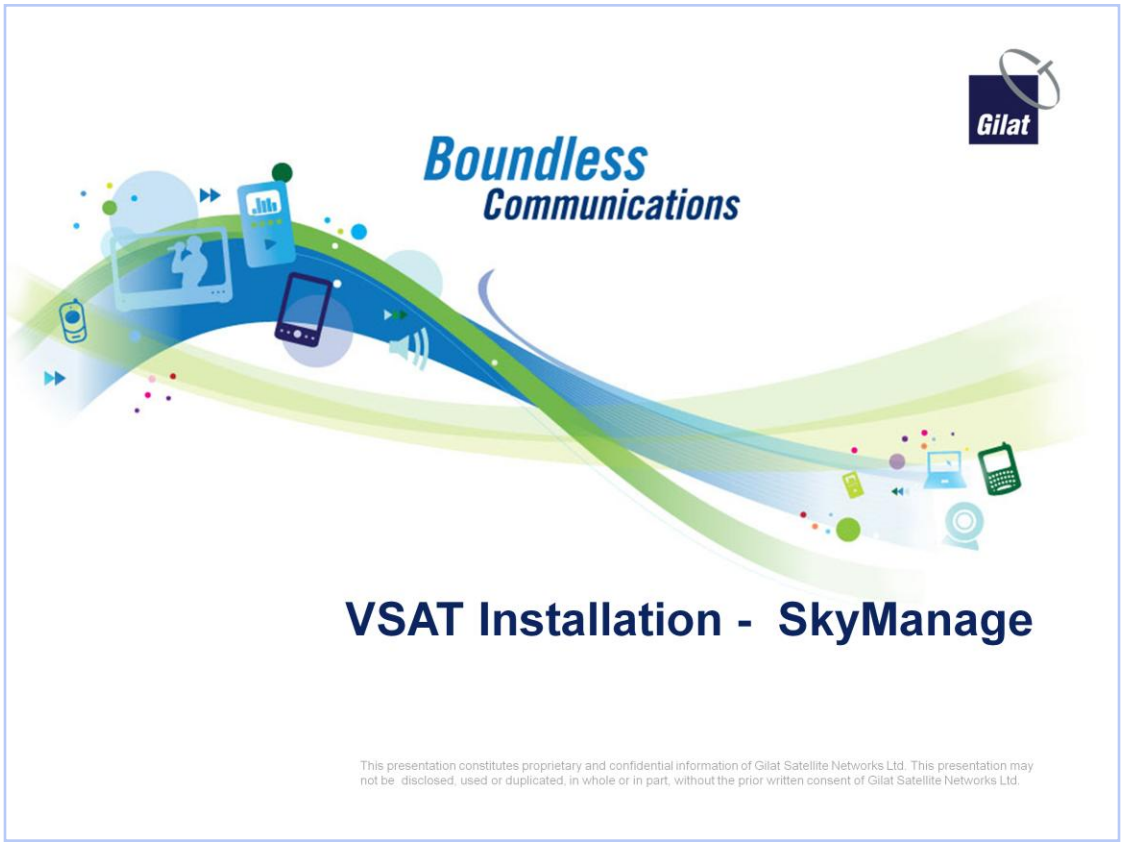


Agenda

- VSAT controls, indicators and connectors
- Connecting the VSAT
- VSAT's basic parameters
- VSAT's boot-up procedure
- VSAT configuration through SkyManage

2

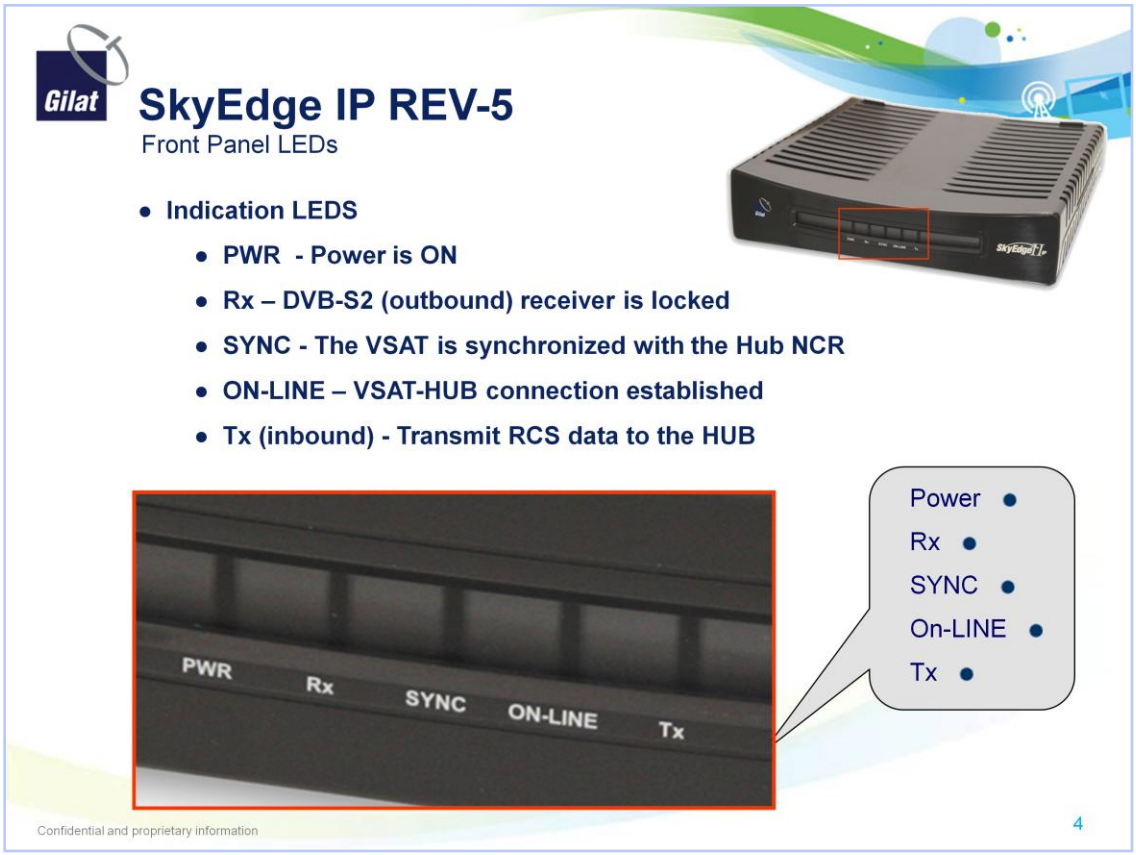
This presentation deals with the configuration of a new VSAT on the VSAT side

