



# **Xgig Maestro**

Version 8.1

Introduction Guide





# Xgig Maestro

Version 8.1

Introduction Guide



Viavi Solutions  
1-844-GO-VIAVI  
[www.viavisolutions.com](http://www.viavisolutions.com)

---

## **Notice**

Every effort was made to ensure that the information in this manual was accurate at the time of printing. However, information is subject to change without notice, and Viavi reserves the right to provide an addendum to this manual with information not available at the time that this manual was created.

## **Copyright/Trademarks**

© Copyright 2015 Viavi Solutions Inc. All rights reserved. No part of this guide may be reproduced or transmitted, electronically or otherwise, without written permission of the publisher. Viavi Solutions and the Viavi logo are trademarks of Viavi Solutions Inc. (“Viavi”). All other trademarks and registered trademarks are the property of their respective owners.

## **Copyright release**

Reproduction and distribution of this guide is authorized for US Government purposes only.

## **Terms and conditions**

Specifications, terms, and conditions are subject to change without notice. The provision of hardware, services, and/or software are subject to Viavi’s standard terms and conditions, available at [www.viavisolutions.com/en/terms-and-conditions](http://www.viavisolutions.com/en/terms-and-conditions).



# Contents

<b>About This Guide</b>	<b>v</b>
Purpose and Scope.....	vi
Assumptions.....	vi
Related Information.....	vi
Safety and Compliance Information .....	vii
Conventions .....	viii
Technical Assistance.....	x
<b>Chapter 1 Using Xgig Maestro</b>	<b>1</b>
Xgig Maestro Overview .....	2
Features.....	2
New Features .....	3
Installing Xgig Maestro .....	3
Analyzer Protocols.....	4
Decode Improvements.....	4
TCP/UDP Port Mapping.....	4
Launching Xgig Maestro .....	5
Xgig Maestro Global Window .....	6
Load a Maestro Plugin .....	6
Port Selection and Domain Setup Button .....	7
Actions Button .....	7
Network Connections .....	8
Controlling the Chassis using a USB Connection.....	8
<b>Chapter 2 Using the Port Selection and Domain Setup Window</b>	<b>11</b>
Discovering Sync Groups on the Network.....	13
Using the Sync Groups Pane.....	14
Displaying Sync Group Tool Tips.....	14
Displaying Chassis View.....	14

- Unavailable Chassis Indicator .....14
- Using Chassis View .....15
  - Multi-Function Ports and Symbols .....16
  - Selecting Chassis Items.....17
  - Selecting Simplex and Duplex Jammers.....17
  - Authentication for Xgig Chassis .....18
  - Logging in to an Xgig Chassis from Xgig Maestro .....18
  - Using the Chassis Context Menu to Lock Ports .....19
    - Reconnect to Port(s) .....19
    - Use Port(s) as... .....19
    - Selecting Protocols and Functions ..... 20
    - Stop using Port(s) ..... 20
- Using Domains .....21
  - Configuring Domains ..... 22
    - Create Domain..... 22
    - Remove from Domain .....23
    - Add to Domain..... 24
  - Domain Pane ..... 24
  - New Domain Specification ..... 24
- Using Other Controls on the Window .....25
  - Controlling LEDs on the Ports .....25
  - Updating the Display .....25
  - Closing the Window .....25
  - Shutting Down a Sync Group.....25
  - Upgrading a Sync Group ..... 26

**Index** **27**



# About This Guide

This prefix explains how to use this manual. Topics discussed include the following:

- [“Purpose and Scope” on page vi](#)
- [“Assumptions” on page vi](#)
- [“Related Information” on page vi](#)
- [“Safety and Compliance Information” on page vii](#)
- [“Conventions” on page viii](#)
- [“Technical Assistance” on page x](#)

## Purpose and Scope

The purpose of this guide is to help you successfully use the Xgig Maestro features and capabilities. This guide includes an overview and instructions for launching Xgig Maestro. It shows you the Xgig Maestro window. Additionally, this guide provides instructions for using the Port Selection and the Domain Setup windows.

## Assumptions

This guide is intended for novice, intermediate, and experienced users who want to use the Xgig Maestro effectively and efficiently. We are assuming that you have basic computer and mouse/track ball experience and are familiar with basic telecommunication concepts and terminology.

## Related Information

This is the getting started manual for the Xgig Maestro. It provides basic instructions for assembling the instrument components, setting up the Xgig Maestro, instrument specifications, and contact information for Viavi's Technical Assistance Center (TAC). Read this manual carefully before connecting your instrument to the circuit you are testing.

Use this guide in conjunction with the following information:

- The combined installation guide for the Xgig Analyzer and Xgig Maestro products. The guide provides detailed instructions for installing Xgig Maestro.
- The user's guide for each of the Xgig Maestro products. These guides provide information for using each of the Xgig Maestro products.

## Safety and Compliance Information

Safety and compliance information for the instrument are provided in printed form and ship with your instrument.

It is mandatory to permanently connect this device to the protective earth.

When powering this device, always use an AC power cable that includes an earth (safety) ground connection.



### **WARNING**

Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage and other hazards. Refer all servicing to qualified Viavi service personnel.



### **CAUTION**

This equipment contains parts and assemblies sensitive to electrostatic discharge (ESD). Use ESD precautionary procedures when touching, removing, or inserting ESD sensitive parts and assemblies, or damage to components could result.

An electrostatic-sensitive device can only withstand voltage spikes of 10 to 100 volts. Any discharge greater than this can damage or effectively destroy such a device while going unnoticed by a technician. Common plastics (synthetic insulating materials), clothing, and paper or cardboard are the most common source of static charges.

## Conventions

This guide uses typographical and symbols conventions as described in the following tables.

**Table 1** Text formatting and other typographical conventions

Item(s)	Example(s)
Buttons, keys, or switches that you press or flip on a physical device.	Press the <b>On</b> button. <ul style="list-style-type: none"><li>– Press the <b>Enter</b> key.</li><li>– Flip the <b>Power</b> switch to the on position.</li></ul>
Buttons, links, menus, menu options, tabs, or fields on a PC-based or Web-based user interface that you click, select, or type information into.	Click <b>Start</b> . <ul style="list-style-type: none"><li>– Click <b>File &gt; Properties</b>.</li><li>– Click the <b>Properties</b> tab.</li><li>– Type the name of the probe in the <b>Probe Name</b> field.</li></ul>
Directory names, file names, and code and output messages that appear in a command line interface or in some graphical user interfaces (GUIs).	<code>\$NANGT_DATA_DIR/results</code> (directory) <ul style="list-style-type: none"><li>– <code>test_products/users/defaultUser.xml</code> (file name)</li><li>– <code>All results okay.</code> (output message)</li></ul>
Text you must type exactly as shown into a command line interface, text file, or a GUI text field.	<ul style="list-style-type: none"><li>– Restart the applications on the server using the following command: <code>\$BASEDIR/startup/npui_init restart</code></li></ul> Type: <code>a:\set.exe</code> in the dialog box.
References to guides, books, and other publications appear in <i>this typeface</i> .	Refer to <i>Newton's Telecom Dictionary</i> .
Command line option separators.	<code>platform [a b e]</code>
Optional arguments (text variables in code).	<code>login [platform name]</code>
Required arguments (text variables in code).	<code>&lt;password&gt;</code>

