

SkyWay-MAX

# Operator's Guide

### i. About this Guide

Congratulations on the purchase of your Solectek SkyWay MAX Wireless System. This document has been supplied to assist with the turn up, commissioning and long term management of a SkyWay MAX wireless system.

The following Solectek Models are covered herein:

#### **Outdoor Base Stations**

ODB-3335  
ODB-3436  
ODB-3638

#### **Indoor Controllers**

IC-100

#### **Outdoor Subscriber Stations**

ODS-3335  
ODS-3436  
ODS-3638

This document is divided into two sections. First, the document will walk through a typical network turn-up and commissioning sequence covering product configuration, pre-provisioning, installation and verification. Second, the document will review the detailed and advanced usage of the SkyWay MAX system to allow system tuning, long term management and network scalability.

This document does not cover the physical installation of the SkyWay MAX devices. This information is presented in the following documents, available from your local reseller or directly from Solectek:

DOCS-1023: *SkyWay MAX Outdoor Base Station - Installation Guide*

DOCS-1024: *SkyWay MAX Outdoor Subscriber - Installation Guide*

DOCS-1025: *SkyWay MAX Indoor Base Station Controller - Installation Guide*

Similarly, this document does not cover the detailed planning processes required in developing a high-performance, scalable WiMAX network. Topics such as Network Planning, Frequency Planning/Reuse, RF coverage and QoS modeling are outside the scope of this document. Customers interested in additional information on these topics should contact Solectek's System Engineering group for further information.

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# I. Quick Launch

## A. Minimum System Information

A minimum set of information must be gathered during the system planning process prior to network turn-up:

### RF

- Sector channel – for example: 3500 MHz
- Sector bandwidth – for example: 3.5 MHz

### Network

- IP Settings
- Administrative Protocols – this is the list of IP/Ethernet protocols which must be supported on the SkyWay MAX network to allow the transport of basic services to the subscriber-side network(s). Examples include: DHCP, ARP, and PPPoE.

## B. Assumptions

With the information set developed in the previous section, a SkyWay MAX single sector system can be commissioned. However, it is important to understand that certain assumptions are being made and features disabled, as follows:

- **Security**  
Admission control and encryption is open
- **User Services**  
Per Subscriber services are not defined. All User traffic is supported on a single, network wide non-differentiated service (also referred to as 'open IP service')

It is also assumed that the SkyWay MAX Base Station and one or more Subscribers have been physically installed and/or made available for Bench Testing.

## C. SkyWay MAX Manager Installation / Launch

The Manager Application is a Java-based, Windows XP compliant application used for basic commissioning and management of a small to medium-sized SkyWay MAX network.

Referring to the *SkyWay MAX Manager Installation Guide* (DOCS-1029), install the SkyWay MAX Manager Application on a Management PC connected to the Base Station's local subnet.

Be sure to adhere to the minimum system and operation requirements specified in the *SkyWay MAX Manager Installation Guide* to insure successful installation and operation.

### D. Base Station Turn-up

The Solectek BSU is shipped in an open access default configuration. Specifically, this means that all security systems have been disabled, allowing initial network entry of SS units to be more straightforward.

Launch the Manager Application and log into the BSU using the appropriate IP address, Login and Password. See Appendix A for default access information.



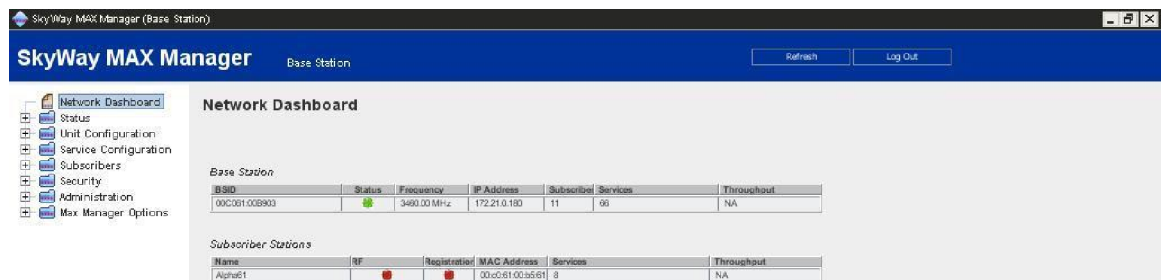
Following a successful login, the Manager Application will display a Network Dashboard and, along the left side, a command Navigator.

