a standard web browser such as Mozilla™ or Internet Explorer™, no additional add-ins are required.



NOTE

If your Web certificate is invalid or expired, you might need to add an exemption to the certificate or upgrade your Java Runtime Environment (JRE) software.

The following are the default log on settings for the Base station Web-based interface:

- Web-based interface access — `https://192.168.101.2`
- subnetwork mask — `255.255.255.0`
- username — `root`
- password — `vistamax`

To log on to the Web-based interface:

- Step 1** Open a Web browser and open the Web-based interface by typing `https://192.168.101.2` in the address bar. The Network Password page opens:



The dialog box titled "Enter Network Password" contains the following text and fields:

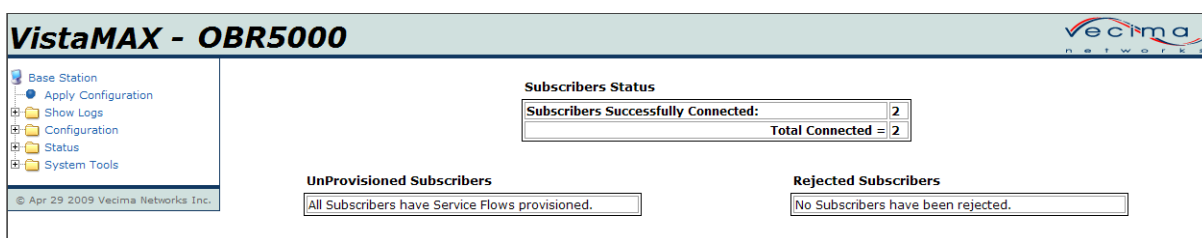
- A key icon and the text: "This secure Web Site (at 192.168.101.2) requires you to log on."
- The text: "Please type the User Name and Password that you use for VistaMAX."
- A "User Name" field with a dropdown menu showing "root".
- A "Password" field.
- A checkbox labeled "Save this password in your password list" which is unchecked.
- "OK" and "Cancel" buttons at the bottom right.



NOTE

192.168.101.2 is the default IP address that comes preconfigured from Vecima, but your IP address might be different. If you are not using the default address, contact your system administrator for the IP address.

- Step 2** Type the username `root` and the password `vistamax` to access the web GUI. The log on screen displays:



The web interface for VistaMAX - OBR5000 displays the following information:

- Header:** "VistaMAX - OBR5000" and the Vecima Networks logo.
- Left Sidebar:**
 - Base Station
 - Apply Configuration
 - Show Logs
 - Configuration
 - Status
 - System Tools
- Subscribers Status:**

Subscribers Successfully Connected:	2
Total Connected =	2
- UnProvisioned Subscribers:**

All Subscribers have Service Flows provisioned.

- Rejected Subscribers:**

No Subscribers have been rejected.

- Footer:** © Apr 29 2009 Vecima Networks Inc.

3.4 Configuring the Network

You will need to configure your network to establish communication between the network elements. [Figure 3-2](#) shows an example of a properly configured network. The example shows a network configuration using default values. If you purchased a WiMAX starter kit, these value will already be set.

The VistaMAX Base Station is shipped with a default IP address. However, depending upon your network configuration, you may want to change the IP address of your Base Station.

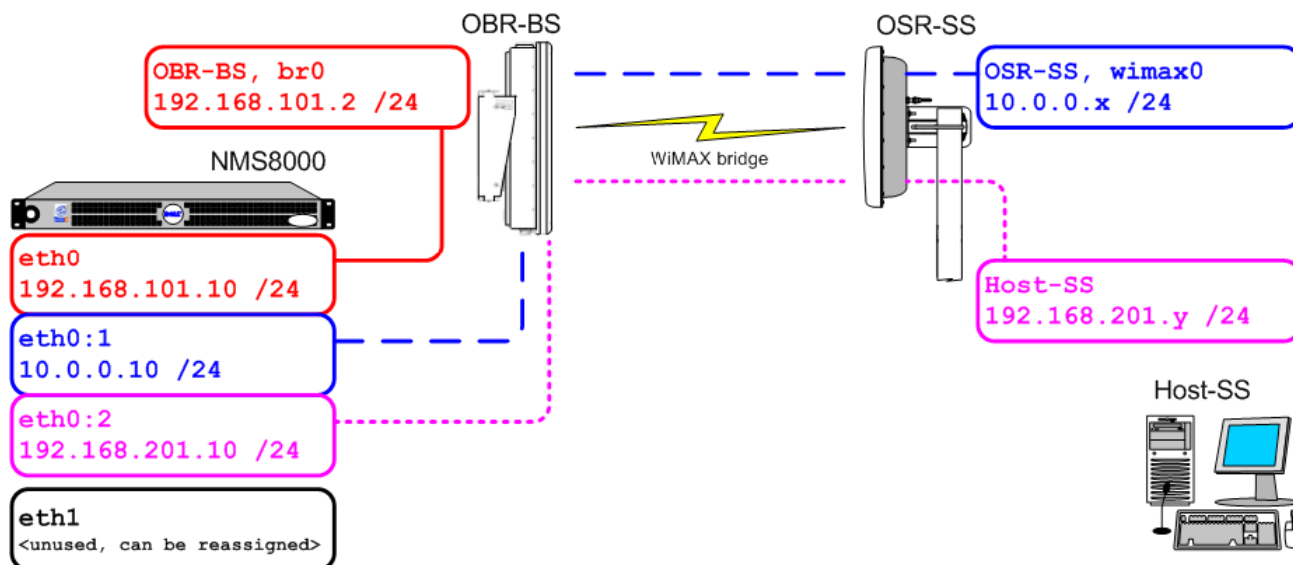


Figure 3-2 Network Diagram

As per the WiMAX standard, the subscriber station requires an IP address and TFTP offered to it during network entry. To fulfill this requirement, both a DHCP and TFTP server must be present. It is possible to use a third-party customer-supplied DHCP and TFTP server, but Vecima recommends using the Network Management Server 8000 (NMS8000). Most Vecima starter kits come with an NMS as part of the solution.



NOTE

Customers who purchased the basic starter kit or who do not have an NMS must use the WiMAX-out-of-the-box (WOOTB) procedure. For more information about WOOTB, contact the Application Engineering Support at Vecima Networks.

To configure a network using NMS8000:

- Step 1** Open the base station graphical user interface (GUI) and click **Configuration > Network Configuration**. The Current Interfaces screen opens displaying the name, IP address, and netmask of the base station's primary interface. The default value is 192.168.101.2. To modify this value, click **br0** to open the BR0 configuration screen and type the new value in the appropriate field. See ["To change the base station IP address:"](#) below for a detailed description of this Step.
- Step 2** Using the NMS GUI, set up and enable DHCP on the NMS, then configure the subscriber stations and host computers as required.

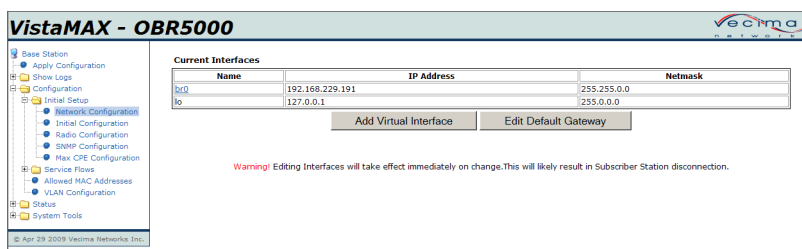


NOTE

For more information see the *NMS8000 & NMS8000/SSP Network Management Server Installation and Operation Guide*.

To change the base station IP address:

- Step 1** Log on to the Web-based interface and click **Configuration > Network Configuration**. The Current Interfaces table displays showing the primary (**br0**) IP address and virtual addresses (**br0:1 br0:2**, etc) for your base station.