New VSAT Configuration

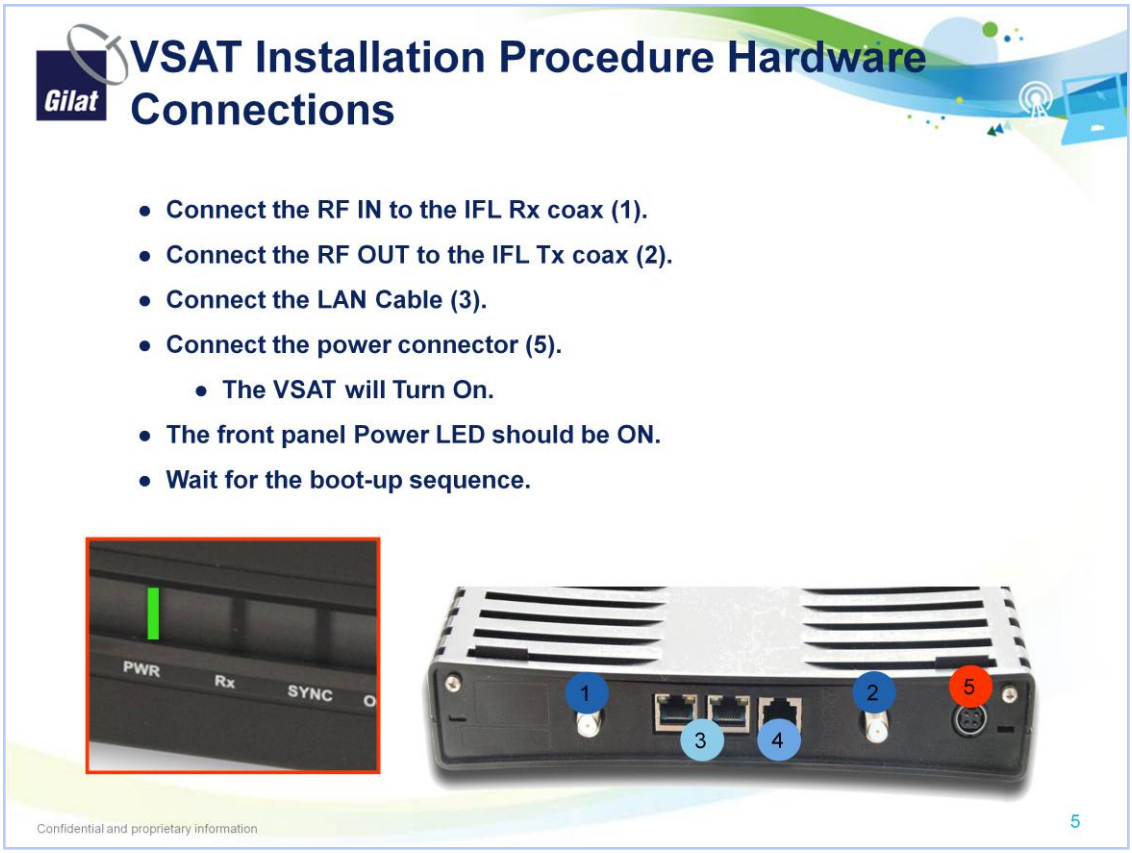
- When configuring a new VSAT in our system, it needs to be configured from two sides
- On the VSAT's side (physically at the VSAT) – shown in this presentation
- On the hub side – from the NMS browser – shown in "VSAT installation – NMS" presentation

3

The VSAT side is at the remote location as part of the VSAT installation.
The hub side is at the NMS browser itself.



The Leds light up sequentially. Power - once VSAT is plugged in, next Rx - when it locks on OB, next - SYNC when it extracts NCR, and ON-LINE when connection to the NMS was established.



Coaxial Cables Connection:

The Inter-Facility Link between the ODU and IDU provides a full duplex communication path between the two units. It consists of two coaxial cables: Inter Facility Link (IFL) Tx and IFL Rx.

Consult your Gilat representative for additional information and specifications.

LAN Cables Connection:

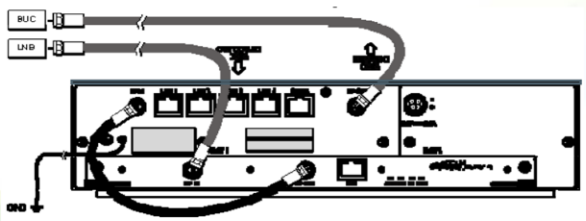
All of the LAN cables used are type CAT-5 and up. Ethernet hubs or switches are used to connect multiple PCs to the SkyEdge VSAT.

After the power LED turns ON, wait for the boot-up sequence to end (it may take a few minutes)

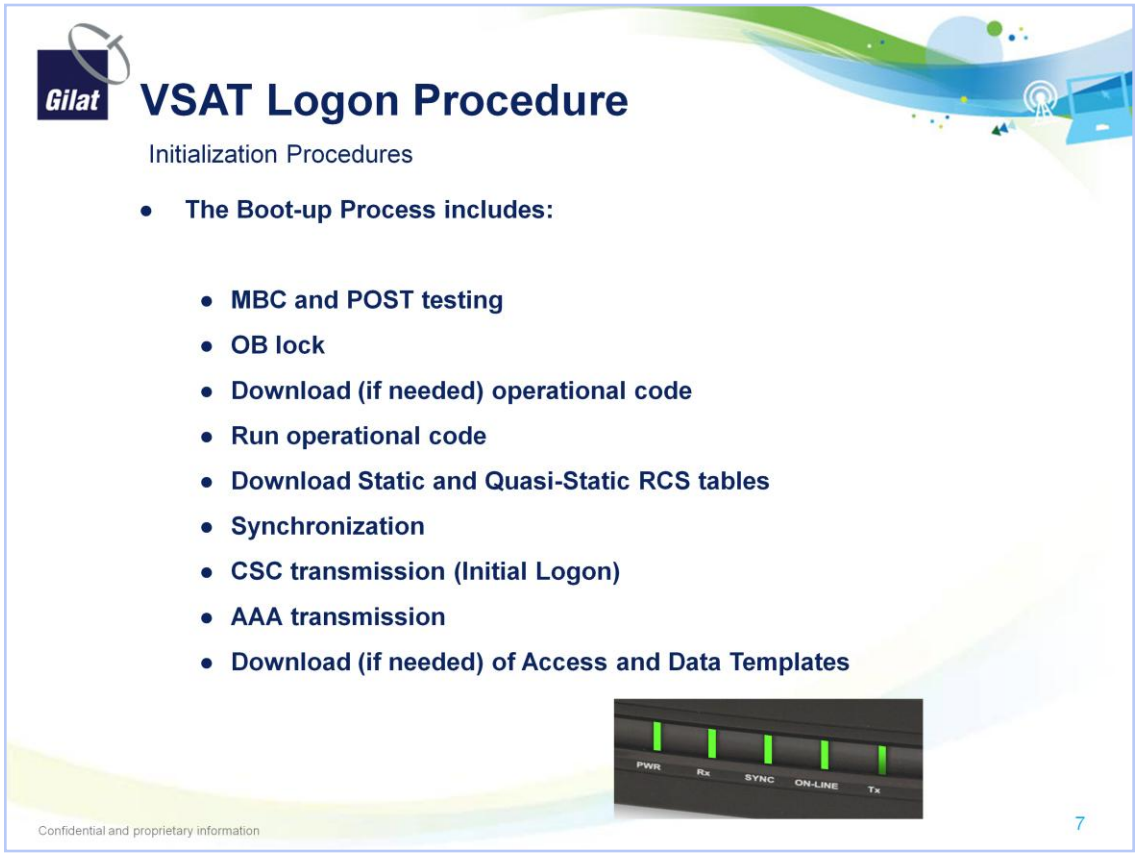
Mesh VSAT Installation

Wiring connection

- **Installation of a Mesh VSAT is similar to that of a regular VSAT, with one cabling difference.**
  - **In a non-mesh configuration, the LNB is connected to the RF IN connector of the VSAT.**
- **To install a Mesh VSAT (use only the Mesh cables supplied):**
  1. **Connect the coaxial cable to the RF IN port on the VSAT and RF OUT port on the Mesh card.**
  2. **Connect the RF IN cable from the antenna to the RF IN port on the Mesh card and the RF OUT cable to the RF OUT port on the VSAT.**



Maximum installation length is 33 meters for RG6 and 45 meters for RG11 cables. For longer installations (up to twice those distances), install a line amplifier between the LNB and the Mesh receiver (e.g. at the VSAT end of the cable).



