

SOFTWARE MANUAL

LINKCONTROL 8



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PREFACE

Purpose and Scope of the User Guide

The user guide explains the system specifics of the Norsat LINKCONTROL 8 SOFTWARE SUITE for use with Norsat satellite terminals.

This user guide is specifically written for the LINKCONTROL 8 SOFTWARE SUITE

Audience

The guide will be of interest to the following personnel:

- Field users
- Systems administrators (or IT; Lifecycle / Sustainment Managers)

READ THE MANUAL BEFORE YOU INSTALL OR OPERATE THE LINKCONTROL 8 SOFTWARE SUITE

1. LinkControl 8 Basics

LinkControl 8 is a Suite of Software that assists users in using their Norsat Satellite Equipment in all environments

1.1 Overview

Norsat's LinkControl 8 software offers an intuitive and powerful set of tools designed for satellite communications professionals and amateurs. Delivering a robust package of acquisition and monitor + control interfaces, LinkControl 8 empowers new users to run complex VSAT systems and enables professionals to work more efficiently in the field. LinkControl 8 seamlessly integrates the various hardware and procedures into user-friendly steps. LinkControl 8 features include:

- Save commonly-used settings using pre-configurable LinkProfiles
- Save satellite data used for acquisition in a Satellite Almanac
- Automatic satellite acquisition using selected settings
- Manual control over antenna orientation
- Compatibility with OpenAMIP

Norsat's LinkControl 8 Software runs on a Host Computer (typically a laptop) running Microsoft Windows® 7 or Microsoft Windows® 10 connected to the terminal via an Ethernet connection. The Host Computer may be connected to the antenna directly or may connect through a Local Area Network.

1.2 Minimum Recommended Software Requirements

PARAMETER	REQUIREMENT
Operating System	Windows 7 or Windows 10, with .NET 2.0 or above installed
Hard Drive	2 GB or more of available free space
Processor	i3 or equivalent (dual-core, 2.93 GHz)
RAM	2 GB DDR3
Resolution	1280 x 768 display resolution

Refer to the table below for the minimum recommended software requirements.

1.3 Installing LinkControl 8

LinkControl 8 is typically provided to customers in one of two ways: distributed electronically as a compressed ZIP archive, or distributed on a USB stick.

The following instructions explain how to install LinkControl 8 from a Compressed ZIP Archive:

- 1) Use the Windows File Explorer to navigate to the root of the C: Drive on the Host Computer.
- 2) Create a new subfolder called LinkControl8.
- 3) Copy the provided ZIP Archive to the C:\LinkControl8 folder.
- 4) Extract the contents of the ZIP Archive to the C:\LinkControl8 folder.
- 5) Make a shortcut to LinkControl.exe.
- 6) Rename the shortcut "Norsat LinkControl 8".
- 7) Move the shortcut to the Desktop folder on the Host Computer.

LinkControl 8 can now be launched using the shortcut on the Desktop.

The following instructions explain how to install LinkControl 8 from a USB Stick:

- 1) Insert the USB Stick into a USB port on the Host Computer.
- 2) Use the Windows File Explorer to navigate to the root of the C: Drive on the Host Computer.
- 3) Create a new subfolder called LinkControl8.
- 4) Copy the LinkControl 8 files from the USB Stick to the C:\LinkControl8 folder.
- 5) Make a shortcut to LinkControl.exe.
- 6) Rename the shortcut "Norsat LinkControl 8".
- 7) Move the shortcut to the Desktop folder on the Host Computer.

LinkControl 8 can now be launched using the shortcut on the Desktop.

Once the LinkControl 8 files have been copied to the C:\LinkControl 8 folder, you should see the following files in the folder:

- LinkControl8
 - LocalData
 - DeviceSettingsData.xml
 - GroundLocations.xml
 - LinkControlSettingsData.xml
 - LinkProfileData.xml
 - MagneticDeclinationIGRF2000.xml
 - SatelliteData.xml
 - SettingsData.xml
 - o Logs
 - o GlassButtonMono.dll
 - GraphicsDLL.dll
 - IPAddressControlLib.dll
 - LinkControl Changelog.txt
 - o LinkControl.exe

1.4 Launching LinkControl 8

On Norsat-supplied systems LinkControl 8 is configured to automatically start up when the Host Computer boots up, however this may not be the case for systems where LinkControl 8 has been installed by the end user. LinkControl 8 is a standard desktop application and may be launched as a common application without administrator privileges.

Users will be prompted to accept an End User License Agreement (EULA) the first time the LinkControl 8 software is run. This EULA must be accepted in order to use the LinkControl 8 software. If the EULA is not accepted, LinkControl 8 will automatically exit and the EULA will be displayed again the next time the LinkControl 8 software is run. Once the EULA has been accepted it will no longer be shown when LinkControl 8 starts unless a new version of the software is installed on the Host Computer. It can be accessed at any time from the Help > View EULA entry in LinkControl 8's main menu.

🔞 End-User License Agreement —		\times
END USER LICENSE AGREEMENT ("EULA")		^
THIS END USER LICENSE AGREEMENT ("EULA") IS A LEGAL AGREEMEN YOU (EITHER AN INDIVIDUAL OR AN ENTITY) AND NORSAT INTERNATION COMPANY INCORPORATED IN BRITISH COLUMBIA, CANADA ("NORSAT EULA GOVERNS ALL SOFTWARE ("SOFTWARE") AND ANY UPGRADES, IN PATCHES, HOTFIXES, MODULES, ROUTINES, FEATURE ENHANCEMENT ADDITIONAL VERSIONS OF THE SOFTWARE THAT REPLACE OR SUPPLIN ORIGINAL SOFTWARE (COLLECTIVELY "UPDATES"). THE "SOFTWARE" MEAN COLLECTIVELY THE SOFTWARE PROGRAM AND UPDATES. THIS AND OF ITSELF, DOES NOT ENTITLE YOU TO ANY UPDATES AT ANY THE FUTURE. BY EXPRESSLY ACCEPTING THESE TERMS OR BY DOWNLOAD INSTALLING, ACTIVATING AND/OR OTHERWISE USING THE SOFTWARE AGREEING THAT YOU HAVE READ, AND THAT YOU AGREE TO COMPLY ARE BOUND BY THE TERMS AND CONDITIONS OF THIS EULA AND ALL A LAWS AND REGULATIONS. IF YOU DO NOT AGREE TO BE BOUND BY THE AND CONDITIONS OF THIS EULA, THEN YOU MAY NOT DOWNLOAD, IN	IT BETWEE DNAL INC. / "). THIS JPDATES, S AND EMENT THE 'SHALL EULA, IN ME IN THE ING, E, YOU ARE WITH AND APPLICABLE HE TERMS STALL,	
ACTIVATE OR OTHERWISE USE ANY OF THE SOFTWARE AND YOU MUS	T Rejec	* *

Figure 1: LinkContro 8 End-User License Agreement (EULA)

At start-up LinkControl 8 connects to the specified antenna and receives various diagnostic information from it. Please wait until the overall status indicator registers "System OK".



Figure 2: LinkControl 8 Start-Up Screen

If the overall status indicator indicates an alarm, use the built-in troubleshooter to assist you in diagnosing the issue. The troubleshooter can be accessed at any time through the Help Menu at the top of the screen.