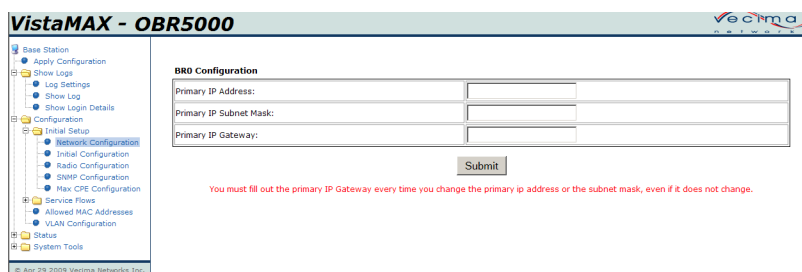
Name	IP Address	Netmask
br0	192.168.229.191	255.255.0.0
lo	127.0.0.1	255.0.0.0

Warning! Editing Interfaces will take effect immediately on change. This will likely result in Subscriber Station disconnection.

- Step 2** From this page, you can set the following parameters:

Parameter	Description	Default
br0 and Virtual Interfaces	This is where the primary interface (br0) and any virtual interfaces (br0:1, br0:2, etc.) will be configured for remote access. The primary interface is the IP address for the Base Station.	Dependent on your network design.
Gateway	This is where the default gateway will be specified for the br0 .	Dependent on your network design.

Click the **br0** link under Name field in the Current Interfaces table. The window will change to this.



BR0 Configuration

Primary IP Address:

Primary IP Subnet Mask:

Primary IP Gateway:

You must fill out the primary IP Gateway every time you change the primary ip address or the subnet mask, even if it does not change.

- In the **Primary IP Address** field, enter the new IP for the Base Station: 192.168.101.138
- In the **Primary IP Subnet Mask** field, enter the subnet mask for the Base Station. 255.255.255.0
- In the **Primary IP Gateway** field, enter the gateway address for your network 192.168.101.3

- Step 3** Click the **Submit** button. The following message appears:

```

Network saving in progress ....
Stopping Wimax Watchdog
Stopping Base Station so that Primary IP can be changed.
Network will now be reset.
You should now change your network on your computer so that you will be able to connect to 192.139.75.19.
After the network has been readjusted, You can cancel the reboot by clicking here to make changes permanent.
Otherwise Reverting Changes in 2 minutes.

```

- Step 4** Click the [here](#) link to make the change permanent.



NOTE

At this point, you may need to change the IP configuration of the computer which you are using to access the base station. If you have completely changed the domain for the Base Station (was 192.168.101.1, now 172.200.26.1), please ensure the IP of the computer is capable of communicating with the new IP address of the BS. If not, adjust the network configuration of the computer accordingly before moving on to the next step.

The following information displays on the page to indicate the changed IP address:

```
Manually Cancel Reboot by clicking here.  
Permanent IP Gateway set  
Network Configuration Saved.  
Network Saved.  
  
Save Completed.  
You should reboot your base station so you can continue making changes, and so that subscribers will connect.
```

The address on the browser also changes to reflect the new IP address:

`https://192.168.101.138/cgi-bin/index.cgi`



NOTE

If you were not able to reconnect and click the [here](#) link to confirm the IP address of the Base Station within 2 minutes, the Base Station will revert to the old IP address and reboot automatically. Please restart the IP address change process by going back to step 1.

- Step 5** Once you have made the correct configuration settings, click the **Submit** button at the bottom of the window.
- Step 6** To apply the Radio Configuration, click **Apply Configuration** from the menu options. The configuration area displays a list of changes made. Click **Yes** to apply the changes.

3.5 Configuring the Radio



CAUTION

The installer must ensure that the transmission power output is below the mandated FCC limit. That is, the transmission power minus the cable loss and antenna gain must result in an equivalent isotropically radiated power (EIRP) below 4W or 36dBm. When using Vecima or Vecima recommended antennas, the transmit power output will be below this limit.

To configure the radio

Step 1 Log on to the Web-based interface and click **Configuration > Radio Configuration**. The following page displays:

VistaMAX - OBR5000 - v5.1.503

- Base Station
 - Apply Configuration
 - Show Logs
 - Configuration
 - Initial Setup
 - Network Configuration
 - Initial Configuration
 - Radio Configuration**
 - SNMP Configuration
 - Max CPE Configuration
 - Service Flows
 - Allowed MAC Addresses
 - VLAN Configuration
 - Status
 - System Tools

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General Radio Configuration

GPS Status:	Disabled	v
Fixed Downlink Allocation:	50 % / 50 %	v
Downlink/Uplink Center Frequency:	5800000 kHz	5800000
Frame Duration:	5 ms	v
Cyclic Prefix:	1/4	v
Channel Bandwidth:	10000 kHz	v
Transmit Power:	-64.0 dBm	18
Transmit Antenna Gain:	0 dBi	
Transmit Feed Loss:	0 dB	
Uplink Target Receive Level:	0 dB	v
Antenna Type:	ANTENNA A	☒ ANTENNA A ☐ ANTENNA B
Data Encryption:	OFF	v

You can set the following parameters for the base station radio from this page:

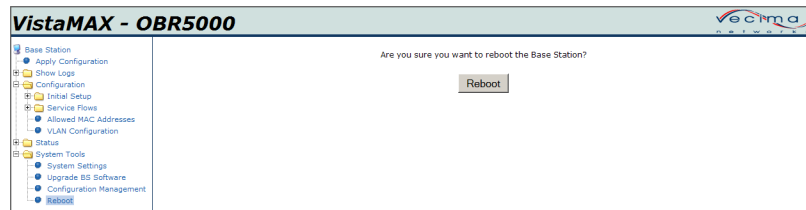
Parameter	Description	Procedure	Default
GPS Status	Enable GPS to use GPS synchronized base stations.	Click the drop down arrow and select Enabled or Disabled	Disabled
Fixed Downlink Allocation	This is the percentage of the TDD frame that is dedicated to Downlink data	Click the drop down arrow for the Fixed Downlink Allocation and select the value for the location	50%
Downlink/Uplink center frequency	This is the channel center frequency in KHz	Enter the value into the blank field.	Customer specific
Frame Duration	The combined Downlink and Uplink frame length in milliseconds	Click the drop-down menu arrow and select the duration	10.0 ms
Cyclic Prefix	The redundant symbol percentage used to counteract inter-symbol interference	Click the drop-down menu arrow and select the prefix	1/4
Channel Bandwidth	10000 kHz	Click the drop-down menu arrow and select the bandwidth	10000 kHz
Transmit power	The output power level of the Downlink in dBm	Enter the value into the blank field	18.0 dBm
Transmit Antenna Gain	The gain measured in dBi provided by the antenna.	Type the value in the field provided.	N/a

Parameter	Description	Procedure	Default
Transmit Feed Loss	The loss measured in dB resulting from the transmission feed wiring.	Type the value in the field provided.	Customer specific
Uplink Target Receive Level	This is the Uplink Rx level which all Subscriber Stations will strive to meet in dB	Enter the value into the blank field	0 dB
Antenna Type	There are two optional external antenna connections. This setting controls which connector is active.	Select the radio button that corresponds to the antenna connector you want to make active.	Customer specific
Data Encryption	The Data payload is encrypted using 128 bit 3DES and AES.	Click the drop-down menu arrow and select on or off.	Off - data not encrypted

Step 2 Once you have made the correct configuration settings, click the **Submit** button at the bottom of the window.

Step 3 To apply the Radio Configuration, click **Apply Configuration** from the menu options. The configuration area displays a list of changes made. Click **Yes** to apply the changes.

Step 4 To save configuration changes to the radio, click **Reboot** from the menu options. The configuration screen displays the following:



Click **Yes** to confirm the reboot.

3.6 Establishing a Link

Before you can establish the link between the base station and the subscriber station(s), ensure that the equipment is set up as follows.

- The NMS, base station, subscriber station, and one or more host computers are physically connected and powered up as shown in [Figure 3-1](#).
- The base station network and antenna have been configured as described in this manual.
- The subscriber station is powered up and connected to the host computers and the Downlink/Uplink frequency is set to the same frequency as the base station transmit frequency.
- Host computers should be assigned static IP addresses.

NOTE

For more information about how to set up and configure VistaMAX components, see [Finding Related Documentation](#), on page iv. Documentation is available for download from the FTP site or by contacting Vecima Networks.