After a VSAT is powered up , it goes through these processes:

The VSAT has to demodulate the DVB-S2 transport stream, identify the OB and the PIDs.

The VSATs has to download the RCS tables (Static and Quasi Static tables)

The VSAT downloads the software, if needed, and will run the software and go to operational mode.

The VSAT locks its internal clock to the NCR count by extracting the 27 MHz signal from the received NCR packets.

The VSAT calculates the propagation delay to the satellite using its location coordinates.

The VSAT will send its CSC burst (initial logon information).

The VSAT waits for the TIM-U message coming from the Hub. This message will include the Sync time slot allocation.

The VSAT starts sending Sync bursts every one second, in the first Sync the VSAT will send its first capacity request and it will use the first allocated TRF to send the AAA. The VSAT will wait for reply to the AAA message. The AAA reply message to the VSAT sent from the NMS, includes Access and Data version.

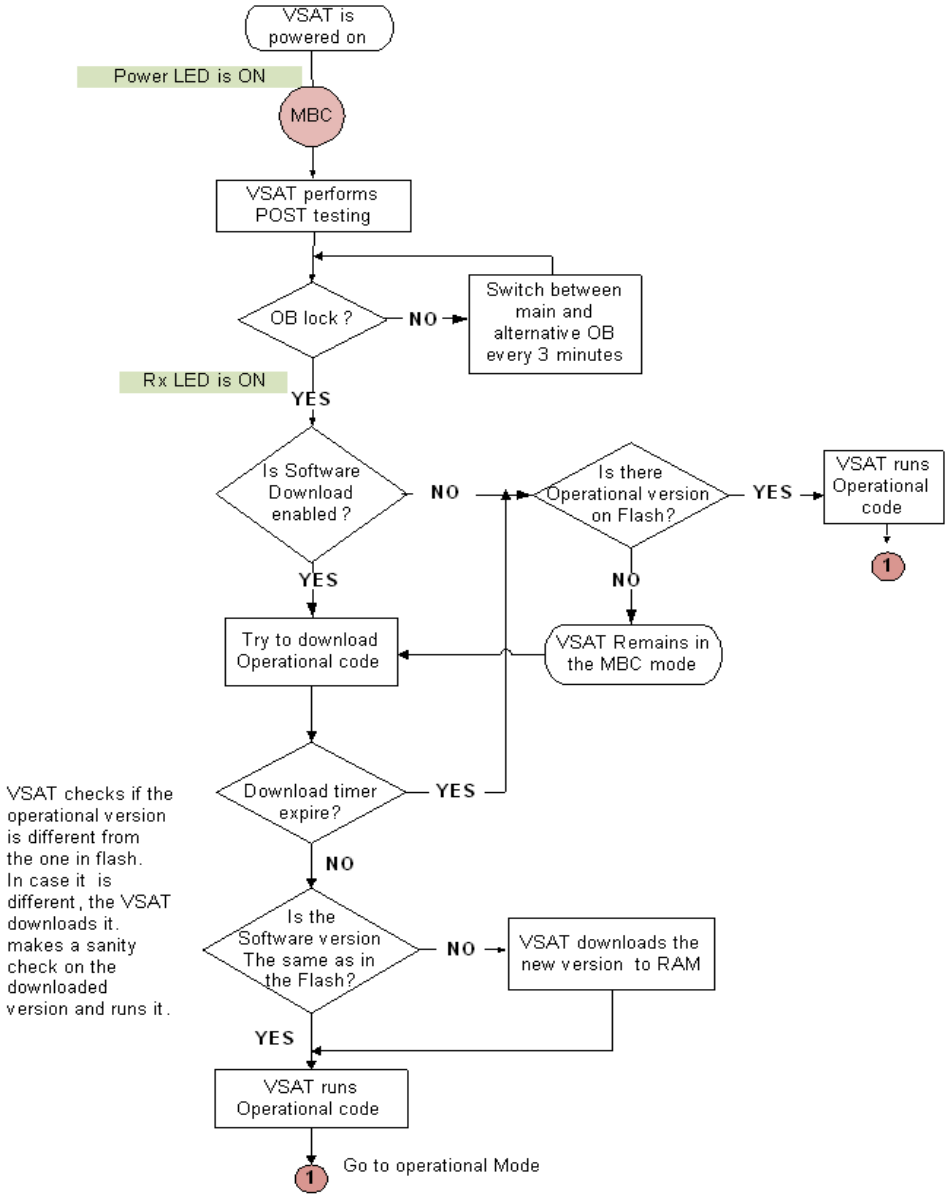
If needed the VSAT will download the Access and Data templates.

The VSAT is ready to transmit on the IB.

MBC – minimal boot code. POST – power on self test. AAA - authentication, authorization and accounting

