



grass valley

A **BELDEN** BRAND

Orbit for IP Routing

IP Routing System Configuration and Monitoring

User Manual

Issue 1 Rev 3

18 May 2020

www.grassvalley.com

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

Copyright and Trademark Notice

Copyright © 2020, Grass Valley Canada. All rights reserved.

Belden, Belden Sending All The Right Signals, and the Belden logo are trademarks or registered trademarks of Belden Inc. or its affiliated companies in the United States and other jurisdictions. Grass Valley, Orbit are trademarks or registered trademarks of Grass Valley Canada. Belden Inc., Grass Valley Canada, and other parties may also have trademark rights in other terms used herein.

Terms and Conditions

Please read the following terms and conditions carefully. By using Orbit documentation, you agree to the following terms and conditions.

Grass Valley hereby grants permission and license to owners of Orbit to use their product manuals for their own internal business use. Manuals for Grass Valley products may not be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose unless specifically authorized in writing by Grass Valley.

A Grass Valley manual may have been revised to reflect changes made to the product during its manufacturing life. Thus, different versions of a manual may exist for any given product. Care should be taken to ensure that one obtains the proper manual version for a specific product serial number.

Information in this document is subject to change without notice and does not represent a commitment on the part of Grass Valley.

Warranty information is available from the Legal Terms and Conditions section of Grass Valley's website (www.grassvalley.com).

Title	Orbit for IP Routing User Manual
Part Number	Issue 1 Rev 3
Revision	18 May 2020 2:00 pm

About this Manual

This 'Orbit for IP Routing' User Manual describes how to use the Grass Valley Orbit software for IP routing applications. Introductory information is found in the 'Orbit - Introduction User Manual'.

This 'Orbit for IP Routing' user manual contains:

- an introduction to Orbit and IP routing; *(Section 2 "Orbit and IP Routing" on page 9)*
- an 'Orbit for IP Routing' home screen description; *(Section 2 "Orbit IP Routing' Project Home Screen" on page 12)*
- an Orbit Network Configuration Editor screen description; *(Section 3 "Network Configuration Editor Window" on page 19)*
- screen tab descriptions; *(Section 4 "Tabs - Devices Tab" on page 43 through to Section 14 "Tabs - Router Tab" on page 204)*
- 'getting started' instructions; *(Section 18 "Getting Started" on page 256)*
- useful *How To's*; *(Section 19 "How To's" on page 284)*
- a glossary of IP routing terms; and *(Appendix A "Glossary of IP Routing Terminology" on page 301)*
- contact information. *("Grass Valley Technical Support" on page 306)*

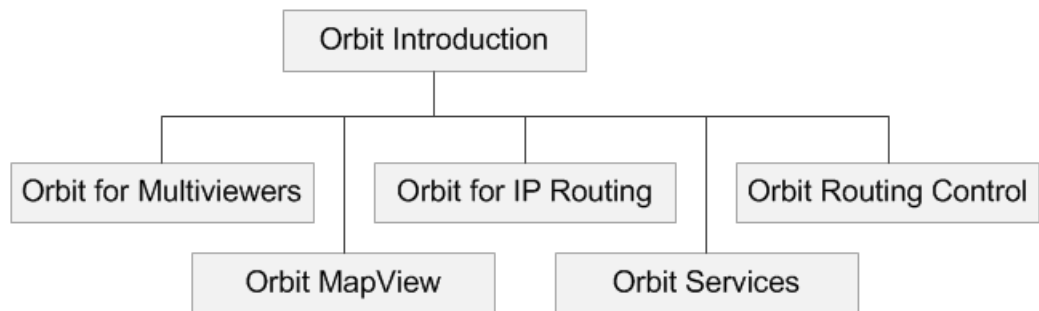
Related Documents

The following Orbit manuals are related documents:

Table 1 Related Documents

Type	Title	Description
User Manual: Orbit - Introduction		General introduction to the Orbit software.
User Manual: Orbit for Multiviewers		Multiviewer-specific features of Orbit.
This manual: User Manual: Orbit for IP Routing		Describes IP routing features of Orbit.
User Manual: Orbit MapView		Graphical control and monitoring soft panels in Orbit.
User Manual: Orbit Routing Control		Describes routing control panels in Orbit.
User Manual: Orbit Services		Describes Orbit services.

Orbit user manual hierarchy:



toc

Summary Top Level Contents

1 Orbit and IP Routing	1
2 'Orbit IP Routing' Project Home Screen	12
3 Network Configuration Editor Window	19
4 Tabs - Devices Tab	43
5 Tabs - Spigots Tab	60
6 Tabs - Source Flows (Src Flows) Tab	86
7 Tabs - Destination Flows (Dst Flows) Tab	127
8 Tabs - Router Source Ports Tab	147
9 Tabs - Router Destination Ports Tab	154
10 Tabs - LLDP Tabs	160
11 Tabs - Routing Status Tab	166
12 Tabs - Bandwidth Status Tab	189
13 Tabs - Log Tab	198
14 Tabs - Router Tab	204
15 Export / Import Settings	233
16 Device Transfer (Swapping Out a Device)	249
17 Device Inspector Pane	254
18 Getting Started	256
19 How To's	284
Appendix A Glossary of IP Routing Terminology	301

toc

Table of Contents

Front Cover.....	i
About this Manual.....	iii
Summary Top Level Contents	v
Table of Contents	vi
1 Orbit and IP Routing	1
1.1 IP Network System	2
1.2 Orbit IP Routing Projects	2
1.3 IP Routing System as a Traditional Routing System	3
1.3.1 Basic Media Routing System Schematic	3
1.3.2 IP Network System	4
1.3.3 IP Network System and IP Streams	5
1.3.4 IP Flows.....	5
1.3.5 IP Routing Redundancy - Fabric A and Fabric B	6
1.3.6 Routing Control - Traditional Router Example.....	7
1.3.7 Routing and Switching at Destination.....	8
1.4 What the 'Orbit for IP Routing' Application Does.....	9
1.4.1 Device Discovery	9
1.4.2 Device Information.....	9
1.4.3 Device IP Routing Configuration	9
1.5 Orbit Network Configurations	10
1.6 Operating the IP Router	10
1.7 SDP Support	11
1.8 Device Proxy Support	11
1.8.1 Example 1: Tie-Line.....	11
1.8.2 Example 2: Remote Monitoring	11
2 'Orbit IP Routing' Project Home Screen	12
2.1 Network Configurations	12
2.1.1 Create a New Network Configuration Item (via Networks Icon).....	13
2.1.2 Create a New Network Configuration Item (via the Project View)	16
2.1.3 Open an Existing Network Configuration Item (via Networks icon)	16
2.1.4 Open an Existing Network Configuration Item (via Project View)	17
2.2 Load Control Screen (RollCall Template Viewed in Orbit)	18
3 Network Configuration Editor Window	19
3.1 Window Main Screen	20
3.2 Tabs	21
3.2.1 Forms of Tab Screens	22
3.3 Comms Setup Button.....	23
3.3.1 IP Routing System Controller	25
3.3.2 Default Spreadsheet.....	25

- 3.4 Properties List 27
- 3.5 Common Tabular Tab Screen Features 31
 - 3.5.1 Editable Cells 32
 - 3.5.2 Sorting Columns 32
 - 3.5.3 Expanding and Collapsing Rows 33
 - 3.5.4 Right-Click Pop-up Menus 34
- 3.6 Filter Tools 35
 - 3.6.1 Device Filter Tool 35
 - 3.6.2 Spigot Filter 38
- 3.7 Find Text 39

- 4 Tabs - Devices Tab 43**
 - 4.1 Devices Tab Tool Bar 46
 - 4.1.1 Purge Devices 47
 - 4.1.2 Subnet Scan 49
 - 4.1.3 Duplicate Scan 52
 - 4.1.4 Connection Scan 53
 - 4.1.5 Generate SDP 54
 - 4.2 Devices Tab Main Table 56
 - 4.2.1 Device GUID 57
 - 4.2.2 Device Name 58
 - 4.2.3 Right-Click on Device GUID 59
 - 4.3 Status Bar 59

- 5 Tabs - Spigots Tab 60**
 - 5.1 Introduction 61
 - 5.2 Spigots Tool Bar 63
 - 5.2.1 Assign Router Ports 65
 - 5.2.2 Clear Router Ports 69
 - 5.2.3 Purge Spigots 71
 - 5.3 Spigots Tool Bar (Device Proxy Controls) 72
 - 5.3.1 Mark for Proxy 73
 - 5.3.2 Unmark for Proxy 73
 - 5.3.3 Dev Proxy Config 73
 - 5.3.4 Upload to Dev Proxy 74
 - 5.3.5 Download from Dev Proxy 74
 - 5.3.6 Write Dev Proxy File 75
 - 5.3.7 Read Dev Proxy File 76
 - 5.4 Spigots Tab Main Table 77
 - 5.4.1 Table Columns 77
 - 5.4.2 Inconsistent Spigots 81
 - 5.4.3 Phantom Spigots 81
 - 5.4.4 Reserved Spigots 82
 - 5.4.5 Right-Click on Device Name 82
 - 5.4.6 Right-Click on Spigot Name 85
 - 5.5 Status Bar 85

- 6 Tabs - Source Flows (Src Flows) Tab 86**
 - 6.1 Introduction 87
 - 6.2 Src Flows - Tool Bar 89
 - 6.2.1 Multicast Options 92
 - 6.2.2 Assign Multicast 95
 - 6.2.3 Clear Multicast 97
 - 6.2.4 Flow Options 99
 - 6.2.5 Enable Flows 100
 - 6.2.6 Disable Flows 102
 - 6.2.7 HIGH RISK Alert 104

- 6.2.8 Multicast Scan106
- 6.2.9 Bandwidth Estimate108
- 6.2.10 Flow Summary108
- 6.3 Src Flows - Main Table110
 - 6.3.1 Table Columns.....110
 - 6.3.2 Inconsistent Source Flows113
 - 6.3.3 Phantom Source Flows113
 - 6.3.4 Right-Click on Device113
 - 6.3.5 Right-Click on Spigot122
 - 6.3.6 Right-Click on Source Flow.....124
- 6.4 Src Flows - Status Bar126

- 7 Tabs - Destination Flows (Dst Flows) Tab. 127**
 - 7.1 Introduction.....128
 - 7.2 Dst Flows - Tool Bar130
 - 7.2.1 Route 1:All131
 - 7.2.2 Clear Routes.....133
 - 7.3 Dst Flows - Main Table137
 - 7.3.1 Table Columns.....137
 - 7.3.2 Inconsistent Dest Flows.....140
 - 7.3.3 Phantom Dest Flows.....140
 - 7.3.4 Right-Click on Device141
 - 7.3.5 Right-Click on Spigot146
 - 7.4 Dst Flows - Status Bar146

- 8 Tabs - Router Source Ports Tab 147**
 - 8.1 Introduction.....148
 - 8.2 Router Source Ports - Tool Bar150
 - 8.3 Router Source Ports - Main Table151
 - 8.4 Status Bar153

- 9 Tabs - Router Destination Ports Tab 154**
 - 9.1 Introduction.....155
 - 9.2 Router Dest Ports - Tool Bar157
 - 9.3 Router Dest Ports - Main Table158
 - 9.4 Status Bar159

- 10 Tabs - LLDP Tabs 160**
 - 10.1 Introduction161
 - 10.2 Tool Bars163
 - 10.3 Main Table164
 - 10.3.1 Column Headings164
 - 10.4 Status Bar165

- 11 Tabs - Routing Status Tab 166**
 - 11.1 Introduction167
 - 11.2 Port View169
 - 11.2.1 Port View Tool Bar170
 - 11.2.2 Port View Main Table172
 - 11.2.3 Right-Click in Port View174
 - 11.3 Device View176
 - 11.3.1 Device View Tool Bar.....177
 - 11.3.2 Device View Schematic179
 - 11.3.3 Navigating Around Devices in Device View186
 - 11.3.4 Right-Click in Device View187

- 12 Tabs - Bandwidth Status Tab** 189
 - 12.1 Introduction 190
 - 12.2 Bandwidth Status Tool Bar 192
 - 12.3 Bandwidth Status Graphs..... 194
 - 12.3.1 Redundant Flows on Primary and Secondary Links 195
 - 12.3.2 Filters Button..... 195
 - 12.3.3 Time Scale Button 197

- 13 Tabs - Log Tab** 198
 - 13.1 Introduction 199
 - 13.2 Log Tab Tool Bar 200
 - 13.3 System Message Format 201
 - 13.3.1 Sample Saved System Message Text..... 202
 - 13.4 Log Tab - Status Bar..... 203

- 14 Tabs - Router Tab** 204
 - 14.1 Introduction 205
 - 14.2 Router Tab Tool Bar 208
 - 14.2.1 Router Options 209
 - 14.3 Router Sources Pane 212
 - 14.3.1 Routable Sources and Destinations 212
 - 14.3.2 Sources Column Colors 213
 - 14.3.3 Right-Click on Device..... 213
 - 14.3.4 Right-Click on Spigot 213
 - 14.4 Router Destinations Pane..... 214
 - 14.4.1 Destinations Column Colors 215
 - 14.4.2 Right-Click on Device..... 215
 - 14.4.3 Right-Click on a Spigot 216
 - 14.5 Making a Route 217
 - 14.5.1 Examples 217
 - 14.5.2 Spigot Routing - Immediate Take, No Undo..... 218
 - 14.5.3 Pre-select With Take 219
 - 14.5.4 Pre-select with Take and Undo 221
 - 14.5.5 With Pre-select Undo with Take 222
 - 14.5.6 Routing to Linked Spigots 223
 - 14.5.7 Selecting Flows to Route 225
 - 14.5.8 Routing Flows from Different Source Spigots 227
 - 14.5.9 Flow Routing..... 230
 - 14.5.10 Clear Routes to a Destination Spigot..... 231
 - 14.5.11 Clear a Flow Route to a Destination Flow..... 232

- 15 Export / Import Settings** 233
 - 15.1 Introduction 234
 - 15.2 Export Settings..... 235
 - 15.3 Exported Spreadsheet File..... 236
 - 15.3.1 Device Names Work Sheet 236
 - 15.3.2 Source Ports Worksheet and Destination Ports Worksheet 237
 - 15.3.3 Source Flows Worksheet and Destination Flows Worksheet 238
 - 15.4 Import Settings 239
 - 15.5 Import Dialog Options 241
 - 15.5.1 Import Dialog - Spreadsheet Section..... 242
 - 15.5.2 Import Dialog - Options Section 247
 - 15.5.3 Import Dialog - Import Preview 248

- 16 Device Transfer (Swapping Out a Device)** 249
 - 16.1 Introduction249
 - 16.2 Preliminaries250
 - 16.3 Device Transfer.251

- 17 Device Inspector Pane** 254
 - 17.1 Introduction254

- 18 Getting Started** 256
 - 18.1 Introduction256
 - 18.2 Assumptions before Getting Started257
 - 18.2.1 Network257
 - 18.2.2 Orbit.257
 - 18.2.3 Network Devices257
 - 18.2.4 Routing System Control257
 - 18.3 Create an Orbit IP Routing Project.258
 - 18.3.1 Create the Project258
 - 18.3.2 Define User Access to the Orbit Project.259
 - 18.4 Create New Orbit Network(s)260
 - 18.5 Configure 'Comms Setup' for the Orbit Project.262
 - 18.6 Set Other Orbit Project Properties.263
 - 18.7 Device Configuration - Introduction.264
 - 18.8 Device Configuration - Spreadsheet Import Method265
 - 18.8.1 Export a Spreadsheet.265
 - 18.8.2 Edit Spreadsheet266
 - 18.8.3 Import Spreadsheet271
 - 18.9 Device Configuration - Orbit User Interface Method275
 - 18.9.1 Set Device Names275
 - 18.9.2 Assign 'Traditional Router Style' Ports275
 - 18.9.3 Set Up Source Signals277
 - 18.10 Making a Route281
 - 18.10.1 How Do I See the Router Tab?.281
 - 18.10.2 Make a Route with Router Tab282

- 19 How To's** 284
 - 19.1 How to Remove Off-line Devices from the 'Devices' Tab.285
 - 19.1.1 Purge a Device285
 - 19.1.2 Purge Multiple Devices286
 - 19.2 How to Check if all Devices are in an IP Subnet288
 - 19.3 How to Check if any Devices have Duplicate Configurations290
 - 19.4 How to Check if a Device is Connected to the Media Networks.292
 - 19.5 How to Show Flow Information in the 'Src Flows' or 'Dst Flows' Tabs294
 - 19.6 How to Show Information in the Orbit LLDP Tabs296
 - 19.7 How to See the 'Find Text' Tool on Orbit Tabs296
 - 19.8 How to Filter What is Shown on an Orbit Tab296
 - 19.9 How to See the Router Tab.296
 - 19.10 How to See Devices in the 'Devices' Tab297
 - 19.11 How to See all Devices in the 'Devices' Tab298
 - 19.12 How to See all Spigots on the 'Spigots' Tab298

- Appendix A Glossary of IP Routing Terminology** 301
 - Grass Valley Technical Support306
 - Corporate Head Office306

1 Orbit and IP Routing

The 'Orbit for IP Routing' application is a project-based software tool specifically for 'IP routing' configuration of an IP network system. 'Orbit for IP Routing' is also referred to as 'Network Monitor' and it is used to form a Grass Valley IP routing system from a real-time media IP network system. It can also monitor the resulting routing system. One or more IP routing systems can be formed.

Orbit configures the 'IP routing layer' of an IP network system to form a 'logical' routing system with the network. A real-time media IP routing system is formed. The IP endpoints can be configured and managed.

Orbit for IP Routing uses the Grass Valley Orbit software tool with an IPNETMGR license. See the "Orbit - Introduction" User Manual for an introduction to Orbit and instructions on license installation. Orbit runs on a host Windows® PC.

Note:

IP Network System Requirement:

A fully 'network-configured' IP network system is a requirement for Orbit. The IP network fabric may comprise one or more IP network switches.

All network devices must be:

- Basically set-up (i.e. with valid IP addresses and sub-nets, and with the same RollCall+ domain ID).
- Be powered on and connected to the network.

Orbit is used in the final IP routing stage of network system configuration. Orbit configures network devices that it can discover.

Note:

IP Network Switch:

Grass Valley IP routing systems are not specific to an IP switch manufacturer nor model. And 'Orbit for IP Routing' operates independently of IP switch manufacturer or model

Each Orbit for IP Routing project contains IP routing settings for all devices in the IP network system which use the same RollCall+ domain ID. These settings enable the control and coordination of devices for IP routing operation. Status reporting on all devices and on IP streams to/from devices is provided.

Note:**Orbit Network Configuration:**

- Discovers devices of an IP network system which use the same RollCall+ domain ID.
- Sets up devices for IP routing, configuring end-points (for example, multicast group settings, and enabling IP flows from spigots).
- Sets up traditional router port assignments.
- *Does not* configure network settings (such as: IP addresses or VLAN information).
- *Does not* know about any IP network topology nor about physical networks.

Note:

More than one IP routing system can be set up and monitored by Orbit.

- Use different RollCall+ domain IDs per routing system to segregate devices.
- Create an Orbit network for each routing system.
- Configure and monitor the resulting IP routing networks with Orbit.

1.1 IP Network System

An IP network system may comprise:

- a single IP network for media and control traffic; or
- separate IP networks for media and control; or
- two media IP networks for network redundancy; or
- some other combination of IP networks.

And, for a Grass Valley IP routing system, an IP network system needs one or more Grass Valley IP routing system controllers (IP-RSC servers) and devices must be RollCall+ compliant. Traditional hard or soft Grass Valley router RollCall control panels then connect to the IP-RSC.

Each IP network in the IP network system needs to be fully 'network-configured', so that 'Orbit for IP Routing' can configure the final IP routing aspects for each IP network.

1.2 Orbit IP Routing Projects

Each Orbit IP routing project may contain one or more sets of IP network system endpoint settings. With an IP Routing project open in Orbit, IP routing endpoint settings for each device in the IP network system can be configured, including:

- Multicast IP addresses.
- IP streams on devices.
- Router port assignments. (I.e. video or audio router port number and name.)

Note:

See the Orbit Introduction User Manual for an introduction to Orbit and its IP Routing application.

1.3 IP Routing System as a Traditional Routing System

A traditional routing system may route video, and/or audio, and/or any other real-time signals. This sub-section describes how a traditional media routing system may be implemented by an IP network.