1.5 Satellite Almanac

LinkControl 8 maintains a user-editable satellite almanac. This data is used to assist the user in acquiring a satellite and is critical for Auto-acquisition, as targets for the Satellite are defined by the information in the almanac as specified in LinkProfiles.

1.5.1 Accessing the Satellite Almanac

To access the Satellite Almanac, click **Administration** in the main menu, and then select **Satellite Almanac** from the resulting pull-down menu:



Figure 3: Accessing the Satellite Almanac

This will bring up the Satellite Almanac window:

🔟 Satellite Almanac								_		×
Satellite Name			Orbital Position		Number	of Total Carriers	^	Ac	ld Satellite	
ABS 1/1A/B/2			75.00		0					
Africasat/Measat 2			148.00		0			Del	ete Satellit	e
AMC 1	AMC 1				7		1	E	lit Satallita	
AMC 15 / SES 11 / EchoStar 105			-105.00		1		1		iit Jateiiite	
AMC 16			-85.00		4					
AMC 3			-67.00		5					
AMC 5	AMC 5			-81.00		2				
Carriers for Selected Satellite							_			_
Carrier Name	Frequency (MHz)	Туре		Symbol Rate (k	SPS)	Polarization	_	A	dd Carrier	
Beacon C band H	4199.50	Beacon		0		Linear Horizontal				
Beacon C Band V	3700.50	Beacon		0		Linear Vertical		De	lete Carrie	r in the second s
Ku Beacon	12198.00	Beacon		0		Linear Horizontal		F	dit Carrier	
LifeChurch TV	12056.00	DVB-S Ca	amier	3256		Linear Vertical				
Patient Channel	11720.00	DVB-S Ca	amier	4858		Linear Horizontal				
L										

Figure 4: The Satellite Almanac Window

The Satellite Almanac provides a Satellite List at the top of the interface. Clicking on a satellite in the Satellite List will populate the Carriers for Selected Satellite List with the beacons and carriers associated with that satellite.

1.5.2 Adding a New Satellite

- 1. Open the **Satellite Almanac** using the procedure described in section 1.5.1.
- 2. Click on the **Add Satellite** button found to the right of the Satellite List. This will bring up the Add/Edit Satellite window:

0 Edit Satellite					_	×
Satellite Name:	AMC 3					
Orbital Position:		67.00 🜲	OE	● ₩		
Operator Phone:						
Notes:						
		S	ave			

Figure 5: The Add/Edit Satellite Window

- 3. Enter a unique name for the satellite in the **Satellite Name** box.
- 4. Enter the orbital position of the satellite using the **Orbital Position** controls. The satellite's orbital position must be unique.
- 5. Optionally enter the **Operator Phone** number and any additional **Notes** as needed.
- 6. Click on the **Save** button to add the new Satellite to the Satellite Almanac.

1.5.3 Editing an Existing Satellite

- 1. Open the Satellite Almanac using the procedure described in section 1.5.1.
- 2. Select the satellite in the Satellite List that you wish to edit.
- 3. Click on the **Edit Satellite** button found to the right of the Satellite List. This will bring up the Add/Edit Satellite window.

- 4. Edit the satellite information as needed, following the steps described in section 1.5.2.
- 5. In the Add/Edit Satellite window, click on the **Save** button to update the information for the satellite in the Satellite Almanac.

1.5.4 Removing an Existing Satellite

- 1. Open the Satellite Almanac using the procedure described in section 1.5.1.
- 2. Select the satellite in the Satellite List that you wish to delete.
- 3. Click on the **Delete Satellite** button found to the right of the Satellite List.
- 4. Confirm the deletion if prompted to do so.

Note: Deleting a satellite will delete all beacons and carriers associated with the satellite.

1.5.5 Adding a New Satellite Beacon or Carrier

- 1. Open the Satellite Almanac using the procedure described in section 1.5.1.
- 2. Select the satellite in the Satellite List that you wish to add the beacon or carrier to.
- 3. Click on the **Add Carrier** button found to the right of the Carriers for Selected Satellite List. This will bring up the Add/Edit Satellite Carrier window:

🤨 Edit Satellite Carrie	er —		\times		
Carrier Name:	Beacon C band H				
Frequency:	4199.50 🔶 MHz				
Polarization Type (Rx):	Linear Horizontal		•		
Туре:	Beacon		-		
Symbol Rate:	0 ≑ kSPS				
Save Satellite Carrier					

Figure 6: The Add/Edit Satellite Carrier Window

- 4. Enter a unique name for the carrier in the Carrier Name box.
- 5. Enter the frequency for the beacon or carrier using the **Frequency** controls.

- 6. Select the Rx polarization type using the **Polarization Type** pull-down menu.
- 7. Specify the type of carrier using the **Type** pull-down menu.

Note: If the Type is set to *Beacon*, the symbol rate parameter will be automatically set to 0 and cannot be changed.

- 8. For DVB-S or DVB-S2 carriers, enter the symbol rate (in units of 1000 symbols per second) using the **Symbol Rate** controls.
- 9. Click on the **Save Satellite Carrier** button to add the beacon or carrier to the satellite.
 - **Note**: Some antennas can only use Beacons when performing auto-acquire, so make sure you add beacons for any satellite you wish to use with auto-acquire for these antennas.

1.5.6 Editing an Existing Satellite Beacon or Carrier

- 1. Open the Satellite Almanac using the procedure described in section 1.5.1.
- 2. Select the satellite associated with the satellite carrier in the Satellite List.
- 3. Select the satellite carrier that you wish to edit in the in the Carriers for Selected Satellite List.
- 4. Click on the **Edit Carrier** button found to the right of the Carriers for Selected Satellite List. This will bring up the Add/Edit Satellite Carrier window.
- 5. Edit the beacon or carrier information as needed, following the steps described in section 1.5.5.
- 6. In the Add/Edit Satellite Carrier window, click on the **Save Satellite Carrier** button to update the information for that beacon or carrier in the Satellite Almanac..

1.5.7 <u>Removing an Existing Satellite Carrier</u>

- 1. Open the Satellite Almanac using the procedure described in section 1.5.1.
- 2. Select the satellite associated with the satellite carrier in the Satellite List.
- 3. Select the satellite carrier that you wish to edit in the in the Carriers for Selected Satellite List.
- 4. Click **Delete Carrier** on the right of the **List of Satellites Carriers**.
- 5. Confirm the deletion if prompted to do so.

1.5.8 Satellite Almanac Tips and Tricks

LinkControl 8 can support any number of entries in the Satellite Almanac, and each satellite can have as many beacons or carriers as necessary. We recommend that full advantage be taken of this. Some recommendations:

- Pick descriptive names that are easy to communicate via phone or voice radio links.
- Populate cross polarization elements in the event of changes in beacons and carriers on your main polarization.
- LinkControl 8 stores the information contained in the Satellite Almanac on the Host Computer's file system in an unencrypted format, so be aware that information for secure satellites can be retrieved.
- Beacon and carrier frequencies may be changed by the satellite operator, so update your Satellite Almanac regularly.