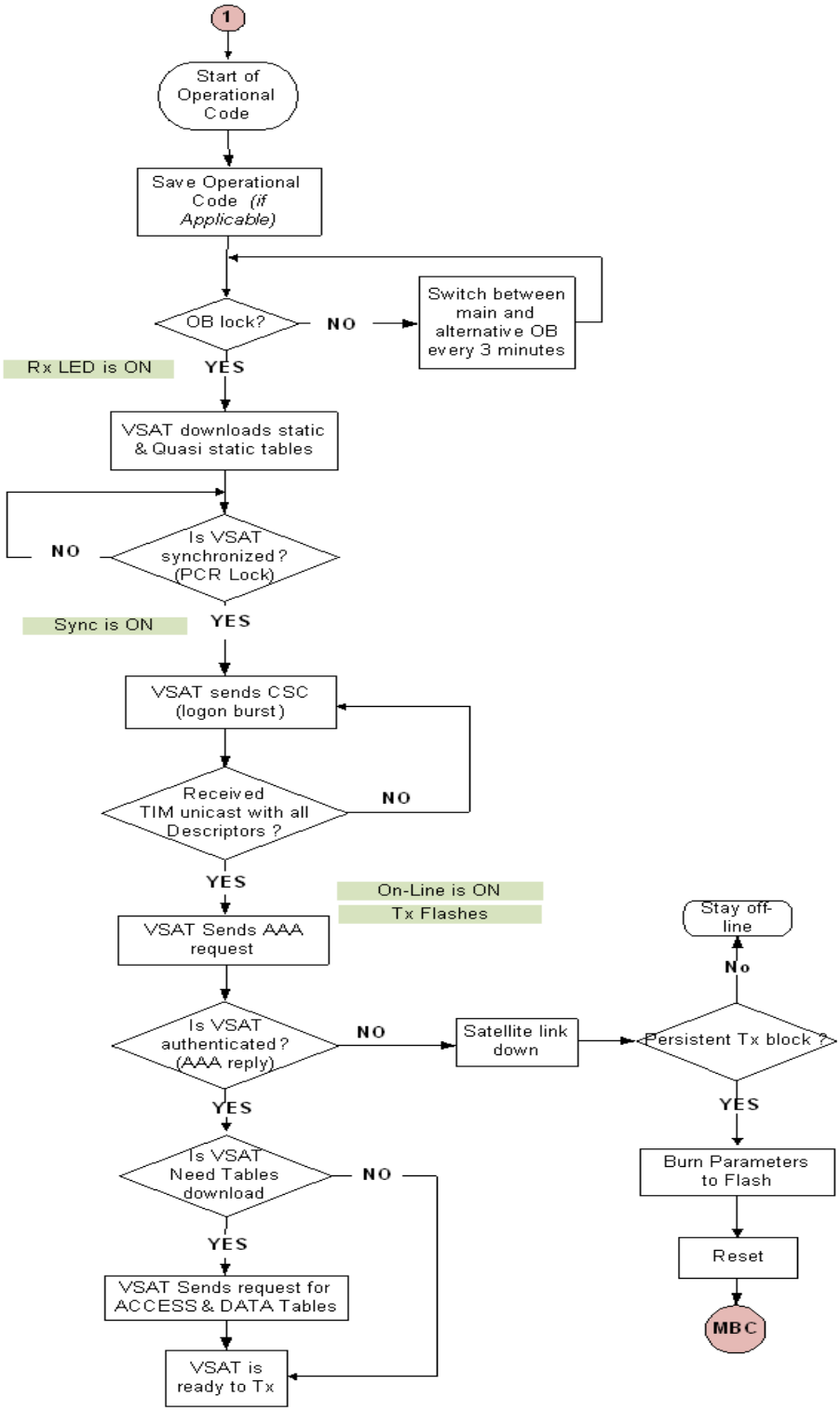
VSAT Logon Procedure

Flow Diagram - MBC

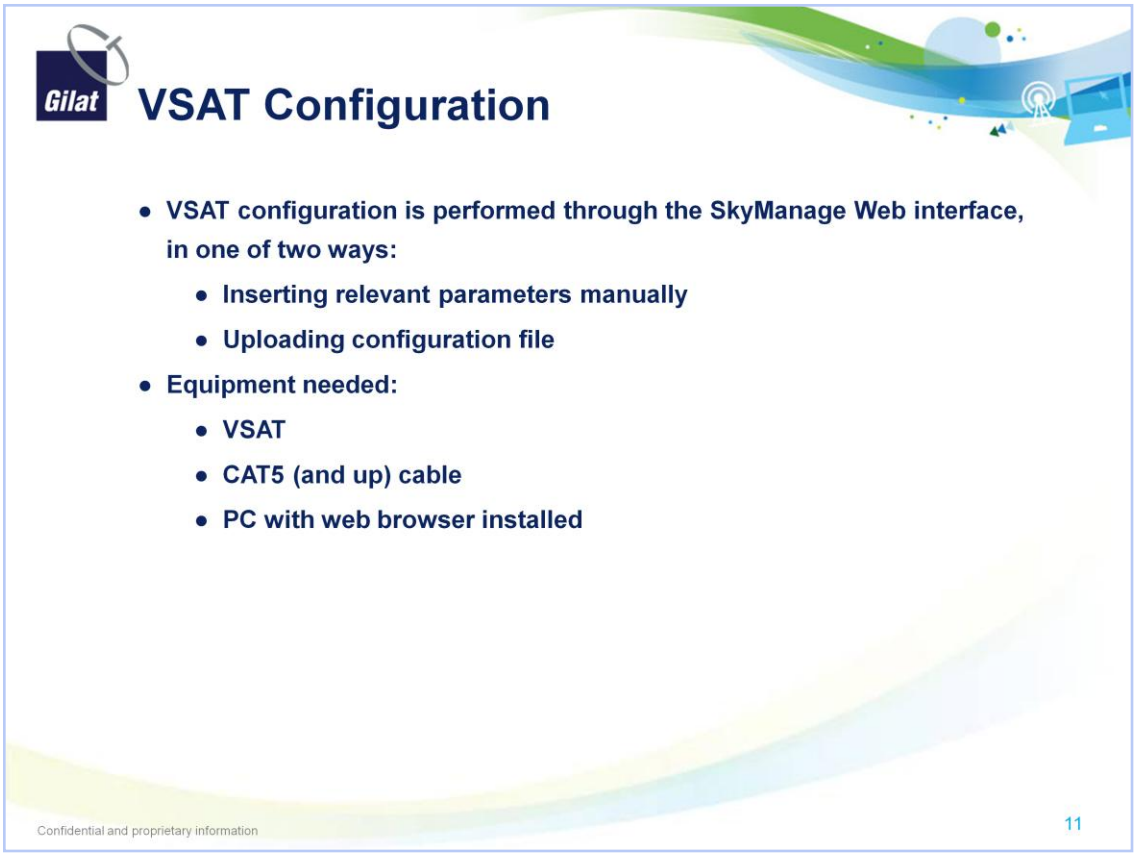


VSAT Logon Procedure

Flow Diagram - Operational Code




Gilat
VSAT Configuration Procedures
10


VSAT Configuration
VSAT configuration is performed through the SkyManage Web interface, in one of two ways:
Inserting relevant parameters manually
Uploading configuration file
Equipment needed:
VSAT
CAT5 (and up) cable
PC with web browser installed
Confidential and proprietary information
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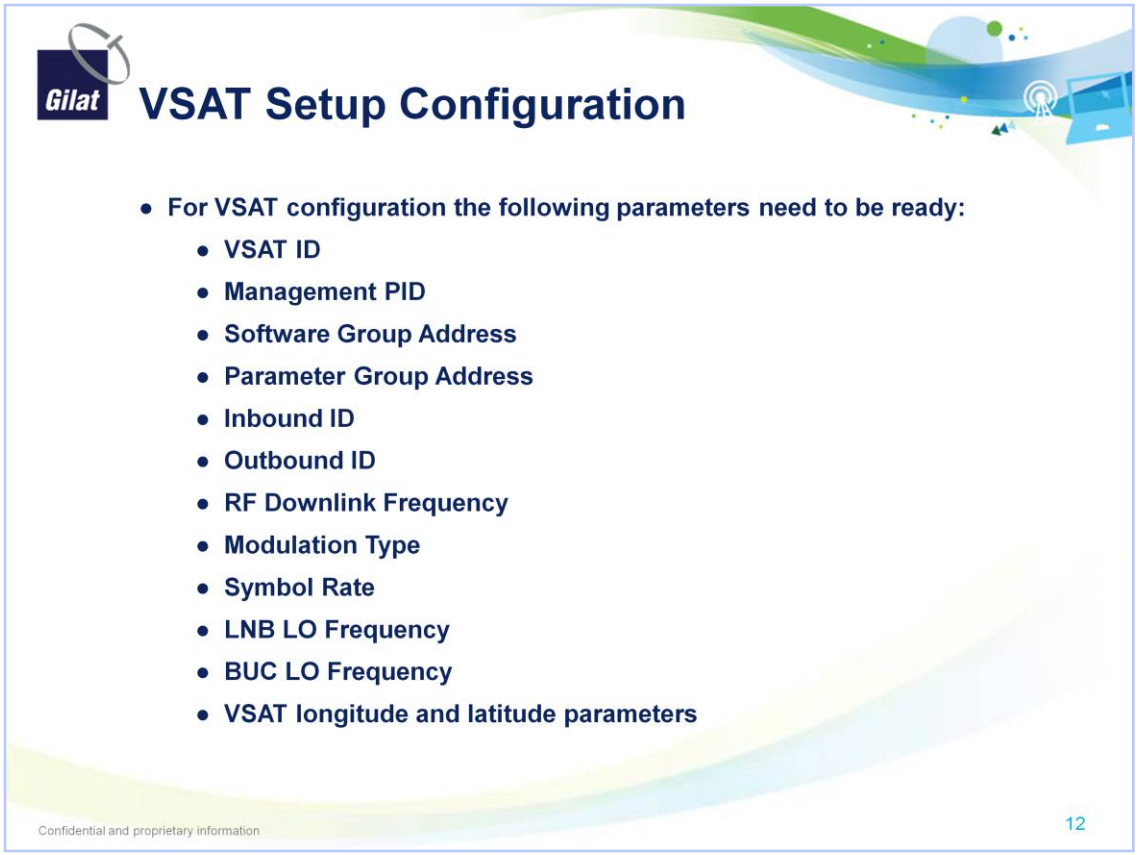


VSAT ID – unique VSAT ID between 1280 and 32000.