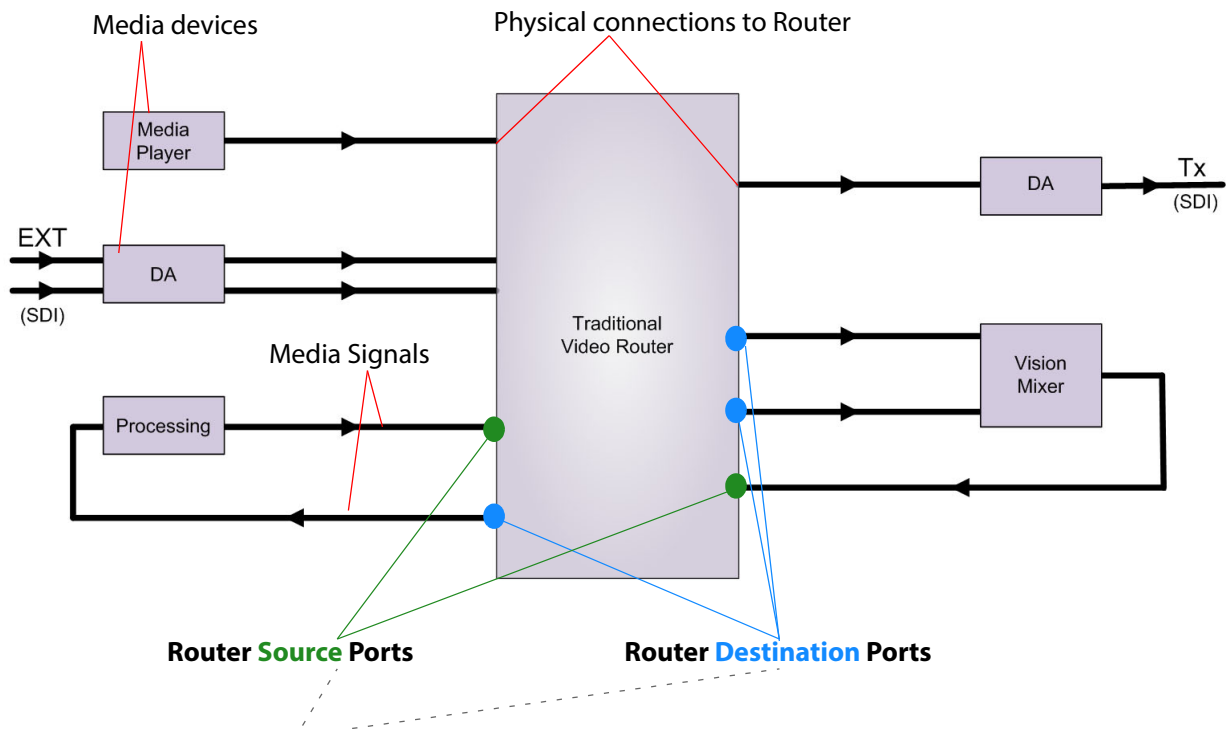
The sub-section describes a small traditional video router example, the routing of traditional video signals and how this is realized with an IP routing system. Diagrams depict how a traditional media routing system can be implemented by an IP network. The same principles extend to other real-time media routing systems, for example to an audio router.

In our example, a 'logical' traditional router (i.e. the routing facilities of a traditional video or audio router) is formed from an IP network system.

Some terms used for 'Orbit for IP Routing' are depicted in diagrams below.

1.3.1 Basic Media Routing System Schematic

Figure 3 shows an example basic system based around a *traditional* router with source and destination ports.



Note: There is a one-to-one mapping between ports and physical connections.

Figure 1 Example: Basic System Schematic

The system diagram shows a traditional router connected to various devices. Signals are routed and signals may contain video, and/or audio and/or metadata.

The devices present in this example are:

- Media player.
- Distribution amplifiers (DAs) - for example, to handle external SDI video signals.
- Processing - for example, a video standards converter or a frame synchronizer.
- Vision mixer.

In the following sub-sections an IP implementation is described to implement the overall routing functionality of Figure 1.

1.3.2 IP Network System

Figure 2 shows a simple example IP network system using an IP Network Switch to implement the overall routing functionality outlined in sub-section 1.3.1. The media devices shown correspond to devices of Figure 1.

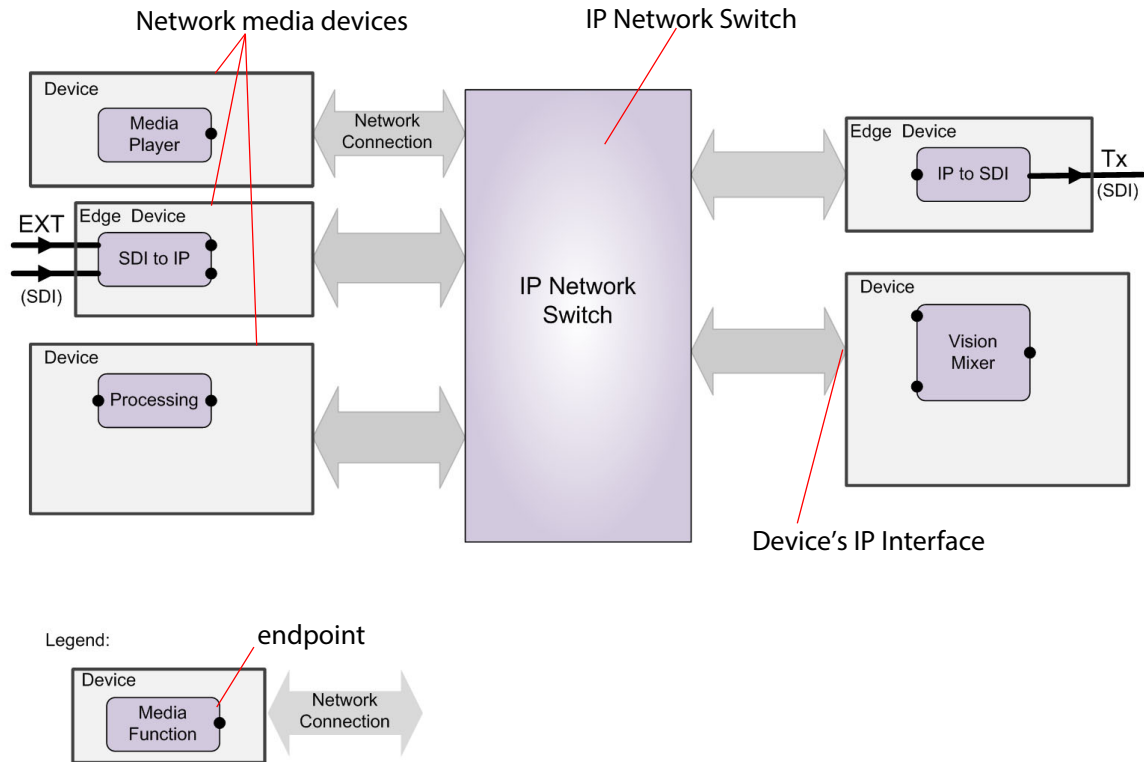


Figure 2 Example IP Routing Network

Devices are either sources of or destinations for IP streams, or both. This must be set up independently of Orbit for IP Routing; it is set up as part of the configuration step for each device and also includes IP addresses for each of the device's IP network ports. (Refer to the specific documentation for each device for this setting up.)

In a Grass Valley IP routing system supporting RollCall+, 'Orbit for IP Routing' automatically discovers devices connected to the network. The resulting list of devices is presented to the user.

1.3.3 IP Network System and IP Streams

Figure 3 shows IP streams added to the network diagram of Figure 2 which are shown superimposed on the network connections. The IP streams form the signals that are routed.

For the signal connections of Figure 1, for example, Figure 3 shows each IP stream going to either a notional **Router Source Port** or coming from a notional **Router Destination Port**.

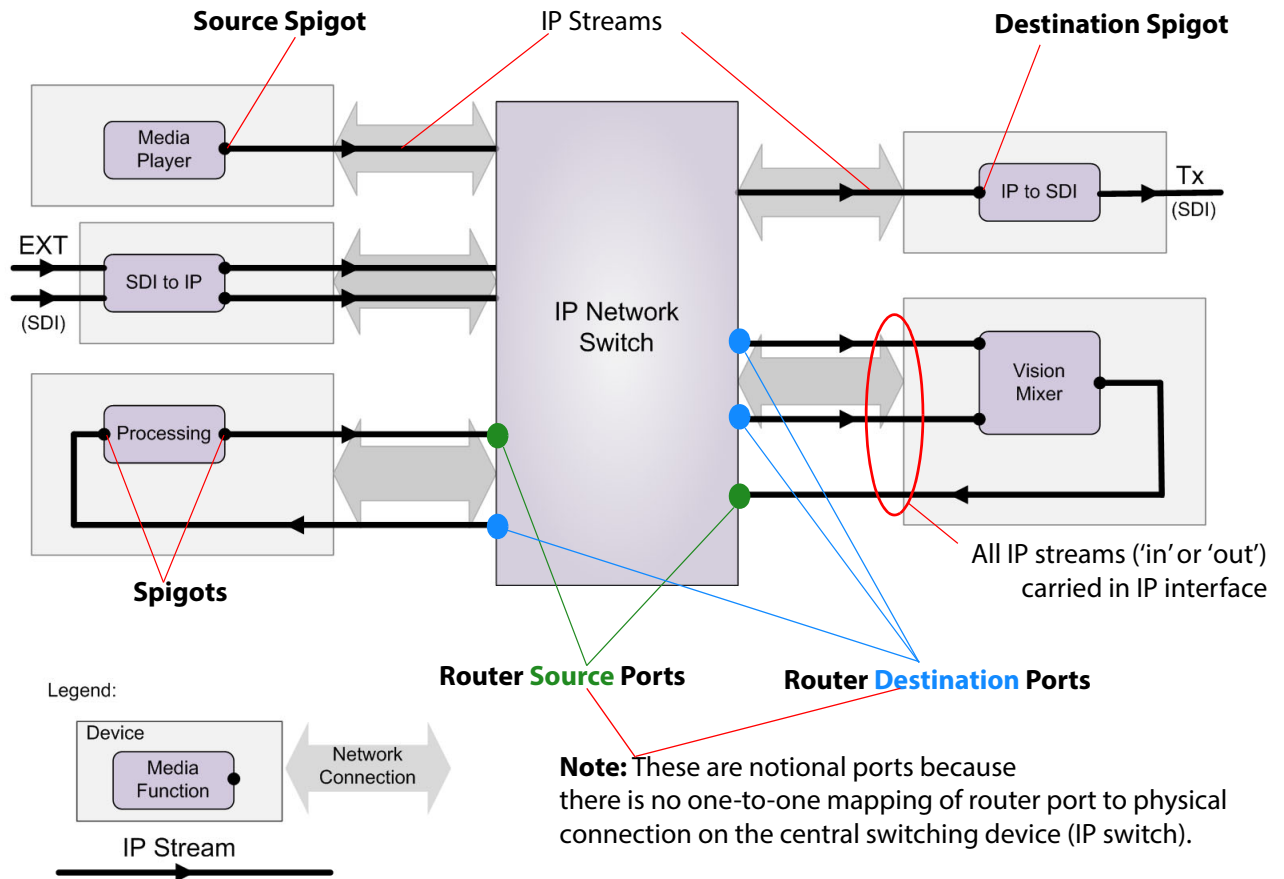


Figure 3 Example: IP Routing - IP Streams

1.3.4 IP Flows

IP streams may be composed of one or more 'sub-signals' known as IP flows. (For example, for video signals, there might be one IP flow - SMPTE 2022-6 uses a single IP flow - or there might be three IP flows - SMPTE 2110 has a video, an audio and a metadata flow.)

Devices are consumers of or providers of "flows".

In a Grass Valley IP routing system supporting RollCall+, the capabilities of the devices in the network determine the types of real-time data flows that may be routed.

Note: IP flows used in a Grass Valley IP routing system:

- are sent as RTP multicast IP data packets;
- are identified by their group IP addresses and (optionally) their source IP addresses; and
- can optionally use the source-specific multicast (SSM) method.

Flow data is:

- sent out from a device’s source spigot to a port on the IP network switch;
- routed through the IP network switch; and
- sent out from an IP network switch port to a destination spigot on a device.

See Figure 4.

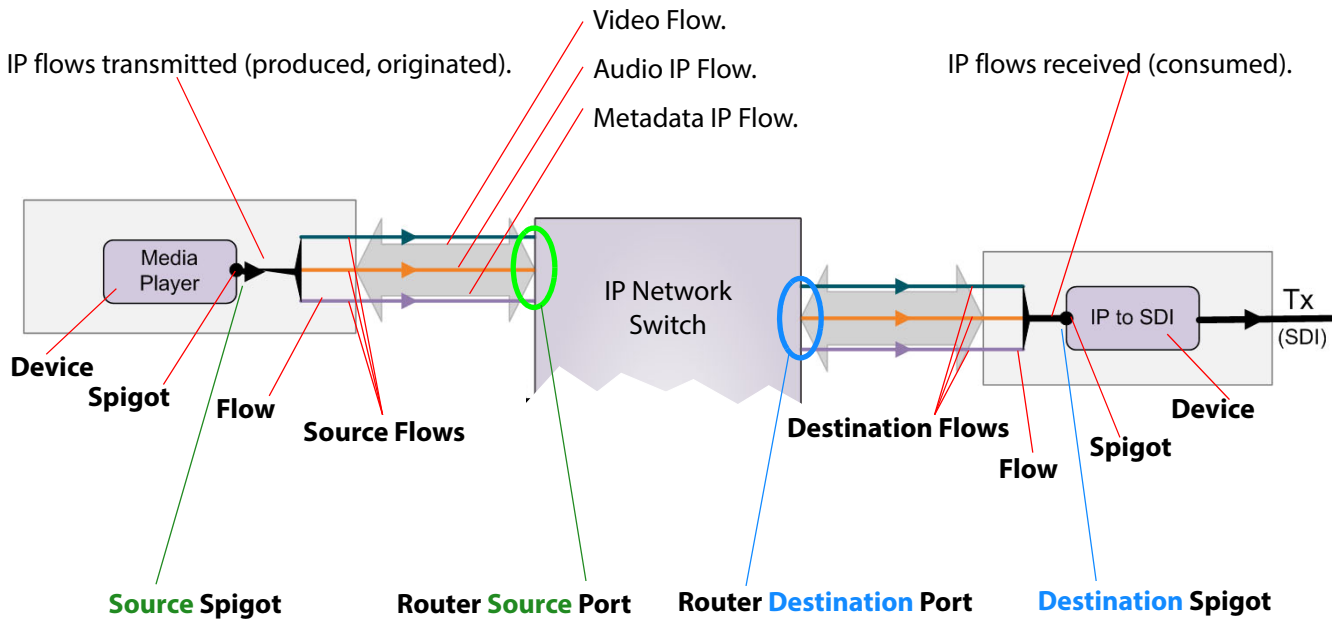


Figure 4 Example IP Flows in a System

1.3.5 IP Routing Redundancy - Fabric A and Fabric B

Orbit for IP Routing supports network redundancy. Two independent IP networks may be used for routing redundancy. These two media networks are referred to as 'fabric A' and 'fabric B'.

Within a device, a source flow is split into identical source flows, A and B. These are sent from the same source spigot and onto different networks (fabrics A and B). The flows travel independently through their respective networks. Both flow A and flow B arrive at the destination spigot of the destination device. The original IP signal is then re-formed from the data packets from fabric A or fabric B.

Devices must connect to both fabrics and Orbit must also connect to both fabrics.

1.3.6 Routing Control - Traditional Router Example

A Grass Valley traditional router is controlled from hard or soft control panels via one or two router controller(s). See Figure 5.

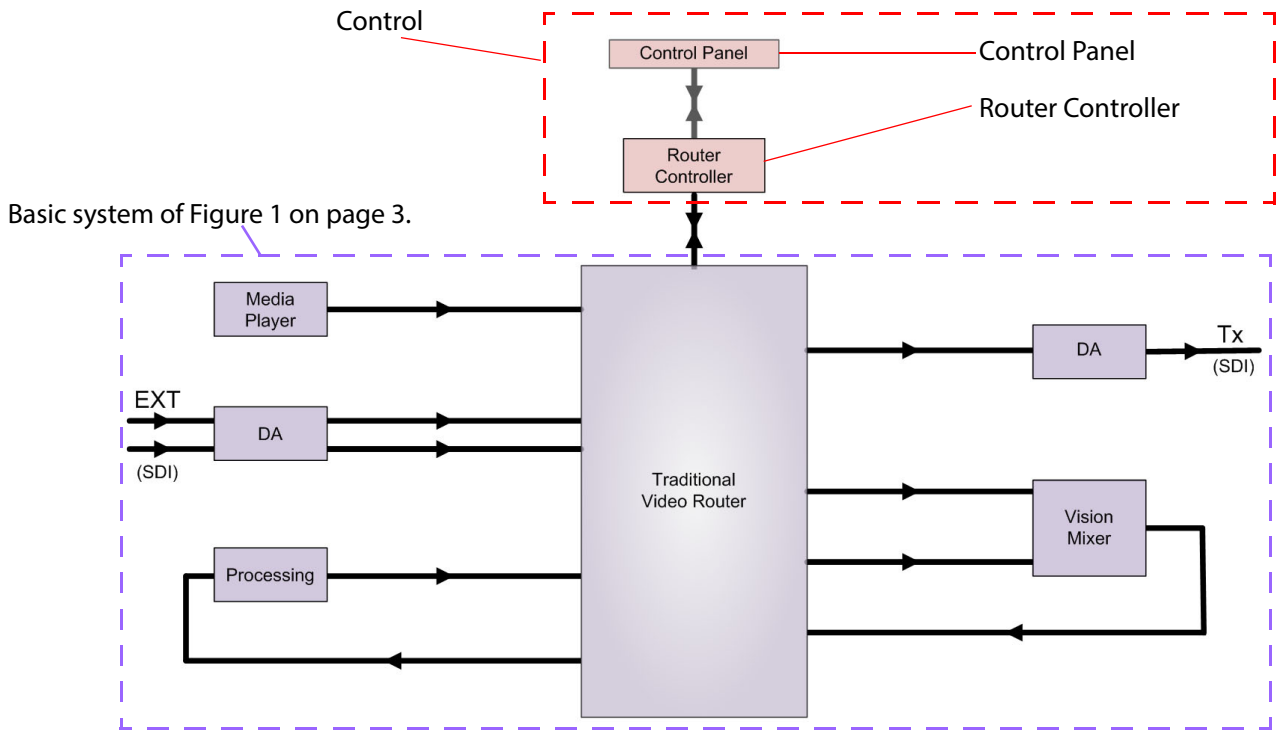


Figure 5 Control for a Basic Traditional System

A Grass Valley IP routing system has the same control topology but uses a Grass Valley IP routing system controller (IP-RSC server) as the router controller. See Figure 6.

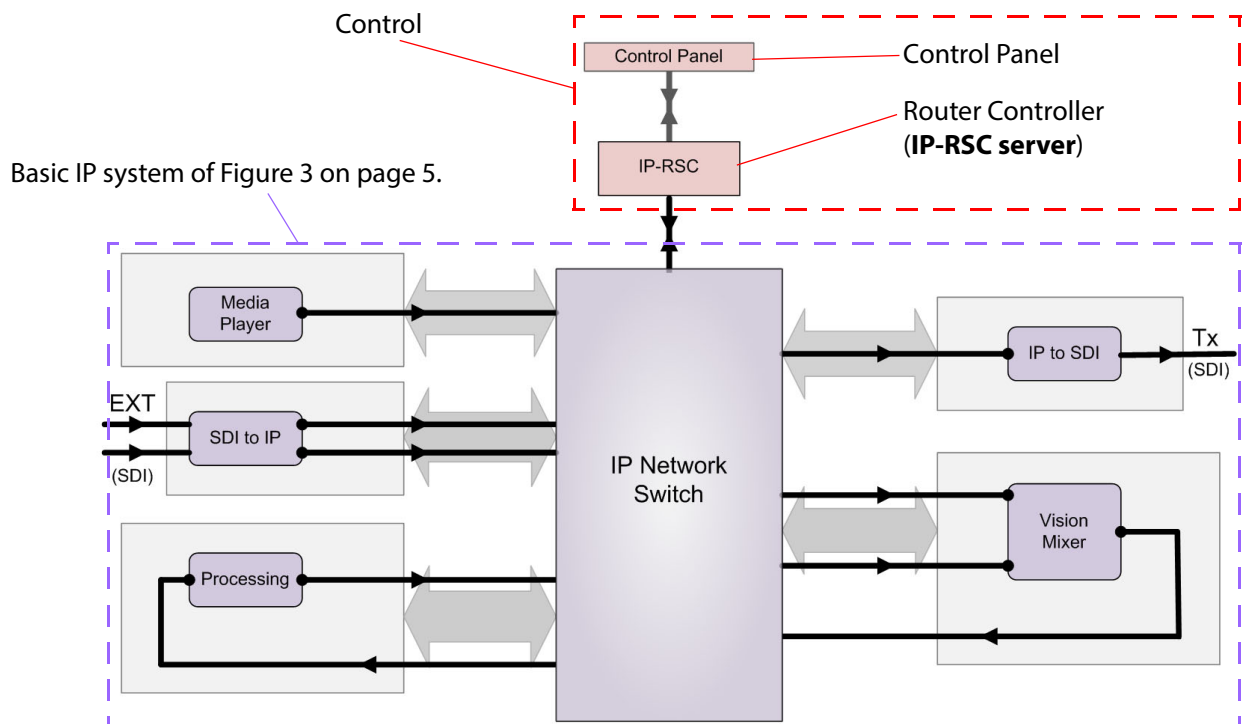


Figure 6 Control for a Grass Valley IP Routing System

In the case of a traditional routing system, the Orbit for IP Routing application is used to:

- Assign traditional router port numbers to the spigots used by the multicast IP flows.
- Set traditional router port names.