1.6 LinkProfiles

LinkProfiles are the heart of your system, as they guide the acquisition process with necessary satellite carrier information. They are essentially a collection of settings that allow users to switch between satellites or configurations quickly and easily.

1.6.1 Accessing LinkProfiles

To view the basic information for a LinkProfile, click on the **LinkProfiles** navigation button on the left side of the screen. This will bring up the LinkProfiles page, which shows a split screen with the LinkProfiles List on the left, and LinkProfile Details for the selected LinkProfile on the right. Click on the name of a LinkProfile in the LinkProfile List to display a summary of the LinkProfile on the right- hand side of the screen.



Figure 7: The LinkProfiles Page

Once you have selected a LinkProfile to use, click on the **Apply LinkProfile** button to apply the LinkProfile's settings to the system. It may take several seconds for all the settings to be applied to the appropriate hardware components.

When configuring your system, compare the information provided by the Satellite Operator (target satellite, polarization, GPS coordinates and LNB to use) with the data in the existing LinkProfiles defined in the system. If there is a difference between the information provided by the Satellite Operator and the information in the LinkProfiles, you must decide whether to create a new LinkProfile or edit an existing LinkProfile.

- If you would instead like to preserve all the existing LinkProfiles, then create a new LinkProfile. See Section 1.6.2 for Adding a New LinkProfile.
- If you do not plan to use one of the existing LinkProfiles again, then you may wish to edit an existing LinkProfile. See Section 1.6.3 for Editing an Existing LinkProfile.
- You may also copy and use an existing LinkProfile as a starting point for a new LinkProfile. See Section 1.6.4 for Making a New LinkProfile based on an Existing LinkProfile.

1.6.2 Adding a New LinkProfile

Perform the following steps to add a new LinkProfile to the system:

- 1. Navigate to the LinkProfiles page as described in section 1.6.1.
- 2. Click the **Add New LinkProfile** button. This will bring up a window like the one shown below:

0 Edit LinkProfile			– 🗆 X		
Name:	COTM - Horizons 1 Rx H	Devices			
Description:		Antenna:	COTM - COTM550Z_A 🔹		
		Modem:	Unmanaged Modem 👻		
Location Details		Receive Settings			
Latitude:	49.270 N O O S	Polarization:	Linear Horizontal 👻		
Longitude:	122.920 W O Clear	Signal Lock Threshold:	€ 6.00 Volts		
Specify leastion by City		Magnification:	÷ 1.0		
En Canada	(optional)	LNB Settings			
Bram	pton	LNB Type:	Ku-Band Type UH (11.70 - 12.75 GHz) 🔻		
Burlin	Burlington		LNB		
Buma Calga	aby ary	LO Frequency	10750 🔶 MHz		
East	York	LNB Voltage	○ 13V		
	nton coke	LNB Tone	● Tone Off ○ Tone On		
Gloud	cester	Target Satellite Informati	ion		
Halifa Hamil	ix ton	Target Satellite:	Horizons 1 / G13		
Kitch	ener	Target Carrier:	Horizontal Beacon		
	on	•	Change/View Selection		
	Save LinkProfile	Save	as A New LinkProfile		

Figure 8: Add/Edit LinkProfile Window

- 3. Enter a unique name for the LinkProfile in the Name box.
- 4. Optionally enter a brief description for the LinkProfile in the **Description** box. The description will be shown in the LinkProfile Details for the LinkProfile on the LinkProfile page, and may help distinguish one LinkProfile from another.
- 5. Optionally specify the GPS Coordinates for the location that the system will be operated from by either manually entering a **latitude** and **longitude** or selecting a city from the **Transmission City** list. These coordinates can be passed to the antenna in the event that a GPS Lock is not available.
 - **Note:** If a city has been selected, the Latitude and Longitude fields will be disabled. If you would like to enter a latitude and longitude manually instead, click on the **Clear** button to ensure that no city is selected, and then enter the desired Latitude and Longitude.
- 6. Select the desired Antenna from the antenna list.
 - **Note**: If there is only one antenna defined in the system, this parameter will already be set and cannot be changed.
- 7. Select the desired **Modem** from the modem list.
 - **Note:** If no Modems have been defined in the LinkControl 8 Device Manager, the Modem selection will be set by default to "Unmanaged Modem" and cannot be changed.
 - **Note:** If using an OpenAMIP modem, ensure that a valid satellite with the orbital position specified by the modem has been defined in the satellite almanac and that this satellite has at least one valid beacon or carrier defined.
- 8. Select the receive **Polarization** band from the pull-down list.
- 9. Choose a **Signal Lock Threshold** as a threshold for receive lock. The system will register a Beacon Lock if the signal strength goes above this value.

Note: It is recommended to set this to 6.00 V by default.

10. Choose a **Magnification** level that will be used as a multiplier for the Signal Level.

Note: COTM Antennas do not support setting a magnification level

- 11. Specify the appropriate LNB Type for the antenna from the pull-down list.
 - **Note**: For multi-band LNBs, LinkControl 8 will automatically set the tone and voltage of the LNB to match the selected LNB type.

For COTM antennas, custom LNB settings can be set as desired. Only Multi-band LNBs can have custom tone and voltage.

12. If the selected Modem is not an OpenAMIP-capable modem, then in the Target Satellite Information group box, press the **Change/View Selection** button to select a target satellite and beacon. This will bring up the **Select Carrier and Satellite** window:

Satellite Name Horizons 1 / G13 Galaxy 18 EchoStar 9 / G23 Anik F3 SatMax 5			Orbital Position -127.00	*	Number of Valid Carriers	Number of Total Carriers	^
Horizons 1 / G13 Galaxy 18 EchoStar 9 / G23 Anik F3 SatMay 5			-127.00		1		
Galaxy 18 EchoStar 9 / G23 Anik F3 SatMax 5			100.00			6	
EchoStar 9 / G23 Anik F3 SatMay 5			-123.00		1	8	
Anik F3 SətMey 5			-121.00		1	8	
SatMay 5			-118.70		0	3	
Jacimiex J	SatMex 5				0	0	
SatMex 6			-113.00		1	6	$\mathbf{\vee}$
Target Carrier:	Tupe	Freque	ncy	Syn	nbol Rate	Polarization	
Camer Name	Туре —	(MHz)		(kS	PS)	1 Oldh2dtion	
Horizontal Beacon	Beacon	12199.0	0	0		Linear Horizonta	al
Note: Only carriers vali	id for the Link Profile's	polarizati	ion and LNB	type	are displayed.		

Figure 9: The Select Satellite and Carrier Window

- 13. From the **Select Satellite and Carrier** window, choose a target satellite and a target beacon or carrier. Then press the **Update** button to save the selections and close the Select Satellite and Carrier window.
 - **Note:** For COTM systems, only beacons can be selected. As such, only beacons will be shown in the list of carriers for each satellite.
- 14. Click on the Save LinkProfile button to save the LinkProfile.
- 15. Select the LinkProfile from the LinkProfile List and then click **Apply LinkProfile** to apply its settings to the system.