**Table 2** Symbol conventions

---

	This symbol indicates a note that includes important supplemental information or tips related to the main text.
	This symbol represents a general hazard. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See <a href="#">Table 3</a> for more information.
	This symbol represents an alert. It indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.
	This symbol represents hazardous voltages. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See <a href="#">Table 3</a> for more information.
	This symbol represents a risk of explosion. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See <a href="#">Table 3</a> for more information.
	This symbol represents a risk of a hot surface. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See <a href="#">Table 3</a> for more information.
	This symbol represents a risk associated with fiber optic lasers. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See <a href="#">Table 3</a> for more information.
	This symbol, located on the equipment, battery, or the packaging indicates that the equipment or battery must not be disposed of in a land-fill site or as municipal waste, and should be disposed of according to your national regulations.

---

**Table 3** Safety definitions

Term	Definition
<b>DANGER</b>	Indicates a potentially hazardous situation that, if not avoided, <i>will</i> result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol. See <a href="#">Table 2</a> for more information.
<b>WARNING</b>	Indicates a potentially hazardous situation that, if not avoided, <i>could</i> result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol. See <a href="#">Table 2</a> for more information.
<b>CAUTION</b>	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury and/or damage to equipment.  It may be associated with either a general hazard, high voltage, or risk of explosion symbol. See <a href="#">Table 2</a> for more information.  When applied to software actions, indicates a situation that, if not avoided, could result in loss of data or a disruption of software operation.
<b>ALERT</b>	Indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.

## Technical Assistance

If you require technical assistance, call 1-844-GO-VIAVI (1-844-468-4284) or e-mail [Techsupport-snt@viavisolutions.com](mailto:Techsupport-snt@viavisolutions.com).

For the latest TAC information, go to <http://www.viavisolutions.com/en/services-and-support/support/technical-assistance>.

# Using Xgig Maestro

This chapter provides a general description of the Xgig Maestro. Topics discussed in this chapter include the following:

- [“Xgig Maestro Overview” on page 2](#)
- [“Launching Xgig Maestro” on page 5](#)
- [“Xgig Maestro Global Window” on page 6](#)
- [“Network Connections” on page 8](#)

## Xgig Maestro Overview

Xgig Maestro application is the framework of an Xgig generation system. This framework houses the software for the Xgig BERT, Xgig Jammer, Xgig Generator, Xgig Target Emulator, Xgig Delay Emulator, and Xgig Load Tester (each licensed separately). Combined with an Xgig multi-function blade, this framework lets you test Fibre Channel, Gigabit Ethernet, or Serial Attached SCSI (SAS) / Serial ATA (SATA) networks. You access Xgig BERTs, Xgig Jammers, Xgig Generators, Xgig Target Emulators, Xgig Delay Emulator, and Load Tester from the Maestro General window. Once a Maestro plugin is loaded, its tab appears across the top of the Maestro window. Use these tabs to manage each program. This chapter describes the Xgig Maestro graphical user interface (GUI) basics.

## Features

Xgig Maestro has the following features:

- Configuration manager  
You can view and access Xgig BERT, Xgig Jammer, Xgig Generator, Xgig Target Emulator, Xgig Delay Emulator, and Xgig Load Tester test configurations/files from each function tab.
- Port discovery, port configuration, and trigger domain set up
- Drag-and-drop capabilities  
You can drag a configuration file to the Parameters Status table to load it.
- Xgig Maestro operates using 32-bit and 64-bit versions of:
  - Microsoft Windows 7 (Professional and Enterprise)
  - Microsoft Windows 8.1 (Professional and Enterprise)
  - Microsoft Windows Server 2008 (Standard and Enterprise)
  - Windows Server 2008 R2 Standard or Enterprise with Service Pack 1 (64-bit only)
  - Windows Server 2012 R2 Update Standard or Essentials (64-bit only)
- Protocols available in Xgig Maestro are:
  - Fibre Channel
  - Gigabit Ethernet
  - 10GigE
  - FCoE
  - PCIe
  - Serial attached SCSI (SAS)
  - Serial AT Attachment/Serial Tunneling Protocol (SATA/STP)

- Control of either an Xgig 1000 chassis or an Xgig 5000 chassis (device) from a computer (host) directly via a USB cable (Xgig Maestro Generator and Load Tester only).

## New Features

The following new features have been released in this version of Xgig Maestro.

- Xgig Maestro Generator and Load Tester provide 64-bit Dynamic and Static API libraries for use in 64-bit environments when using the Generator Software Development Kit (SDK) library and the Load Tester SDK library.
- Xgig Maestro Generator and Load Tester support control from a computer (host) to either an Xgig 1000 chassis or an Xgig 5000 chassis (device) directly via a USB cable. Refer to [“Controlling the Chassis using a USB Connection” on page 8](#).
- Xgig Generator, Jammer, and Load Tester 32-bit client software is supported on both 32-bit and 64-bit versions of the Windows operating systems. Refer to the *Xgig Maestro Software Installation Guide* for the complete list of supported operating systems.

## Installing Xgig Maestro

Refer to the *Xgig Maestro Software Installation Guide* for information about how to install the software. See the *Xgig Family Hardware Guide* for information about how to install a multi-function blade in an Xgig chassis. The hardware guide also includes information about cabling the blades to the devices on your network and to the other multi-function blades.

## Analyzer Protocols

The Xgig Analyzer software allows you to monitor a network and capture the results of BERT, Jammer, Generator, Target Emulator, Delay Emulator, and Load Tester operations. It supports the following protocols:

- Fibre Channel
- Gigabit Ethernet
- 10GigE
- FCoE
- PCIe
- Serial Attached SCSI (SAS)
- Serial AT Attachment/Serial Tunneling Protocol (SATA/STP)

For detailed information about using and running other Xgig Analyzer software, refer to the *Xgig Analyzer User's Guide*.

## Decode Improvements

Decode improvements implemented in each release are documented in the file named `CurrentProtocolVersions.txt` located in the installation folder.

## TCP/UDP Port Mapping

You can change the TCP/UDP port mappings by editing the file named `TCPUDPServices.txt` located in the installation folder.

## Launching Xgig Maestro

To launch Xgig Maestro, go to **Start > Programs > Viavi > Xgig Maestro**.

The Xgig Maestro global window is displayed (see Figure 1). The following section describes this window.

**Figure 1** Xgig Maestro Window



# Xgig Maestro Global Window



**NOTE**

BERT, Jammer, Generator, Target Emulator, Load Tester, and Delay Emulator are referred to as **devices** throughout this guide.

The terms **configurations** and **tests** are used interchangeably in this guide.