With traditional router ports assigned, “SDI-like” port number/name information will appear on external routing control panels etc that are connected to the routing system’s router controller (IP-RSC server).

An IP-RSC server effects routing control and is ideal for large-scale deployments. It also stores some details about the IP routing system, including the list of device names on the system and the traditional router port names and port number allocation (source and destination). ‘Orbit for IP Routing’ reads this information.

A spreadsheet import/export facility in ‘Orbit for IP Routing’ provides a convenient way of saving and defining the IP endpoint settings (such as device names and multicast addresses), automating data entry and saving system settings.

Alternatively, a third party control system may be used via a Grass Valley IQTIC card and an SDP protocol.

1.3.7 Routing and Switching at Destination

A traditional router switches source signals going to a destination. A Grass Valley IP routing system can do the same. In a Grass Valley IP routing system, switching is done *at the destination spigot*. This means that switching can be asynchronous to the underlying network fabric and the network system does not have to be media-aware.

Switching is done from a current IP flow to a new IP flow in a ‘Break before Make’ or in a ‘Make before Break’ way:

- **Break before Make** (BbM): The current IP flow is dropped and then a connection is made to a new IP flow.
- **Make before Break** (MbB): While connection to a new IP flow is being made, extra connection bandwidth is momentarily required. The current IP flow is then dropped once the new connection is made.

Note: For each device, ‘Break before Make’ or ‘Make before Break’ is set up on a ‘per destination spigot’ basis as part of the set up of each device (i.e. this is *not* set up in Orbit):

Grass Valley IP devices derive timing information from the IP network for switching between signals. For example, switching is done on video frame boundaries and a Grass Valley device’s destination spigot will switch and can provide a continuous video signal input to the device:

- BbM: “repeat current video frame”.
- MbB: video simply cuts from the current to a new video signal.

1.4 What the 'Orbit for IP Routing' Application Does

1.4.1 Device Discovery

The Orbit for IP Routing application auto-discovers devices on the network. A device must either:

- Support the Grass Valley IP Routing Control API.

For example, Grass Valley Kahuna, Kula IP, MV-820-IP, MV-805-IP, Audio Live and IQUCP25 modular card.

or

- Have a specific driver.

For example, Grass Valley camera, Harmonic SpectrumX and Harmonic Electra.

or

- Support the SDC-01 protocol.

Furthermore, devices can be assigned to domains (RollCall+ domains) which are independent of any VLAN that may be set up on the IP network switch. Domains allow devices to be segregated, if required. Orbit for IP Routing configures devices on a single domain. Thus, to be discovered, all devices must also:

- Be a member of the same RollCall+ domain.

1.4.2 Device Information

The Orbit for IP Routing application reads and displays information from each device. The information includes source and destination spigots, and IP flow configuration and routing status.

1.4.3 Device IP Routing Configuration

The Orbit for IP Routing application enables fast, easy and reliable configuration of IP routing endpoint parameters relating to the devices.

Orbit for IP Routing used to:

- Configure all IP flows sourced by the devices.
- Assign (traditional) router port numbers to the spigots used by the flows. (Source spigots and destination spigots.)
- Set (traditional) router port names.

Once a source flow within a Grass Valley device has been configured with multicast parameters, it starts to send IP flow data to the IP network switch.

Note: The Orbit for IP Routing application talks to the devices to do its configuring and monitoring.

1.5 Orbit Network Configurations

Each Orbit network configuration must be connected to one or more IP networks in Orbit, via one or more network interfaces of the hosting client PC. An Orbit network configuration configures and monitors only the devices that it can see on the network(s) it is connected to (i.e. only devices on the same network(s) and on the same RollCall+ domain).

One Orbit IP routing project may comprise one or more Orbit network configurations.

To configure and monitor two different IP routing systems using two network configurations, devices would need to be differentiated by either:

- Being on separate networks.
(Requires two separate IP networks and Orbit's host PC to have separate network connection to each IP network. Each network design is then connected to one IP network.)
- Being on separate RollCall+ Domains.
(This may use one IP network. It requires devices to be set up in one of two RollCall+ domains.)

1.6 Operating the IP Router

To operate the IP router:

1. Make (traditional) routes via Grass Valley hard or soft RollCall router control panels in the usual way for a (traditional) router.

While the IP router is operating and continues to operate:

- Orbit can be run with the IP routing project open.
- The Orbit IP routing project can be closed and the Orbit application can be closed.
- If the PC hosting the Orbit software is running no other Grass Valley applications, then it too may be shut down. And disconnected from the network.

These things are not integral to router *operation*.

If Orbit is re-started and the IP routing project is re-opened, then Orbit will auto-discover the devices and gather all the information it needs. Orbit will present all of the IP Routing project screens as usual.

With Orbit, IP flow routing and IP connection bandwidths can be monitored, and any required IP routing configuration changes made.

1.7 SDP Support

Within a Grass Valley IP routing system, Grass Valley devices advertise their media streaming capabilities via the RollCall+ protocol. The IP routing system controller uses all this streaming capability information when setting up routes in the routing system:

- A Grass Valley IP routing system controller (IP-RSC server) uses this information directly.
- A third-party routing system controller can be given this information using the session description protocol (SDP) standard.

Orbit is able to generate this media streaming capability information in SDP format.

1.8 Device Proxy Support

The **Device Proxy** feature of Orbit enables the properties of a device to be exported from one IP network and imported for use in some remote IP network.

Device Proxy is a Grass Valley application which can use information from more than one Orbit client. The proxy represents other system devices and provides their IP routing configuration information to a local 'Orbit for IP Routing'. This enables the 'Orbit for IP Routing' application in one sub-system to know information about devices in other sub-systems.

'Orbit for IP Routing' provides support for the Grass Valley **Device Proxy** application.

1.8.1 Example 1: Tie-Line

Two IP routing network systems may normally operate as separate entities: In order to allow a route to be made between the two systems, one IP routing control system needs to know information about a device in the other system. (It needs to know a remote device's source IP address and multicast IP address etc.)

A static route (tie-line in traditional SDI terms) could be made between the two systems using Orbit's support for **Device Proxy**. (Configuration of static routes in IP network switches is outside the scope of this user manual.)

1.8.2 Example 2: Remote Monitoring

Some IP routing system implementations may comprise two or more 'semi-isolated' sub-systems, where only certain IP traffic is allowed between sub-systems. If IP routing is required between sub-systems, IP traffic restrictions may prevent Orbit from discovering all system devices. In these cases, in a Grass Valley IP routing system, the Grass Valley **Device Proxy** application may be deployed on the Grass Valley IP routing system controller (IP-RSC server).

2

2 'Orbit IP Routing' Project Home Screen

'Orbit IP Routing' Project Home Screen	
2.1 Network Configurations	12
2.1.1 Create a New Network Configuration Item (via Networks Icon)	13
2.1.2 Create a New Network Configuration Item (via the Project View)	16
2.1.3 Open an Existing Network Configuration Item (via Networks icon)	16
2.1.4 Open an Existing Network Configuration Item (via Project View)	17
2.2 Load Control Screen (RollCall Template Viewed in Orbit)	18

2.1 Network Configurations

Orbit for IP Routing uses Orbit IP Routing projects to configure an IP network system. Each project may contain one or more network configurations (referred to as “**Networks**” in Orbit). Each Orbit network configuration can implement a routing system (for example, a video routing system).

Each Orbit network configuration is edited within Orbit’s **Network Configuration Editor** when an IP Routing Orbit project is open.

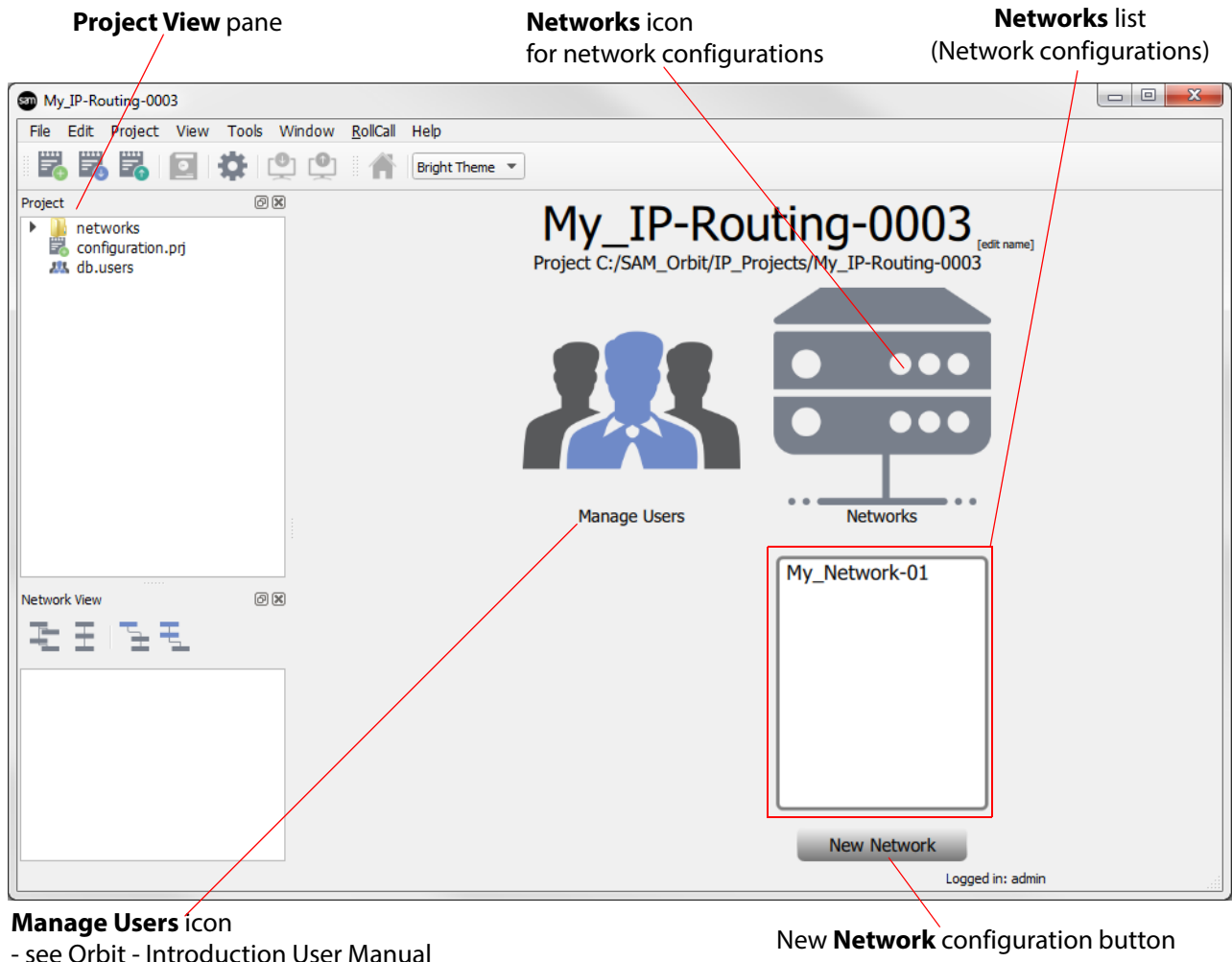


Figure 7 Orbit IP Routing Project Home Screen

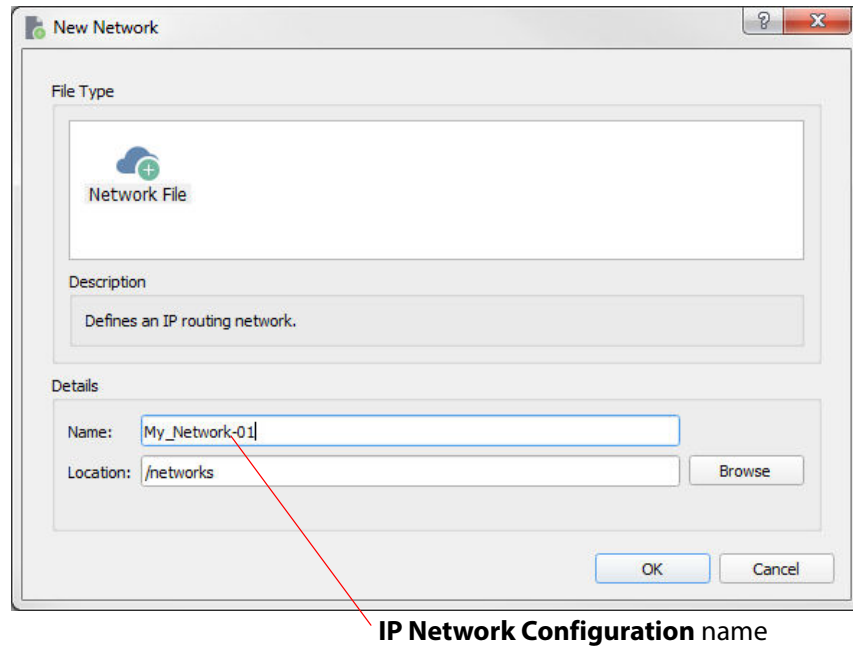
The **Network Configuration Editor** can be accessed in different ways, using:

- **Networks** icon:
See Section 2.1.1 [Create a New Network Configuration Item \(via Networks Icon\)](#) on page 13, and see Section 2.1.3 [Open an Existing Network Configuration Item \(via Networks icon\)](#) on page 16.
- **Project View** pane:
See Section 2.1.2 [Create a New Network Configuration Item \(via the Project View\)](#) on page 16 and see Section 2.1.4 [Open an Existing Network Configuration Item \(via Project View\)](#) on page 17.

2.1.1 Create a New Network Configuration Item (via Networks Icon)

To create a new IP network configuration item:

1. In a Orbit for IP Routing **Project Home** screen, click on the **Networks** icon.
2. Click on the **New Network** button, located below the **Networks List**. A **New Network** dialog appears. See Figure 8.



IP Network Configuration name

Figure 8 New Network Dialog

3. Enter a short title for the new IP network configuration in the **Name** text box.
Orbit for IP Routing stores all Orbit network configuration information in a file of this name with a '.net' extension.
The file name will then appear in the **Project View**, under the '**networks**' item.
4. The **Location** text box shows the location of the network configuration file within in the Orbit for IP Routing project, i.e. in the '**networks**' sub-folder with a '.net' file extension.
Do *not* change this location.
5. Click **OK** (or click **Cancel** to return to the Orbit project screen).
A new **Network Configuration Editor** screen is displayed, see Figure 9.
A new, blank network configuration has been created and **Network** properties are shown on the right-hand side.

Note: All information relating to an IP network configuration is stored within the Orbit project in a file with a '.net' suffix.

Note: Do not change the 'Location' of the network configuration files.

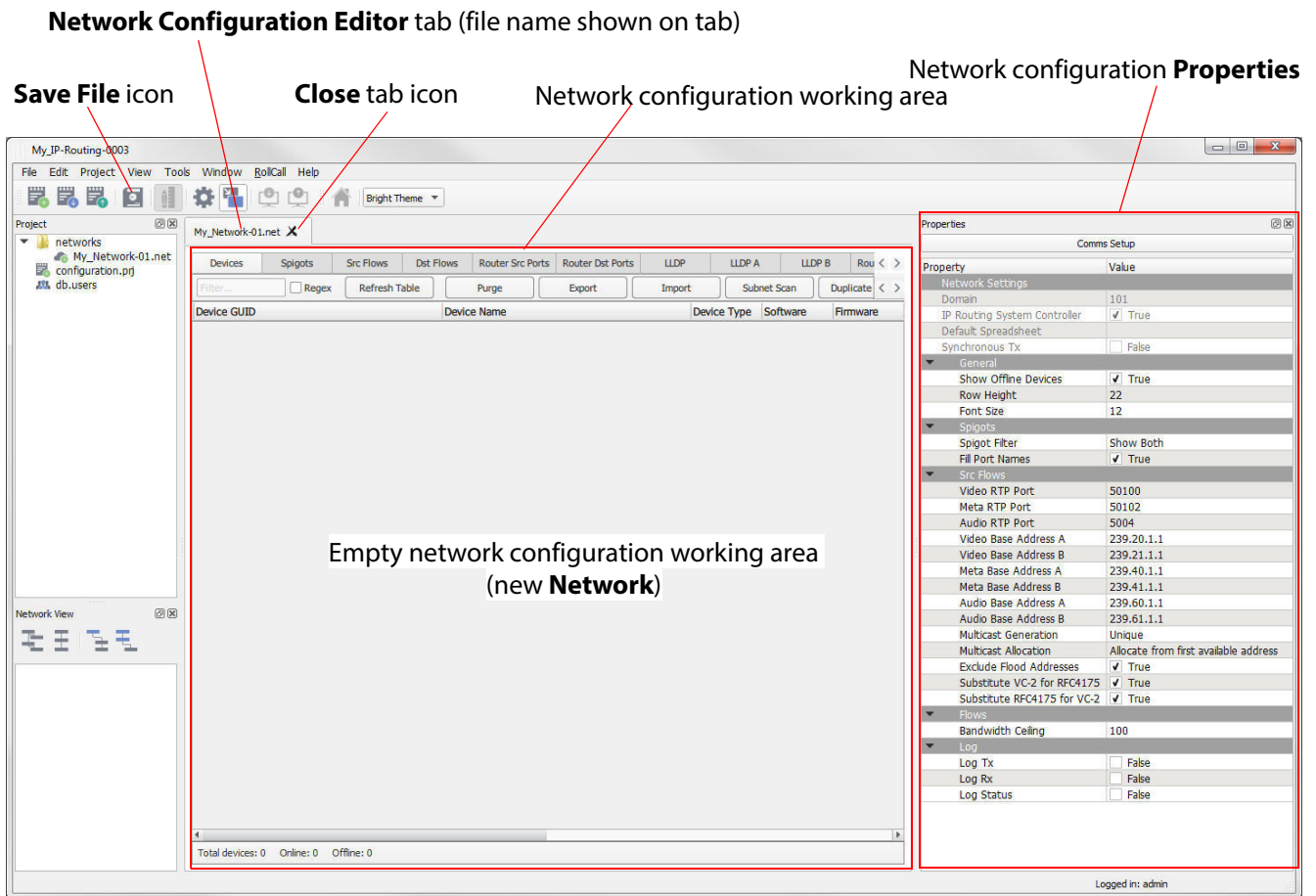


Figure 9 Network Configuration Editor Screen (New Network Configuration)

- Click the **Save File** icon in the main tool bar to save changes in the tab.
- Click **Close** tab icon to close the **Network Configuration Editor** tab.
(If changes have been made in the tab, a dialog prompt is shown, asking to save any changes made.)
- Click **File > Save Project** to save the whole Orbit project.

A new, blank network configuration (Orbit **Network**) has now been created.

Note: A Orbit project may contain more than one network configuration.

2.1.2 Create a New Network Configuration Item (via the Project View)

The **Project View** is a useful way of opening various project design information files, including network configurations.

Note:

CAUTION

Do not edit nor delete Orbit project design information files outside the Orbit for IP Routing application.

In the **Project View**:

1. Right-click on the '**networks**' sub-folder item in the **Project View**. A selection menu appears. See Figure 10.

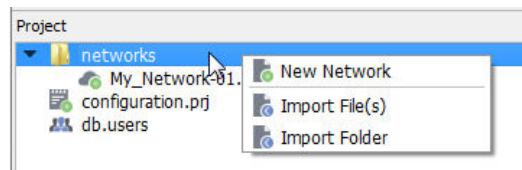


Figure 10 New Network via the Project View

2. Click **New Network**. The **New Network** dialog appears (see Figure 8 on page 14).
3. Proceed as described in Section 2.1.1 [Create a New Network Configuration Item \(via Networks Icon\)](#) on page 13 to create a new, blank network configuration.

2.1.3 Open an Existing Network Configuration Item (via Networks icon)

1. In a Orbit **Project Home** screen, click the **Networks** icon. A list of network configurations appears below the icon. See Figure 11.

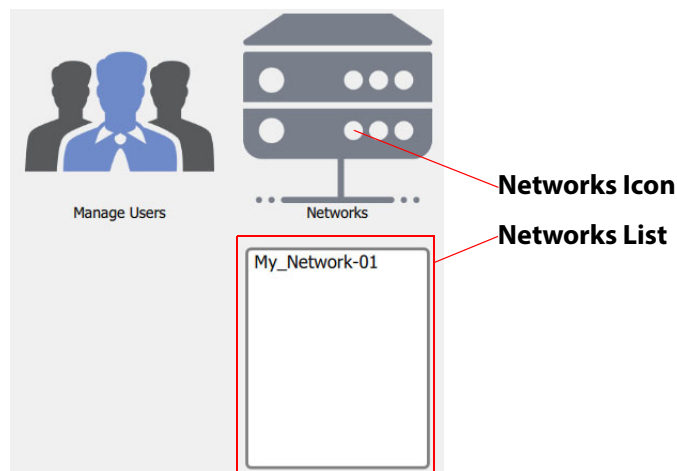


Figure 11 Orbit Project Screen with Networks Icon

2. In the **Networks List**, click on the network configuration name to be opened. The **Network Configuration Editor** screen tab is displayed.