1.6.3 Editing an Existing LinkProfile

- 1. Navigate to the LinkProfiles page as described in section 1.6.1.
- 2. Select the LinkProfile to edit from the LinkProfile List.
- 3. Click on the Edit LinkProfile button.
- 4. Edit the LinkProfile as needed, following the steps described in section 1.6.2.
- 5. In the Edit LinkProfile window, click on the **Save LinkProfile** button to save the LinkProfile.

1.6.4 Making a New LinkProfile based on an Existing LinkProfile

- 1. Navigate to the LinkProfiles page as described in section 1.6.1.
- 2. Select the existing LinkProfile to serve as the base for the new LinkProfile from the LinkProfile List.
- 3. Click on the **Edit LinkProfile** button.
- 4. Give the LinkProfile a new, unique name.
- 5. Make any other desired changes to the LinkProfile.
- 6. Click on the **Save As A New LinkProfile** button to save the new LinkProfile.

1.6.5 <u>Removing an Existing LinkProfile</u>

- 1. Navigate to the LinkProfiles page as described in section 1.6.1.
- 2. Select the LinkProfile to be deleted from the LinkProfile List.
- 3. Click on the **Remove LinkProfile** button.
- 4. Confirm the deletion if prompted to do so.

1.6.6 LinkProfile Tips and Tricks

LinkControl 8 can support any number of LinkProfiles and we recommend that full advantage be taken of this. Some recommendations:

- Pick descriptive names that are easy to communicate via phone or voice radio links.
- Populate back-up satellites when available; you never know when a mountain will be in the way.

• If possible, test your LinkProfile in a depot environment.

1.7 System Monitoring

LinkControl 8 monitors and reports the state of the system as it runs. During operation, the health of various systems is monitored continually. The alarm entries at the bottom of the main user interface will keep you updated of major system occurrences. Additionally, a troubleshooter is provided to assist with resolving any issues.

In the event of an alarm, select **Help** in the LinkControl 8 Main Menu, and then **Troubleshooter** in the resulting pull-down menu to bring up the troubleshooting window. Alternatively click on the System Alarm indicator when it is in an Alarm or Warning state to bring up the troubleshooter window.



Figure 10: Accessing the Troubleshooter from the Main Menu

The troubleshooter will list each of the issues it has detected along with steps that can be taken to resolve the issue. Some issues may have multiple potential causes, so be sure to try all of the steps listed for each detected issue.



Figure 11: Sample Troubleshooter Window

To view a more detailed set of system status information, click on the **Status** navigation button on the left-hand side of the screen. The Status page displays information on the polarization, elevation and azimuth angles, the status of each of the limit switches, GPS readings, and compass readings.



Figure 12: The Status Page

1.8 OpenAMIP Mode vs Non-OpenAMIP Mode

In normal system operation, the antenna is controlled by the user. The user may choose to move the antenna manually, or initiate Auto-Acquire to have the antenna automatically orient itself so that it is pointing at the target satellite. In OpenAMIP Mode, however, the antenna is controlled by the OpenAMIP-capable modem connected to the antenna, not by the user. This means that the user is prevented from initiating antenna motion to prevent interference with the modem's control.

If the user tries to reset or stow the antenna, they will be presented with a confirmation message, asking if they are sure they wish to proceed. If they proceed, LinkControl 8 will switch from OpenAMIP mode to non-OpenAMIP mode and then perform the specified action. If the user tries to stop the antenna from moving when it is in motion, the motion will stop without any confirmation and LinkControl 8 will switch from OpenAMIP mode to non-OpenAMIP mode.

The modem page may be used to switch between OpenAMIP mode and non-OpenAMIP mode. Additionally, applying a LinkProfile will switch to or from OpenAMIP Mode as appropriate.

1.9 Auto-Acquire

LinkControl 8 handles the antenna's Auto-Acquire functionality differently based on the mode it is operating in. The following sections describe the Auto-Acquire functionality for Non-OpenAMIP Mode and OpenAMIP Mode.

1.9.1 Auto-Acquire (Non-OpenAMIP Mode)

Note: Before using the Auto-acquisition function, ensure that a LinkProfile has been set up for the desired satellite. The LinkProfile must contain sufficient information about the location of the desired satellite.

Initiating Auto-Acquire

The following procedure explains how to use the LinkControl 8 software to automatically find a target satellite.

- 1. Ensure that the antenna is powered on and physically connected to the Host Computer.
- 2. Ensure that LinkControl 8 is running.
- 3. Wait for all indicators on the Start page to show up as "OK" or "N/A".

0 Norsat LinkControl - Ver	sion 2.2.0.13868 - COTM - Horizons 1 Rx H	_23		×
Administration Help				
Start	Link Control			
Auto-Acquire	LinkControl Version: 2.2.0.13868			
	ServerOK			
Alignment	AntennaOK			
	Azimuth DriveOK			
Status	Elevation DriveOK			
	Polarization DriveOK			
	GPSOK			
	Compass			
	Beacon ReceiverOK			
	DVB Receiver			
	Limit SwitchOK			
	InclinometerN/A			
	Inertial NavigationOK			
	OpenAMIP Modem			
Auto-Acquire Not Started	acon Receiver Modem Lock N/A System OK Antenna Ready Antenna Controlled Reset Not Locked by User Antenna	Stow Antenna	St. Mol	op ion

Figure 13: Start Page showing All Indicators at OK or N/A

- 4. Click the **LinkProfiles** navigation button on the left-hand side of the screen, and ensure that a valid LinkProfile has been applied. If this is not the case, apply a valid LinkProfile.
 - **Note**: See sections 1.5 and 1.6 for instructions explaining how to make changes to the Satellite Almanac and how to configure LinkProfiles.

Norsat LinkControl - Version 2.2.0.13868 - COTM - Horizons 1 Rx H			– 🗆 X
COTM - Horizons 1 Rx H			
Juit	Name: Description:	COTM - Horizons 1 Rx H	
LinkProfiles	Setup Information Antenna Name:	COTM antenna - COTM550Z_A	
Auto-Acquire	Modem Name: Terminal Location:	Unmanaged Modem 49.270°N, 122.920°W (Burnaby)	
	Rx Polarization: Rx LO Frequency:	Linear Horizontal 10750.00 MHz	
Augument	Rx Magnification: Signal Lock Threshold:	1.3 6.00 V	
Status	Target Satellite Information	l	
	Satellite Orbital Position:	-127	
	Satellite Carrier Type:	Beacon	
	Satellite Carrier Symbol Rate:	12199.00 MH2 : 0 kSPS	
Add New LinkProfile Edit Link	Profile Remove LinkPro	file Apply LinkProfile	
Auto-Acquire Not Started Beacon Receiver Not Locked Modem Lock N/A S	ystem OK Antenna Rea	dy Antenna Controlled by User Antenna A	Stow Antenna Motion
Figure 1	4: The LinkProfi	le Page	

5. If your system uses a manually adjusted polarization feed, then ensure that the feed

polarization has been set to the value specified in the target orientation.

6. Click the Auto-Acquire navigation button on the left-hand side of the screen and verify that the details listed in the **Active LinkProfile Details** field are correct.