To establish the link between the base station and subscriber station:

Step 1 Set up and configure your VistaMAX system.

Step 2 Power up all the units.

Step 3 The subscriber station should complete network entry and establish a link to the base station in 1-2 minutes.

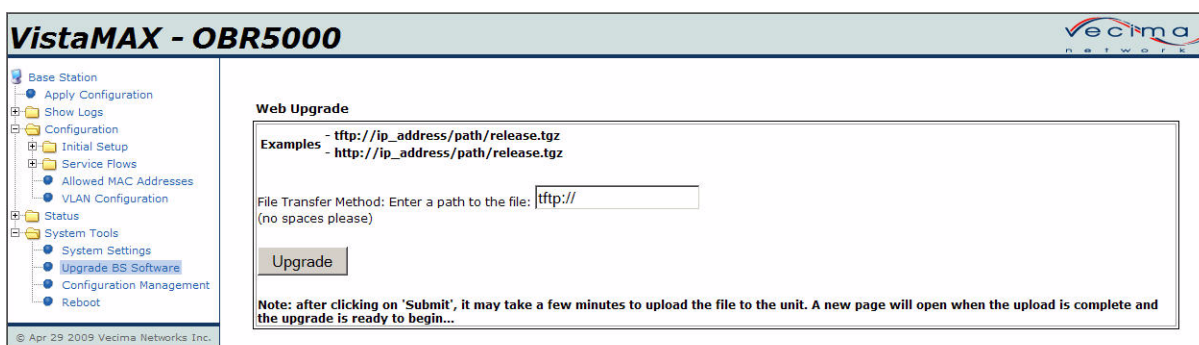
3.7 Other Administrative Tasks

3.7.1 Upgrading the Base Station

In order to make sure that the Base Station is able to function properly, upgrades may need to be made to the system.

To upgrade the base station through the Web GUI:

Step 1 Log on to the Web-based interface and click **Upgrade BS Software**. The following page displays:



Step 2 Choose one of the following methods to upgrade your base station.

If	Then
The upgrade file is located on a web server	1) Enter the address of the web server plus the path to the file in the upgrade line. 2) Click Upgrade.
The upgrade file is located on the tftp server in the tftproot folder.	1) Type the URL and path for the certificate. For example: tftp://<ip of NMS>/<version>/<file> 2) Click Upgrade.

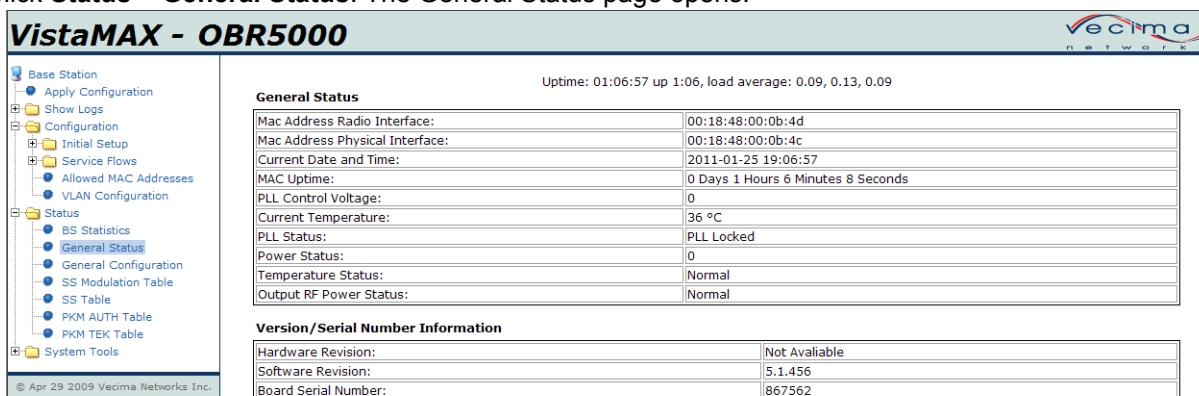


NOTE

The Base Station upgrade might take about five minutes to complete.

To verify the upgrade:

Step 1 Click **Status > General Status**. The General Status page opens:



General Status	
Mac Address Radio Interface:	00:18:48:00:0b:4d
Mac Address Physical Interface:	00:18:48:00:0b:4c
Current Date and Time:	2011-01-25 19:06:57
MAC Uptime:	0 Days 1 Hours 6 Minutes 8 Seconds
PLL Control Voltage:	0
Current Temperature:	36 °C
PLL Status:	PLL Locked
Power Status:	0
Temperature Status:	Normal
Output RF Power Status:	Normal

Version/Serial Number Information	
Hardware Revision:	Not Available
Software Revision:	5.1.456
Board Serial Number:	867562

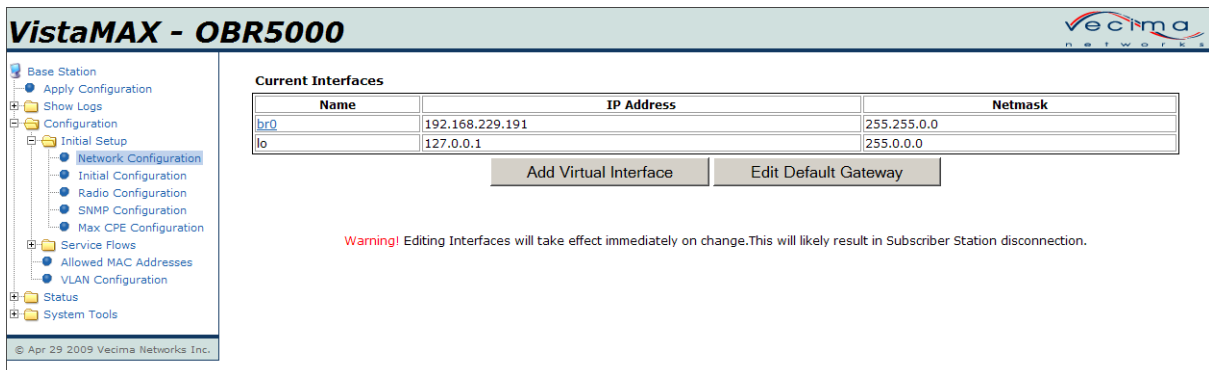
Step 2 Read the **Versions/Serial Number Information** to ensure the proper version is running.

3.7.2 Adding a Virtual IP Address

The ability to define virtual addresses on the Base Station will allow you to access the Base Station from more than one domain. Set up a virtual address by adding a new IP addresses into the Base Station through the Network Configuration menu.

To add a Virtual IP Address:

- Step 1** Log on to the Web-based interface and click **Configuration > Network Configuration**. The Current Interfaces table displays showing the primary (**br0**) IP address and virtual addresses (**br0:1 br0:2**, etc) for your base station.



VistaMAX - OBR5000

Base Station

- Apply Configuration
- Show Logs
- Configuration
 - Initial Setup
 - Network Configuration
 - Initial Configuration
 - Radio Configuration
 - SNMP Configuration
 - Max CPE Configuration
- Service Flows
 - Allowed MAC Addresses
 - VLAN Configuration
- Status
- System Tools

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Current Interfaces

Name	IP Address	Netmask
br0	192.168.229.191	255.255.0.0
lo	127.0.0.1	255.0.0.0

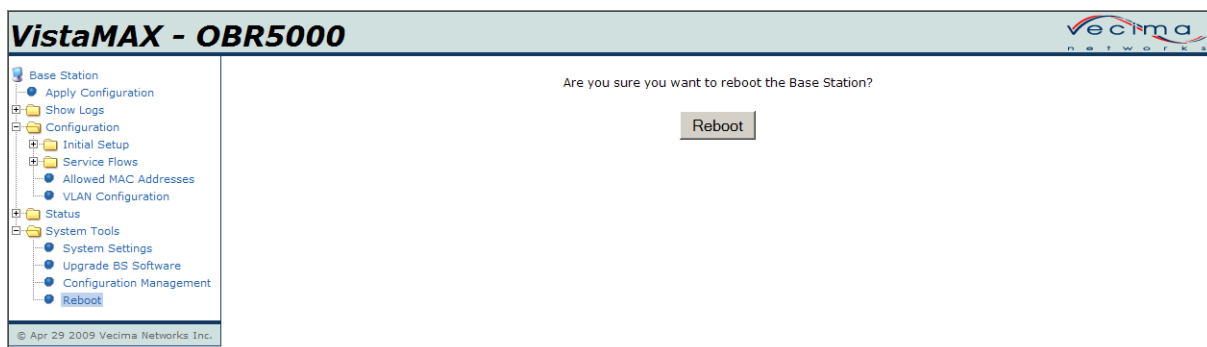
Add Virtual Interface Edit Default Gateway

Warning! Editing Interfaces will take effect immediately on change. This will likely result in Subscriber Station disconnection.