The existing network configuration has been opened.

Note:

For a new project, the list of networks will be empty.

2.1.4 Open an Existing Network Configuration Item (via Project View)

The **Project View** is a useful way of opening various project design information files, including network configurations. A file with the network configuration name and a “.net” suffix appears in the Orbit for IP Routing’s **Project View** in the ‘networks’ folder.



CAUTION

Do not edit nor delete Orbit project design information files outside the Orbit for IP Routing application.

1. In a Orbit **Project Home** screen, expand the **Project View** items to see the contents of the ‘networks’ sub-folder item. See Figure 12.

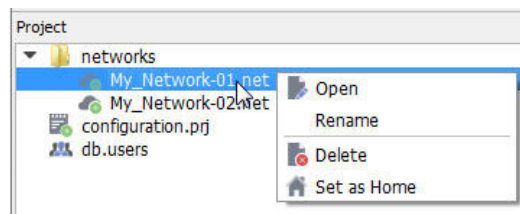


Figure 12 Network Configurations via the Project View

2. Locate the network configuration file for an existing **Network** (the file name ends in ‘.net’).
And select the ‘.net’ file name in the **Project View**
3. Then either:
 - a Right-click on the file name to reveal a drop-down menu; then click **Open** in the menu. See Figure 12.
The network configuration is opened in the **Network Configuration Editor**.
 - Or:
 - b Double-click on the file name.
The network configuration is opened in the **Network Configuration Editor**.



CAUTION

Only use the **Project View** when you are familiar with the Orbit for IP Routing tool because it is possible to rename or delete a project file via the **Project View**.

2.2 Load Control Screen (RollCall Template Viewed in Orbit)

A device's RollCall templates may be displayed and settings changed via Orbit (similarly via Grass Valley's RollCall Control Panel). In Orbit, this can be done:

- via the **RollCall -> Open Template from IP** main menu item, see Figure 13a;
- or by right-clicking at various places in Orbit when an IP routing project is open and clicking **Load Control Screen**, see Figure 13b.

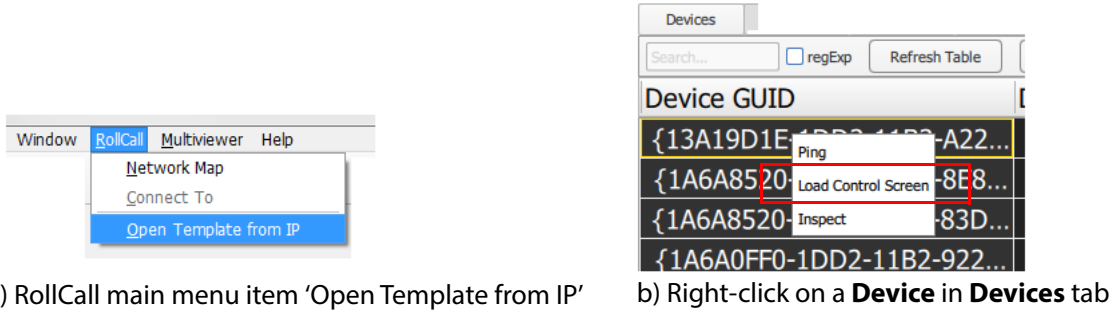


Figure 13 Accessing a device's RollCall Templates in Orbit:
 a) via the RollCall main menu item.
 b) via a Right-click (Devices tab example shown).

Figure 14 shows an example RollCall control screen (template) displayed in Orbit.

New tab appears showing the loaded RollCall control screen of a selected device

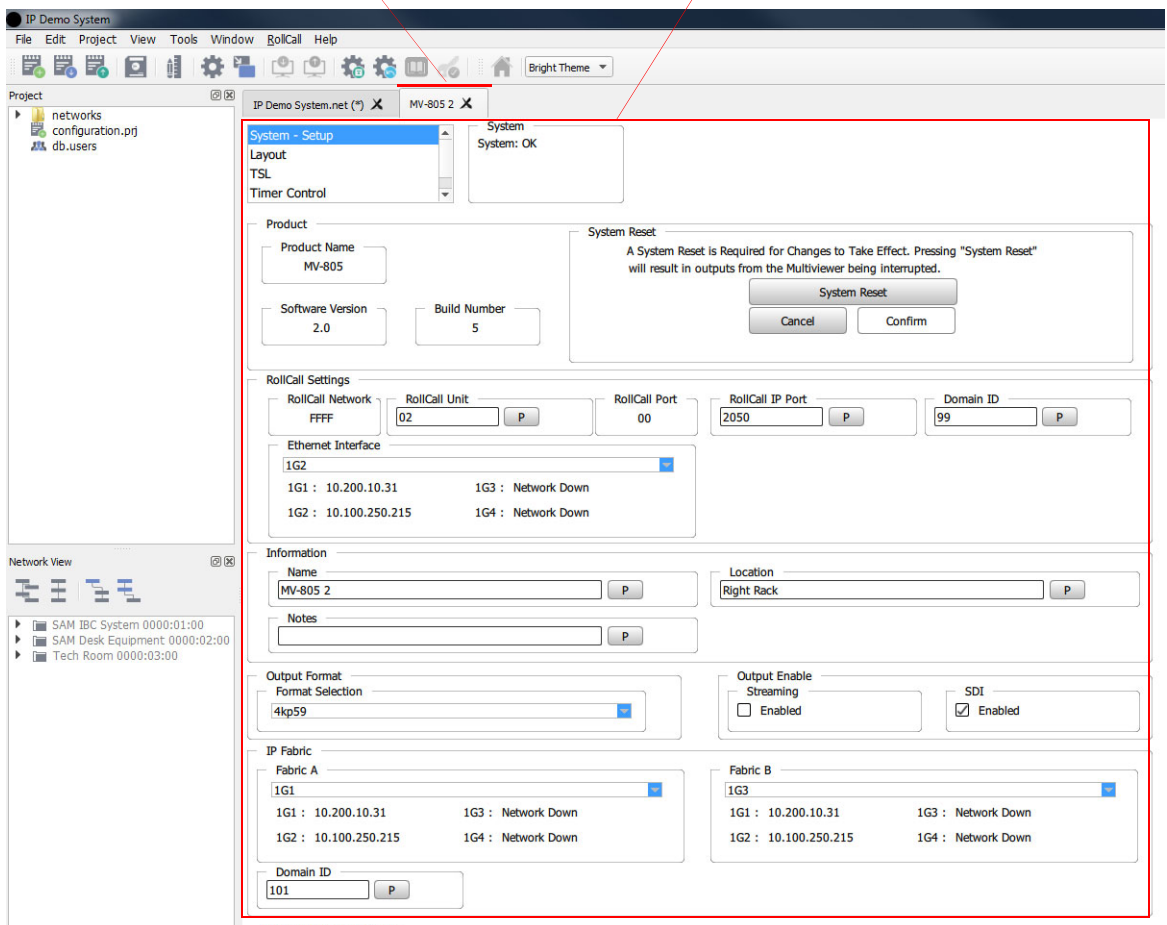


Figure 14 An Example Device RollCall Control Screen Loaded into Orbit

3

3 Network Configuration Editor Window

Network Configuration Editor Window	
3.1 Window Main Screen	20
3.2 Tabs	21
3.2.1 Forms of Tab Screens	22
3.3 Comms Setup Button	23
3.3.1 IP Routing System Controller	25
3.3.2 Default Spreadsheet	25
3.4 Properties List	27
3.5 Common Tabular Tab Screen Features	31
3.5.1 Editable Cells	32
3.5.2 Sorting Columns	32
3.5.3 Expanding and Collapsing Rows	33
3.5.4 Right-Click Pop-up Menus	34
3.6 Filter Tools	35
3.6.1 Device Filter Tool	35
3.6.2 Spigot Filter	38
3.7 Find Text	39

This section describes the main IP Routing **Network Configuration Editor** window for editing a network configuration in an Orbit IP Routing project.

3.1 Window Main Screen

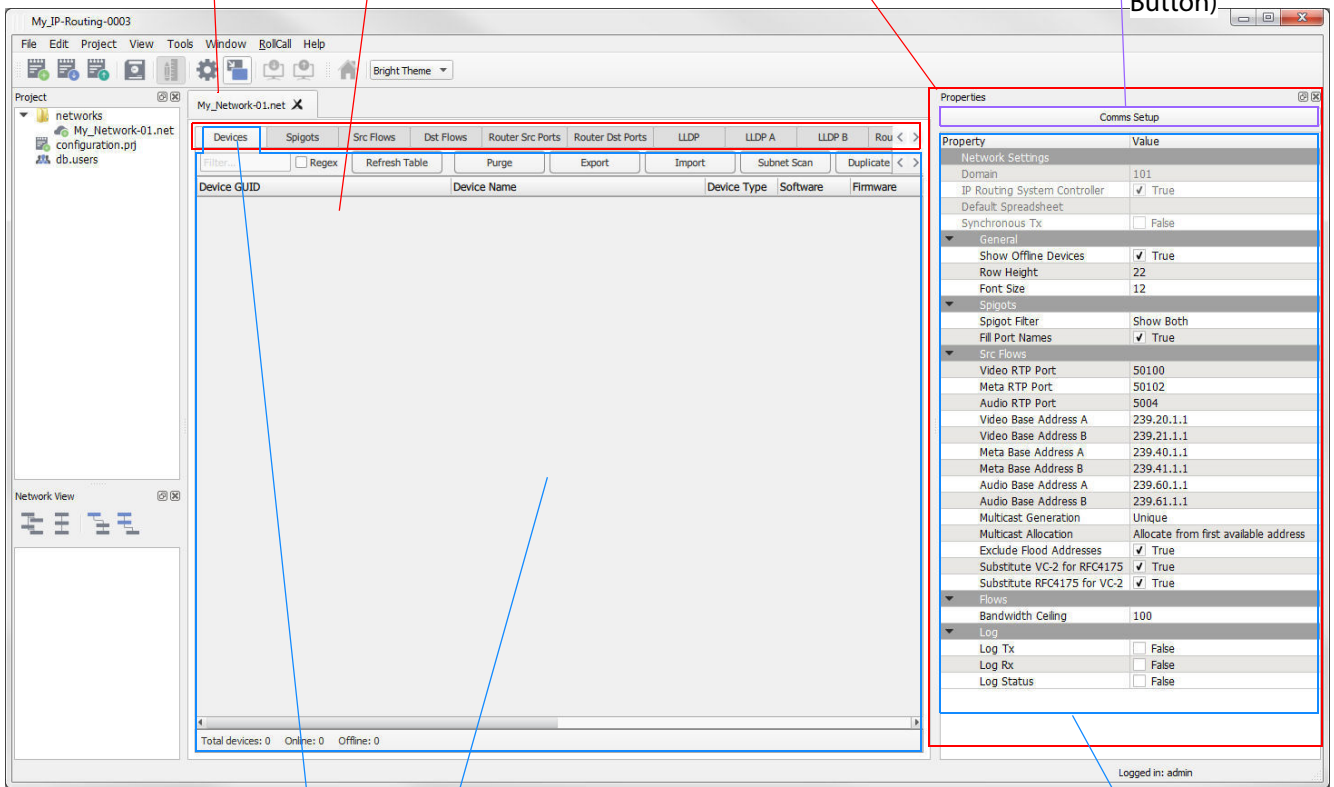
The **Network Configuration Editor** main screen contains a **Properties** section, with a **Comms Setup** button and several tab screens, see Figure 15.

Network Configuration Editor tab (file name shown on tab)

Network Configuration Editor **Tabs** (See Section 3.2 Tabs for general information) (See Section 4 Tabs - Devices Tab through to Section 13 Tabs - Log Tab for full information on each **Tab** screen.)

Properties box

Comms Setup button
(Section 3.3 Comms Setup Button)



Tab and its working area

Properties List
(Section 3.4 Properties List)

Figure 15 Network Configuration Editor Screen

3.2 Tabs

The Network Configuration Editor tabs are presented from left to right in the order in which they are used to configure an IP network system:

1. Configuration and information about:
 - a Devices.
 - b Spigots.
 - c Flows.
 - d Router ports.
2. Status and log information.

The form of the tab screen displayed depends on which tab is selected.

tabs and general tab screen layout are shown in Figure 16 and are listed in Table 2.

Network Configuration Editor tabs

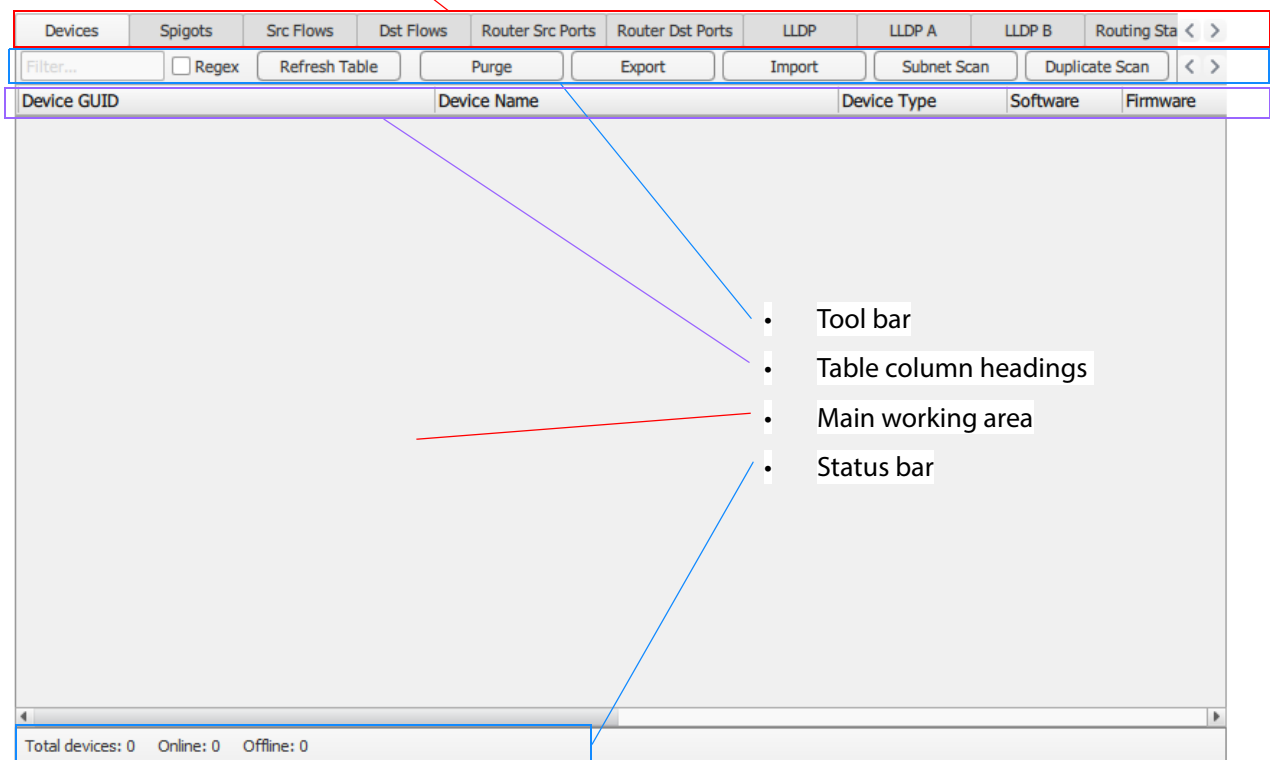


Figure 16 Network Configuration Editor Tabs (Devices Tab Selected)

Table 2 Network Configuration Editor Tabs and Links to Sub-Sections

Network Configuration Editor Tab	Description / Link to Tab Section
<div style="border: 1px solid black; padding: 2px; display: flex; justify-content: space-between;"> Devices Spigots Src Flows Dst Flows Router Src Ports Router Dst Ports LLDP LLDP A LLDP B Routing Status Bandwidth Status Log Router </div>	
Devices	Shows discovered devices. See Section 4 Tabs - Devices Tab on page 43.
Spigots	Connects spigots to router ports. See Section 5 Tabs - Spigots Tab on page 60.
Src Flows	Assigns multicast groups to source flows. See Section 6 Tabs - Source Flows (Src Flows) Tab on page 86.
Dst Flows	Assigns destination flows to multicast IP streams. See Section 7 Tabs - Destination Flows (Dst Flows) Tab on page 127.
Router Src Ports	Summarizes the router source ports. See Section 8 Tabs - Router Source Ports Tab on page 147.
Router Dst Ports	Summarizes the router destination ports. See Section 9 Tabs - Router Destination Ports Tab on page 154.
LLDP LLDP A LLDP B	Presents local link device information. See Section 10 Tabs - LLDP Tabs on page 160.
Routing Status	Graphical presentation of routing. See Section 11 Tabs - Routing Status Tab on page 166.
Bandwidth Status	Graphical presentation of device bandwidth usage. See Section 12 Tabs - Bandwidth Status Tab on page 189.
Log	Shows log messages. See Section 13 Tabs - Log Tab on page 198.

3.2.1 Forms of Tab Screens

The form of the tab screen depends on which tab is selected. There are tabular, schematic, graph and message log forms of tab screen. Specifics of each tab screen are covered in separate sections of this manual. See Table 2 on page 22.

Common tab screen items are covered in Section 3.5 [Common Tabular Tab Screen Features](#) on page 31.

3.3 Comms Setup Button

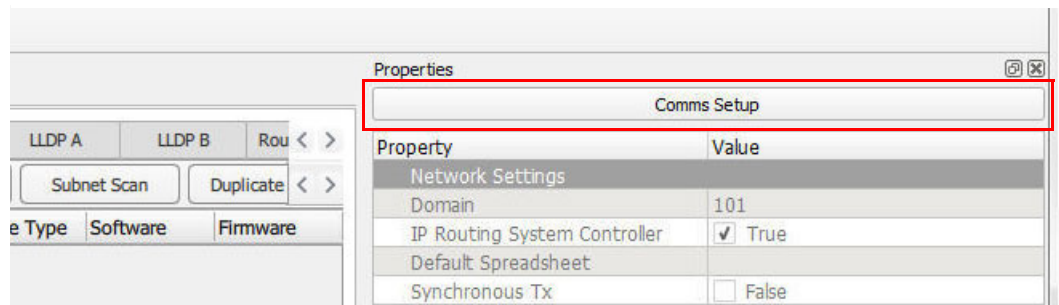
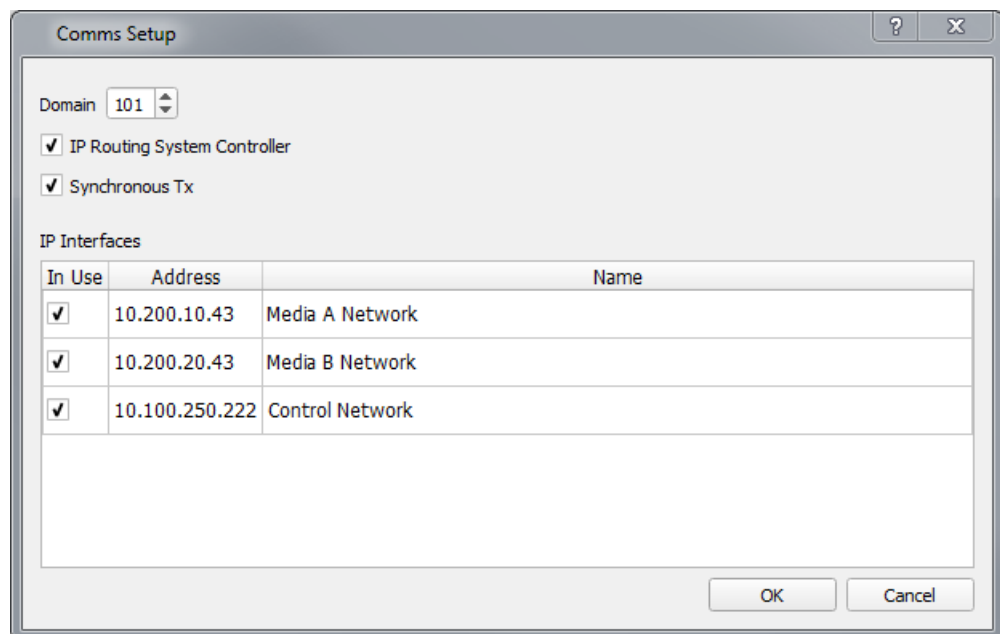


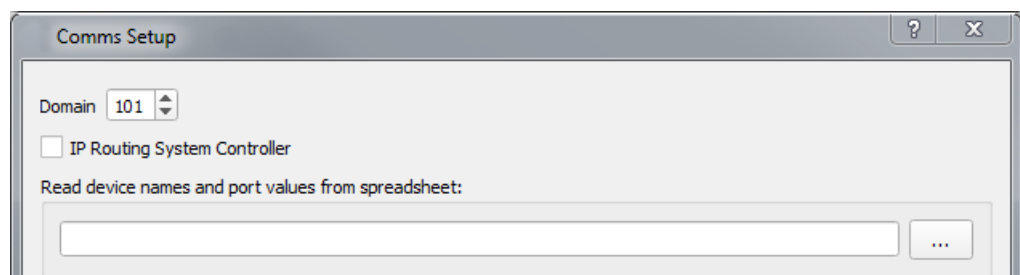
Figure 17 Comms Setup Button

Click the **Comms Setup** button to set up comms-related settings for the Orbit network configuration to use, including RollCall+ domain and the network interface(s) of the Orbit host computer. The Orbit network configuration will then only see devices on these networks and on the specified RollCall+ domain.