Norsat LinkControl - Version 2.2.0.13868 - COTM - Horizon	ns 1 Rx H		– 🗆 X
AdministrationHelpStartAdve LirkProfile DetailsStartDescription:StartDescription:StartDescription:Start </td <td>COTM - Hotzons 1 Fx H COTM antenna - COTM550Z_A Ummanaged Modem 49.270° N, 122.920° W (Bumaby) Linear Hotizontal 10750.00 MHz 13 6.00 V tion Hotizons 1 / G13 -127 Hotizontal Beacon Beacon y: 12193.00 MHz ate: 0 kSPS</td> <td>Ottentation Target Azimuth: N/A Bevation: N/A Polarization: N/A Polarization: N/A Rx Settings Actual Signal Level Reading: Actual Signal Level Threshold: New Signal Level Threshold: Actual Magnification: New Magnification: Statt Auto-Acquire Statt Auto-Acquire Statt Auto-Acquire WARNING: Setting a location manu Acquire process. Rease ensure that before setting a location</td> <td>Actual 0.00 ° 0.00 ° 0.00 V 6.00 V 4.00 ¢ 1 0.4 ¢ Set Stop Auto-Acquire InkProfile GPS Coordinates ally will immediately start the Auto- the arterna can move freely</td>	COTM - Hotzons 1 Fx H COTM antenna - COTM550Z_A Ummanaged Modem 49.270° N, 122.920° W (Bumaby) Linear Hotizontal 10750.00 MHz 13 6.00 V tion Hotizons 1 / G13 -127 Hotizontal Beacon Beacon y: 12193.00 MHz ate: 0 kSPS	Ottentation Target Azimuth: N/A Bevation: N/A Polarization: N/A Polarization: N/A Rx Settings Actual Signal Level Reading: Actual Signal Level Threshold: New Signal Level Threshold: Actual Magnification: New Magnification: Statt Auto-Acquire Statt Auto-Acquire Statt Auto-Acquire WARNING: Setting a location manu Acquire process. Rease ensure that before setting a location	Actual 0.00 ° 0.00 ° 0.00 V 6.00 V 4.00 ¢ 1 0.4 ¢ Set Stop Auto-Acquire InkProfile GPS Coordinates ally will immediately start the Auto- the arterna can move freely
Auto-Acquire Not Started Beacon Receiver Not Locked Modem Lock	N/A System OK Antenna I	Ready Antenna Controlled Re by User Ante	set Stow Stop enna Antenna Motion

Figure 15: The Auto-Acquire Page

7. Click on the **Start Auto-Acquire** button and the antenna will start auto-acquisition using the pre-set signal level threshold from the LinkProfile.

The Auto-Acquire indicator at the bottom of the screen will turn green once the Auto-Acquire process has started and will remain green if there has been a successful acquisition. It will turn red if the Auto-Acquire failed.

8. Monitor the Actual Signal Level Reading reported while the antenna is going through the Auto-Acquire process, and observe the difference of the signal level peaks during pointing. If the signal level is consistently too low relative to the Signal Level Threshold, or if the received signal seems to be saturating the Actual Signal Level Reading, then stop Auto-Acquire and modify your LinkProfile's Magnification and/or Signal Level Threshold to compensate for the signal being received.

Norsat LinkControl - Version 2.2.0.13868 - COTM - Horizons 1 F	ά H	-		×
Administration Help Active LinkProfile Details Name:	COTM - Horizons 1 By H	Orientation Target Actual]	
LinkProfiles Description: LinkProfiles Description: LinkProfiles Setup Information Anterna Name: Auto-Acquire Modem Name: Alignment Rx Polarization: Status Signal Lock Threshold: Target Satellite Information Satellite Name: Satellite Position: Satellite Carrier Name: Satellite Carrier Type:	COTM antenna - COTM550Z_A Ummanaged Modem 49.270* N, 122.920* W (Burnaby) Linear Horizontal 10750.00 MHz 1.3 6.00 V Horizons 1 / G13 -127 Horizontal Beacon Beacon	Azimuth: N/A 0.00 ° Bevation: N/A 0.00 ° Polarization: N/A 0.00 ° Re Setting: 0.00 ° Actual Signal Level Reading: 0.00 V Actual Signal Level Threshold: 6.00 V New Signal Level Threshold: 4.00 € Actual Magnification: 1 New Magnification: 0.4 € Start Auto-Acquire Stop Auto-	Set Set	
Satellite Carrier Frequency: Satellite Carrier Symbol Rate: Auto-Acquire Not Started Beacon Receiver Not Locked Modem Lock N/A	UkSPS System OK Artenna Ready	Set Manual Location using LinkProfile GPS (WARNING: Setting a location manually will immediately Acquire process. Please ensure that the artenna can mediately before setting a location Artenna Controlled by User Reset Artenna Stow Artenna	Coordinates start the Auto ove freely a Sto Motio	s o- ion

Figure 16: The Signal Level Reading

If you need to change your LinkProfile while Auto-Acquire is running, follow the steps outlined below:

- 1. Click Stop Auto-Acquire.
- 2. Click the LinkProfiles navigation button on the left-hand side of the screen.
- 3. Select a different LinkProfile from the LinkProfiles List and then click on **Apply** LinkProfile.

1.9.2 Auto-Acquire (OpenAMIP Mode)

Note: Before using Auto-Acquire while the system is in OpenAMIP Mode, ensure that a LinkProfile has been set up for use with the modem and that the Satellite Almanac contains an entry for the satellite that the modem will attempt to acquire on (along with at least one beacon or carrier for the satellite that corresponds with the desired Rx Polarization settings). OpenAMIP will supply only the orbital position of the target satellite, and LinkControl 8 uses the Satellite Almanac to get additional information about the target satellite and target beacon/carrier.

Initiating Auto-Acquire

At some point after communication has been established with the OpenAMIP modem (typically as soon as the modem has finished booting up and has sent the target satellite details to LinkControl 8), the modem will attempt to initiate Auto-Acquire for the antenna. Upon receiving the request to start Auto-Acquire, LinkControl 8 will prompt the user to either allow or deny the action. This allows a user to confirm that it is safe for the antenna to perform Auto-Acquire before the antenna starts moving. When presented with a prompt to take action, select **Proceed** to allow Auto-Acquire to start, or select **Abort** to prevent Auto-Acquire from starting.



Figure 17: The Prompt To Take Action

The prompt to take action is configured with a timeout; if no action from the user is detected after a pre-set amount of time (30 seconds by default, though this may change on a system-by-system

basis) then the Default Action (which is Abort by default for safety reasons) will be performed. The prompt to take action window will show both the Default Action and the time remaining (counting down to zero) before the Default Action is taken.

If the Proceed action is selected (either by pressing the Proceed button or if the timer expires and the Default Action is Proceed) then Auto-Acquire will be started automatically and will proceed as described in section 1.9.1. If the Abort action is selected (either by pressing the Abort button or if the timer expires and the Default Action is set to Abort) then Auto-Acquire will not be started and the system will be put in Non-OpenAMIP Mode. Additionally, if the antenna is manually stopped, reset, or stowed while Auto-Acquire is active, Auto-Acquire will be stopped and the system will be put in Non-OpenAMIP Mode. The system can be put back into OpenAMIP Mode using the OpenAMIP Modem page described in section 1.10.