Using the Navigator to access the necessary pages, the Minimum System Information collected in the previous section should be entered into the BSU configuration, as follows:

**Unit Configuration : Port** Set appropriate RF Channel and Bandwidth. If desired, the BSID can be changed

**Unit Configuration : Network** Set appropriate IP Address, Network Mask and Default Gateway.

Note: The Manager connection to the Base Station may be interrupted if changes are made to IP Settings. Re-launching of the Manager may be required.



### E. Subscriber pre-provisioning

Like the BSU, the Solectek SS units are also shipped in a fully 'open' mode in which all security features have been disabled. On the SS, this allows a fully plug 'n' play capability in which the SS can be deployed without pre-configuration of the SS, or pre-provisioning on the BSU.

This open mode implies the following:

- Base Station ID (BSID) match, used to define which set of BSU's the SS can connect to, is disabled. The SS will connect to the BSU first detected.
- Channel Plan File, used to limit the frequency search range of an SS, is set to the Factory Default set of frequencies (see Appendix A).

## F. Network Entry Process

Once the BSU and SS are powered and aligned, the SS will initiate the network entry process. Once an RF link has been established, the new SS will be added to the Manager Dashboard under the Administration section. Since the SS has not been pre-provisioned in the BSU, it is considered an unknown SS, as seen below:

The screenshot shows the SkyWay MAX Manager interface for a Base Station. The main content area displays the 'Network Dashboard' with the following data:

Base Station						
BSID	Status	Frequency	IP Address	Online Subscribers	Offline Subscribers	Services
00C081.00B903	●	3450.00 MHz	172.21.0.180	8	5	75

Subscriber Stations						
Name	RF	Registration	MAC Address	Admin Services	User Services	Warnings
beta37	●	●	00:c0:81:00:b9:37	6	0	0
Osmed65	●	●	00:c0:81:00:b9:55	2	0	1
Indy01	●	●	00:c0:81:00:cc:01	6	0	0
Indy02	●	●	00:c0:81:00:cc:05	6	0	0
Indy03	●	●	00:c0:81:00:cc:0f	6	0	0
Indy04	●	●	00:c0:81:00:cc:25	6	0	0
Indy05	●	●	00:c0:81:00:cc:31	6	0	0
Indy06	●	●	00:c0:81:00:cc:41	6	0	0
Indy07	●	●	00:c0:81:00:cc:45	6	0	0
Indy08	●	●	00:c0:81:00:cc:48	6	0	0
Indy09	●	●	00:c0:81:00:cc:4b	6	0	0
Indy10	●	●	00:c0:81:00:cc:5f	6	0	0
PL0147	●	●	00:c0:81:00:b9:47	6	1	0

**Administrative Summary**

Base Station Firmware Revision: 0.9.22  
 Last Refresh: Fri, Feb 0, 22:25:50, 2008  
 Manager Software Revision: 0.0.50  
 Unknown Subscribers: 1 [Click Here To View](#)