Management PID – identifies management traffic from the NMS.

Software Group Address – identifies the software the VSAT will use.

Parameters Group Address – identifies the Access template the VSAT will use.

Inbound ID – HSP the VSAT is related to.

Outbound ID – network segment identifier.

RF Downlink Frequency – OB frequency received at VSAT.

Modulation Type – should be DVB-S2 by default.

Symbol Rate – how many symbols per second are transmitted on OB (directly related to satellite bandwidth).

BUC and LNB – values for the L.O. (local oscillator) of the BUC and LNB.

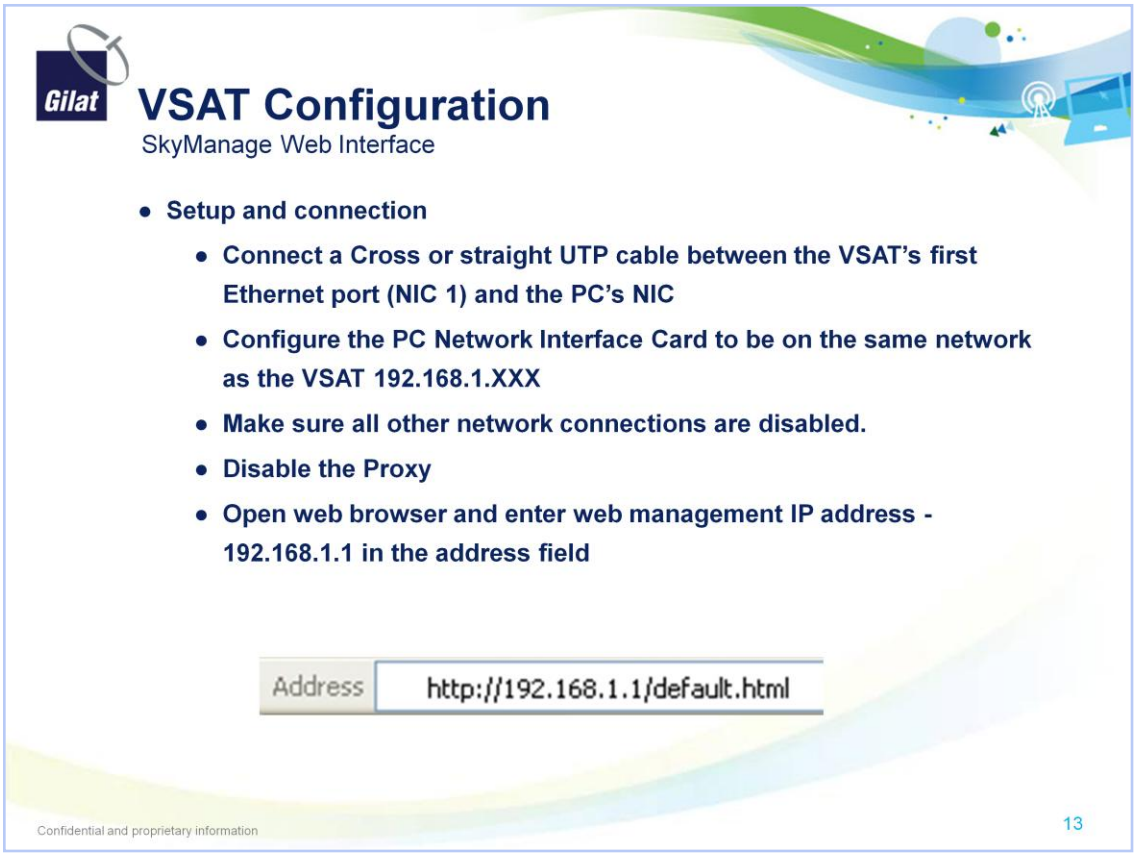
BUC – Block Up Converter LNB – Low Noise Blocker

Outbound frequency, modulation type and symbol rate are all that's needed for the VSAT to be able to lock on the OB.

The VSAT can then start downloading the RCS tables.

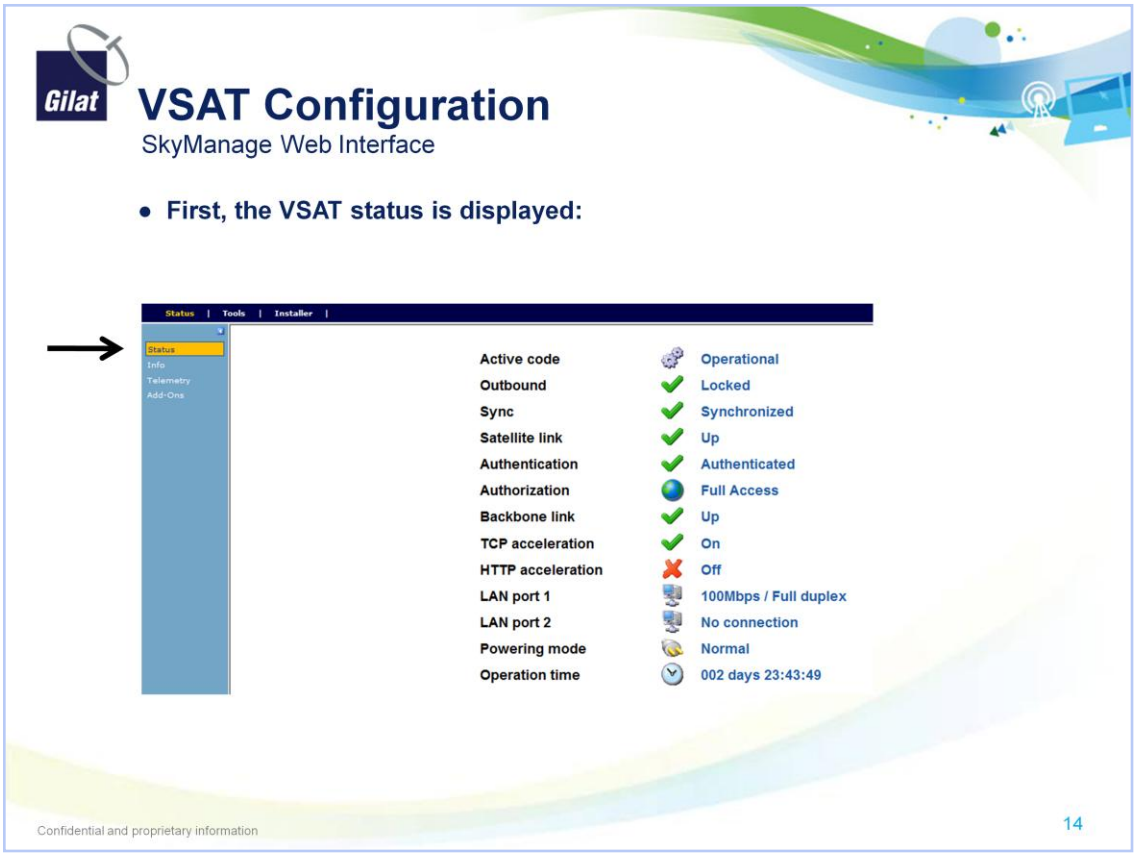
The satellite position information is distributed in the RCS tables.

The delay from the VSAT to the satellite is calculated using the VSAT longitude and latitude parameters



SkyManage must be connected to the VSAT through NIC number 1.