Note: If the signal level reading remains 0.00 during Auto-Acquire, it is possible that the Auto-Acquire process is using an inactive beacon or carrier. Once the auto-acquire fails, LinkControl 8 will automatically initiate another attempt at Auto-Acquire using a different beacon or carrier on the same satellite.

1.10 **OpenAMIP Modem Details**

If you have an OpenAMIP-capable modem defined in your system configuration, and if that modem has been selected in the active LinkProfile, then LinkControl 8 will monitor various pieces of information about the modem on the OpenAMIP Modem page. To access this page, click on the **OpenAMIP Modem** navigation button on the left side of the screen. The page shows various modem parameters, information about the target satellite, and a comparison of the target orientation and the current orientation of the antenna.



The page can also be used to enable or disable OpenAMIP Mode for the system using the buttons in the Antenna Status section.

- If the system is in OpenAMIP Mode, the On button will be disabled and the Off button will • be enabled; click the Off button to put the system in Non-OpenAMIP Mode to allow users to manually control the antenna.
- If the system is in Non-OpenAMIP Mode, the On button will be enabled and the Off button • will be disabled; click the On button to put the system in OpenAMIP Mode to allow the modem to control the antenna.
 - **Note:** Putting the system in OpenAMIP Mode may result in the modem automatically starting the Auto-Acquire process. Please refer to section 1.9.2 for additional details.

Tracking 1.11

For Comms On The Move antennas, satellite tracking automatically initiates upon a successful Auto-Acquire. The antenna action status will change from **Pointing** to **Tracking**.



Should the antenna lose satellite lock, the antenna will remain in tracking mode, but the antenna status will change from Antenna OK to Losing Lock.



Figure 19: State Transition from Tracking to Losing Lock

1.12 **Motor Control**

Manual control of the antenna motors allows a satellite to be located manually instead of using the antenna's auto-acquire functionality. Full control is provided for the polarization, elevation, and azimuth motors.

1.12.1 Reset Antenna

The antenna must be reset every time the antenna is powered on before Auto-Acquire or movement using the manual motion controls can be initiated. The reset moves the antenna in a predetermined pattern that allows it to properly track its orientation. If Auto-Acquire is started without having performed a reset first, the antenna will automatically perform a reset and then initiate Auto-Acquire. A reset will not be performed automatically if the motors are moved manually without having reset the antenna first, so take care to perform a reset before moving the motors. To reset the antenna, press the **Reset Antenna** button located on the bottom-right of the screen.



1.12.2 Stop Motion

While the antenna is in motion, all motors can be stopped from any page at any time by pressing the **Stop Motion** button in the bottom right of the screen. Unlike the other buttons in LinkControl 8's user interface, this button is colored red so that it is always easy to find.

Auto-Acquire Not Started	Beacon Receiver Not Locked	Modem Lock N/A	System OK	Antenna Ready	Antenna Controlled by User	Reset Antenna	Stow Antenna	Stop Motion
Figur	e 21: Bottom	Indicators and	d Controls sł	nowing the loca	tion of the Stop	o Motors	s Button	۲۳

1.12.3 Movement Controls

The antenna's polarization, elevation, and azimuth motors can all be moved manually. Click on the **Alignment** navigation button on the left side of the screen to bring up the Alignment page, which provides multiple controls that can be used to move each motor.

Figure 22: The Motor Controls on the Alignment Page

The controls for each motor are identical with one exception: the polarization motor controls feature one additional button that allow users to move to the opposite polarization. Pressing this button will move the polarization motor 90 degrees (clockwise or counterclockwise as appropriate based on the current position of the motor) to reach the opposite polarization.

Each set of controls shows the current orientation of the motor, and allows a Target Angle to be specified for the motor. Pressing the **Go To Target Angle** button will cause the appropriate motor to move to the specified target angle. Six arrow buttons and a Stop All Motors button are also provided for each motor. The Stop All Motors button will stop **all** of the motors, not just the motor that corresponds to the button that is pressed. All three Stop All Motors buttons thus have identical functionality, and also behave identically to the Stop Motors button described in section 1.12.2. The functionality of the arrow buttons is described in the table below:

MOTOR	BUTTON	FUNCTION
Polarization	<<<	Move to lower limit
	<<	Coarse nudge towards lower limit
	<	Fine nudge towards lower limit
	>	Fine nudge towards upper limit
	>>	Coarse nudge towards upper limit
	>>>	Move to upper limit
Elevation	~~~	Move to upper limit
	~~	Coarse nudge towards upper limit
	^	Fine nudge towards upper limit
	v	Fine nudge towards lower limit
	vv	Coarse nudge towards lower limit
	vvv	Move to lower limit
Azimuth	<<<	Move to lower limit
	<<	Coarse nudge towards lower limit
	<	Fine nudge towards lower limit
	>	Fine nudge towards upper limit
	>>	Coarse nudge towards upper limit
	>>>	Move to upper limit

Table 1: Arrow Button Actions

Note: By default, a coarse nudge moves 5.0 degrees, and a fine nudge moves 0.1 degrees.

Note: Because the COTM Azimuth motor is not limited, the azimuth motor will continue to turn until stopped if (<<<) or (>>>) is pressed.

2. Advanced Features

This chapter provides information and instructions concerning advanced tasks that are not usually part of basic operation.

2.1 Host Computer Ethernet Adapter Configuration

The Host Computer needs to be able to communicate with the antenna and optionally an OpenAMIP Modem via Ethernet. This requires the Host Computer's networking setting to be configured in a way that facilitates this communication. To achieve this, the Host Computer and the antenna need to be on the same subnet; the easiest way to achieve this is to modify the IP Address of the Host Computer so that it is compatible with the IP Address of the antenna.

Note: You will need Administrator Privileges to be able to change the Host Computer's IP Address configuration.

All Norsat Wayfarer antennas use the same communication settings by default:

IP Address: 192.168.0.7 Subnet Mask: 255.255.255.0 Port: 8899

It is thus recommended to use 192.168.0.8 as the IP Address for the Host Computer.

To change a Host Computer's IP Address, start by going to the Windows Control Panel. Ensure that the items shown in the Control Panel are shown using Large Icons.

Note: Different versions of Microsoft Windows have slightly different ways of configuring IP Addresses. While the basic steps are essentially the same for all versions, some details may differ slightly. The instructions below explain how to change an IP Address for a Host Computer running Microsoft Windows 10.



Figure 23: The Windows Control Panel showing Large Icons

Click on the **Network and Sharing Center** icon to bring up the Network and Sharing Center window.



Figure 24: The Network and Sharing Center

Click on **Change Adapter Settings** on the left side of the window. This will bring up a list of Network Adapters for the Host Computer.

Right-click on the Ethernet Network Adapter used for the connection to the antenna and select **Properties** from the resulting pop-up menu.



Figure 25: Accessing the Properties for a Network Adapter

This will bring up the Properties windows for the Network Adapter.