The Comms Setup dialog is shown in Figure 18a.



a) Comms Setup (with Grass Valley IP Routing System Controller, IP-RSC server)



b) Comms Setup (without Grass Valley IP Routing System Controller, IP-RSC server)

Figure 18 Comms Setup Dialog

Table 3 Comms Setup Dialog Items

Item	Description
Domain	<p>Text box and up/down control. Enter the RollCall+ domain ID for the Orbit Network Configuration to use.</p> <p>Valid Domain values: 1 to 232.</p> <p>The default value used: 101.</p> <p>Note: The Orbit network configuration will only see devices with this RollCall+ domain ID.</p>
IP Routing System Controller	<p>Check box.</p> <ul style="list-style-type: none"> • Select if a Grass Valley IP routing system controller (IP-RSC server) is used in the network system. (Recommended. Required for a Grass Valley video IP routing system.) • Deselect if no IP-RSC server is used or is available. <p>See Section 3.3.1 IP Routing System Controller on page 25 for information about IP-RSC and systems.</p> <p>Note: If there is no IP-RSC server and if the IP Routing System Controller check box is selected, then some Orbit operations will fail, when a tally is expected by Orbit from the IP-RSC server.</p>
	<p>Read device names and port values from spreadsheet: See Figure 18b.</p> <p>Text box. Click “...” and browse to the spreadsheet file.</p> <p>Enter the path name of a spreadsheet to use in the absence of a IP-RSC server. Use of a spreadsheet is optional. Orbit automatically loads device names and port assignments from the spreadsheet at startup.</p> <p>See Section 3.3.2 Default Spreadsheet on page 25 for information about this spreadsheet.</p>
Synchronous Tx	<p>Check box.</p> <ul style="list-style-type: none"> • Select to select Synchronous Tx: (Recommended). Synchronous transmission of settings via the RollCall+ protocol. • Deselect to select ‘Asynchronous Tx’: Asynchronous transmission of settings via the RollCall+ protocol. <p>Synchronous: Awaits a reply message for each setting etc. Slower, but certain of message delivery. The user can get a full report of what was sent.</p> <p>Asynchronous: Faster when carrying out many RollCall+ transactions but does not guarantee message delivery.</p> <p>Note: With Synchronous Tx deselected, there may be problems with device configuration under poor network conditions.</p>
IP Interfaces: In Use	<p>Table of network adapters on the host PC.</p> <p>Check box. Select to select the network adapter for the Orbit network configuration to use.</p> <p>Note: Select up to a maximum of four interfaces.</p>

Table 3 Comms Setup Dialog Items (Continued)

Item	Description
Address	(Read-only.) IP address of the network adapter.
Name	(Read-only.) Name of the network adapter on the host PC. This is the name that the host PC knows the adapter by, set up as part of the host PC settings.

The **Comms Setup** settings are reflected in the **'Network Settings'** properties at the top of the **Properties List**. See Figure 19.

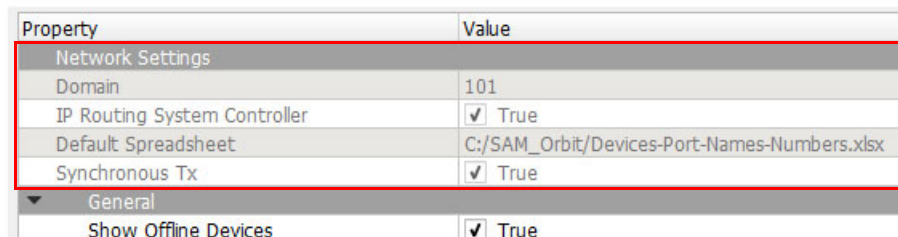


Figure 19 Comms Setup Settings in Properties List

3.3.1 IP Routing System Controller

In a Grass Valley IP routing system, the IP routing system controller (IP-RSC server) provides the mechanism for setting the routes of the signals. The IP-RSC also holds information about device names, router port names and assigned port numbers. This information is used by 'Orbit for IP Routing'. System values can be saved for archive purposes using an 'export to spreadsheet' facility.

'Orbit for IP Routing' is able to detect the presence of any on-line devices because they advertise themselves via RollCall+. Thus, on-line devices can be detected with or without an IP-RSC. In the absence of an IP-RSC, 'Orbit for IP Routing' can read system information from or save it to a spreadsheet.

The setting of device names and port values etc. continues to work in 'Orbit for IP Routing' without an IP-RSC; the values, however, will not persist (for example, after a system is re-powered) unless the setting values are imported from a spreadsheet.

3.3.2 Default Spreadsheet

Such a spreadsheet is specified in the **Comms Setup** dialog to automatically load IP endpoint information (e.g. device names and port assignments) at startup.

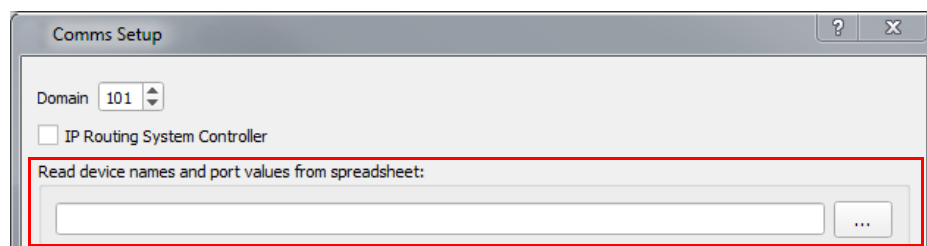


Figure 20 Specify Default Spreadsheet

This spreadsheet contains IP endpoint information (a list of devices and router port names/numbers, flows) for a video or for an audio IP routing system. Use of a default spreadsheet is optional.

The format of an 'exported' spreadsheet from a network configuration may be used. See Section 15 [Export / Import Settings](#) on page 233.

3.4 Properties List

The **Network Configuration Editor's Properties List** shows properties that are applied to the current Orbit network configuration. See Figure 21.

Note: Some of these settings may be set or overridden through other dialogs during operation of Orbit.

Property	Value
Network Settings	
Domain	101
IP Routing System Controller	<input checked="" type="checkbox"/> True
Default Spreadsheet	C:/SAM_Orbit/Devices-Port-Names-Nu...
Synchronous Tx	<input checked="" type="checkbox"/> True
General	
Show Offline Devices	<input checked="" type="checkbox"/> True
Row Height	22
Font Size	12
Devices	
Connection Scan	Manual Scan
Auto Interval	5
Manual Expiry	5
Spigots	
Spigot Filter	Show Both
Show Device Proxy	<input type="checkbox"/> False
Flows	
Spigot Filter	Show Assigned Only
Src Flows	
Video RTP Port	50100
Meta RTP Port	50102
Audio RTP Port	5004
Video Base Address A	239.20.1.1
Video Base Address B	239.21.1.1
Meta Base Address A	239.40.1.1
Meta Base Address B	239.41.1.1
Audio Base Address A	239.60.1.1
Audio Base Address B	239.61.1.1
Multicast Generation	Unique
Multicast Allocation	Allocate from first available address
Exclude Flood Addresses	<input checked="" type="checkbox"/> True
Bandwidth Ceiling	100
Bandwidth Checking	<input type="checkbox"/> False
Log	
Log Tx	<input type="checkbox"/> False
Log Rx	<input type="checkbox"/> False
Log Status	<input type="checkbox"/> False

Figure 21 Network Configuration Properties List (Example)

Note: Some of these Orbit network configuration properties can also be set via controls on Network Configuration Editor tabs.

Table 4 Network Configuration Editor Properties

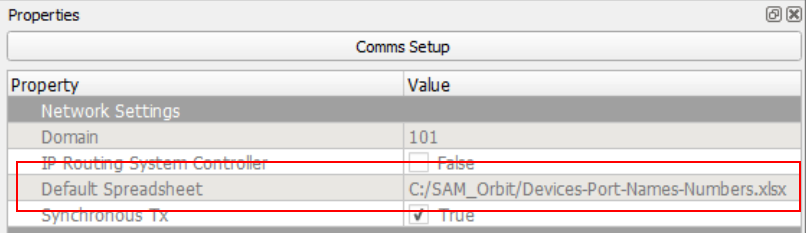
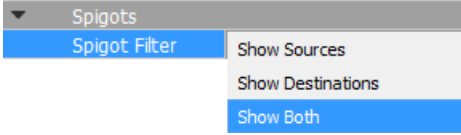
Property	Description
<p>Network Settings:</p> <p>Domain</p> <p>IP Routing System Controller</p> <p>Default Spreadsheet</p> <p>Synchronous Tx</p>	<p>Note: Settings from the Comms Setup button are shown here (read-only).</p> <p>Text. Read-only. RollCall+ domain ID being used by the network configuration.</p> <p>Check box. Read-only. True if system is using a Grass Valley IP routing system controller (IP-RSC server).</p> <p>Text. Read-only. Path name of spreadsheet file used by the network configuration when no IP-RSC is present in the IP network system.</p>  <p>Check box. Read-only. True if network configuration is using Synchronous Tx mode.</p>
<p>General:</p> <p>Show Offline Devices</p> <p>Row Height</p> <p>Font Size</p>	<p>Check box. Select to show (in tabs) devices that are off-line.</p> <p>Value. Row height of table-format tab working area screens.</p> <p>Value. Font size used in table-format tab screens.</p>
<p>Devices:</p> <p>Connection Scan</p> <p>Auto Interval</p> <p>Manual Expiry</p>	<p>Drop-down box. Select Auto Scan or Manual Scan of the devices on the selected networks.</p> <p>Value. (Seconds) Enter the time between each automatic connection scan.</p> <p>Value.(Seconds) Enter the time after which connection scan results expire.</p>
<p>Spigots:</p> <p>Spigot Filter</p>	<p>Drop box. Select filtering to control the display of spigots in the Spigots tab.</p> 

Table 4 Network Configuration Editor Properties (Continued)

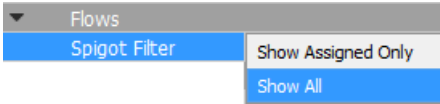
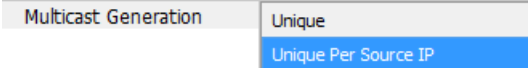
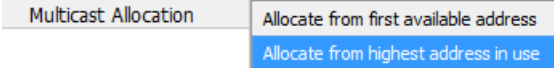
Property	Description
<p>Show Device Proxy</p>	<p>Check box. Select to show 'device proxy' items in the Spigots tab; these comprise an extra data column and several extra tool bar controls.</p> <p>The 'device proxy' items enable Orbit to support the Grass Vally Device Proxy application. Orbit can generate device information for and/or use device information from a proxy server.</p>
<p>Flows:</p> <p>Spigot Filter</p>	<p>Drop box. Select filtering to control the display of spigots in the Src Flows tab or Dst Flows tab.</p> <p>Select:</p> <ul style="list-style-type: none"> • Show All: Show all spigots. • Show Assigned Only: Show only spigots which have been assigned router ports. 
<p>Src Flows:</p> <p>Video RTP Port</p> <p>Meta RTP Port</p> <p>Audio RTP Port</p> <p>Video Base Address A</p> <p>Video Base Address B</p> <p>Meta Base Address A</p> <p>Meta Base Address B</p> <p>Audio Base Address A</p> <p>Audio Base Address B</p>	<p>Text box. Specify the IP port number for video RTP streams to use.</p> <p>Text box. Specify the IP port number for metadata RTP streams to use.</p> <p>Text box. Specify the IP port number for audio RTP streams to use.</p> <p>Text box. Specify the base IP address for video multicast IP streams of media fabric A.</p> <p>Text box. Specify the base IP address for video multicast IP streams of media fabric B.</p> <p>Text box. Specify the base IP address for metadata multicast IP streams of media fabric A.</p> <p>Text box. Specify the base IP address for metadata multicast IP streams of media fabric B.</p> <p>Text box. Specify the base IP address for audio multicast IP streams of media fabric A.</p> <p>Text box. Specify the base IP address for audio multicast IP streams of media fabric B.</p>

Table 4 Network Configuration Editor Properties (Continued)

Property	Description
Multicast Generation	<p>Drop box. Select multicast IP address generation mode:</p> <ul style="list-style-type: none"> • Unique - Each multicast IP address is unique. • Unique Per Source IP - The same base multicast IP address is used for different sources (source IP addresses). (This is possible because a multicast IP stream is fully-specified by its multicast IP address and source IP address.) 
Multicast Allocation	<p>Drop box. Select multicast IP address allocation mode.</p> <ul style="list-style-type: none"> • Allocate from first available address. • Allocate from highest address in use. 
Exclude Flood Addresses	<p>Check box. Select to exclude multicast addresses that may cause network layer 2 flooding.</p>
Bandwidth Ceiling	<p>Value. Set the percentage maximum working bandwidth limit on any IP link.</p>
Bandwidth Checking	<p>Check box. Select to prevent enabling of flows if bandwidth ceiling exceeded.</p>
Log:	
Log Tx	<p>Check box. Select to log transmitted packets.</p>
Log Rx	<p>Check box. Select to log received packets.</p>
Log Status	<p>Check box. Select to log status packets.</p>

3.5 Common Tabular Tab Screen Features

Many of the **Network Configuration Editor** screens have some similar features and are tabular in form; This includes the following **Network Configuration Editor** screens:

- Devices.
- Spigots.
- Source Flows.
- Destination Flows.
- Router Source Ports.
- Router Destination Ports.

The screenshot displays a software interface for network configuration. At the top, there are tabs for 'Devices', 'Spigots', 'Src Flows', 'Dst Flows', 'Router Src Ports', 'Router Dst Ports', 'Routing Status', 'Bandwidth Status', and 'Log'. Below the tabs is a search bar and several action buttons: 'regExp', 'Refresh Table', 'Assign Ports', 'Clear Ports', and 'Purge'. The main area is a table with the following columns: 'Port Name', 'Port Nur', 'Mode', 'Linkec', 'Flow Types A', 'Flow Types B', 'Format', 'Streaming', 'Priority', and 'Switch Mode'. The table is organized into three expandable sections: 'IQEDGE40', 'KudosProIP 1', and 'KudosProIP 2'. Each section contains a list of 'Spigot' entries with their respective port numbers and modes (Src or Dst). The rows are color-coded: green for Src and blue for Dst. The 'Flow Types A' and 'Flow Types B' columns contain values like '2022-6 RFC4175...'. The 'Format' column shows 'SD, H...' and 'SD'. The 'Streaming' column shows 'Dual Re...'. The 'Priority' column shows 'High'. The 'Switch Mode' column shows 'Break before...' or 'Make before ...'.

	Port Name	Port Nur	Mode	Linkec	Flow Types A	Flow Types B	Format	Streaming	Priority	Switch Mode
▼ IQEDGE40										
	Spigot 1	IQEDGE40 1	108	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 2	IQEDGE40 2	109	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 3	IQEDGE40 3	110	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 4	IQEDGE40 4	111	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 5	IQEDGE40 5	112	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 6	IQEDGE40 6	113	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 7	IQEDGE40 7	116	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 8	IQEDGE40 8	117	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 9	IQEDGE40 9	118	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 10	IQEDGE40 10	119	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 11	IQEDGE40 11	120	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
	Spigot 12	IQEDGE40 12	121	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Break before...
▼ KudosProIP 1										
	Spigot 1	KudosProIP 1 1	33	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 2	KudosProIP 1 2	34	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 3	KudosProIP 1 3	35	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 4	KudosProIP 1 4	36	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD	Dual Re...	High	Make before ...
	Spigot 5	KudosProIP 1 5	33	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 6	KudosProIP 1 6	34	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 7	KudosProIP 1 7	35	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 8	KudosProIP 1 8	36	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD	Dual Re...	High	Make before ...
▼ KudosProIP 2										
	Spigot 1	KudosProIP 2 1	37	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 2	KudosProIP 2 2	38	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 3	KudosProIP 2 3	39	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 4	KudosProIP 2 4	40	Src	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 5	KudosProIP 2 5	37	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 6	KudosProIP 2 6	38	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...
	Spigot 7	KudosProIP 2 7	39	Dst	2022-6 RFC4175...	2022-6 RFC4175...	SD, H...	Dual Re...	High	Make before ...

Figure 22 Example Tabular Network Configuration Editor Screen

Each tabular screen has some common features, described below.

3.5.1 Editable Cells

Table cells which may be edited are shown with a pencil icon when the cursor is hovering inside them. See Figure 23.

	Port Name	Port Num	Mode	Linke
▼ IQEDGE40				
Spigot 1	IQEDGE40 1	108	Src	
Spigot 2	IQEDGE40 2	109	Src	
Spigot 3	IQEDGE40 3	110	Src	
Spigot 4	IQEDGE40 4	111	Src	
Spigot 5	IQEDGE40 5	112	Src	

Figure 23 Editable Table Cell - Pencil Icon

To edit an editable cell:

1. Click in the cell.
2. Enter new text.
3. When new text has been entered:
 - Press the Enter key to enter the new text.

Or

- To abort changes, click outside the cell to keep the original text.

3.5.2 Sorting Columns

Columns may be sorted alphanumerically by clicking on the column heading. See Figure 24.

Port	Mode	Port Name	Device Name	Spigot Index
1	Src	Mixer Output ...	Mixer Output A	1
2	Src	Mixer Output ...	Mixer Output A	2
3	Src	Mixer Output ...	Mixer Output A	3
4	Src	Mixer Output ...	Mixer Output A	4
5	Src	Mixer Output ...	Mixer Output A	5
6	Src	Mixer Output ...	Mixer Output A	6
7	Src	Mixer Output ...	Mixer Output A	7
8	Src	Mixer Output ...	Mixer Output A	8
9	Src	Mixer Output ...	Mixer Output A	9

a) "Port" column sorted, ascending order

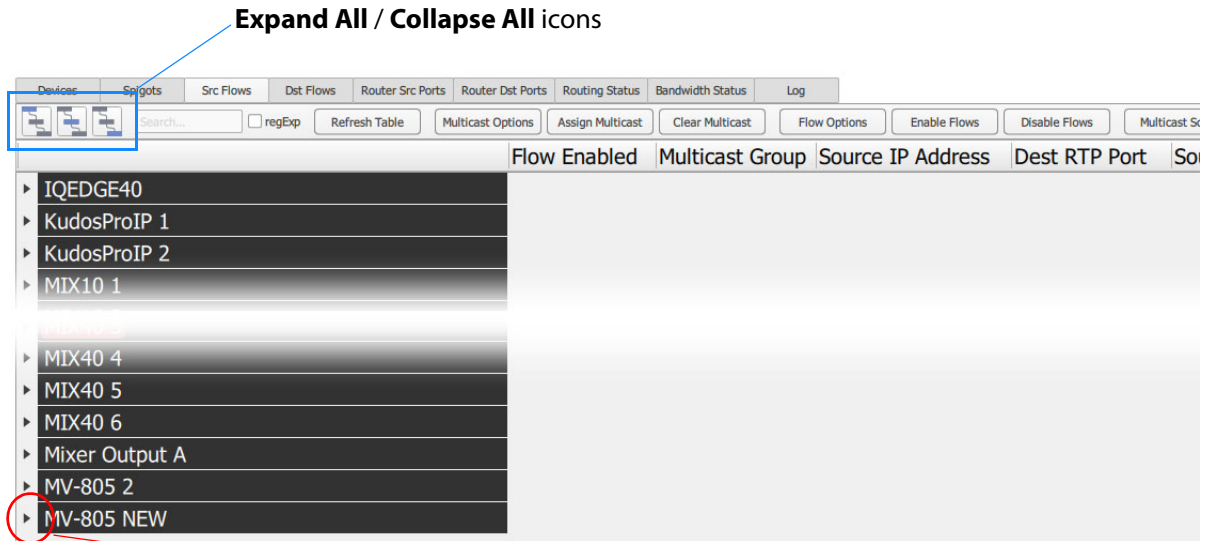
Port	Mode	Port Name	Device Name	Spigot Index
113	Src	IQEDGE40 6	IQEDGE40	6
112	Src	IQEDGE40 5	IQEDGE40	5
111	Src	IQEDGE40 4	IQEDGE40	4
110	Src	IQEDGE40 3	IQEDGE40	3
109	Src	IQEDGE40 2	IQEDGE40	2
108	Src	IQEDGE40 1	IQEDGE40	1
107	Src	MV-805 2 10	MV-805 2	10
106	Src	MV-805 NEW 4	MV-805 NEW	4