## G. Getting traffic started

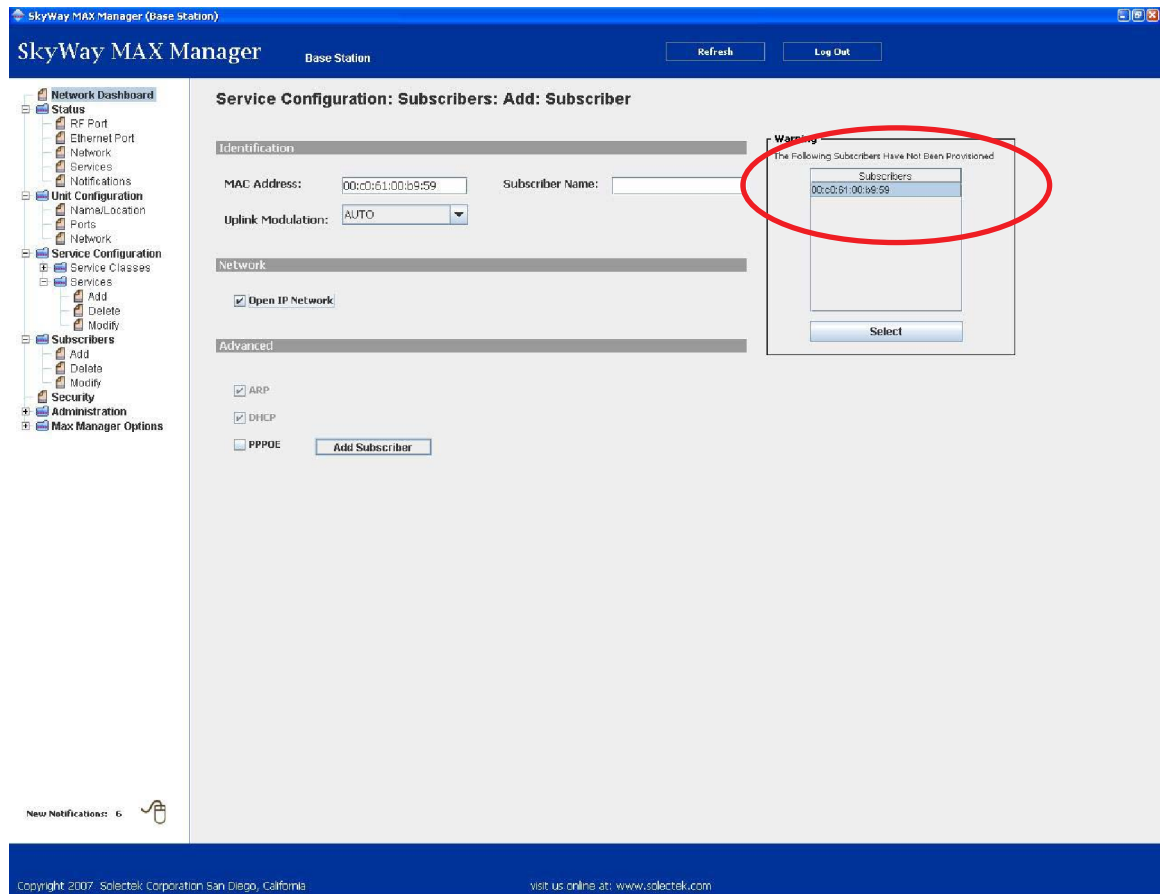
As covered in a subsequent section, the WiMAX protocol requires logical services to be created before network traffic can flow through the BSU and SS.

Once the SS has entered the BSU network, the Manager Application can create a default set of services to allow basic traffic to be carried:

- From the Manager's Dashboard page, press the 'Click Here To View' button. This will lead to the Add Subscriber page, augmented with the current list of unknown SS units.
- From this page, the Administrative Services and an Open IP User Service can be created.

At this point, the SS is provisioned and the network should be capable of passing basic traffic.





### H. Basic Monitoring

Using the BSU Manager's Navigation Bar, the following screens can be used to assess basic system status:

- Dashboard** Used to summarize BSU and all connected SS parameters
- Status : RF Port** Displays current RF port settings and packet counters
- Status : Ethernet Port** Displays current Ethernet port settings and packet counters
- Status : Network** Displays packet counter information per SS, and per Service
- Status : Services** Displays service configuration and status, per SS
- Status : Notifications** Lists Notification traps sent by BSU

This section ends the Quick Launch process. At this point, multiple SS units can be easily and quickly deployed and provisioned. However, there is a great deal of functionality and performance to be gained by implementing the processes and techniques described in the following sections of this Operator's Guide.