Ethernet Properties	×
Networking Sharing	
Connect using:	
🕎 Npcap Loopback Adapter	
<u>Configure</u> This connection uses the following items:	
 Client for Microsoft Networks File and Printer Sharing for Microsoft Networks Npcap Packet Driver (NPCAP) Npcap Packet Driver (NPCAP) (Wi-Fi) QoS Packet Scheduler Internet Protocol Version 4 (TCP/IPv4) Microsoft Network Adapter Multiplexor Protocol 	
Install Uninstall Properties	
Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	
OK Cancel	

Figure 26: Network Adapter Properties

Ensure that **Internet Protocol Version 4 (TCP/IPv4)** is selected and then click on the **Properties** button to bring up the Internet Protocol Version 4 (TCP/IPv4) Properties window.

Internet P	rotocol Version 4 (TCP/IPv4)	Properties		×
General	Alternate Configuration			
You can this cap for the a	get IP settings assigned auton ability. Otherwise, you need to appropriate IP settings.	natically if your r ask your netwo	network supports rk administrator	
O	tain an IP address automatical	У		
	e the following IP address:			
IP ad	dress:			
Subn	et mask:			
<u>D</u> efa	ult gateway:			
O	tain DNS server address autom	atically		
OUs	e the following DNS server add	resses:		
Prefe	rred DNS server:			
Alter	nate DNS server:			
U Va	aļidate settings upon exit		Ad <u>v</u> anced	
		OK	Cance	

Figure 27: The Internet Protocol Version 4 (TCP/IPv4) Properties Window

Click on the **Use the following IP Address** radio button, and then enter a compatible IP Address in the **IP address** field, and enter 255.255.255.0 in the **Subnet mask** field.

If you are also using the Host Computer to communicate with an OpenAMIP-capable modem, then click on the **Advanced** button to bring up the Advanced TCP/IP Settings window.

Advanced TCP/IP Setti	ngs		\times
IP Settings DNS W	/INS		
IP addresses			
IP address		Subnet mask	
	<u>A</u> dd	<u>E</u> dit	Remo <u>v</u> e
De <u>f</u> ault gateways:			
Gateway		Metric	
	A <u>d</u> d	Edi <u>t</u>	Re <u>m</u> ove
Automatic metric			
Interface metric:			
		OK	Cancel

Figure 28: The Advanced TCP/IP Settings Window

Click on the **Add...** button in the *IP addresses* section to bring up a TCP/IP Address window that can be used to add a new IP Address to the adapter.

TCP/IP Address	>	<
IP address:	192.168.0.8	
Subnet mask:	255.255.255.0	
	<u>A</u> dd Cancel	

Figure 29: The TCP/IP Address Window used to Add a New IP Address

Enter an IP Address that is compatible with the modem's OpenAMIP IP Address in the **IP address** field, and then enter 255.255.255.0 in the **Subnet mask** field.

Click on the **Add** button to add the new IP Address to the adapter.

Click on the **OK** button in the Internet Protocol Version 4 (TCP/IPv4) Properties window, and then click on the **OK** button in the Network Adapter Properties window to save the IP Address(es).

Note: If you are using two separate connections to communicate with the antenna and the modem, then configure each of the Network Adapters with only a single IP Address.

2.2 LinkControl 8 Device Manager Configuration

In order to communicate with each of the components in the system, LinkControl 8 needs to know the communication settings for each component. This is done using the LinkControl 8 Device Manager.

WARNING: Incorrectly specifying a component's communications settings will prevent LinkControl 8 from communicating with that component properly, and will result in a loss of some or all system functionality until the proper communication settings are provided.

The LinkControl 8 Device Manager can be accessed through the program's main menu. Click on **Administration > Device Manager** to bring up the Device Manager window.



Figure 30: Accessing the LinkControl 8 Device Manager

The Device Manager shows a list of all the devices (antennas and modems) present in the system configuration. It is possible to have more components defined in the system configuration than are used at any one time. This allows a single Host Computer to be used with multiple antennas or modems.

2.2.1 Basic Configuration

To change a device's communication settings, start by clicking on the entry for the device to configure in the list of devices.

Name	Туре	Component Status	Connection Status	Device Communication Settings
Modem	OpenAMIP Modem	Not Active	N/A	Antenna given to
Fly-Away Ku	Wayfarer Antenna	Not Active	N/A	Modem: Refresh
				have an effect when the device is being

Figure 31: The Device Manager's List of Devices

Once a device has been selected, the communication settings for that device will be shown on the right side of the window. For antenna devices, use the controls to specify an IP Address and Port to use for TCP/IP communication. Click on the **Set New Communication Settings** button to save the IP Address and Port.

C	Device Manager					_		×
	Name	Туре 🔺	Component Status	Connection Status	Device Commur	nication Sett	tings 0.7	
	Modem	OpenAMIP Modem	Not Active	N/A				1
	Hy-Away Ku	wayrarer Antenna	Not Active	N/A	Port:		8899 ÷	
	View Mode:) Basic) Advan	ced			Note: Changes t have an effect v used by the acti Warning: Income communication s LinkControl bein with the device. Set New Co	to these sett when the de ve Link Profi ectly configu settings can g unable to mmunicatio	tings will o evice is be ile uring cresult in communio n Settings	nly ing cate

Figure 32: Communication Settings for an Antenna

To configure an OpenAMIP-capable modem, click on the modem to bring up its communication settings. Select the Host Computer IP Address that will be passed to the modem, and specify the

Port that will be used for communication. LinkControl 8 will listen on this port for an incoming connection from the OpenAMIP-capable modem. Click on the **Set New Communication Settings** button to save the IP Address and Port.

🔟 Device Manager					- 🗆	×
Name	Туре 🔺	Component Status	Connection Status	Device Communica	tion Settings	
Modem	OpenAMIP Modem	Not Active	N/A	Antenna given to	192.168.0.2	51 -
Fly-Away Ku	Wayfarer Antenna	Not Active	N/A	Modem:	Refres	h
View Meder: Papie Advance	vd			Port: Note: Changes to the have an effect whe used by the active Waming: Incorrectly communication sett LinkControl being u with the device.	nese settings n the device Link Profile y configuring ings can resu nable to com	145 🔶 will only is being It in municate

Figure 33: Communication Settings for an OpenAMIP-Capable Modem

2.2.2 Advanced Configuration

It may be necessary to ad or remove devices from the system configuration, or to edit the advanced settings for a device. The Device Manager provides this functionality, but only in its Advanced Mode.

WARNING: Deleting required devices from the system configuration will render the system nonfunctional. Incorrect advanced settings for a device may also result in a loss of some or all system functionality until the proper settings are restored.

By default, the Device Manager always starts in Basic Mode. To enable the Advanced Mode for the Device Manager, click on the **Advanced** radio button in the bottom-left corner of the Device Manager window. If prompted for a password, enter the following password:

norsat

The Device Manager will now be in Advanced Mode, with the Add Device, Edit Device, and Remove Device buttons visible.

0	Device Manager				- 🗆 X
	Name	Туре 🔺	Component Status	Connection Status	Device Communication Settings
					Port:
					Note: Changes to these settings will only have an effect when the device is being used by the active Link Profile Warning: Incorrectly configuring communication settings can result in
V	iew Mode: 🔿 Basic 💿 Advanc	ced Add Device	Edit Device	Remove Device	LinkControl being unable to communicate with the device. Set New Communication Settings

Figure 34: The Device Manager's Advanced Mode

2.2.2.1 Adding Devices

The following steps explain how to add a device to the system configuration:

- 1. Ensure that the Device Manager is in Advanced Mode.
- 2. Click on the Add Device button. This will start the Add Device Wizard.