## Load a Maestro Plugin

The Load Maestro Plugins section allows you to load Maestro plugins as you need them. Once you click a Maestro plugin, that Maestro function will be loaded, and the corresponding tab will appear across the top of the window. We refer to these tabs, generically, as function tabs. Click the icon for the product you want to use. The plugin will be loaded, and the corresponding window will open with the function tab at the top.

The available plugins are:



Xgig Jammer



Xgig BERT



Xgig Generator



Xgig Load Tester



Xgig Target Emulator



Xgig Delay Emulator



**NOTE**

You do not need to load every plugin from the Maestro Global window. Once you have loaded one plugin, you can use that function window's **File** menu to create or access files for other functions. When you do so, the plugin for the selected file will be loaded.

## Open a Recent File

This option lists the six most recently used files for the various functions. If you want to bypass selecting the plugin to load and locating a recently used file, you can simply click

the file in the Maestro Global window. Then, the appropriate plugin will be loaded, and the file you selected will open.

## Port Selection and Domain Setup Button

Click the **Port selection and domain setup...** button (see Figure 2) to open the Port Selection and Domain Setup window. You use this window to set up BERT, Jammer, Generator, Target Emulator, Delay Emulator, and Load Tester ports. For more information about this window, refer to [Chapter 2 “Using the Port Selection and Domain Setup Window”](#).

**Figure 2** Port selection and domain setup Button



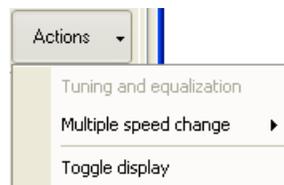
### NOTE

The **Port and Domain Setup** button is also located on each function tab that is loaded.

## Actions Button

The **Actions** button contains menus for **Tuning and Equalization** (6G SAS/SATA Jammer and Generator only), **Multiple speed Change**, and **Toggle Display**. The menu options are only available for the Maestro plugins for which you have loaded and locked the ports. The **Actions** button is also located on the function tabs that have been loaded. See Figure 3.

**Figure 3** Actions Button Options



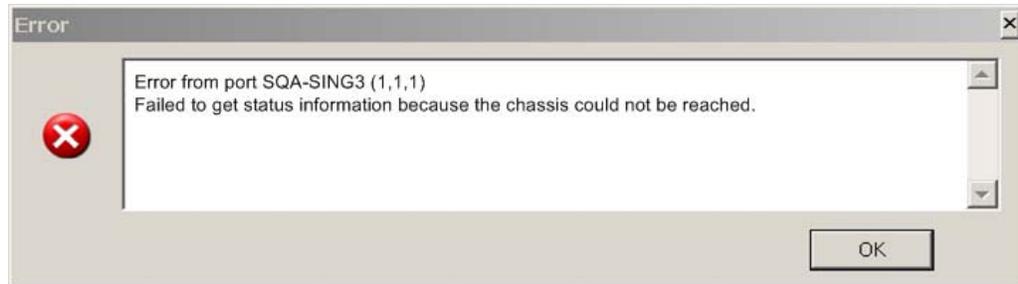
Refer to the chapters for BERT, Jammer, Generator, Target Emulator, Delay Emulator, and Load Tester for a detailed description of the menus and options available for each function associated with the **Actions** button.

## Network Connections

Remote BERTs and Jammers do not require a persistent Ethernet LAN connection between the local Xgig. Maestro software and the remote hardware to operate properly. The remote BERT/Jammer will continue to run if you lose network connection or exit the Xgig Maestro application.

If the network connection is lost, you will receive the following message:

**Figure 4** Network Connection Lost



If you receive this message, ping the Xgig chassis to see if you get a response. If the ping is successful, try to reconnect to the ports in the domain. If unsuccessful, look for cabling problems at your local system and then within the network; make sure the Xgig chassis is physically connected to the network.

If you can ping the Xgig chassis but cannot lock the ports, and the ports are not locked by another user, as a last resort you may have to reboot the Xgig chassis.

## Controlling the Chassis using a USB Connection

As an alternative to controlling the chassis using an Ethernet connection, some Xgig Maestro tools support controlling the chassis by connecting the computer to a chassis using a USB cable. Refer to [“Features” on page 2](#) for a list of the tools.



**NOTE**

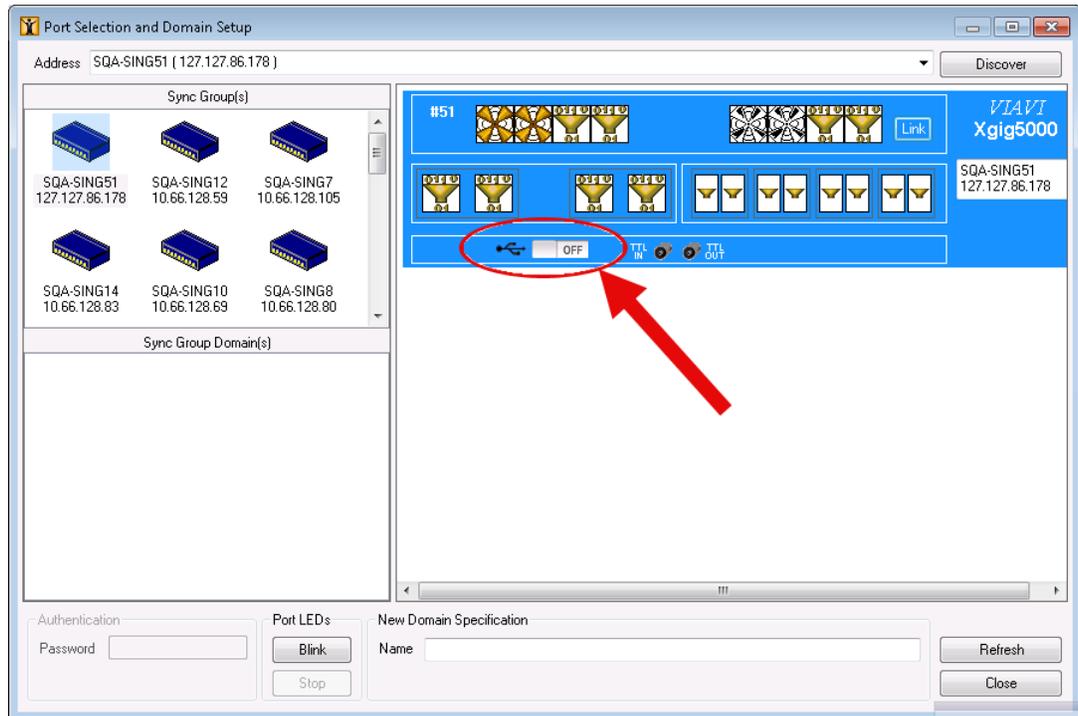
To control the chassis using a USB connection, you must upgrade the chassis software to the most recent software version.