- Step 2** Click **Add Virtual Interface**. The Add Virtual Interface page appears.
- Step 3** Type the name for the new virtual interface in the **Virtual Interface Name** field. Enter an IP address for the new domain that you wish to add in the **IP Address** field and the subnet address in the **Subnet Mask** field.
- Step 4** Click **Add**.
- Step 5** Repeat steps 2 to 4 until you have added all the virtual addresses that you need.

3.7.3 Rebooting the system

Select Reboot and click **Yes** to restart the system. If you have made configuration changes, they will be in use after the system restarts.



VistaMAX - OBR5000

Base Station

- Apply Configuration
- Show Logs
- Configuration
 - Initial Setup
 - Service Flows
 - Allowed MAC Addresses
 - VLAN Configuration
- Status
- System Tools
 - System Settings
 - Upgrade BS Software
 - Configuration Management
 - Reboot

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Are you sure you want to reboot the Base Station?

Reboot

Rebooting Base Station will occur in 5 seconds.

3.7.5 Resetting Configuration

Select **System Tools>Configuration Management** and click **Reset** to reset the configuration to the basic default configuration. Select **Yes** to confirm the reset.

VistaMAX - OBR5000


- Base Station
 - Apply Configuration
 - Show Logs
 - Log Settings
 - Show Log
- Configuration
 - Initial Setup
 - Network Configuration
 - Initial Configuration
 - Radio Configuration
 - SNMP Configuration
 - Max CPE Configuration
 - Service Flows
 - Service Classes
 - Classifier Templates
 - Service Flows
 - Allowed MAC Addresses
 - VLAN Configuration
- Status
 - BS Statistics
 - General Status
 - General Configuration
 - SS Modulation Table
 - SS Table
 - PKM AUTH Table
 - PKM TEK Table
- System Tools
 - System Settings
 - Upgrade BS Software
 - Configuration Management**
 - Reboot

Reset Configuration

Variable	Default Configuration	Current Configuration
Channel Bandwidth	3.5	7
Cyclic Prefix	0.25	0.125
Downlink Center Frequency	3410000	3439000
Frame Duration	5	10
Default Service Flows	true	false
Enable GPS	false	true
Downlink Mb/s Cap	6000000	10000000
Uplink Mb/s Cap	6000000	10000000
Remote Logging	false	true
Remote Server	none	192.139.75.18

Import/Export Configuration

Select which configuration files you would like to import from the tar file:

☒ XML Configuration
 ☒ Service Classes
 ☒ Classifier Templates
 ☒ Service Flows
 ☒ MAC Masks
 ☒ Allowed MACs

Click below to download a tar file containing all configuration files.

Select or enter a local tar file containing VistaMax configuration files.

Enter a path to the file:

3.7.6 Checking Base Station Logs

Select **Show Log** to display the log activity for the base station.

VistaMAX - OBR5000


- Base Station
 - Apply Configuration
 - Show Logs
 - Log Settings
 - Show Log**
 - Show Login Details
- Configuration
- Status
- System Tools

Log File

Priority Level Definitions

Emergency	System is unusable - Possible hardware failure - Immediate action required
Alert	System encountered an error that will affect output
Critical	A critical event has occurred - The software may be in an unstable state, or an environmental alarm may require attention
Error	System encountered an error that will not affect output
Warning	Configuration Error - Attempt to configure system outside bounds (default Level)
Notice	Event Notification - Not errors but notices to inform of state changes
Information	An informational event occurred - These events are for use by technical support to track operating states in the VistaMax

```

Jan 25 18:00:33 obr3650HP+-bs syslog.info syslogd started: BusyBox v1.00 (2009.04.29-08:04+0000)
Jan 25 18:00:33 obr3650HP+-bs user.err syslogd: unable to contact remote log server, disabling remote logging
Jan 25 18:00:33 obr3650HP+-bs user.notice mount.status: /dev/zoot on / type jfs2 (rw,noatime)
Jan 25 18:00:33 obr3650HP+-bs user.notice mount.status: none on /proc type proc (rw,nodiratime)
Jan 25 18:00:33 obr3650HP+-bs user.notice mount.status: tmpfs on /dev/shm type tmpfs (rw)
Jan 25 18:00:33 obr3650HP+-bs user.notice mount.status: none on /dev/pts type devpts (rw)
Jan 25 18:00:33 obr3650HP+-bs user.notice kernel: klogd started: BusyBox v1.00 (2009.04.29-08:04+0000)
Jan 25 18:00:33 obr3650HP+-bs user.info kernel: Memory CMF mapping: CAM0=64Mb, CAM1=64Mb, CAM2=0Mb residual: 0Mb
Jan 25 18:00:33 obr3650HP+-bs user.notice kernel: Linux version 2.6.14.3Viper (dailybuild@skrndsdev02) (gcc version 3.3.2) #1 PREEMPT Wed Apr
Jan 25 18:00:33 obr3650HP+-bs user.debug kernel: On node 0 totalpages: 32768
Jan 25 18:00:33 obr3650HP+-bs user.debug kernel: DMA zone: 32768 pages, LIFO batch:15
Jan 25 18:00:33 obr3650HP+-bs user.debug kernel: Normal zone: 0 pages, LIFO batch:1
Jan 25 18:00:33 obr3650HP+-bs user.debug kernel: HighMem zone: 0 pages, LIFO batch:1
Jan 25 18:00:33 obr3650HP+-bs user.notice kernel: Kernel command line: root=/dev/mtdblock1 rw rootfstype=jfs2 mtdparts=phys_mapped_flash:1280
Jan 25 18:00:33 obr3650HP+-bs user.warn kernel: OpenPIC Version 1.2 (1 CPUs and 60 IRQ sources) at fdf7e000
Jan 25 18:00:33 obr3650HP+-bs user.warn kernel: PID hash table entries: 1024 (order: 10, 16384 bytes)
Jan 25 18:00:33 obr3650HP+-bs user.info kernel: TODC real-time-clock was stopped. Now starting...
Jan 25 18:00:33 obr3650HP+-bs user.warn kernel: Dentry cache hash table entries: 32768 (order: 5, 131072 bytes)
Jan 25 18:00:33 obr3650HP+-bs user.warn kernel: Inode-cache hash table entries: 16384 (order: 4, 65536 bytes)

```


3.7.8 Setting Service Flow Information

The service flow is part of the Quality of Service (QoS) feature of the base station. Service flows provide the following functions:

- Service flows specify a multitude of QoS parameters including: traffic priority, sustained and reserved data rates, jitter, maximum latency, and specify security profiles.
- Service flows are setup individually for both uplink and downlink data flows.
- Service flows classify traffic based on Layer 2, 3 or 4 (Ethernet, IP, TCP/UDP/RTP) header information including items such as source and destination addresses, port numbers, 802.1Q VLAN IDs, and Ethernet or IP traffic priority levels.

Before each frame, OBR5000B examines all of the incoming requests and grants a time to transmit for the subscriber station based on all of the active service flow parameters to guarantee QoS where required. Individual subscriber stations receive aggregate bandwidth grants from the OBR5000B and must individually manage their own uplink bandwidth usage.

Setting up a Quality of Service framework:

- Step 1**

Define a service class and set up its parameters.
- Step 2**

Define a classifier template and set up its rules.
- Step 3**

Create service flows and associate them with service classes and classifier templates.
- Step 4**

Provision subscriber stations with service flows.