Add Device Wizard X
General Device Settings
Device Name:
Device Type:
Device Model:
Back
Instructions: Please enter a unique device name and then select a device type and model.
Step 1 of 2

Figure 35: The First Page of the Add Device Wizard

3. Enter a unique device name for the device in the **Device Name** field. This name will be used when selecting a device in LinkProfiles, so ensure that the name is adequately descriptive.

Specify the **Device Type** and **Device Model** using the pull-down menus. The device types and models currently supported by LC8 are as follows:

Device Type	Device Model
Wayfarer Antenna	WDA120KU
	WFA120KU
	WFA120KA
Comms on the Move Antenna	COTM550Z_A
OpenAMIP Modem	N/A

Table 2 - Supported device types

Note that if a particular Device Type has only one available Device Model, the Device Model will be specified automatically and cannot be changed.

4. Click the **Next** button to bring up the second page of the Add Device Wizard. This page will allow the communication parameters for the device to be specified.

5. Most antennas and modems use TCP/IP communication via Ethernet. Use the controls on the page to enter the IP Address and Port to use for communication with the device. By default, all Norsat Wayfarer antennas will use an IP Address of **192.168.0.7**, and will use **8899** as the Port.

Add Device Wizard	×
Device Communication Settings IP Address: Port: 0	
IP O Serial	
Back Instructions: Please enter the device's communication settings	Save
	Step 2 of 2

Figure 36: TCP/IP Communication Settings

6. If the device uses Serial communication instead of TCP/IP, click on the **Serial** radio button to switch to the serial communication configuration interface. Note that devices that support only TCP/IP communication will not display the IP and Serial radio buttons.

Add Device Wizard ×		×	
Device Commun	Device Communication Settings		
Serial Port:	~		
Baud Rate:	~		
Parity:	~		
Data Bits:	~		
Stop Bits:	~		
	◯ IP		
Back Save Instructions: Please enter the device's communication settings			
		Step 2 of 2	

Figure 37: Serial Communication Settings

Use the pull-down menus to specify each parameter. For the Serial Port parameter, please specify the COM Port that the device was plugged into.

Factory default serial communication settings are as follows:

Setting	Default Value
Baud Rate	115200
Parity	None
Data Bits	8
Stop Bits	1

Table 3 – Default Serial Communication Settings

- 7. Click on the **Save** button to save the settings for a COTM Antenna. For other devices, there will be an additional page of settings to configure; click on the **Next** button instead to proceed to the settings for these devices.
- 8. Use the provided controls to specify the required parameters for the device. Sample configuration pages are shown below.

0 Add Device Wizard	×
Configure Fly-Away Antenna	
Antenna Heading Compensation: 0.00	
Back	e
Instructions: Please enter the Antenna's Heading	
If unknown, use the default value of '0'.	
Step 3	of 3

Figure 38: Final Configuration Page for WFA120KU Antenna

Ū	Add Device Wizard		\times
[Modem Configuration S	ettings	
	IP address of Antenna given to Modem:	192.168.0.251 × Refresh	
	Seconds to show OpenAMIP motion warning:	30	
	Action After Timeout:	-	
	Back Save Instructions: Please enter the IP address provided to the Modem, how long to show the motion warning and the default action to take after timeout.		
		Step 3 d	of 3

Figure 39: Final Configuration Page for OpenAMIP Modem

9. Once all of the settings have been specified for the device, click the **Save** button to add the device to the system configuration.

2.2.2.2 Editing Devices

The following steps explain how to edit the advanced settings for a device in the system configuration:

- 1. Ensure that the Device Manager is in Advanced Mode.
- 2. Select the device to be edited from the list of devices, and then click the **Edit Device** button. This will bring up the configuration interface for that device. The interface will have common configuration parameters along the top row of the window, and parameters that are specific to the device model below these common parameters.

Update Device Settings		- 🗆 X
General Device Settings Device Name: COTM Antenna	Device Communication Settings IP Address: 192.168.77.4	Device Status Connection Status: Inactive
Device Type: Comms On The Move Device Model: COTM550Z_A	Port: 11235	Engine On: No On Off
	IP Serial Update Communication Settings	
Device Specific Configuration		
Polarization Motor Speed: 6.00 - Degrees	/s Elevation Motor Speed: 6.00 - Degrees.	/s Azimuth Motor Speed: 6.00 - Degrees/s
Polarization Coarse Nudge Offset: 5.00 - Degrees	Elevation Coarse Nudge Offset: 5.00 - Degrees	Azimuth Coarse Nudge Offset: 5.00 - Degrees
Polarization Fine Nudge Offset: 0.10 - Degrees	Elevation Fine Nudge Offset: 0.10 Degrees	Azimuth Fine Nudge Offset: 0.10 - Degrees
		Save

Figure 40: Configuration Interface for COTM Antenna

Update Device Settings		– 🗆 X
General Device Settings Device Name: Modem Device Type: OpenAMIP Modem Device Model: OpenAMIP Modem	Device Communication Settings IP Address: 192.168.77.3 Port: 11235	Device Status Connection Status: Inactive Engine On: No On Off
Device Specific Configuration IP address of Antenna given to Modem: Refresh	Update Communication Settings	
Seconds to show OpenAMIP motion warning: 30 -		
		Save

Figure 41: Configuration Interface for OpenAMIP Modem

3. In the General Device Settings box, the **Device Name** can be changed as desired. This name will be used when selecting a device in LinkProfiles, so ensure that the name is adequately descriptive.

- 4. In the Device Communication Settings box, the communication settings can be changed. To set the communication settings, specify the new IP address and port (or serial port settings) and press the **Update Communication Settings** button. Note that devices that support only TCP/IP communication will not display the IP and Serial radio buttons.
- 5. The Device Status box shows the communication status for the device. The driver engine can be turned off to pause communication with the device, or turned on to initiate or resume communication with the device. It is recommended that the engine be turned off prior to changing communication settings. All possible device communication states can be seen in the table below:

Engine On	Connection Status	Meaning
No	Inactive	Device is not attempting to connect
Yes	Connecting	Device is attempting to connect
	Connected	Device is communicating successfully
	Disconnected	Device failed to connect
		0 ()

Table 4 - Device Connection States

6. The Device Specific Configuration box provides the ability to configure parameters that are specific to the device's Device Model. Change these as required and then press the **Save** button to save the settings. Note that this will cause the connection to restart.

2.2.2.3 Deleting Devices

The following steps explain how to remove a device from the system configuration:

- 1. Ensure that the Device Manager is in Advanced Mode.
- 2. Select the device to be removed in the list of devices.
- 3. Click the **Remove Device** button to remove the device from the system configuration.



ABOUT NORSAT

Norsat International Inc., founded in 1977, is a leading provider of innovative communication solutions that enable the transmission of data, audio, and video for remote and challenging applications. Norsat's products and services include customizable satellite components, portable satellite terminals, maritime solutions and satellite networks. The company's products and services are used extensively by telecommunications services providers, emergency services and homeland security agencies, military organizations, health care providers and Fortune 1000 companies.

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