Using a USB cable (Type A to Type B connectors), connect the host computer to the Xgig chassis front panel USB connector. Attach the cable’s Type A connector to the computer; attach the cable’s Type B connector to the chassis.

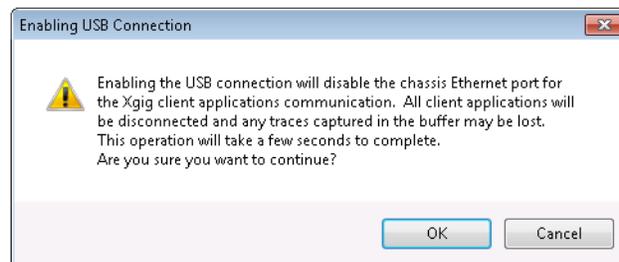


With Xgig Maestro started and a USB cable connected from the computer running Xgig Maestro to the chassis, once the Maestro client detects a chassis connect to the USB port, a switch is displayed in the Select Ports for Domain Creation window as shown in Figure 5. Select this switch to turn the USB connection on.

**Figure 5** USB Switch in the Select Ports for Domain Creation Window



When the switch is selected to turn the USB connection on or off, a Sync Discovery on the chassis is triggered destroying all the domains and restarting all the server applications. An information box is displayed advising you that the current chassis port will be disabled, all client applications will be disconnected, and any traces captured in the chassis buffer will be lost. You must select the OK button to complete the control port change. (A similar dialog box is displayed when the current chassis port is enabled.)

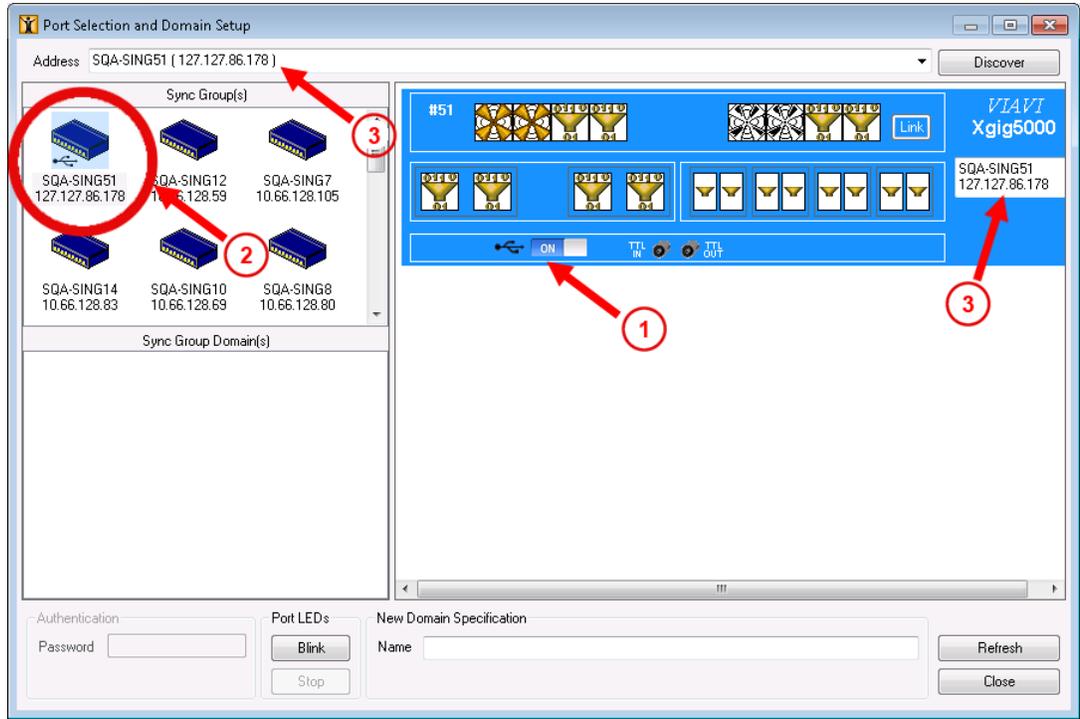


If ports on the chassis are locked by another application, a message will be displayed asking to unlock all ports before changing the USB mode.

Refer to Figure 6 to see that once the switch is on (1) and the USB connection has been established with the chassis, the connected device icon in the Sync Group(s) pane of the Select Ports for Domain Creation window changes to reflect that it is connected with the USB. Note the icon now displays the USB symbol (2).

Also, previously, the label for the icon displayed the IP address, however, it now displays a number starting with “127.127.” to show that it is a USB identifier (2). This number is also shown in the address bar and in the pane with the USB switch (3).

**Figure 6** Select Ports for Domain Creation Window with USB Connected



Note that if the USB cable is disconnected or the client computer is shutdown, the chassis will go back into Ethernet mode. The chassis will go back into Ethernet mode if an Ethernet cable is plugged into the chassis Ethernet port.

Because the Xgig Web Utility is not supported over USB, you need to use the Xgig remote administrator. Refer to your chassis hardware guide.

# Using the Port Selection and Domain Setup Window

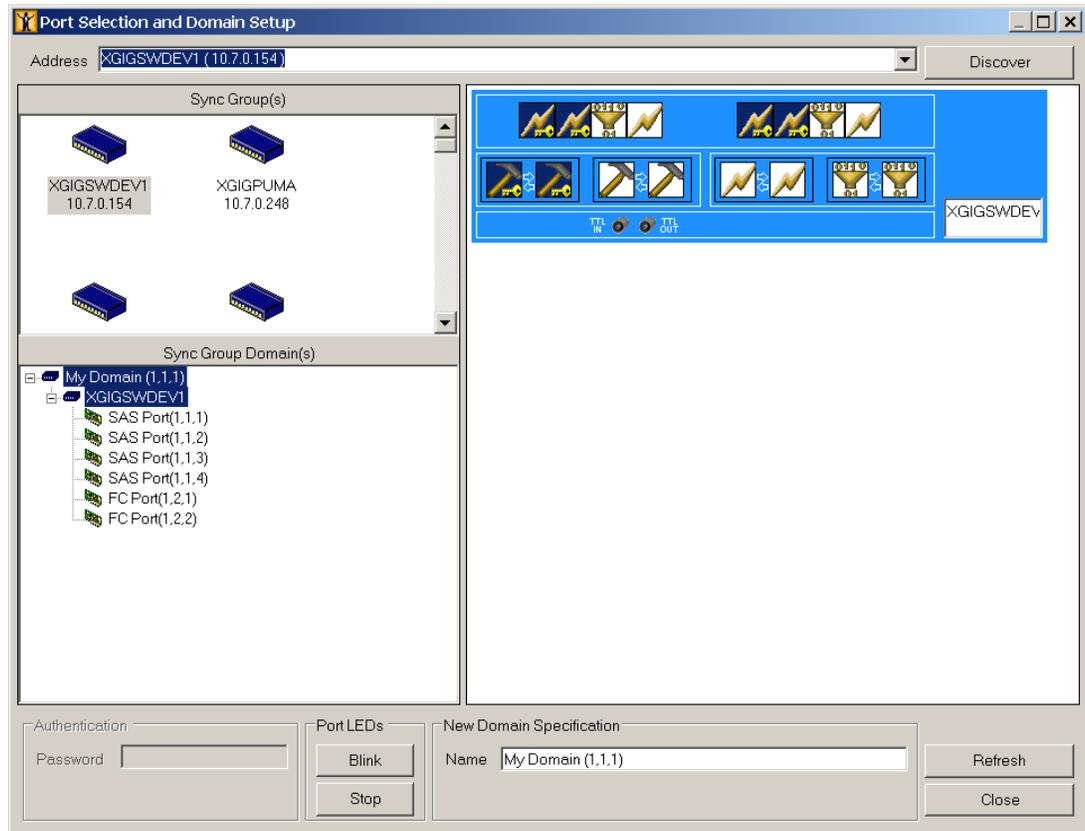
This chapter describes how to use the Port Selection window and the Domain Setup window. The topics discussed in this chapter are as follows:

- [“Discovering Sync Groups on the Network” on page 13](#)
- [“Using the Sync Groups Pane” on page 14](#)
- [“Using Chassis View” on page 15](#)
- [“Using Domains” on page 21](#)
- [“Using Other Controls on the Window” on page 25](#)

Use the Port Selection and Domain Setup window (see Figure 7) to locate and set up the chassis and ports that you want to use as Xgig BERTs, Xgig Jammers, Xgig Generators, Xgig Target Emulators, Xgig Load Testers, or Xgig Delay Emulators.

To open this window, click the **Port selection and domain setup** button in the Maestro Global window or above the Configuration manager in any of Maestro’s function windows.

**Figure 7** Port Selection and Domain Setup Window with Sync Group Selected



The **Address** field is where you enter the IP address or name of the Xgig chassis you want to access.

The **Discover** button initiates a discovery when you enter an Xgig chassis IP address or name and click.

The **Sync Group(s)** pane lists the chassis Sync Groups discovered by the application.

The **Chassis** view displays a graphic of the chassis in the Sync Group you select in the Sync Group pane.



**NOTE**

The 6 Gigabit SAS/SATA Wide Port Analyzer (Xgig-LXP) and the 6 Gibabit SAS/SATA Multi-Function blade each have four ports although eight ports are shown in the chassis view. The four non-operational ports are displayed with a diagonal line as shown here:



The **Domain(s)** pane lists the domains in the selected Sync Group.

The **Authentication Password** area is used to enter the password required to access secured Sync Groups.

The **New Domain Specification** area provides an entry field for a name you assign to domains you set up.

The **Port LEDs** area provides buttons to blink LEDs on the blades in the Xgig chassis.

The **Refresh** button updates the graphic on the screen.

The **Close** button closes the Port Selection and Domain Setup window.

## Discovering Sync Groups on the Network

By default, the window displays all the Sync Groups found in the same subnet as your client.

To discover a Sync Group elsewhere on your network:

- 1 Click the **Port Selection and Domain Setup** button to open the window where you locate and set up the chassis and ports that you want to use as Xgig BERTs, Xgig Jammers, Xgig Generators, Xgig Target Emulator, Xgig Load Tester, and Xgig Delay Emulator.
- 2 In the Address text field at the top of the Port Selection and Domain Setup window, enter the name or IP Address of the chassis you want to use. Or click on the down arrow at the right end of this field to open a drop-down list of recent entries.
- 3 Click **Discover**.

If the application can discover the chassis, it displays the chassis in the Sync Group(s) pane on the left side of the Port Setup window. The application displays the entire Sync Group to which that chassis belongs. In addition, all Sync Groups found in that same subnet of your network are discovered.

## Using the Sync Groups Pane

Sync Groups discovered by the application are displayed in this pane. Each Sync Group is represented by an icon and descriptive text.

Sync Groups consisting of:

- One single chassis are represented by a single blue chassis icon 
- More than one chassis are represented by a double chassis icon 

The text underneath the icon is always the name of the chassis that is the “master” of the Sync Group, followed by its IP Address. If you use the discovery feature to search for a specific chassis, remember that it might be a “slave” chassis within a Sync Group, which means the specific chassis name is not displayed in the Sync Groups pane.

## Displaying Sync Group Tool Tips

To view a tool-tip pop-up, hold the mouse over a Sync Group.

All the names and IP addresses of chassis in that Sync Group are displayed. The master chassis is listed first, followed by chassis in the order they are cabled in the cascade.

## Displaying Chassis View

To display the Chassis View, click on a Sync Group.

The Chassis View is displayed on the right side of the Port Selection and Domain Setup window showing the blade ports and the function assigned to each port.

## Unavailable Chassis Indicator

A Sync Group chassis icon with a large red circle with a line through it  indicates the software versions of the client application and the server software on that chassis are not compatible.

In a situation where the server software on the chassis is compatible with one Maestro plugin (e.g. Jammer), but incompatible with another plugin (e.g. Load Tester), the context menu “Use Port(s) As” displays the names of the incompatible applications with an (i) at the end.

## Using Chassis View

When you select a Sync Group in the Sync Group(s) pane, Chassis View displays a graphic of the entire Sync Group in the right pane of the Port Selection and Domain Setup window. The master chassis is always shown on top, with chassis shown downwards in the order in which they are cabled in the cascade. Each chassis graphic shows:

- The name and IP Address at the lower right corner
- A graphic, sized to show whether it is a 1, 2, or 4 slot chassis
- Slots in the chassis, numbered 1 through 4, starting at the top left, then bottom left, then top right, and finally bottom right, for a 4 slot chassis
- Each blade installed, represented by a long horizontal white rectangle which contains icons indicating the ports present
- Ports numbered 1 through 4 (if there are 4 ports present), ordered left to right.
- Tool-tips and Descriptions—You can hold the mouse over a chassis, a blade, a port, or a TTL connector to display information about that item. Also, you can right-click a port, blade, or chassis, and a button appears. Clicking the button pops up a dialog box containing information about that port, blade, or chassis. The following tool-tips and descriptions are available in Chassis View:
  - Chassis Description
    - Chassis name
    - Chassis IP address
    - Chassis serial number
  - Blade Description
    - Slot number
    - Blade serial number
    - Blade type
    - Licensed for—lists the Xgig functions which you can use for this blade
  - Port Description
    - Port—displays the protocol and the location with 3 numbers: chassis, slot, and port number
    - Blade type
    - Function—shows the current Xgig function running on this port
    - Domain—displays the domain to which this port belongs
    - Used by—displays the name of the user that has this port locked, if any
    - Licensed for—indicates the Xgig functions which you can use for this port
  - TTL Tool-tip
    - Used by—displays the name of the user who has this connector locked, if any

## Multi-Function Ports and Symbols

Each port has at least a default Xgig application loaded onto it. Icons indicate the type of device that a port is configured as:

- Funnel  represents the Xgig Analyzer
- Fan  represents an odd-numbered Xgig Generator port
- Fan  outline represents an even-numbered Xgig Generator port

### NOTE

To lock a Generator port, you only need to select the odd-numbered port, then right-click the port, select Use Port as, then select the Generator SAS/SATA option.