To define a service class and set up its parameters:

- 1) Click **Configuration > Service Flows > Service Classes** to open the Service Class Table page. This page lists all the default and user defined Service Classes and shows the parameters for each one.

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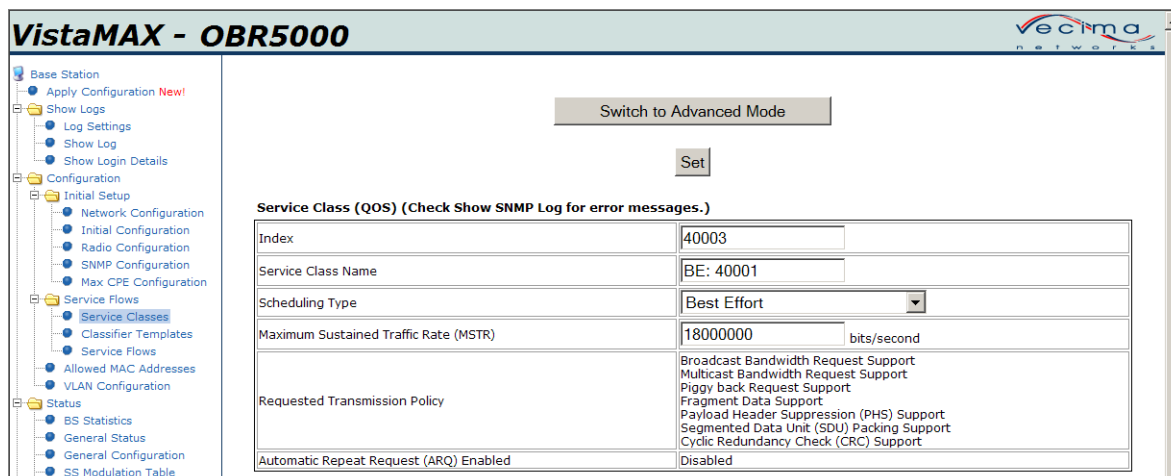
Service Class Table

	Service Class name	Schedule Type	Maximum Sustained Traffic Rate	Minimum Reserved Traffic Rate	Max Latency	Max Traffic Burst	Tolerated Jitter	Segmented Data Unit Size	Minimum Tolerated Traffic Rate	Fixed / Variable Schedule
☐	40001 - BE: 40001	Best Effort	18000000	0	0	0	0	0	0	Variable
☐	40002 - BE: 40002	Best Effort	10000000	0	0	0	0	0	0	Variable

Add

Delete Selected

2) Click **Add** to open a page displaying the Service Class (QoS). Use this page to define the service class parameters.



VistaMAX - OBR5000

Switch to Advanced Mode

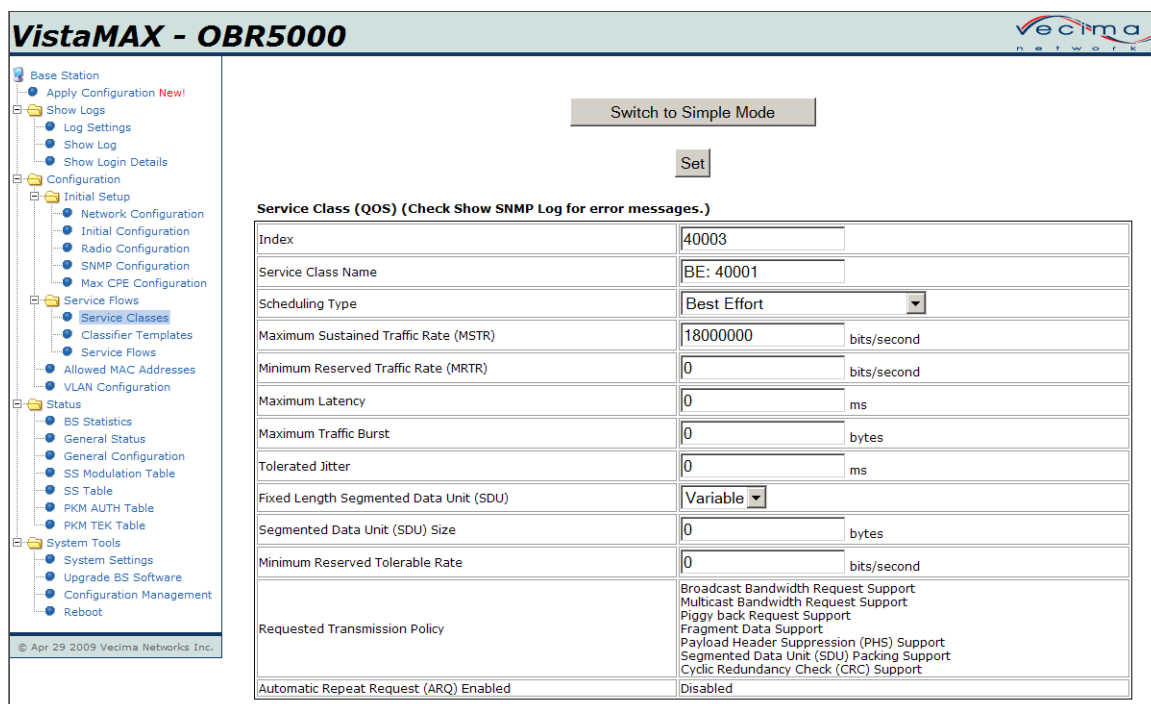
Set

Service Class (QoS) (Check Show SNMP Log for error messages.)

Index	40003
Service Class Name	BE: 40001
Scheduling Type	Best Effort
Maximum Sustained Traffic Rate (MSTR)	18000000 bits/second
Requested Transmission Policy	Broadcast Bandwidth Request Support Multicast Bandwidth Request Support Piggy back Request Support Fragment Data Support Payload Header Suppression (PHS) Support Segmented Data Unit (SDU) Packing Support Cyclic Redundancy Check (CRC) Support
Automatic Repeat Request (ARQ) Enabled	Disabled

3) Enter values in the fields and click **Set** to save the changes and return to the Service Class Table page. **Index**, **Service Class Name**, and **Maximum Sustained Traffic Rate** are required fields.

4) Click **Switch to Advanced Mode** to open another page where you can set more parameters.



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Switch to Simple Mode

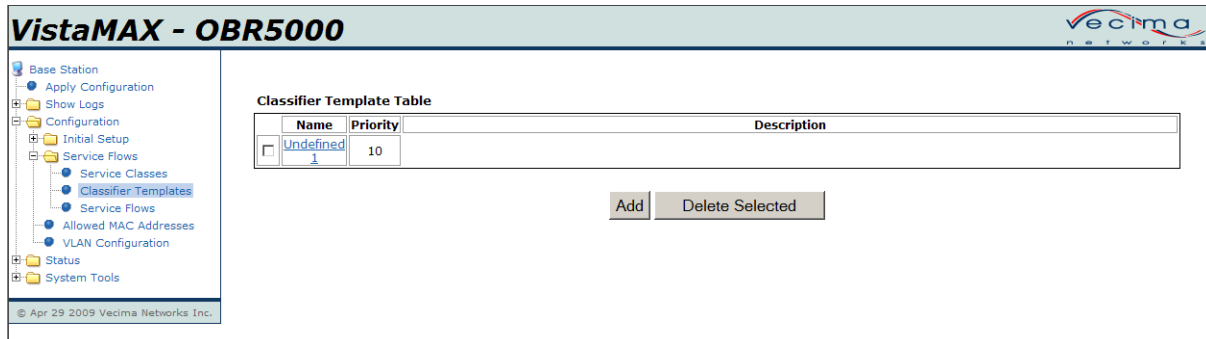
Set

Service Class (QoS) (Check Show SNMP Log for error messages.)