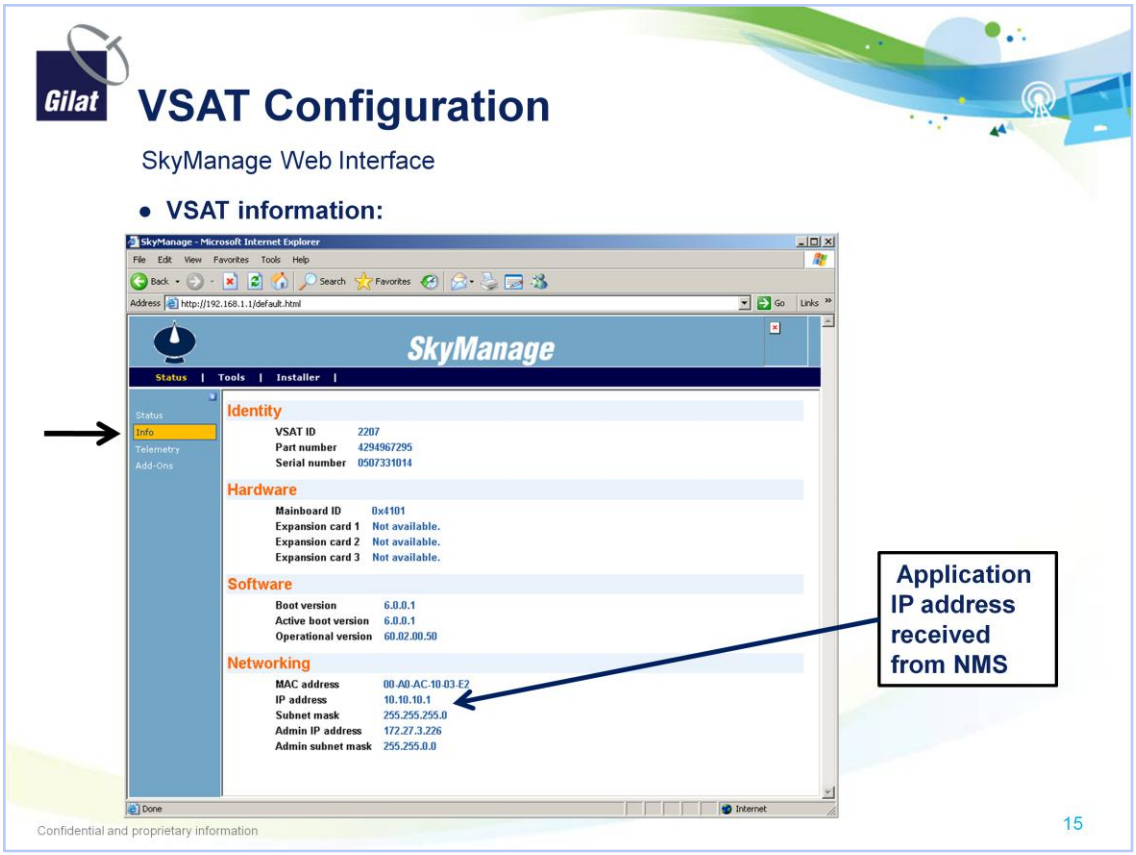
Disable firewall in the PC, and check connectivity (ping) to SkyManage IP



Backbone link is connection to the DPS.

TCP acceleration is the TCP spoofing done by the DRPP.

HTTP acceleration is the HTTP spoofing done by the ServerFarm component in the VSAT – RPA (if active).



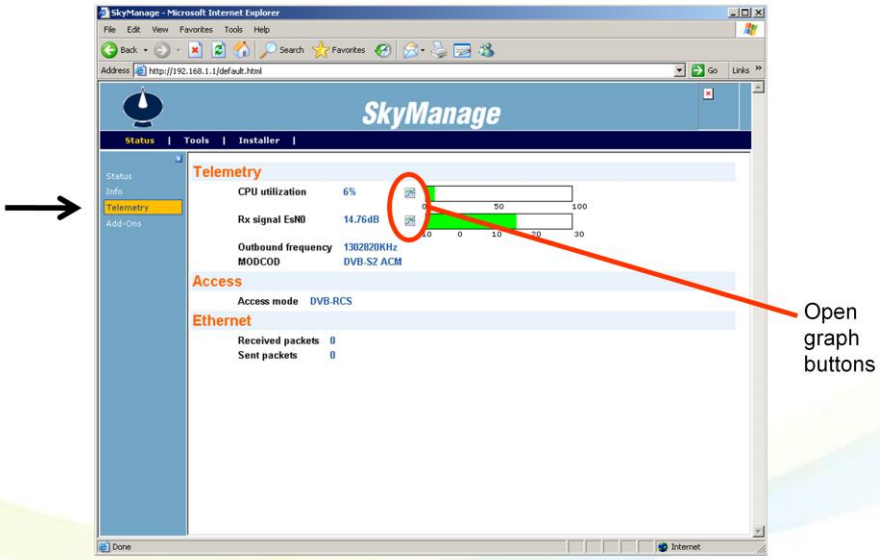
IP Addresses of VSAT:

1. SkyManage configuration IP – 192.168.1.1 by default in all VSATs.
2. Admin IP – Unique IP of VSAT – for tech support use.
3. Application IP of VSAT, received from NMS after the VSAT is backbone up.

VSAT Configuration

SkyManage Web Interface

- **VSAT telemetry:**



It's possible to open a graph for the telemetries of CPU utilization and Rx signal EsNo by pressing the graph button near the green bar.

VSAT Configuration

SkyManage Web Interface

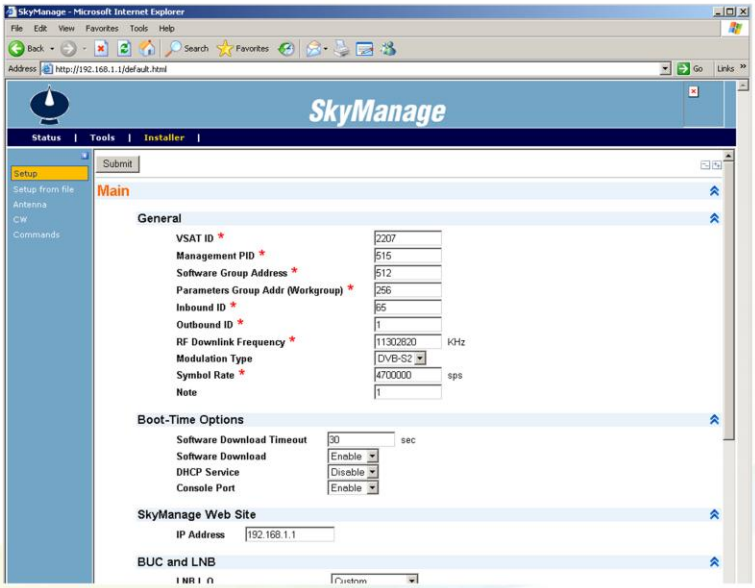
- **For VSAT installation, press the Installer tab:**

Log in with -
user name: inst
Password: $Sat2598$

VSAT Configuration

SkyManage Web Interface

- **The VSAT's installation parameters:**



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Software Group Address – identifies the software the VSAT will use (coming from the NMS).

Parameters Group Address – identifies the Access template the VSAT will use (coming from the NMS).

Inbound ID – HSP the VSAT is related to.

Outbound ID – network segment identifier.

RF Downlink Frequency – OB frequency received at VSAT.

Modulation Type – should be DVB-S2 by default.