- Hammer  represents the Xgig BERT
- Lightning bolt  represents the Xgig Jammer
- Stacked Discs  represent the Xgig Target Emulator
- Speedometer  represents the Load Tester
- Graph  represents the Xgig Delay Emulator

### NOTE

When locking Delay Emulator ports, both ports will be locked, however, only the odd port will be used. The even port is non-functional for Delay Emulator.

- Solid black double arrows between two Jammer ports  indicate a duplex Jammer.

You can change the function of an Xgig Analyzer port pair to an Xgig BERT, Xgig Jammer, Xgig Generator, Xgig Target Emulator, Xgig Load Tester, or Xgig Delay Emulator pair. The available licenses for the blade determine how you can use each port. The tool-tip provides that information.

A port locked by another client application has a padlock symbol  on the port icon. You cannot perform any actions on ports locked by other client applications. When you lock a port, a golden key  is displayed on the port icon.

For more information about changing the function of an Xgig Analyzer port to an Xgig BERT, Xgig Jammer, Xgig Generator, Xgig Target Emulator, Xgig Load Tester, or Xgig Delay Emulator, refer to [“Use Port\(s\) as...” on page 19](#).

## Selecting Chassis Items

To select (or unselect) ports, click the port icon.

The port turns a dark blue. You can click any number of ports.

To select a blade, click on the blade.

To select a chassis, click on a chassis.

To select a TTL connector, click the connector icon in the chassis view.

Whenever you select an action to be performed on the Chassis view, the application attempts to perform this action on all ports or connectors you have selected. If you try to perform an action on a port or connector that is locked by another user, you receive a rejection message.

## Selecting Simplex and Duplex Jammers

When using Fibre Channel or Gigabit Ethernet, you can lock each port pair as two separate simplex Jammers or as one duplex Jammer. This depends upon how you select the ports.

To set up simplex Jammers, click on each port.

You see two separate selections, and this results in simplex Jammers (see Figure 8).

To setup a duplex Jammer, click directly in between the ports.

The port pair is selected, which results in a duplex Jammer.

To setup a duplex Jammer using a SAS/SATA wide blade, click on each port.

The port pair is selected, which results in a duplex Jammer.

You can use the information in [“Use Port\(s\) as...” on page 19](#) to lock the simplex or duplex Jammer ports.

**Figure 8** Locked Devices in Ports Manager

**Duplex Jammers display port numbers**

Type	Protocol	Address	Status	Domain of Port A	Domain of Port B
Jammer	SAS/SATA	XGIGSWDEV1 (1,1,1-2)	▶ Running	My Domain (1,1,1)	My Domain (1,1,1)
Jammer	Fibre Channel	XGIGSWDEV1 (1,2,1)	▶ Running	My Domain (1,1,1)	N/A
Jammer	Fibre Channel	XGIGSWDEV1 (1,2,2)	▶ Running	My Domain (1,1,1)	N/A
Jammer	Gigabit Ethernet	XGIGSWDEV1 (1,2,3-4)	■ Stopped		



**NOTE**

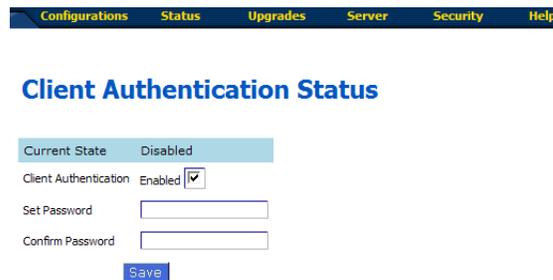
You can only use the SAS Jammer as a duplex Jammer. Follow the instructions for locking duplex Jammer ports.

## Authentication for Xgig Chassis

The Xgig chassis has a secure login feature which allows you to protect an Xgig chassis with a password to prevent access by unauthorized users. You set password protection through the Xgig Web Utility for each Xgig chassis. See Figure 9.

Login is only required once from any of the Xgig Maestro or Xgig Analyzer applications running on the same client machine. For example, if you login through Xgig Maestro, you will not be asked for the password again when you access the same Xgig chassis sync group through TraceControl. To make sure you are completely logged off from all Xgig chassis, you must close all Xgig applications.

**Figure 9** Xgig Web Utility



The screenshot shows the 'Client Authentication Status' page in the Xgig Web Utility. At the top, there is a navigation bar with tabs for 'Configurations', 'Status', 'Upgrades', 'Server', 'Security', and 'Help'. The 'Security' tab is selected. Below the navigation bar, the page title is 'Client Authentication Status'. The main content area shows the 'Current State' as 'Disabled'. There is a section for 'Client Authentication' which is 'Enabled' with a checked checkbox. Below this are two text input fields for 'Set Password' and 'Confirm Password'. At the bottom of the form is a 'Save' button.

For login, the settings of a master Xgig chassis in a sync group apply for all chassis in the sync group. If the master has authentication turned off and a slave(s) has authentication turned on, then the sync group as a whole has authentication turned off. The settings for the master Xgig chassis also apply for the password; the password of the master Xgig chassis is the password of any attached slave. Refer to “Xgig Blade and Port Numbering” in the *Xgig Family Hardware Guide* for more information on master, slaves, and sync groups.

## Logging in to an Xgig Chassis from Xgig Maestro

To lock ports or manipulate domains you must log into the Xgig chassis on which the ports reside. To log in to an Xgig chassis:

- 1 Open the Port Selection and Domain Setup window.
- 2 Type the Authentication Password in the field at the left lower corner of the window. You must set up a password. Refer to Online Help provided in the Utility for additional information about setting up a password.

Asterisks indicate that you have entered a password. The password is held in a shared cache which allows you to access the same chassis from other Xgig applications such as Xgig Performance Monitor.

If you attempt to lock a port or modify a domain on a chassis that is protected by a password, an error dialog is displayed if the password in the Authentication Password area is not valid. See Figure 10.

Figure 10 Password Error Dialog



## Using the Chassis Context Menu to Lock Ports

Once you have typed the password for the chassis and selected ports, right-click on one of them to view the menu of available actions. Menu items that do not apply to all selected items are disabled. Change your selection to have only valid items for the actions you want.

Port pairs are indicated by horizontal black rectangles on the blade, and are grouped as ports 1 and 2, and as ports 3 and 4. For more information about blade configuration and port numbering, refer to the *Xgig Family Hardware Guide* on the product USB drive.

- For BERT, Jammer, Generator, Target Emulator, or Delay Emulator you must select both ports in each pair to attempt any of the actions listed below.
- For Generator, you only need to select the odd-numbered port in the port pair to perform the actions listed below.