Index	40003
Service Class Name	BE: 40001
Scheduling Type	Best Effort
Maximum Sustained Traffic Rate (MSTR)	18000000 bits/second
Minimum Reserved Traffic Rate (MRTR)	0 bits/second
Maximum Latency	0 ms
Maximum Traffic Burst	0 bytes
Tolerated Jitter	0 ms
Fixed Length Segmented Data Unit (SDU)	Variable
Segmented Data Unit (SDU) Size	0 bytes
Minimum Reserved Tolerable Rate	0 bits/second
Requested Transmission Policy	Broadcast Bandwidth Request Support Multicast Bandwidth Request Support Piggy back Request Support Fragment Data Support Payload Header Suppression (PHS) Support Segmented Data Unit (SDU) Packing Support Cyclic Redundancy Check (CRC) Support
Automatic Repeat Request (ARQ) Enabled	Disabled

To define a classifier template and set up its rules.

- 1) Click **Configuration > Service Flows > Classifier Templates** to open the Classifier Template Table page. Use this page to define the classifier templates.



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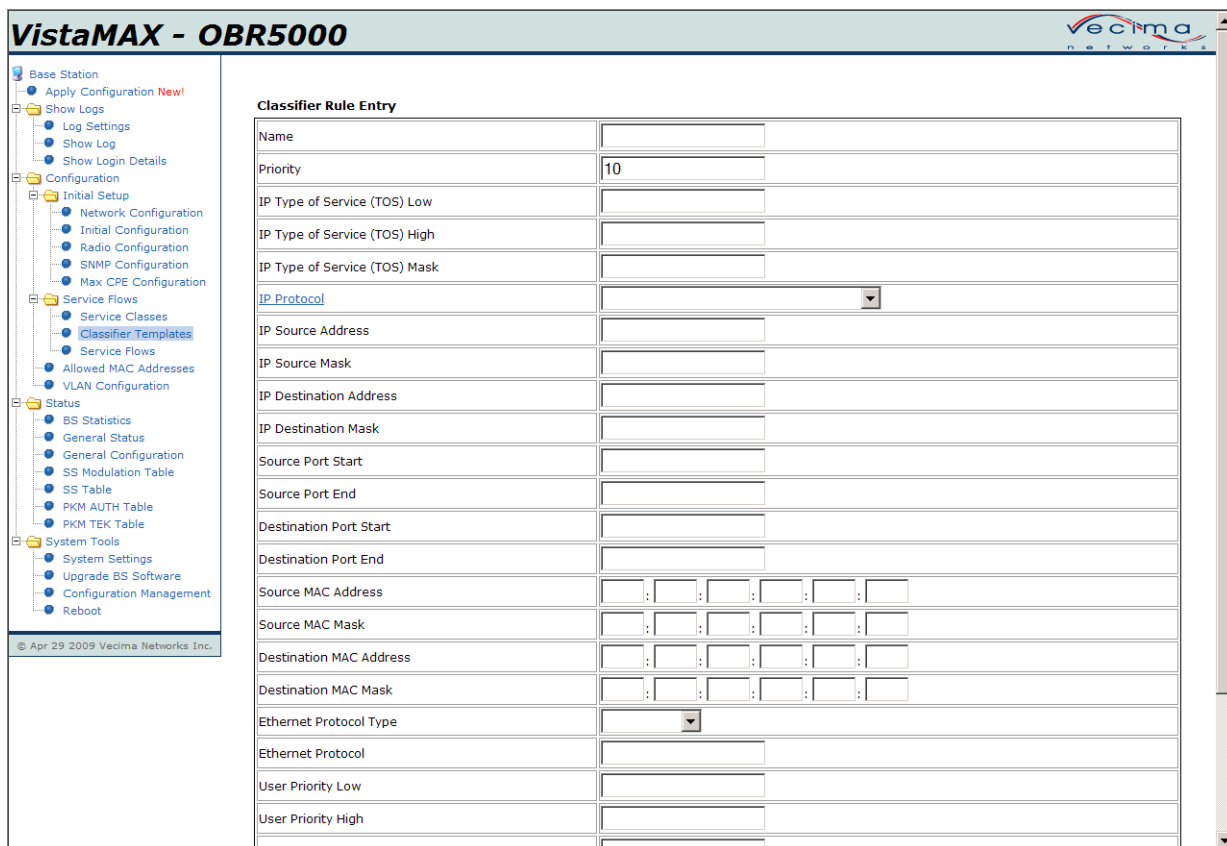
Classifier Template Table

Name	Priority	Description
Undefined	10	

Add Delete Selected

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- 2) Click **Add** to open the Classifier Rule Entry page and set up classifier templates for later use.



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Classifier Rule Entry

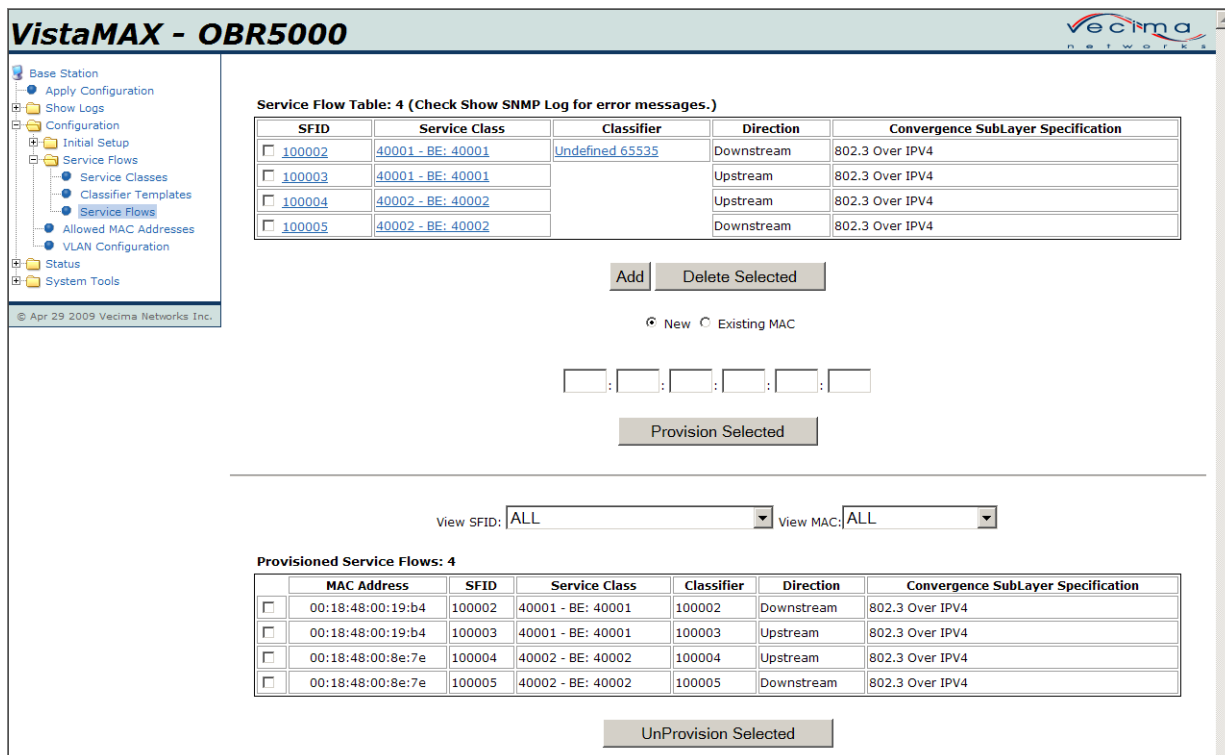
Name	
Priority	10
IP Type of Service (TOS) Low	
IP Type of Service (TOS) High	
IP Type of Service (TOS) Mask	
IP Protocol	
IP Source Address	
IP Source Mask	
IP Destination Address	
IP Destination Mask	
Source Port Start	
Source Port End	
Destination Port Start	
Destination Port End	
Source MAC Address	
Source MAC Mask	
Destination MAC Address	
Destination MAC Mask	
Ethernet Protocol Type	
Ethernet Protocol	
User Priority Low	
User Priority High	

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- 3) Enter values in the fields and click **Set** to save the changes. **Priority**, **Destination Port Start**, and **Destination Port End** are required fields.

To create service flows and associate them with service classes and classifier templates.

- 1) Click **Configuration > Service Flows > Service Flows** to open a page displaying the predefined service flows. Use this page to provision subscriber stations with service flows according to their MAC addresses.