Symbol Rate – how many symbols per second are transmitted on OB. (directly related to satellite bandwidth)

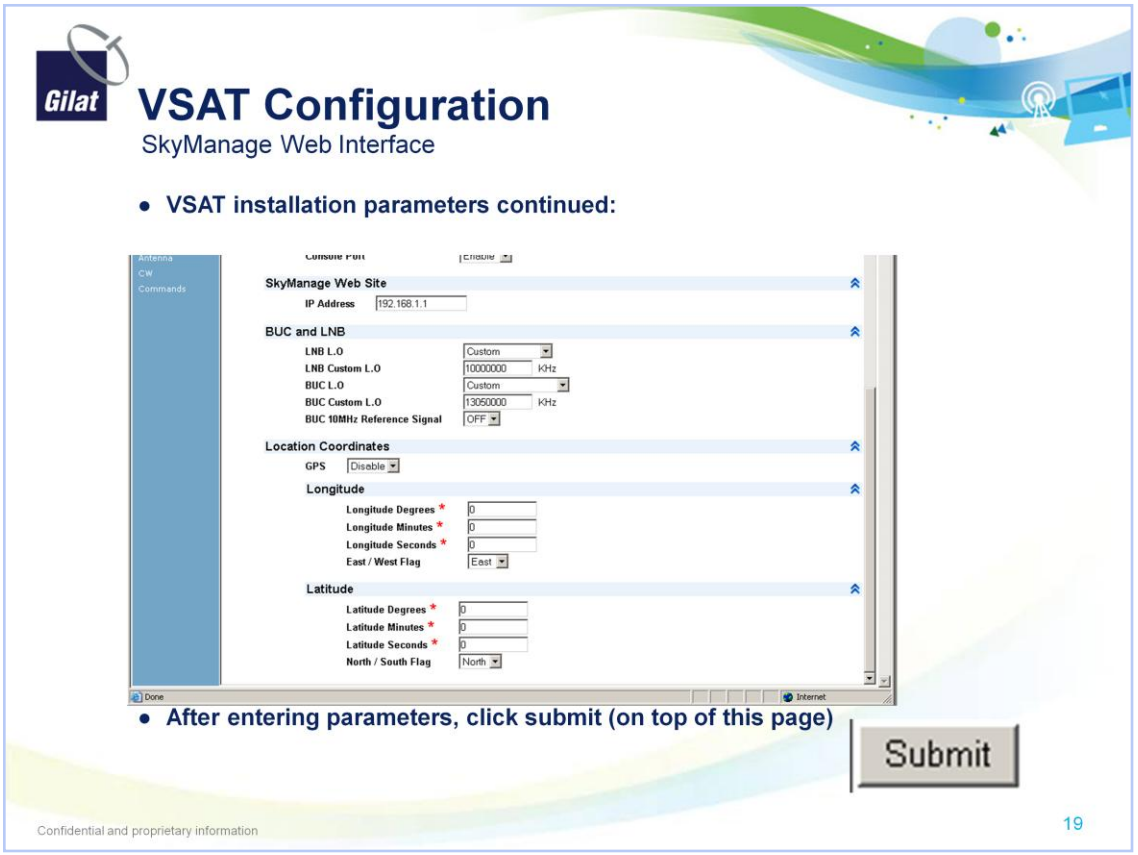
Note – Legacy field. Enter anything. Can not be empty. Must have a value.

Software Download Timeout – the time the VSAT will keep trying to download software from the OB (default - 30)

Software Download – whether or not the VSAT should download software from OB (default - enable)

DHCP Service – Will the VSAT act as a DHCP server, or pass DHCP requests on to the hub (default - disable)

Console Port – used for console (default - enable)

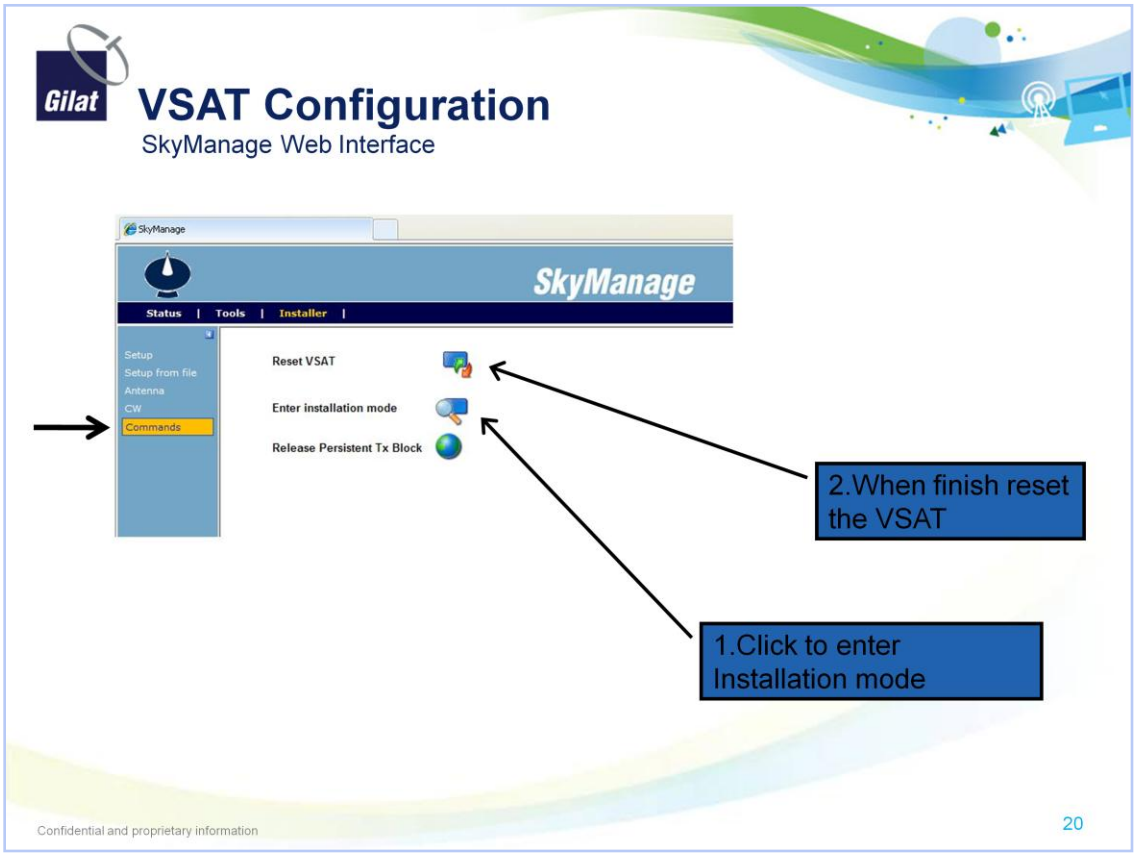


SkyManage Web Site IP Address – by default is 192.168.1.1

BUC and LNB – values for the L.O. (local oscillator) of the BUC and LNB. For each you can choose from a list (and then the custom field is irrelevant) or select custom, and enter the desired value in the custom field.

BUC 10MHz Reference Signal – a signal from the VSAT used by the BUC. In High Fly should be enabled. In Low Fly should be disabled.

Location Coordinates – VSAT needs its coordinates in order to calculate delay from satellite, so it can synchronize to the hub, for IB transmissions. By default, GPS field will be in disable, and coordinates need to be entered manually.