b) "Port" column sorted, descending order

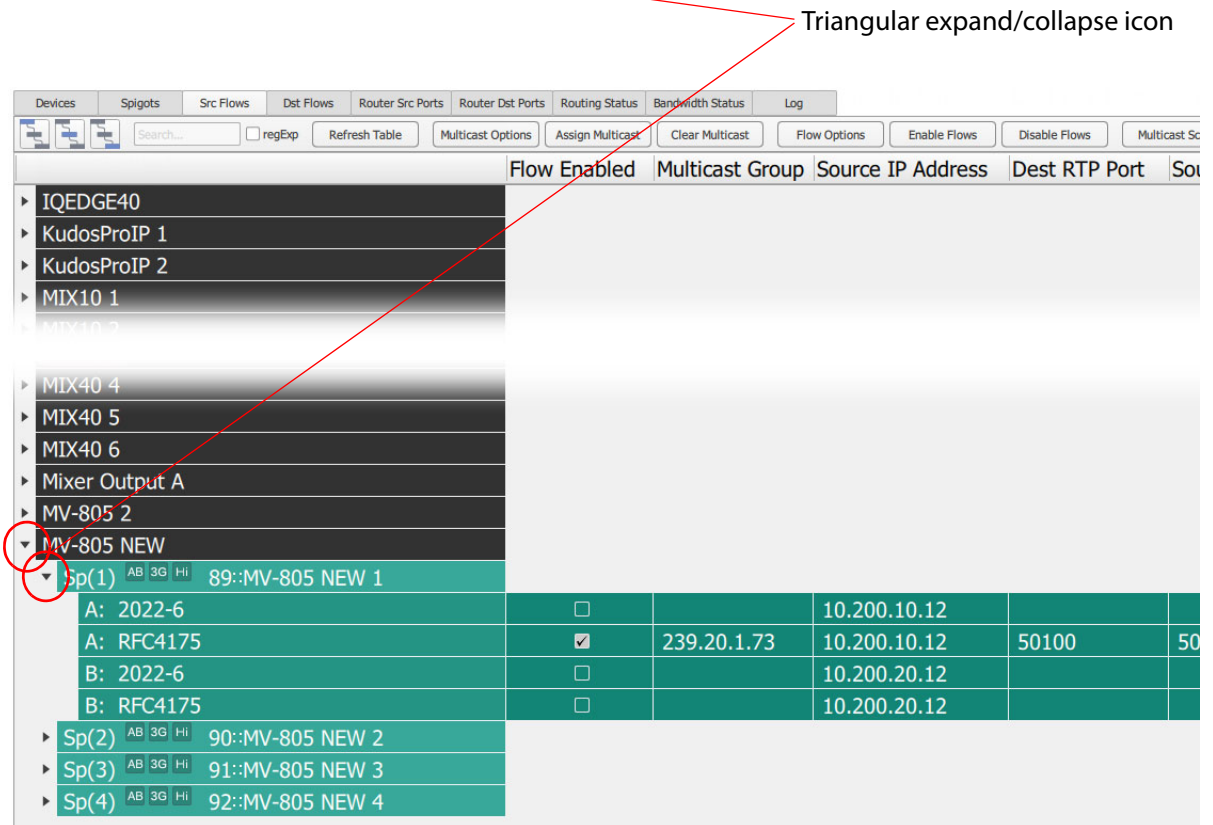
Figure 24 Sorting Columns

3.5.3 Expanding and Collapsing Rows

Some table rows may be individually expanded and collapsed by clicking on the small triangular icon at the left hand side of each row. See Figure 25. To expand or collapse *all* rows, use the **Expand All** and **Collapse All** icons.



a) Collapsed row



b) Expanded row

Figure 25 Sorting Columns

3.5.4 Right-Click Pop-up Menus

Some table cells show a pop-up menu when right-clicking in the cell; see Figure 26 for an example. The presented menu options vary according to which **Network Configuration Editor** tab screen is being shown and are detailed in each corresponding tab section.

Right-Click here to reveal a context-sensitive pop-up menu

Yellow highlighting indicates the scope of the pop-up menu items

Spigots	Flow	Enable	Multicast Group	Source IP Address
IQEDGE40				
Sp(1) AB 3G Hi 108::IQEDGE40 1				
A: 2022-6		<input checked="" type="checkbox"/>	239.20.1.47	10.200.10.2
A: RFC4175		<input type="checkbox"/>		
A: PCM		<input checked="" type="checkbox"/>	239.60.1.13	10.200.10.2
A: Meta		<input checked="" type="checkbox"/>	239.40.1.42	10.200.10.2
B: 2022-6		<input checked="" type="checkbox"/>	239.21.1.47	10.200.20.2
B: RFC4175		<input type="checkbox"/>		
B: PCM		<input checked="" type="checkbox"/>	239.61.1.13	10.200.20.2
B: Meta		<input checked="" type="checkbox"/>	239.41.1.42	10.200.20.2
Sp(2) AB 3G Hi 109::IQEDGE40 2				
A: 2022-6		<input checked="" type="checkbox"/>	239.20.1.48	10.200.10.2
A: RFC4175		<input type="checkbox"/>		
A: PCM		<input checked="" type="checkbox"/>	239.60.1.14	10.200.10.2
A: Meta		<input checked="" type="checkbox"/>	239.40.1.43	10.200.10.2
B: 2022-6		<input checked="" type="checkbox"/>	239.21.1.48	10.200.20.2

Figure 26 Example Right-Click Menu

3.6 Filter Tools

Orbit contains tools to filter what items are present in the main table of a tabular Orbit screen. These include:

- A **Device Filter**: All tabular tab screens have a **Filter Tool** in the tool bar. The tool controls which **Devices** are presented in the main table area of the tab screen.
See Section 3.6.1 [Device Filter Tool](#) on page 35.
- A **Spigot Filter**: In the **Properties List** (See Section 3.4 [Properties List](#) on page 27), there are a pair of properties that control the display of **Spigots** on the **Spigots** tab, **Src Flows** tab and **Dst Flows** tab.

See Section 3.6.2 [Spigot Filter](#) on page 38.

These filters can control which **Devices** and **Spigots** are presented in the Orbit screens. This is important when using some of the functions within Orbit.

Orbit contains various controls and functions, some of which are “bulk” controls which can affect selected **Devices** and **Spigots**. The filter tools select which **Devices** and **Spigots** are affected by these “bulk” controls.

For example, the **Assign Multicast** button on the **Src Flows** tab.

These “bulk” controls only affect **Devices/Spigots** which are presented in the tab table.

3.6.1 Device Filter Tool

All tabular tab screens have a **Filter Tool** in the tool bar. The tool controls which **Devices** and **Spigots** are present on the tab screen.

3.6.1.1 Device Filter and Tabs

Table 5 lists the filtering behavior on each tab.

Table 5 Tabs and Device Filter

Tab	Filter on...		Description
	All columns	Device Name and Device Type only	
Devices	●		'Flat' table structure.
Spigots		●	'Hierarchical' table structure.
Src Flows		●	'Hierarchical' table structure.
Dst Flows		●	'Hierarchical' table structure.
Router Src Ports	●		'Flat' table structure.
Router Dst Ports	●		'Flat' table structure.
Routing Status	●		'Flat' table structure (Port view).
Bandwidth Status			
Log			
Router	●		'Flat' table structure.

For example:

1. In the **Devices** tab a user may filter on **Device Name** or filter on **Software** version.
2. In the **Src Flows** tab a user may filter on **Device Name** and **Device Type**.

Note: Always check on the **Filter Text** field in the main tool bar to prevent inadvertent filtering of items in the tab.

3.6.1.2 Device Filtering

The **Device Filter** is located in the main tool bar of most tabs. It is shown in Figure 27.

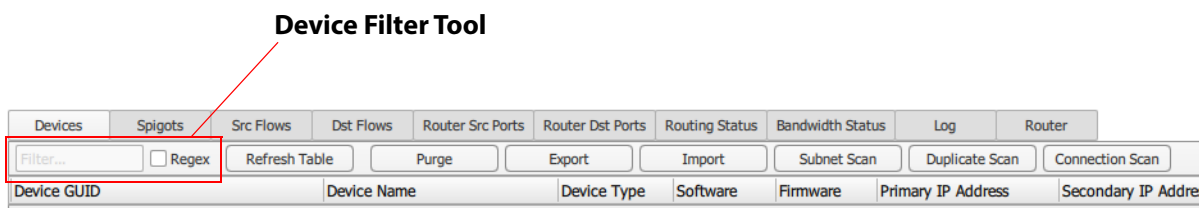


Figure 27 Device Filter Tool in a Main Tool Bar

To filter the items in a tab:

- Enter text in the '**Filter...**' text box.
Filtering is automatically then applied to tab contents, reducing the number of items being displayed in the tab.

Table 6 Device filter Items

Device Filter Item	Description
Filter...	<p>Text box. Enter the text to search for in the table rows (Filter text).</p> <p>Table rows are filtered on this search automatically. For the Devices tab, rows are filtered on the Device Name and Device Type columns.</p> <p>Normal (i.e. non-'Regex') text filtering is <i>case-insensitive</i>.</p> <p>Examples: To filter:</p> <ul style="list-style-type: none"> • All text containing "M" or "m", then enter: M • All text containing "Mix" or "mix", then enter: mix
Regex	<p>Check box. Select when the Filter string is a regular expression. The Perl regular expression format is used, which is <i>case-sensitive</i>.</p> <p>For some regular expression examples, see Section 3.6.1.3 Device Filter - Regular Expression Examples on page 37.</p>

3.6.1.3 Device Filter - Regular Expression Examples

1. Select **Regex** in the **Filter** tool.
2. Enter text into the **Filter** text box, as follows:

To filter:

- All device names *starting* with "M"
- All device names *starting* with "M" or "m"
- All device names *starting* with "Mix" or "mix"
- All device names *starting* with "V" or "K"
- All device names *ending* with "5"
- All device names *ending* with "15"
- All device names *starting* with "K" and *containing* "una"

Enter:

^M
^[Mm]
^[Mm]ix
^[VK]
5\$
15\$
^K.*una

3. Deselect **Regex** and clear the **Filter** text box when done.

3.6.2 Spigot Filter

In the **Properties List** (See Section 3.4 *Properties List* on page 27), there are a pair of properties that control the presenting of **Spigots** on a tab. These properties are:

- **Spigots -> Spigot Filter**
and
- **Flows -> Spigot Filter.**

Spigot Filter controls

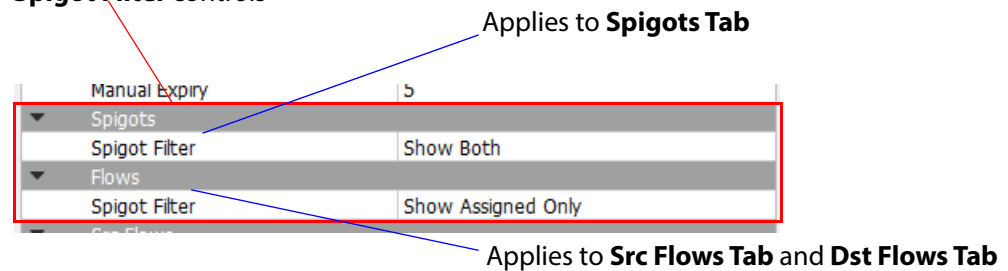


Figure 28 Spigot Filter Controls in Properties List

Note:

Local Over-riding:

When 'clear' and 'assign' functions in Orbit (for example, **Assign Multicast**) are carried out, dialog boxes are displayed which allow the user to control which **Spigots** the function applied to. These will locally over-ride the **Properties List's Spigot Filter** settings.

3.7 Find Text

All tab screens (with the exception of the **Status** tab screen) have a 'hidden' **Find Text** function.

The **Find Text** function locates, and optionally highlights, text items displayed in the table. Only displayed items are searched, so text contained in any rows that are not expanded is not searched. The table columns that are searched can be selected.

The user can move to each found item (forwards or backwards).

Note: The **Find Text** function is different to the **Filter Tool**.

- The **Filter Tool** controls what appears in the tab table. The user can perform certain assignment or clearing functions on devices that appear in a tab table.
- The **Find Text** function locates text in the table and is a navigation aid. The table columns searched can be selected.

The Find Text Tool Bar is shown in Figure 29. Table 7 describes the **Find Text Tool Bar** items.

To see the **Find Text** function:

- Type 'control-F' anywhere in the tab screen.
A **Find Tool Bar** opens and appears below the main tool bar. See Figure 29.
(Type 'control-F' again and the **Find Tool Bar** closes.)

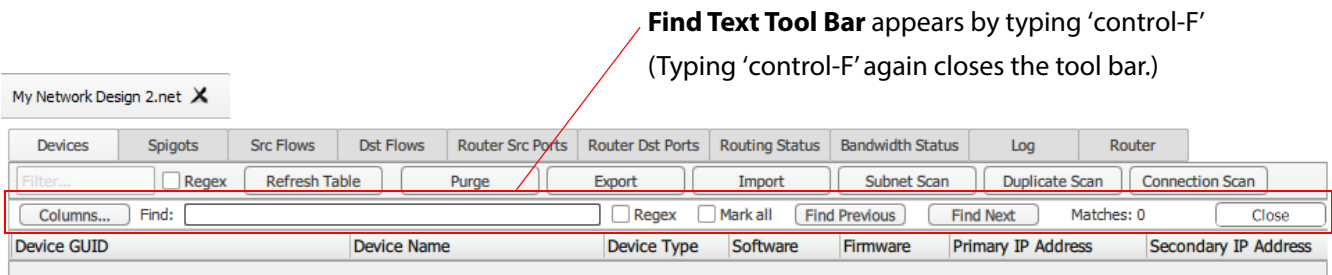


Figure 29 Find Text Tool Bar

Table 7 Find Text Tool Bar Items


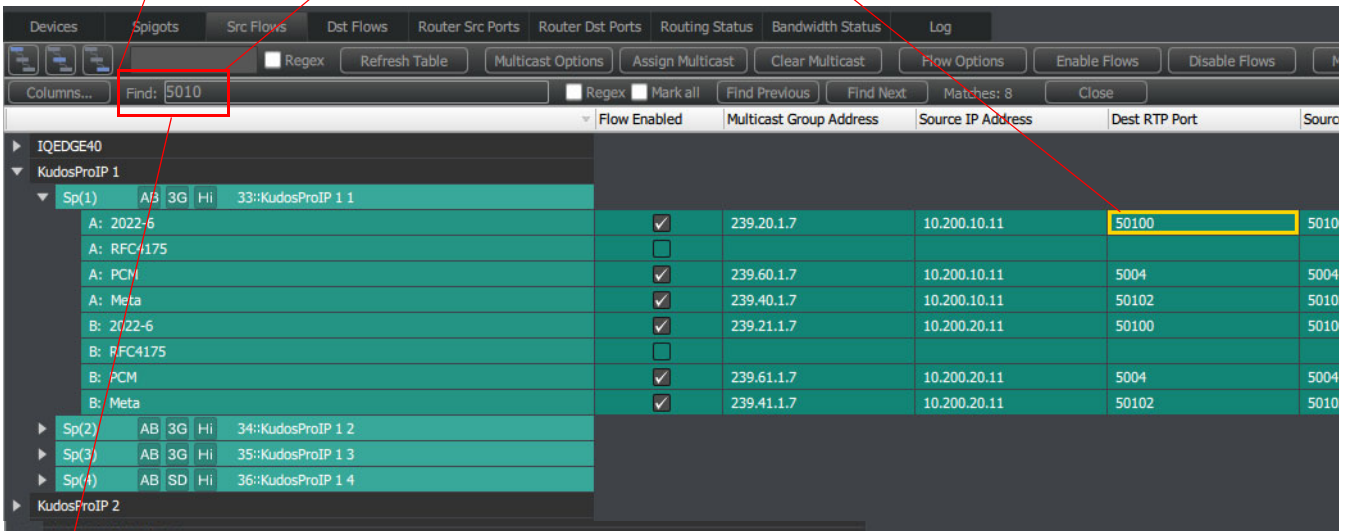
Find Text Item	Description
Columns...	<p>Button.</p> <p>Click to select which columns to search in.</p> <p>Select/deselect columns to search through in the dialog shown:</p>  <p>Note: Only useful columns are listed for Find Text - not all columns are necessarily listed.</p>
Find	<p>Text box.</p> <p>Enter the text to search for, Find text.</p> <p>All items in selected columns matching the Find text are found.</p> <p>The Find text goes red if the Find text cannot be found.</p>
Regex	<p>Check box.</p> <p>Select when the Find text is a Perl regular expression.</p>
Mark all	<p>Check box.</p> <p>Select to highlight all found items.</p>
Find Previous	<p>Button.</p> <p>Click to go to the previous found item in the tab screen. It is shown highlighted.</p> <p>Note: This applies across all columns.</p>
Find Next	<p>Button.</p> <p>Click to go to the next found item in the tab screen. It is shown highlighted.</p> <p>Note: This applies across all columns.</p>
Matches	<p>Value. Read-only.</p> <p>Number of items found that match the Find text.</p>
Close	<p>Button.</p> <p>Click to close the Find Text Tool Bar.</p>

Figure 30 shows **Find Text** in operation.

Type in the text to find.

Find: 5010

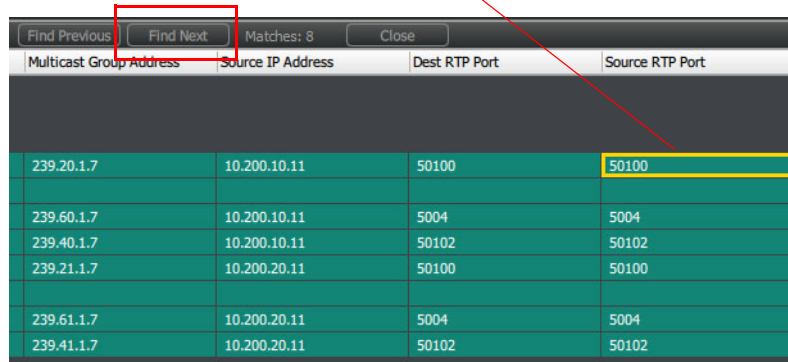
First found text item highlighted.



a) Find text.

Click **Find Next**

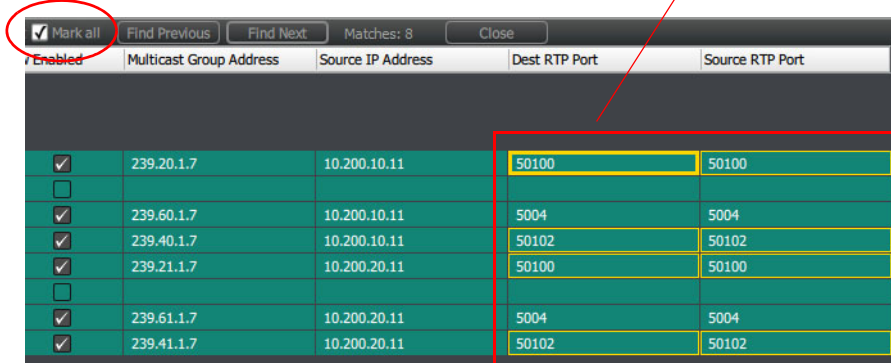
Next found text item highlighted.



b) Find next

Select **Mark All**

All found text items highlighted.



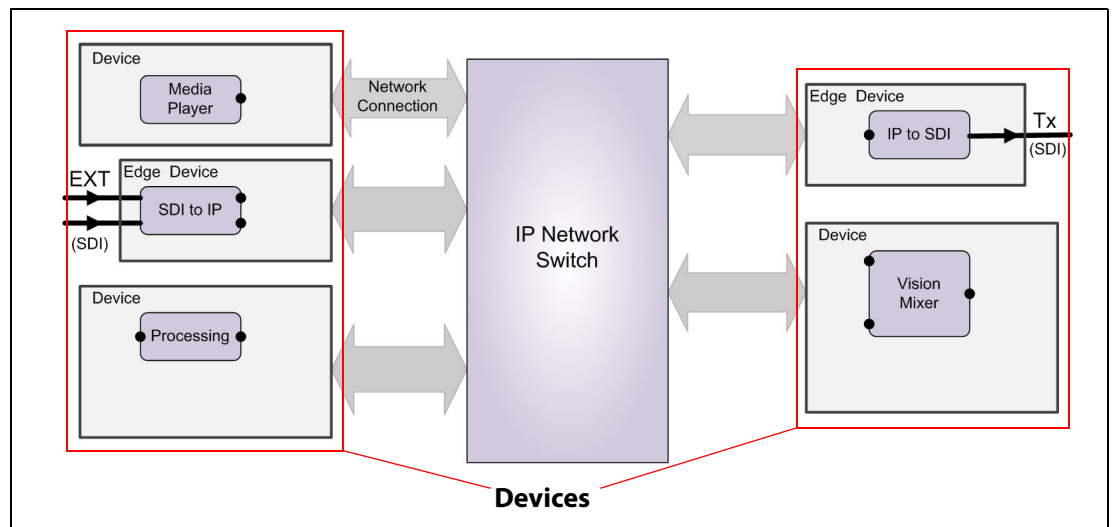
c) Mark all.

Figure 30 Find Text in Operation:

- a) Find Text.
- b) Find Next.
- c) Mark All.