Once you have selected the port(s) you want to lock, right-click one of the selected ports. This displays a drop-down menu with the following options:

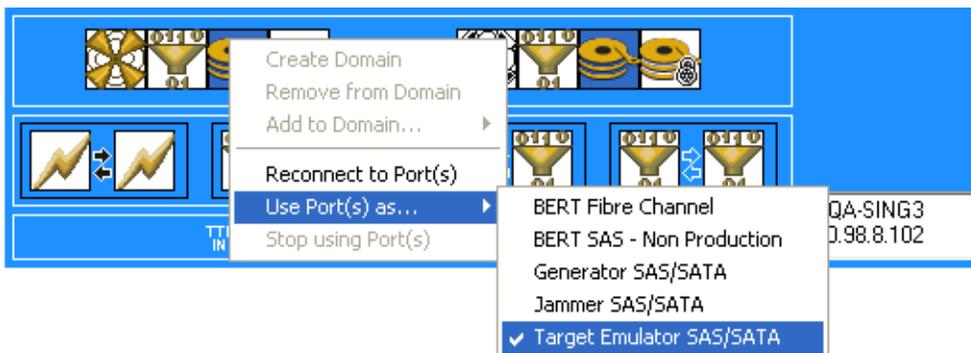
### Reconnect to Port(s)

This action is available if the ports are not locked and are already configured as BERTs, Jammers, Generators, Target emulators, Load Testers, or Delay Emulators. When you select this action, it locks the ports and maintains the current configuration and state (including running) of the ports. It also retains the simplex versus duplex Jammer/Delay Emulator setting.

### Use Port(s) as...

This action is available if the ports are not locked and are licensed as BERTs, Jammers, Generators, Target Emulators, Load Testers, or Delay Emulators. When you select this action, an additional menu appears that lets you choose the device (depending on available licenses) you want to use. A multi-function blade license allows you to switch the function from an Xgig Analyzer to an Xgig BERT, an Xgig Jammer, Xgig Generator, or an Xgig Target Emulator (see Figure 11) running different protocols.

Figure 11 Use Port(s) As Menu



**NOTE**

When selecting a port function for two ports on an FPGA in an Xgig1000 10G/16G or 10G/16G/40G system, a dialog appears asking you to choose port functions for the other two ports on the FPGA as all four ports for an FPGA are loaded at once. You may check the **Do not prompt again** check box, and the software will remember your last selection. When this check box is checked, a **Prompt For Unused Port Functions** option is present in the port context menu.

### Selecting Protocols and Functions

You can choose from the following functions and network protocols for your Xgig device under the **Use Port(s) as** menu:

- BERT Fibre Channel
- BERT Gigabit Ethernet
- Jammer Fibre Channel
- Jammer Gigabit Ethernet
- Jammer PCIe
- Jammer SAS/SATA
- Generator SAS/SATA
- Target Emulator SAS/SATA
- Load Tester Fibre Channel
- Load Tester FCoE
- Delay Emulator Gigabit Ethernet

### Stop using Port(s)

This action is available for your locked ports. When you select this action, it releases the ports (but does not stop the BERT, Jammer, Generator, Target Emulator, Load Tester, or Delay Emulator if it is running) and removes the devices from the Ports Manager in the Xgig Maestro window. This allows any user to connect to the ports.

## Using Domains



### NOTE

Domain functionality applies only to BERT, Jammer, Load Tester, and Delay Emulator. Target Emulator and Generator cannot add, create, remove, or edit domains.

A domain is a logical set or subset of ports and TTL connectors that belong to the same Sync Group. A domain must contain an even number of hardware analyzer ports. Thus, a logical domain is an even number of analyzer ports between 2 and 64. The actual maximum number of physical ports is determined by the number of Xgig analyzers concatenated together, the number of blades in each chassis, and the port density of each blade. The physical maximum is four chassis, with four blades, with four ports on each blade, for a maximum port count of 64.

A Sync Group can have up to 8 domains if all the domains have only BERT, Jammer, Generator, Target Emulator, Load Tester, and Delay Emulator ports. One primary use for these groups is to share triggers between ports. When using applications such as Xgig Jammer, if you configure a port to look for an external trigger input, the only way to receive such a trigger input is for the port to be part of a domain that gets triggered. And, if you configure a port to create an external trigger output, that trigger is only useful if the port is part of a domain, in which case it triggers that domain. If a domain is triggered, then all ports in that domain receive that external trigger input.

Xgig BERT can also be in a domain. In BERT mode, a trigger can start or stop a BERT. The BERT can trigger the domain when its capture stops or when a mismatch is detected. In Latency mode, triggers are not used.



### NOTE

In Xgig Analyzer, all ports belonging to one Analyzer device are automatically part of one domain. Furthermore, any triggering of that domain triggers all the Analyzer ports, and any completion of a user-defined Trigger Condition in an Analyzer port triggers the entire domain.

Xgig BERT, Jammer, Generator, Target Emulator, Load Tester, and Delay Emulator do not operate under the Analyzer rules. You can choose whether or not:

- To put any port in any domain
- A port should accept or ignore triggers from the domain
- A port should send triggers to the domain.

As an example to illustrate this, you could put an Xgig Jammer port in the same domain as a pair of Xgig Analyzer ports. You could set the Xgig Jammer to give an external trigger output as part of a Test Case. In this way, when the Jammer successfully triggers and Jams what you want, this sends an external trigger from the Jammer port that would trigger the domain and the Analyzer.

Another example is using the TTL input on the chassis. You can put the TTL input in the same domain as an Xgig Jammer port, and set the Jammer port to Arm on an external trigger input. In this way, you allow the Jammer to Arm on a TTL input pulse. Note that you can achieve this with a TTL input connector on any chassis in the Sync Group.



#### CAUTION

Remember that all elements in a domain receive a trigger when the domain is triggered. Therefore, if you put a TTL input connector and a TTL output connector in the same domain as a Jammer port, thinking that you can use both TTL input and TTL output in separate Test Cases, you should realize that when a TTL signal is received at the TTL input connector, it does not only trigger the Jammer port but also triggers the TTL output connector.

For the Xgig Analyzer, ports are put in the same domain to allow you to stop and start them together, but that is not relevant to the Xgig BERT, Jammer. You start and stop each BERT or Jammer device independently of other devices in the same domain.

## Configuring Domains

The way the controls for domains work is similar to the controls for locking and unlocking ports. First select the ports and/or TTL connectors you want to target, and then right-click on one of the selected items to view the menu of available actions. The domain related actions are listed above the port locking actions. This section describes the menu actions you use to configure domains



#### NOTE

You do not have to select Maestro ports in pairs to perform domain related actions. Each port in a pair can be in a different domain. You can use this with a duplex Jammer, in particular, with one port receiving a trigger from TTL input and the other port triggering TTL output.

## Create Domain

This action is only available on Maestro ports you lock or TTL connectors that are not already in a domain. This action creates a new domain with the name under New Domain Specification at the bottom of the Port Selection and Domain Setup window; all selected ports and TTL connectors are put in that domain. The domain appears in the Domain pane on the left side of the Port Selection and Domain Setup window.