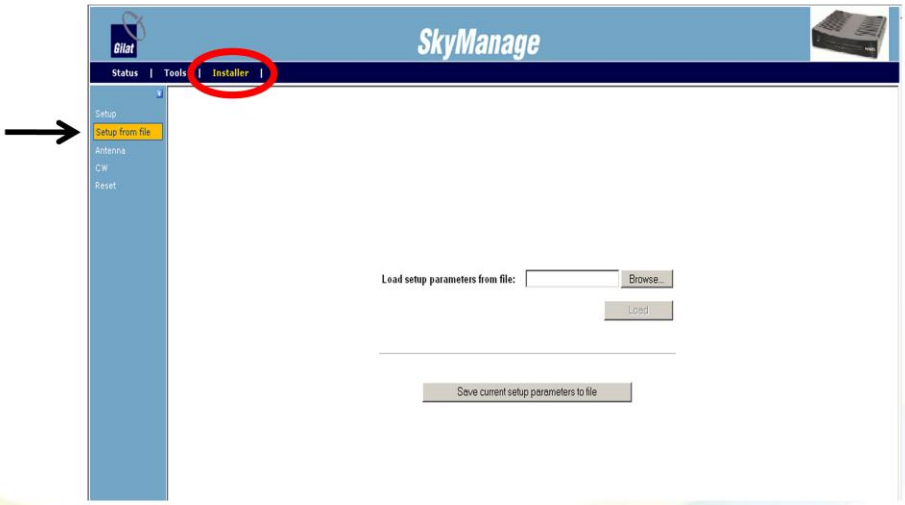


After pressing “Submit”, go to commands, enter installation mode and reset VSAT.
Installation mode affects the 1 dB compression point search procedure (Initial power loop).

VSAT Configuration

SkyManage Web Interface

- VSAT's configuration can also be saved to a file, or loaded from a file

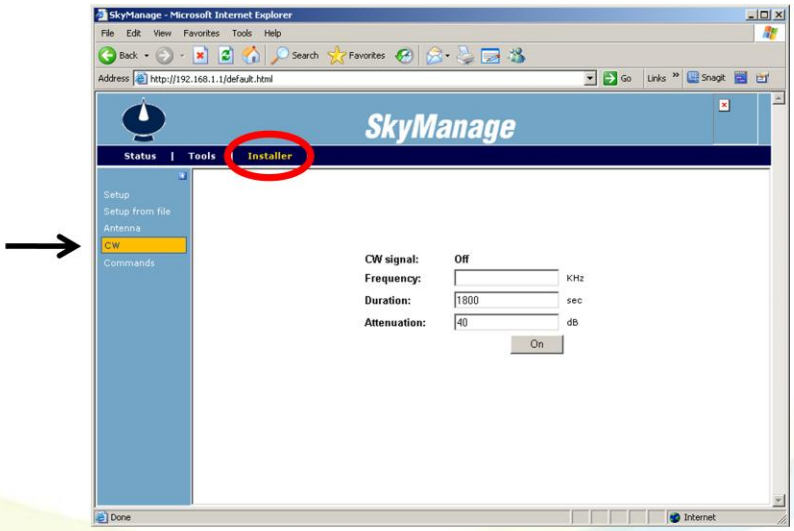


If a correct configuration file is uploaded to a VSAT, all the parameters should be correct. Therefore the VSAT installer will only need to change the VSAT ID, and it's GPS coordinates.

VSAT Configuration

SkyManage Web Interface

- **It is also possible to send a CW from the VSAT through the SkyManage**



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Select frequency to send CW, duration in seconds, and attenuation (default is usually zero attenuation).

VSAT Configuration Procedure

Operational Verification

- After finishing the VSAT configuration and installation the state of the VSAT will be as follows:
  - RX LED should be ON
  - SYNC LED should be ON
  - On-Line LED should be ON, indicating satellite link is up
  - Tx should flash once for each packet being transmitted

VSAT Configuration Procedure

Test your knowledge

1. Where do we need to configure VSAT parameters, in order to bring it online properly?

   _____

2. Arrange the VSAT boot up process in the correct order: Synchronization, AAA (authentication), OB lock, CSC transmission, MBC, static RCS tables download:

   1._____2._____3._____4._____

   5._____6._____

3. What is IB ID? What is OB ID?

   _____

4. A VSAT installer needs to install 1000 VSATs. What is the quickest way to configure them all? What must he pay close attention to?

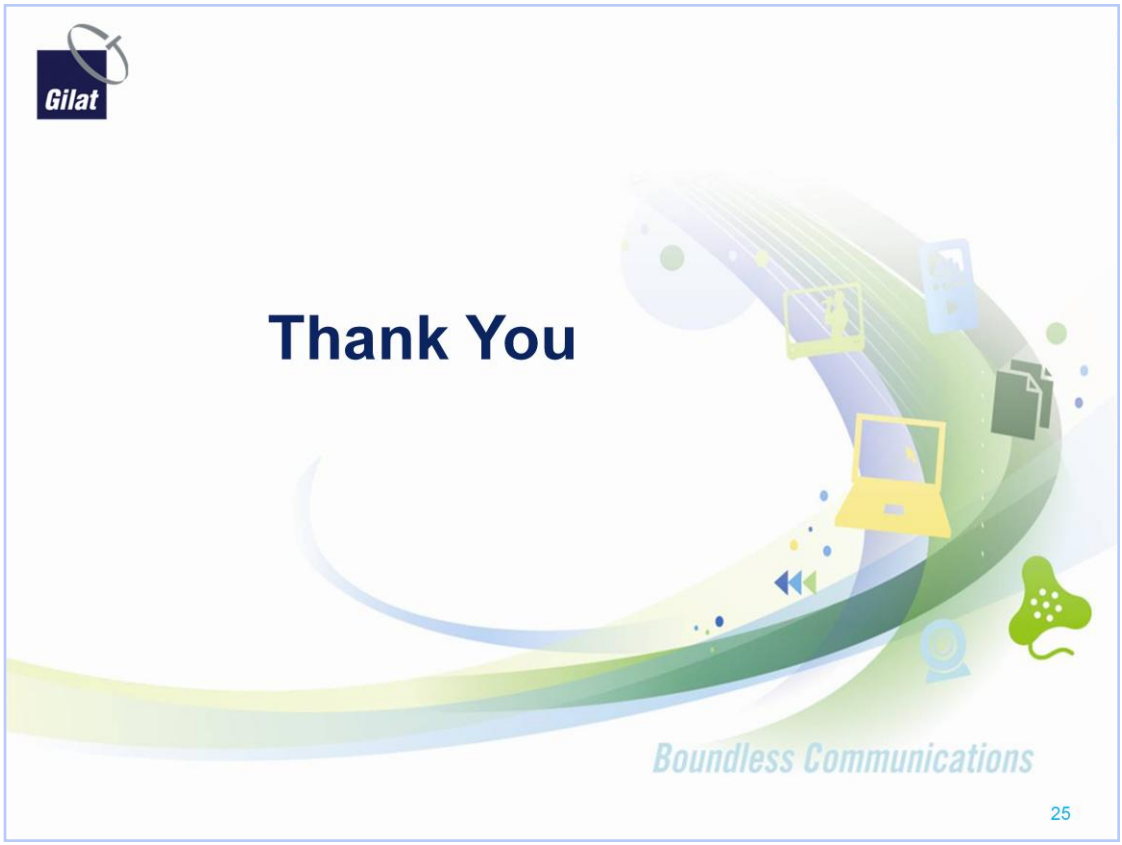
   _____

5. What is the SkyManage's IP address? Can it be changed?

   _____

6. An idle VSAT doesn't transmit data at the moment. Will it's Tx LED light up ? How Often?

   _____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Thank You
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