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Service Flow Table: 4 (Check Show SNMP Log for error messages.)

SFID	Service Class	Classifier	Direction	Convergence SubLayer Specification
☐ 100002	40001 - BE: 40001	Undefined 65535	Downstream	802.3 Over IPV4
☐ 100003	40001 - BE: 40001		Upstream	802.3 Over IPV4
☐ 100004	40002 - BE: 40002		Upstream	802.3 Over IPV4
☐ 100005	40002 - BE: 40002		Downstream	802.3 Over IPV4

☒ New ☐ Existing MAC

: : : : :

View SFID: View MAC:

Provisioned Service Flows: 4

	MAC Address	SFID	Service Class	Classifier	Direction	Convergence SubLayer Specification
☐	00:18:48:00:19:b4	100002	40001 - BE: 40001	100002	Downstream	802.3 Over IPV4
☐	00:18:48:00:19:b4	100003	40001 - BE: 40001	100003	Upstream	802.3 Over IPV4
☐	00:18:48:00:8e:7e	100004	40002 - BE: 40002	100004	Upstream	802.3 Over IPV4
☐	00:18:48:00:8e:7e	100005	40002 - BE: 40002	100005	Downstream	802.3 Over IPV4

- 2) Click **Add**. A new page opens displaying the Add Service Flow table. Use this page to set up the service flow parameters.
- 3) Type a number in the **SFID** field to identify the service flow.
- 4) Select **UpStream** or **DownStream** from the **Direction** drop list to indicate the direction of the data to which the service flow will apply.
- 5) Select a specification from the **Convergence SubLayer Specification** drop list to indicate the protocol that the service flow uses. The default is IPv4 over Ethernet.
- 6) Select the State of the service flow: **Authorized**, **Admitted**, or **Active**.
- 7) Select a service class to include with the service flow.
- 8) Select a classifier template to include with the service flow.
- 9) Click **Add**. This saves the service flow and returns you to the Service Flow Table page where the new service flow is displayed. You can then use this service flow to provision subscriber stations.

To provision a subscriber station:

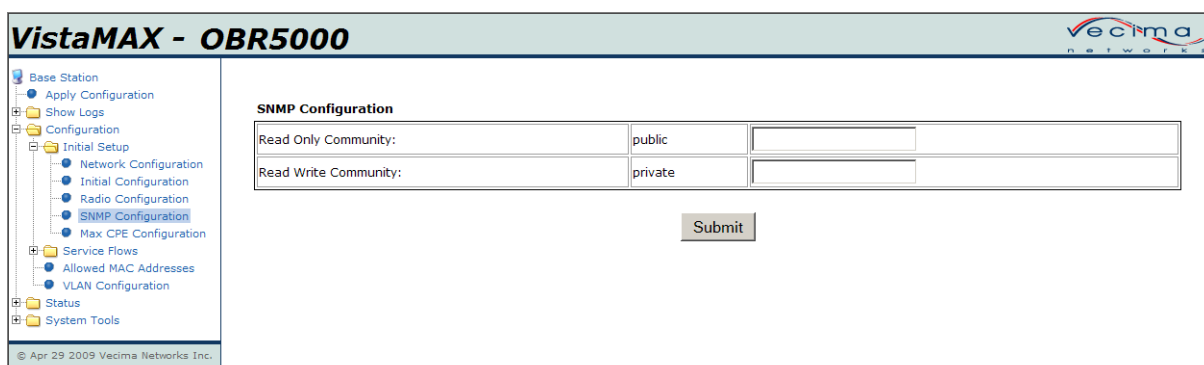
- 1) Type a MAC address in the field provided or select one from the list of that appears when you select **Existing MAC**.
- 2) Choose the service flows that you want to assign to the selected MAC address by clicking the **SFID** check boxes that correspond to the predefined service flows.
- 3) Click **Provision Selected**. The new MAC address appears in the Provisioned Service Flows table with the associated service flow.

To remove the service flow from a subscriber station:

- 1) Select a MAC Address from the Provisioned Service Flows table by selecting the corresponding check box.
- 2) Click **UnProvision Selected** to remove the provisioned service flow from the subscriber station.

3.7.9 SNMP Configuration

Select **SNMP Configurations** to define the SNMP community strings. Currently, setting the SNMP is the only way that the base station can communicate.



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Base Station

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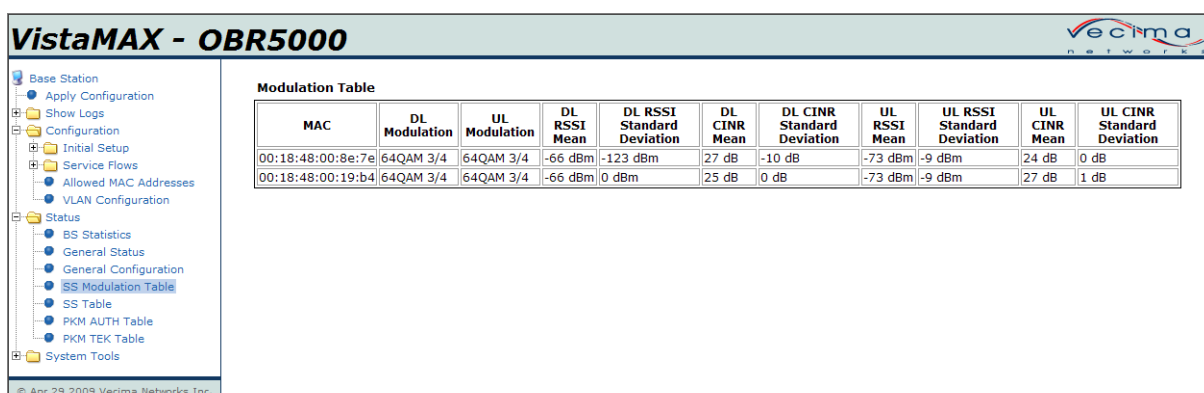
SNMP Configuration

Read Only Community:	public	
Read Write Community:	private	

Submit

3.7.10 Subscriber Station Modulation Table

Select **SS Modulation Table** to show the current downlink and uplink modulations for all registered subscriber stations.



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 - Status
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 - General Configuration
 - SS Modulation Table**
 - SS Table
 - PKM AUTH Table
 - PKM TEK Table
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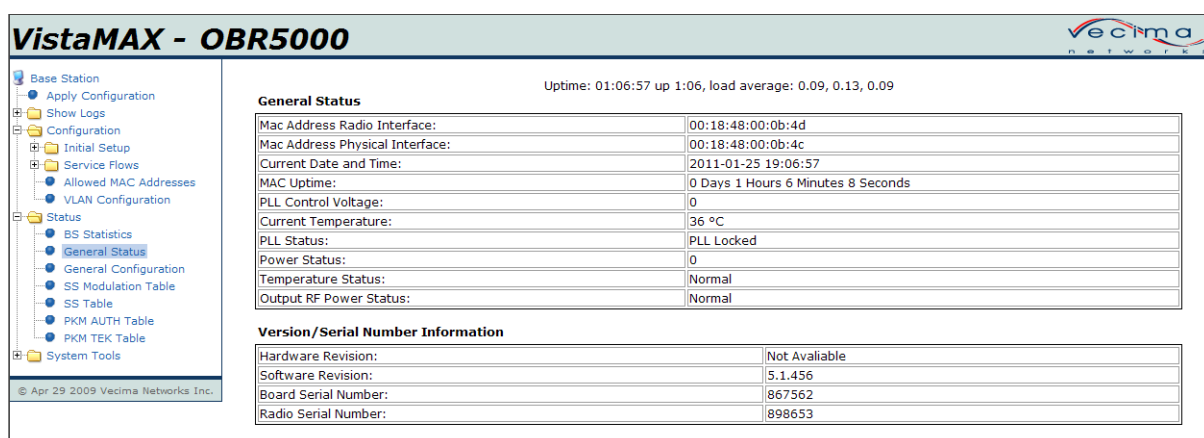
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Modulation Table

MAC	DL Modulation	UL Modulation	DL RSSI Mean	DL RSSI Standard Deviation	DL CINR Mean	DL CINR Standard Deviation	UL RSSI Mean	UL RSSI Standard Deviation	UL CINR Mean	UL CINR Standard Deviation
00:18:48:00:8e:7e	64QAM 3/4	64QAM 3/4	-66 dBm	-123 dBm	27 dB	-10 dB	-73 dBm	-9 dBm	24 dB	0 dB
00:18:48:00:19:b4	64QAM 3/4	64QAM 3/4	-66 dBm	0 dBm	25 dB	0 dB	-73 dBm	-9 dBm	27 dB	1 dB

3.7.11 Checking Base Station Status

Select **General Status** to display the statistics of a base station.