4

4 Tabs - Devices Tab



Tabs - Devices Tab

4.1 Devices Tab Tool Bar	46
4.1.1 Purge Devices	47
4.1.2 Subnet Scan	49
4.1.3 Duplicate Scan	52
4.1.4 Connection Scan	53
4.1.5 Generate SDP	54
4.2 Devices Tab Main Table	56
4.2.1 Device GUID	57
4.2.2 Device Name	58
4.2.3 Right-Click on Device GUID	59
4.3 Status Bar	59

The **Devices** tab displays a list of devices, which includes discovered devices. Devices are listed in a tabular format with a **Tool Bar** above it. See Figure 31.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	Routing Status	Bandwidth Status	Log		
<input type="checkbox"/> Regex		Refresh Table	Purge		Export	Import	Subnet Scan	Duplicate Scan	Connection Scan	Generate SDP
Device GUID	Device Name	Device Type	Software	Firmware	Primary IP Address	Secondary IP Address	Control IP Address			
{13A19D1E-1DD2-11B2-A229-002370003249}	IQEDGE40	IQEDGE40_8	8.82.38	E1A3563A	10.200.10.2	10.200.20.2				
{1A6A8520-1DD2-11B2-8E80-002370002562}	KudosProIP 1	IQMDX00	10.61.53	D5230DC9	10.200.10.11	10.200.20.11				
{1A6A8520-1DD2-11B2-83DA-002370002559}	KudosProIP 2	IQMDX00	10.61.53	D5230DC9	10.200.10.21	10.200.20.21				
{1A6A0FF0-1DD2-11B2-9229-002370002561}	MIX10 1	IQMDX00	10.61.53	D5230DC9	10.200.10.38	10.200.20.38				
{1A6A5E10-1DD2-11B2-9CCF-002370002566}	MIX10 2	IQMDX00	10.61.53	D5230DC9	10.200.10.37	10.200.20.37				
{13A323BE-1DD2-11B2-A0D6-00237000480F}	MIX40 1	IQMDX4000	10.61.53	D5234098	10.200.10.4	10.200.20.4				
{13A67F1E-1DD2-11B2-858A-0023700047F8}	MIX40 2	IQMDX4000	10.61.53	D5234098	10.200.10.5	10.200.20.5				
{13AAEBEE-1DD2-11B2-8D81-0023700048A1}	MIX40 3	IQMDX4000	10.61.53	D5234098	10.200.10.6	10.200.20.6				
{139E8FDE-1DD2-11B2-80AC-0023700048B2}	MIX40 4	IQMDX4000	10.61.53	D5234098	10.200.10.8	10.200.20.8				
{13A6580E-1DD2-11B2-891E-002370003266}	MIX40 5	IQMDX4000	10.61.53	D5234098	10.200.10.9	10.200.20.9				
{13A67F1E-1DD2-11B2-858A-002370003235}	MIX40 6	IQMDX4000	10.61.53	D5234098	10.200.10.10	10.200.20.10				
{1396286E-1DD2-11B2-8B3E-00237000494F}	Mixer Input A	KahunaIP110	7.9.R6	0	10.200.10.13	10.200.20.13				
{13A2877E-1DD2-11B2-9814-002370004957}	Mixer Input B	KahunaIP110	7.9.R6	0	10.200.10.14	10.200.20.14				
{1396798E-1DD2-11B2-A08A-00237000231B}	Mixer Output B	KahunaIPO10	7.9.R6	0	10.200.10.16	10.200.20.16				
{D79424B7-E29D-409F-818C-8AF3A8BD70DC}	MV-805 1	MV-805	1.2.12	n/a	10.200.10.12	10.200.20.12	10.100.250.205			
{9298476C-A3B7-499C-A0DC-87D66380A815}	MV-805 2	MV-805	1.2.12	n/a	10.200.10.31	10.200.20.31	10.100.250.215			

Figure 31 Devices Tab

Figure 32 highlights the features of the **Devices** tab screen.

Tool Bar, see Section 4.1 *Devices Tab Tool Bar* on page 46.

Main Table of discovered devices, see Section 4.2 *Devices Tab Main Table* on page 56

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	Routing Status	Bandwidth Status	Log
<input type="checkbox"/> Regex Refresh Table Purge Export Import Subnet Scan Duplicate Scan Connection Scan Generate SDP								
Device GUID	Device Name	Device Type	Software	Firmware	Primary IP Address	Secondary IP Address	Control IP Address	
{13A19D1E-1DD2-11B2-A229-002370003249}	IQEDGE40	IQEDGE40_8	8.82.38	E1A3563A	10.200.10.2	10.200.20.2		
{1A6A8520-1DD2-11B2-8E80-002370002562}	KudosProIP 1	IQMIX00	10.61.53	D5230DC9	10.200.10.11	10.200.20.11		
{1A6A8520-1DD2-11B2-83DA-002370002559}	KudosProIP 2	IQMIX00	10.61.53	D5230DC9	10.200.10.21	10.200.20.21		
{1A6A0FF0-1DD2-11B2-9229-002370002561}	MIX10 1	IQMIX00	10.61.53	D5230DC9	10.200.10.38	10.200.20.38		
{1A6A5E10-1DD2-11B2-9CCF-002370002566}	MIX10 2	IQMIX00	10.61.53	D5230DC9	10.200.10.37	10.200.20.37		
{13A323BE-1DD2-11B2-A0D6-00237000480F}	MIX40 1	IQMIX4000	10.61.53	D5234098	10.200.10.4	10.200.20.4		
{13A67F1E-1DD2-11B2-858A-0023700047F8}	MIX40 2	IQMIX4000	10.61.53	D5234098	10.200.10.5	10.200.20.5		
{13AAEBEE-1DD2-11B2-8D81-0023700048A1}	MIX40 3	IQMIX4000	10.61.53	D5234098	10.200.10.6	10.200.20.6		
{139E8FDE-1DD2-11B2-80AC-0023700048B2}	MIX40 4	IQMIX4000	10.61.53	D5234098	10.200.10.8	10.200.20.8		
{13A6580E-1DD2-11B2-B91E-002370003266}	MIX40 5	IQMIX4000	10.61.53	D5234098	10.200.10.9	10.200.20.9		
{13A67F1E-1DD2-11B2-858A-002370003235}	MIX40 6	IQMIX4000	10.61.53	D5234098	10.200.10.10	10.200.20.10		
{13962B6E-1DD2-11B2-8B3E-00237000494F}	Mixer Input A	KahunaIPI10	7.9.R6	0	10.200.10.13	10.200.20.13		
{13A2877E-1DD2-11B2-9814-002370004957}	Mixer Input B	KahunaIPI10	7.9.R6	0	10.200.10.14	10.200.20.14		
{1396798E-1DD2-11B2-A08A-00237000231B}	Mixer Output B	KahunaIPO10	7.9.R6	0	10.200.10.16	10.200.20.16		
{D79424B7-E29D-409F-818C-8AF3ABBD70DC}	MV-805 1	MV-805	1.2.12	n/a	10.200.10.12	10.200.20.12	10.100.250.205	
{9298476C-A3B7-499C-A0DC-87D66380A815}	MV-805 2	MV-805	1.2.12	n/a	10.200.10.31	10.200.20.31	10.100.250.215	

List of discovered device.

Status Bar, see Section 4.3 *Status Bar* on page 59

Figure 32 Devices Tab - Annotated Screenshot

4.1 Devices Tab Tool Bar

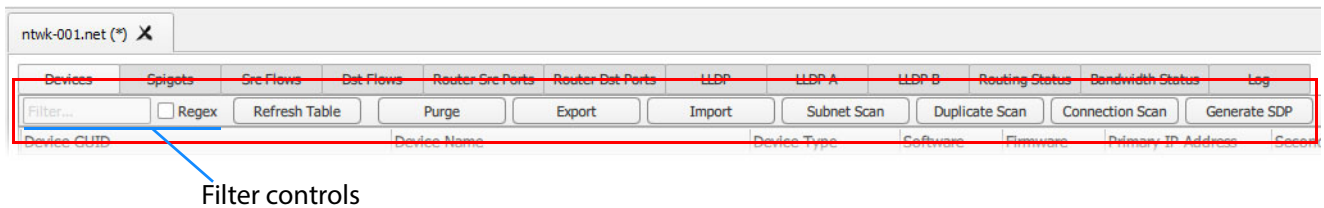


Figure 33 Devices Tab Tool Bar

Table 8 Devices Tool Bar Items

Tool Bar Item	Description
Filter controls: Filter...	<p>Filters which Devices are presented in the main table of the tab.</p> <p>Text box. Enter the text to search for in the table rows (Filter string).</p> <p>Table rows are filtered on this search automatically. For the Devices tab, rows are filtered on the Device Name and Device Type columns.</p> <p>Normal text filtering is <i>case-insensitive</i>.</p> <p>Examples:</p> <ul style="list-style-type: none"> To filter text containing "M", enter "M" To filter text containing "My", enter "my"
Regex	<p>Check box. Select when the Filter string is a regular expression. Perl regular expression format is used, which is <i>case-sensitive</i>.</p> <p>Examples:</p> <p>Select Regex and then enter the following text into the Filter text box:</p> <ul style="list-style-type: none"> To filter all device names <i>starting</i> with "M": Enter: ^M To filter all device names <i>starting</i> with "M" or "m": Enter: ^[Mm] To filter all device names <i>ending</i> with "5". Enter: 5\$ To filter all device names <i>starting</i> with "K" and <i>containing</i> "una": Enter: K.*una
Refresh Table	<p>Button. Click to refresh the screen contents from Orbit's own, gathered information.</p>

Table 8 *Devices Tool Bar Items (Continued)*

Tool Bar Item	Description
Purge	<p>Button. Click to remove off-line devices from the Devices tab and free up (traditional) router ports for re-use.</p> <p style="text-align: right;">See Section 4.1.1 Purge Devices on page 47.</p>
Export	<p>Button. Click to save all Orbit for IP routing network configuration settings to a file.</p> <p>The saved file is in an MS Office spreadsheet format (file extension .xlsx).</p> <p style="text-align: right;">See Section 15 Export / Import Settings on page 233.</p> <p>Note: The exported file may be used as the Default Spreadsheet for a network configuration in Orbit for IP Routing.</p>
Import	<p>Button. Click to import Orbit for IP routing network configuration settings from a file.</p> <p>The imported file must be in MS Office .xlsx spreadsheet format, with sheet/column headings the same as an exported file from Orbit.</p> <p style="text-align: right;">See Section 15 Export / Import Settings on page 233.</p>
Subnet Scan	<p>Button. Click to check if device IP addresses are on a certain sub-net.</p> <p style="text-align: right;">See Section 4.1.2 Subnet Scan on page 49.</p>
Duplicate Scan	<p>Button. Click to check for any duplicate IP addresses, names or port numbers in use by the Orbit network configuration.</p> <p style="text-align: right;">See Section 4.1.3 Duplicate Scan on page 52.</p>
Connection Scan	<p>Button. Click to ping each device on each port from Orbit.</p> <p style="text-align: right;">See Section 4.1.4 Connection Scan on page 53.</p>
Generate SDP	<p>Button. Click to generate files containing session description protocol (SDP) information.</p> <p style="text-align: right;">See Section 4.1.5 Generate SDP on page 54.</p>

4.1.1 Purge Devices

Purge can be used to remove a device that is no longer part of the system (for example, following a physical re-configuration of the system or a device decommissioning) and free up logical router ports for re-use.

Purge removes a device from the **Devices** tab and will remove any corresponding logical router port assignments that are assigned in the IP routing system (i.e. stored on the IP-RSC).

A purge dialog allows the user to select which off-line devices are to be purged. A purged device will no longer be viewable in Orbit.

Note: **Temporarily Off-line Devices:**

A device may be off-line for upgrade, or for servicing, or just be temporarily unavailable. These devices can remain within the **Devices** tab and need not be purged.

When the device comes back on-line, device details will reappear in the **Devices** tab.

Note: **Purged or New Devices Appearing In the Devices Tab:**

If a device is accidentally purged, it will reappear in the **Devices** tab when it is back on-line.

If a new device is added to the system, it will appear in the **Devices** tab for the first time.

In both cases, the device name and the (video) router port names/numbers will need setting up in Orbit.

To carry out a **Purge**:

1. Click the **Purge** button on the **Devices** tab.

The **Choose Devices to Purge** dialog is shown. See Figure 34.

The **Choose Devices to Purge** dialog lists off-line devices.

2. Select the device(s) to purge in the list presented.
3. Click **OK**.
The device(s) are removed from the **Devices** tab list.

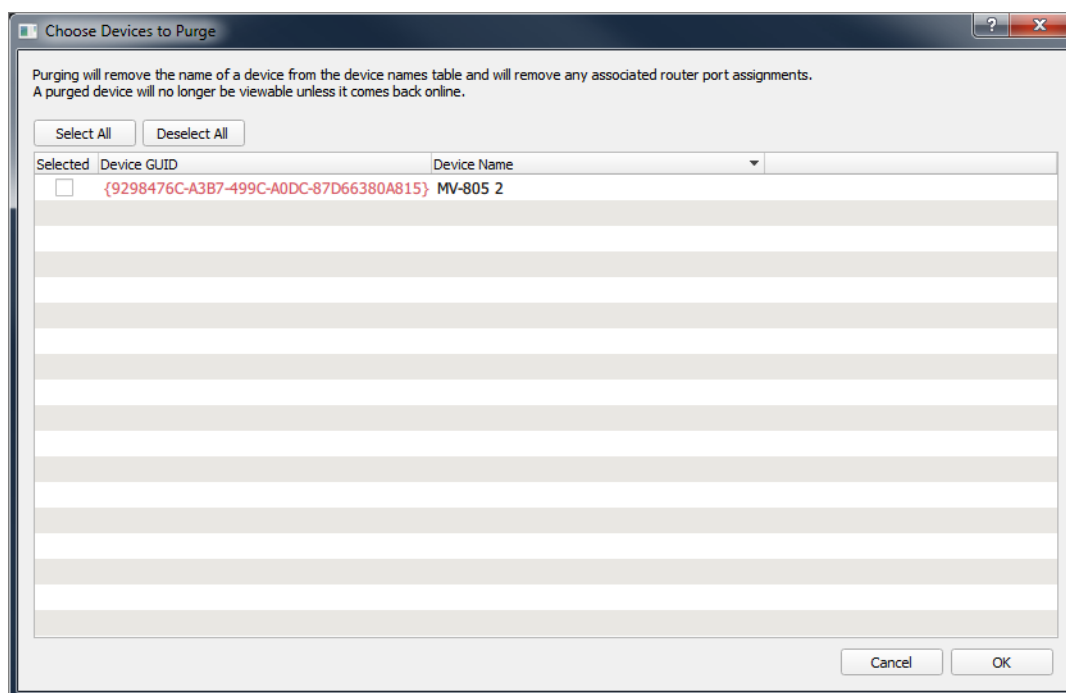


Figure 34 Choose Devices to Purge Dialog

4.1.2 Subnet Scan

To check that device IP addresses are on specified network subnets:

1. Click **Subnet Scan** in the tool bar.
The **Subnet Scan** dialog is shown. See Figure 35.

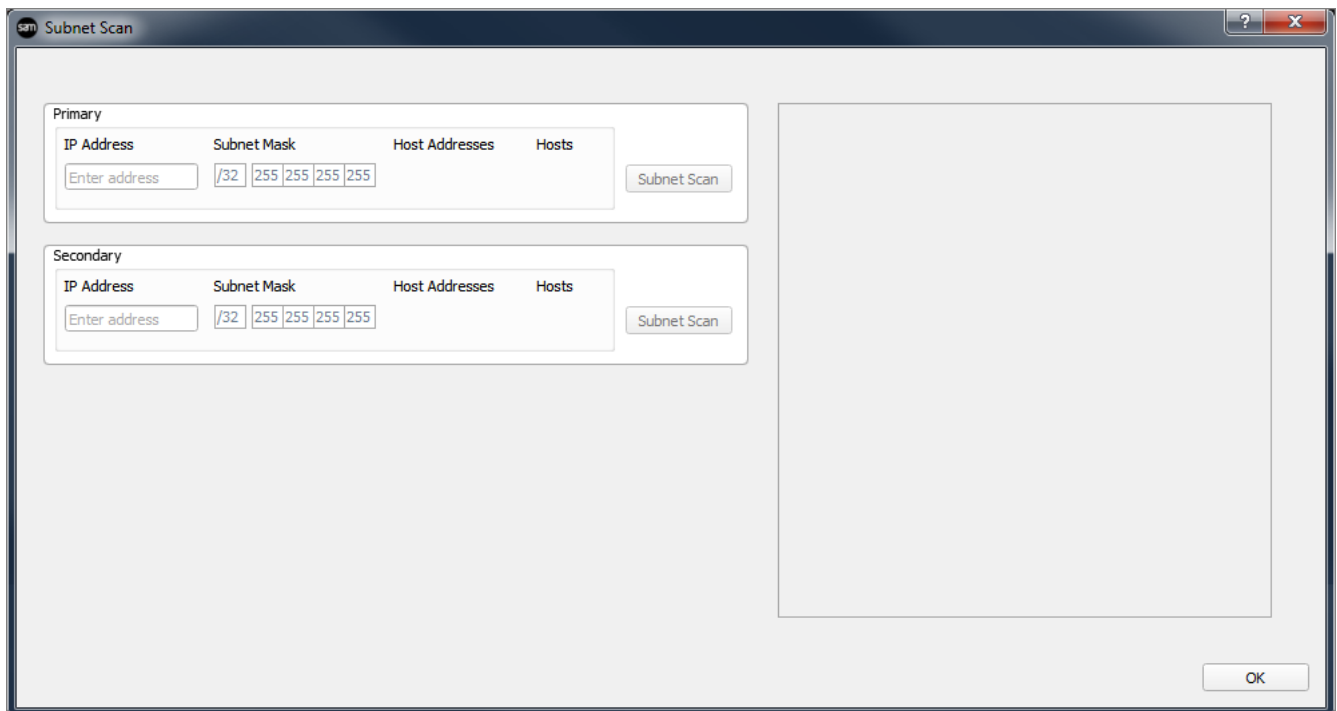


Figure 35 Subnet Scan Dialog

To check IP fabric A sub-net:

2. Enter the IP address of the fabric A sub-net in the **Primary - IP Address** text box. See Figure 36a.
3. Enter the sub-net mask (either in CIDR notation or in dotted-quad notation). See Figure 36b and c.

When both sub-net IP address and address mask are entered, the number of and range of host addresses covered is shown. See Figure 36a.

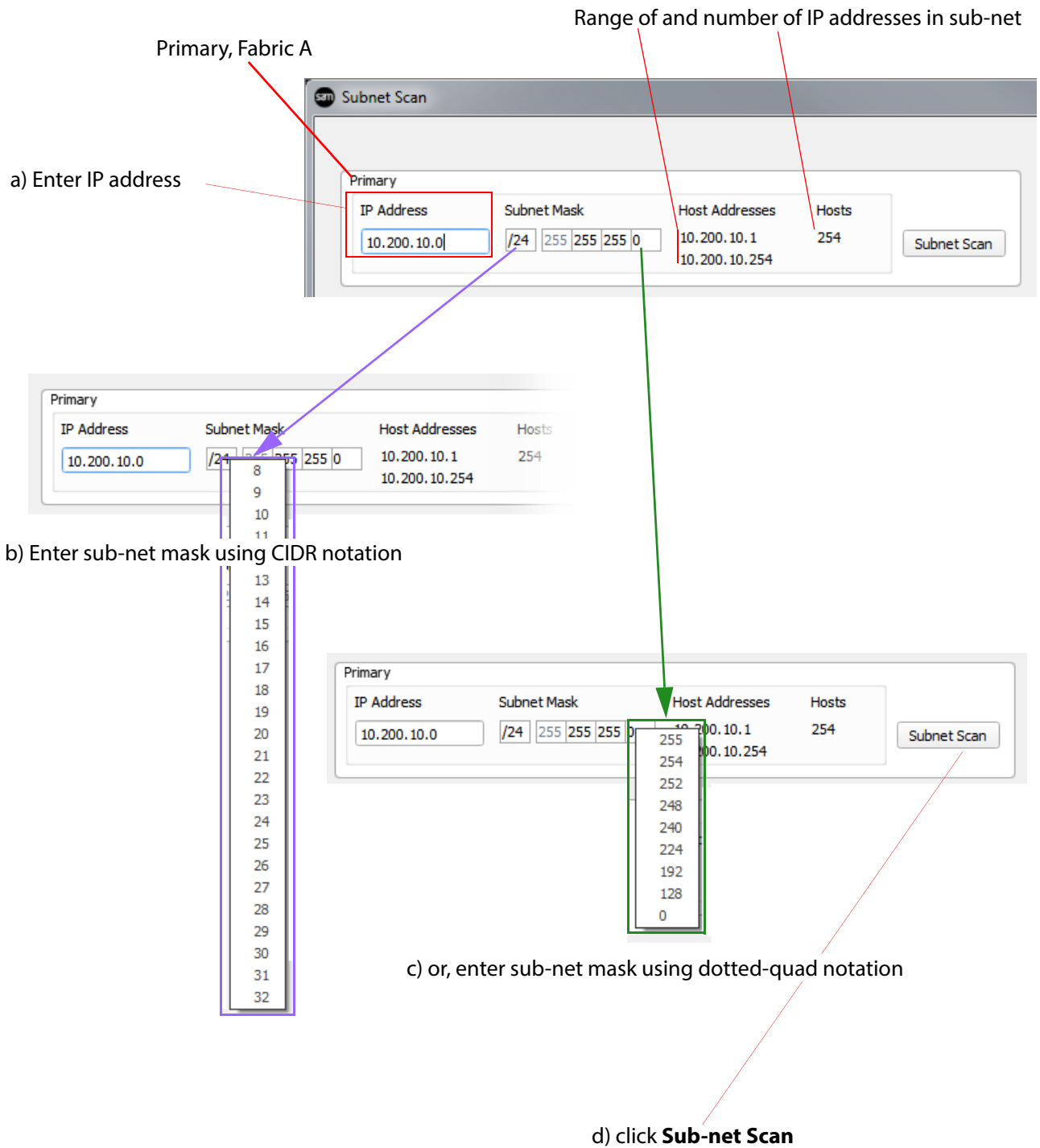


Figure 36 Subnet Scan Dialog

- 4. Click the **Primary - Subnet Scan** button, see Figure 36a, to check that all IP addresses of the devices in the **Devices** tab are in the sub-net.