## Remove from Domain

This action is only available on Maestro ports not locked by another client application and on TTL connectors not locked by an Xgig Analyzer. When you select this action, it removes selected ports and TTL connectors from the domain.

To remove a port or TTL connector from a domain:

- 1 Select the port or TTL connector in the Chassis View.
- 2 Right-click on the item in the graphical display to open the menu (Figure 12).

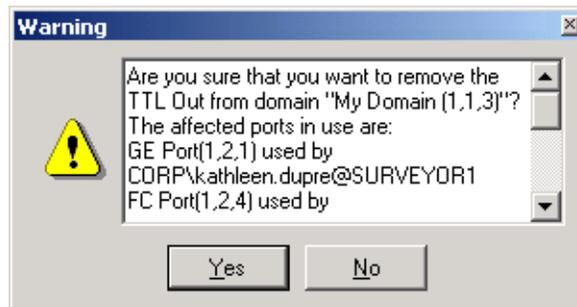
**Figure 12** Removing a Port or TTL Connector from a Domain



- 3 Select **Remove from Domain**.

The following warning is displayed. See Figure 13.

**Figure 13** Domain Warning



- 4 Click **Yes** to remove the port or TTL connector.



### NOTE

Removing the last port from a domain deletes that domain.

## Add to Domain...

This action is only available on TTL connectors or Maestro ports that you have locked that are not already in a domain. When you select this command, another menu appears with a list of available domains to choose from. This action adds the ports and TTL connectors to the domain you choose. This can include a domain created by another user consisting of Analyzers.



### NOTE

To share triggers between BERT, Jammer, Generator, Target Emulator, Load Tester, or Delay Emulator, and Analyzers, create the Analyzer domain first, then lock the Maestro ports, and add them to the Analyzer domain.

## Domain Pane

The Domain pane on the left side of the Port Selection and Domain Setup window contains a list of all the domains in the selected Sync Group. When you click on a domain, you select all the ports and TTL connectors in the Chassis View that are part of that domain.

If you right-click on a domain, there is one menu command, **Remove Domain**. This deletes the domain from the Sync Group entirely. This action is only available on a domain that does not contain any locked ports or an Analyzer capture.

## New Domain Specification

To add a domain, enter the name you want to assign to the next domain in this field.

The default is “My Domain” and then three numbers in parenthesis: chassis number, slot number and port number. The numbers correspond to the first port you select when no ports have been selected.

To override the default, type your own text.

To reactivate the feature, clear any text and click on a port.

## Using Other Controls on the Window

The Port Selection and Domain Setup window has additional controls on the window that let you flash the port LEDs on a blade, refresh the display, close the window, shut down sync group and upgrade chassis. This section describes these controls.

### Controlling LEDs on the Ports

The Port Selection and Domain Setup window has buttons at the bottom that let you flash the port LEDs on a blade. This can help you identify blades in your Xgig chassis.

To flash the LEDs:

- 1 Select the ports you want.
- 2 Click **Blink** to start the LEDs flashing.  
The four LEDs on the port blink green.
- 3 Click **Stop** to end the blinking.  
The LEDs automatically stop blinking after 40 seconds, if you do not click **Stop**.

### Updating the Display

To update the display of the information presented in the Port Selection and Domain Setup window, click **Refresh**.

This can be useful if another user is making changes to ports at the same time.

### Closing the Window

To exit the Port Selection and Domain Setup window, click **Close**.

### Shutting Down a Sync Group

To shut down a sync group:

- 1 Position the cursor over the sync group you want to shut down.
- 2 Select **Shutdown Sync Group** from the Context Menu.

## Upgrading a Sync Group

When the software on the chassis is outdated, a new option “Upgrade Sync Group with latest System/Appkit ...” becomes available on the Context Menu. You need to download the latest Upgrade Appkit and use this option to apply the upgrade.

To upgrade sync group:

- 1 Position the cursor over the sync group you want to shut down.
- 2 Select **Upgrade Sync Group with latest System/Appkit...** from the Context Menu.
- 3 When the **Upgrade Sync Group** dialog box appears, confirm the Application and System version numbers and click **Yes** to proceed with upgrade.

The upgrade process may take several minutes, depending on the network performance as well as the number of chassis in the sync group being upgraded. You can click the **Cancel** button if the process takes too long. A dialog will appear with a hyperlink to the chassis upgrade logs and another hyperlink to the UpgradeLog-CHASSIS\_IP\_ADDRESS.txt file.

# Index

## A

- adding [24](#)
- address field [12](#)
- Analyzer protocols [4](#)
- authentication [18](#)
- Authentication Password [18](#)
- Authentication Password area [13](#)

## C

- Chassis view [13](#), [14](#), [15](#)
- Close button [13](#)
- Compliance information [vii](#)
- contact information [x](#)

## D

- decode improvements [4](#)
- Discover button [12](#)
- discovering Sync Groups [13](#)
- domain [21](#)
- Domain pane [24](#)
- domains [24](#)
  - creating [22](#)
  - removing [23](#)
  - using [21](#)
- Domains pane [13](#)
- duplex Jammer [17](#)

## H

- help [x](#)

## I

- icons [16](#)

- identify blades [25](#)
- install Maestro [3](#)

## L

- launching Maestro [5](#)
- locking ports [19](#)
- login [18](#)

## M

- Maestro
  - installation [3](#)
  - overview [2](#)
  - plugin [6](#)
  - protocols [2](#), [20](#)
  - window [5](#)

## N

- network connections [8](#)
- network protocols [20](#)
- New Domain Specification area [13](#)

## P

- password protection [18](#)
- plugin [6](#)
- port LEDs [25](#)
- Port LEDs area [13](#)
- port mapping [4](#)
- protocols supported [2](#), [4](#), [20](#)

## R

- Refresh button [13](#)
- related information [vi](#)

## S

Safety information [vii](#)  
secure login [18](#)  
selecting protocols [20](#)  
simplex Jammers [17](#)  
software plugin [6](#)  
stop using ports [20](#)  
symbols [16](#)  
Sync Group tooltips [14](#)  
Sync Groups pane [12](#)

## T

TCP port mapping [4](#)  
technical assistance [x](#)  
TTL input [22](#)

## U

UDP port mapping [4](#)  
using domains [21](#)





**Version 8.1**  
**November 2015**  
**English**

**Viavi Solutions**

<b>North America:</b>	<b>1.844.GO VIAVI / 1.844.468.4284</b>
<b>Latin America</b>	<b>+52 55 5543 6644</b>
<b>EMEA</b>	<b>+49 7121 862273</b>
<b>APAC</b>	<b>+1 512 201 6534</b>
<b>All Other Regions:</b>	<b><a href="http://viavisolutions.com/contacts">viavisolutions.com/contacts</a></b>
<b>email</b>	<b><a href="mailto:customer.care@viavisolutions.com">customer.care@viavisolutions.com</a></b>