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Base Station

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 - Initial Configuration
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 - General Configuration
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 - SS Table
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Uptime: 01:06:57 up 1:06, load average: 0.09, 0.13, 0.09

General Status

Mac Address Radio Interface:	00:18:48:00:0b:4d
Mac Address Physical Interface:	00:18:48:00:0b:4c
Current Date and Time:	2011-01-25 19:06:57
MAC Uptime:	0 Days 1 Hours 6 Minutes 8 Seconds
PLL Control Voltage:	0
Current Temperature:	36 °C
PLL Status:	PLL Locked
Power Status:	0
Temperature Status:	Normal
Output RF Power Status:	Normal

Version/Serial Number Information

Hardware Revision:	Not Available
Software Revision:	5.1.456
Board Serial Number:	867562
Radio Serial Number:	898653

3.7.12 SS Table

Select **SS Table** to display the status of subscriber stations that are connected to the base station.

VistaMAX - OBR5000

Vecima Networks

Base Station

● Apply Configuration

● Show Logs

● Configuration

- Initial Setup
- Service Flows
- Allowed MAC Addresses
- VLAN Configuration

- Status
- BS Statistics
- General Status
- General Configuration
- SS Modulation Table
- SS Table
- PKM AUTH Table
- PKM TEK Table

● System Tools

Subscriber Station Table

Status	MAC Address	CID			IP Managed	Managed Sub- scriber Mode	ARQ	Vendor ID
		Basic	Prim- ary	Sec- ondary				
Connected	00:18:48:00:8e:7e	1	257	513	Managed	UnManagedNo	No VIDs currently	
Connected	00:18:48:00:19:b4	2	258	514	Managed	Managed	No	No VIDs currently

ARQ - Automatic Repeat Request Support

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3.7.13 PKM AUTH Table

Select PKM AUTH Table to display Privacy and Key Management (PKM) and authentication information.

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vecima

networks

Base Station

● Apply Configuration

● Show Logs

● Configuration

● Initial Setup

● Service Flows

● Allowed MAC Addresses

● VLAN Configuration

● Status

● BS Statistics

● General Status

● General Configuration

● SS Modulation Table

● SS Table

● PKM AUTH Table

● PKM TEK Table

● System Tools

PKM Authentication Entry Table

More	SAID	MAC Address	Key	Old Key Expires	New Key Expires	Auth Life	Auth Info Count	Auth Req Count	Auth Resp Count	Auth Rej Error Count	Auth Invalid Count
More	1	00:18:48:00:8e:7e	1	2011-02-01 18:01:02	2011-02-08 18:01:02	13 Days, 22 Hours, 52 Minutes, 25 Seconds	1	1	0	0	0
More	2	00:18:48:00:19:b4	0	2011-02-01 18:02:00	1969-12-31 18:00:00	6 Days, 22 Hours, 53 Minutes, 23 Seconds	1	1	0	0	0

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This page shows the Security Association ID (SAID) number for MAC Addresses and displays Private Key information for those MAC addresses.

3.7.14 PKM TEK Table

Select **PKM TEK Table** to display information about the traffic-encryption keys (TEK).

VistaMAX - OBR5000

Base Station

Apply Configuration

Show Logs

Configuration

Initial Setup

Service Flows

Allowed MAC Addresses

VLAN Configuration

Status

BS Statistics

General Status

General Configuration

SS Modulation Table

SS Table

PKM AUTH Table

PKM TEK Table

System Tools

PKM TEK Table

More	SAID	Tek SA Type	Tek LifeTime	Key Requests	Key Replies	Key Rejects	Tek Invalids	Tek Key Sequence Number
More	1	Primary	0 Days, 12 Hours, 0 Minutes, 0 Seconds	3	0	0	0	1
More	2	Primary	0 Days, 12 Hours, 0 Minutes, 0 Seconds	2	0	0	0	1

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This page shows the Security Association ID (SAID) number and the traffic-encryption keys (TEK) information.

Warranty and Service Policies

Warranty Statement

Vecima Networks warrants its products to be free from defects in workmanship or materials for a period of two years. The warranty begins on the date of the original shipment from Vecima Networks to its customer. No claim may be allowed for expenses incurred in installation or use. No other expressed or implied warranties shall apply to the goods sold. Vecima Networks is not responsible for delayed shipments, other loss beyond Vecima Networks' control, or consequential damages of any kind arising in connection with the use of its products. This warranty is a return-to-factory warranty only. During the warranty period Vecima Networks will at its option, replace, repair or refund the price paid for any item which is returned for service. This warranty does not apply to units that have been misused physically or used in an inappropriate environment.

Service Policies

Return Material Authorization

Before returning any item for service, you must obtain a Returned Material Authorization (RMA) number from Vecima Networks. Vecima Networks will assign a unique RMA number for each item returned.

How to Return an Item for Service

- Step 1** Contact Vecima Networks to obtain an RMA number. Before contacting Vecima Networks, record the model number, Vecima serial number, original invoice number, purchase order number, and a description of the fault. Vecima will request this information before providing an RMA.



Email: support@vecima.com

Telephone: +1 306 955 7075, press "2" for technical support.

- Step 2** Refer to the RMA number in all correspondence and clearly mark all applicable RMA numbers on the outside of each package returned.
- Step 3** The repair center will provide you with shipping instructions when they send the RMA number to you.
- Step 4** Ship each product to Vecima Networks in its original shipping container (or equivalent) via prepaid carrier, with appropriate insurance and customs documentation (where required). Vecima Networks will not accept collect shipments, damaged shipments or shipments unaccompanied by an RMA number.
- Step 5** Vecima Networks will replace or repair items and return them to you as follows:

For items still under warranty—Vecima Networks Inc. will return items via prepaid ground carrier. The customer is responsible for any additional costs incurred, including customs clearance and duties. The customer will be responsible for any additional charges incurred from alternative shipping methods.

For items no longer under warranty—Vecima Networks will return items via prepaid ground carrier at the customer's expense. The customer is responsible for any additional costs incurred, including customs clearance and duties. The customer will be responsible for any additional charges incurred from alternative shipping methods.

Repair Charges and Warranty Exemptions

Items returned beyond the warranty period or items that do not qualify for warranty service are subject to additional out-of-warranty repair charges. Descriptions of these charges and warranty exemptions are listed below:

- (1) Repair turnaround time is typically 5-14 business days after receipt of the item at Vecima Networks. A flat rate repair charge will apply to all out-of-warranty items. Flat rate repair charges are subject to change without notice.
- (2) Any faults due to customer error (i.e. - incorrect set-up or configuration settings) are subject to the current test fee and will be exempt from warranty.
- (3) Items returned with inadequate fault descriptions are subject to the current test fee and are exempt from warranty.
- (4) In the event that no fault is found, the item is subject to the current test fee and will be exempt from warranty.
- (5) Any product exhibiting external damage (either from shipping, improper handling or use) will be subject to inspection. If said damages are determined to be the cause of failure, the item will be exempt from warranty. All repairs to correct the external damage are subject to time & materials charges (parts and labor at current rates).
- (6) Items with damage caused by unauthorized repairs or by external devices are subject to current out-of-warranty flat rate repair charges and are exempt from warranty.
- (7) All products returned for factory optioning are subject to the applicable current option charge plus test fee. Factory-optioned products carry the balance of the original warranty or a 90 day warranty, whichever is greater.



NOTE

The customer must approve all out-of-warranty repairs in writing. Vecima will not start any repairs until they receive the customer's purchase order or out-of-warranty repair authorization.