The results of the check are shown on the right. See Figure 37.

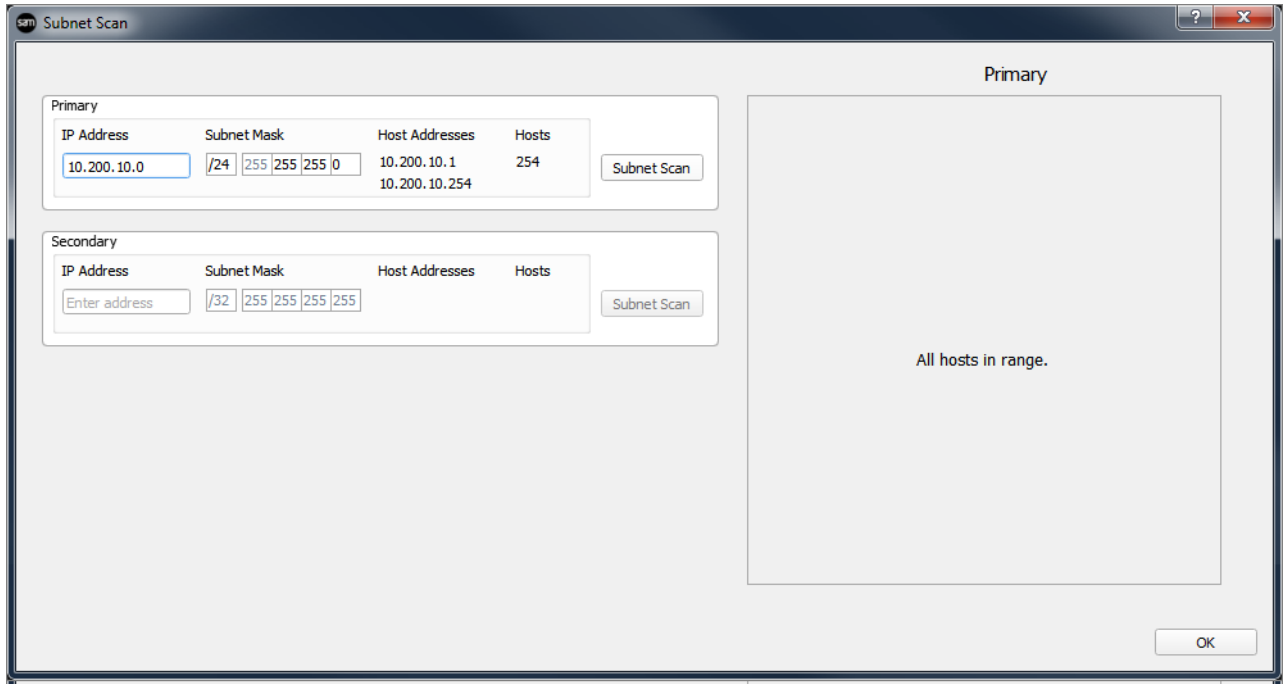


Figure 37 Subnet Scan - Results

All device IP addresses should be within the specified sub-net. If this is not the case, the offending IP addresses are listed, see Figure 38.

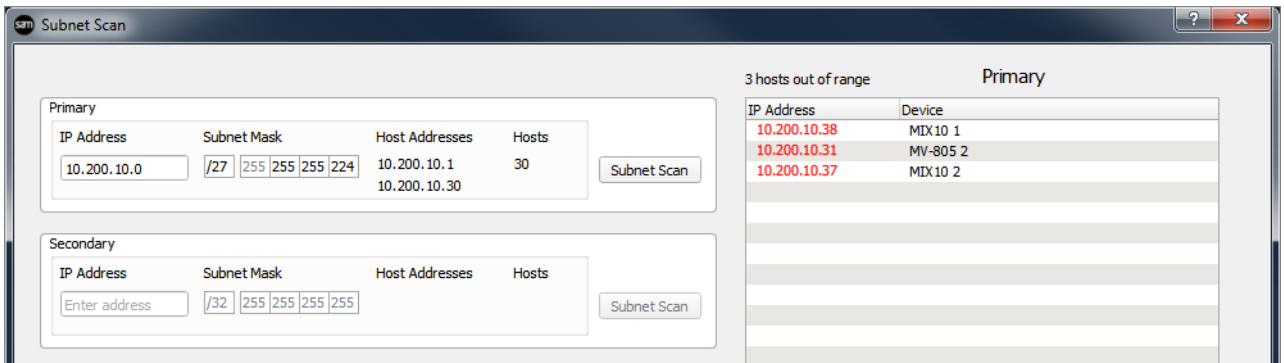


Figure 38 Subnet Scan Dialog - Listing any IP Addresses not within the Subnet.

Fabric B can be checked similarly, by entering the network IP address and subnet mask into the **Secondary** box of the **Subnet Scan** dialog. See Figure 39.

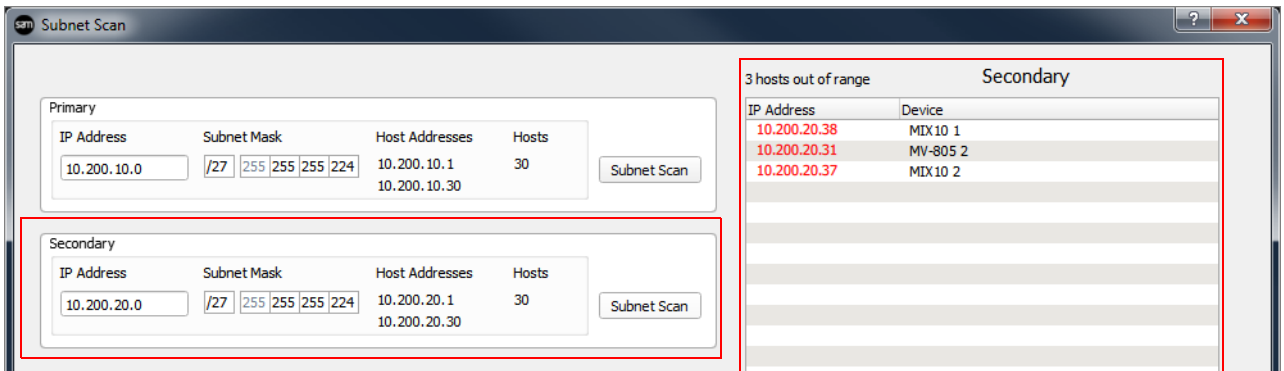


Figure 39 Subnet Scan Dialog - Fabric B (Example shows out-of-range devices)

4.1.3 Duplicate Scan

A **Duplicate Scan** checks the Orbit network configuration for:

- Duplicate IP addresses.
- Duplicate device names
- Duplicate router source port numbers or port names.
- Duplicate router destination ports numbers or names.

In a large network system, this check can help find typographical errors in the system set up. To carry out a **Duplicate Scan**:

1. Click the **Duplicate Scan** button on the **Devices** tab.

A Duplicate scan is performed.

The **Duplicate Scan** dialog presents the results of the scan. See Figure 40.

Duplicate Scan dialog example shows some duplication in router destination port numbers.

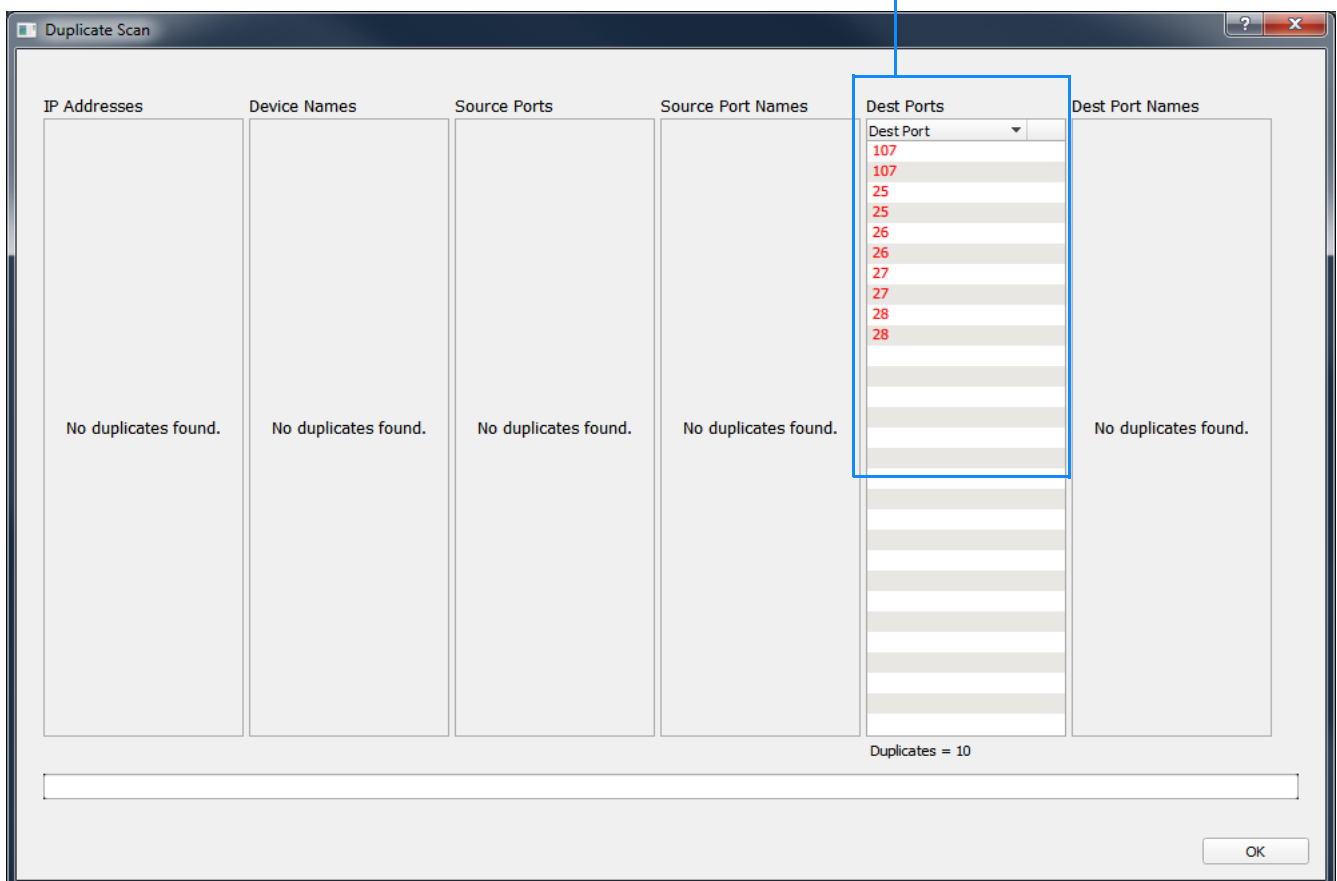


Figure 40 Duplicate Scan Dialog (Example)

4.1.4 Connection Scan

Orbit gathers status information from each device, including reported status information on device network connections (links). A **Connection Scan** then exercises each device connection by pinging all devices on each of their network connections. If 'pinging' is successful, then the device is reachable.

1. Click the **Connection Scan** button.

A progress bar is shown while the scan is in progress. See Figure 41.

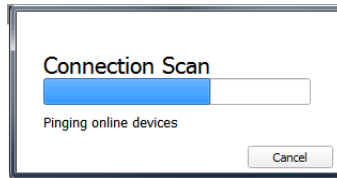


Figure 41 Connection Scan Progress Bar

The result of the **Connection Scan** is shown on the **Devices** tab screen itself, in the 'IP address' columns: Icons appear to the left of each IP address item; these show the **Connection Status** for that network connection (link) to the **Device**. See Figure 42.

Connection Scan status

Primary IP Address	Secondary IP Address
✔ 10.200.10.2	✔ 10.200.20.2
✔ 10.200.10.11	✔ 10.200.20.11
✔ 10.200.10.21	✔ 10.200.20.21
✔ 10.200.10.38	✔ 10.200.20.38
✔ 10.200.10.37	✔ 10.200.20.37
✔ 10.200.10.4	✔ 10.200.20.4
✔ 10.200.10.5	✔ 10.200.20.5
✔ 10.200.10.6	✔ 10.200.20.6
✔ 10.200.10.8	✔ 10.200.20.8
✔ 10.200.10.9	10.200.20.9
✔ 10.200.10.10	10.200.20.10
✔ 10.200.10.13	✘ 10.200.20.13
✔ 10.200.10.14	✔ 10.200.20.14
✔ 10.200.10.16	✘ 10.200.20.16
✔ 10.200.10.12	✔ 10.200.20.12
✔ 10.200.10.31	✘ 10.200.20.31

Connection Status:	
Reported Link Status	Device Reachable
No link	Not applicable
Link up	Not known
Link down	Not known
No link status	Reachable
No link status	Not reachable
Link up	Reachable
Link up	Not reachable

- ✔ Orbit has successfully pinged the device over the IP link.
Note: This is the status of the last, recent **Connection Scan**.
- ✘ Orbit unable to successfully ping the device over the IP link.
- Device reports its IP link is up.
- ✘ Device reports its IP link is down.
(Note: Reporting may be done over another open connection.)
- No IP link interface reported by device.
(For example, the SFP may be not fitted or wrongly fitted.)

Figure 42 Connection Status Icons

4.1.5 Generate SDP

To generate device media streaming capability information in SDP format.

1. To generate SDP information:

- for all devices, click the **Generate SDP** button; or
- for a particular device, right-click on the device GUID and click **Generate SDP**.

The **Generate SDP files** dialog is shown. See Figure 43.

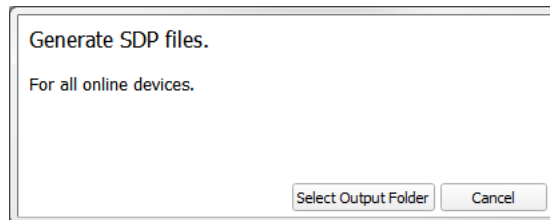


Figure 43 Generate SDP Files Dialog

2. Click **Select Output Folder**.

Navigate to an empty folder to generate the SDP information in.

Click **Select Folder**.

Media streaming information for all devices in the IP routing system is generated in SDP format.

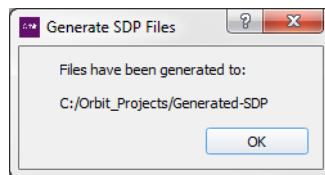


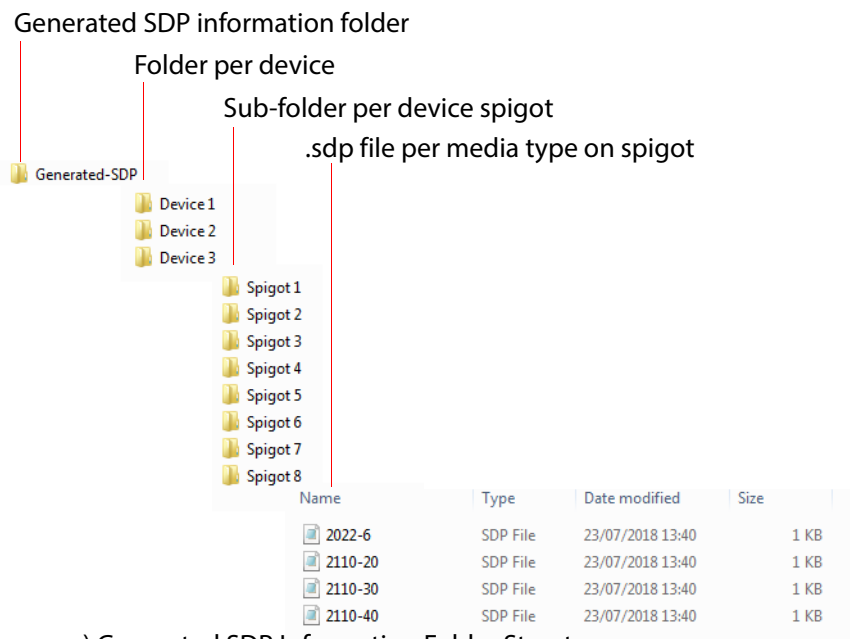
Figure 44 Generated SDP Files Dialog

3. Click **OK**.

Whether SDP information is generated for all devices in the IP routing system or for a particular device. There is:

- a folder for each device, the folder name is the device name;
- a sub-folder for each device spigot within each folder; and
- a .sdp file for all enabled flows each on the spigot (the file name reflects the data type).

See Figure 45.



a) Generated SDP Information Folder Structure

```

File Edit Format View Help
v=0
o=- 1:2110-20 1532349630462 IN IP4 172.19.20.248
s=
t=0 0
a=sendonly
m=video 13595 RTP/AVP 96
i=A
c=IN IP4 239.20.1.204/255
a=source-filter:incl IN IP4 239.20.1.204 172.19.20.248
a=rtpmap:96 raw/90000
  
```

b) Example SDP file

Figure 45 Generated SDP Information: a) Folder Structure; b) Example .sdp File

4.2 Devices Tab Main Table

Within the **Devices** tab screen, each discovered device is shown in a table row, showing device information. See Figure 46.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	Routing Status	Bandwidth Status	Log
<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	Subnet Scan	Duplicate Scan	Connection Scan	Generate SI
Device GUID	Device Name	Device Type	Software	Firmware	Primary IP Address	Secondary IP Address	Control IP Address	
{13A19D1E-1DD2-11B2-A229-002370003249}	IQEDGE40	IQEDGE40_8	8.82.38	E1A3563A	10.200.10.2	10.200.20.2		
{1A6A8520-1DD2-11B2-8E80-002370002562}	KudosProIP 1	IQMIX00	10.61.53	D5230DC9	10.200.10.11	10.200.20.11		
{1A6A8520-1DD2-11B2-83DA-002370002559}	KudosProIP 2	IQMIX00	10.61.53	D5230DC9	10.200.10.21	10.200.20.21		
{1A6A0FF0-1DD2-11B2-9229-002370002561}	MIX10 1	IQMIX00	10.61.53	D5230DC9	10.200.10.38	10.200.20.38		
{1A6A5E10-1DD2-11B2-9CCF-002370002566}	MIX10 2	IQMIX00	10.61.53	D5230DC9	10.200.10.37	10.200.20.37		
{13A323BE-1DD2-11B2-A0D6-00237000480F}	MIX40 1	IQMIX4000	10.61.53	D5234098	10.200.10.4	10.200.20.4		
{13A67F1E-1DD2-11B2-858A-0023700047F8}	MIX40 2	IQMIX4000	10.61.53	D5234098	10.200.10.5	10.200.20.5		
{13AAEBEE-1DD2-11B2-8D81-0023700048A1}	MIX40 3	IQMIX4000	10.61.53	D5234098	10.200.10.6	10.200.20.6		
{139E8FDE-1DD2-11B2-80AC-0023700048B2}	MIX40 4	IQMIX4000	10.61.53	D5234098	10.200.10.8	10.200.20.8		
{13A6580E-1DD2-11B2-891E-002370003266}	MIX40 5	IQMIX4000	10.61.53	D5234098	10.200.10.9	10.200.20.9		
{13A67F1E-1DD2-11B2-858A-002370003235}	MIX40 6	IQMIX4000	10.61.53	D5234098	10.200.10.10	10.200.20.10		
{13962B6E-1DD2-11B2-8B3E-00237000494F}	Mixer Input A	KahunaIPI10	7.9.R6	0	10.200.10.13	10.200.20.13		
{13A2877E-1DD2-11B2-9814-002370004957}	Mixer Input B	KahunaIPI10	7.9.R6	0	10.200.10.14	10.200.20.14		

Figure 46 Devices Tab - Main Table (Example)

Note: **Find Text:**

The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 *Find Text* on page 39.

Device GUID	Device Name	Device Type	Software	Firmware
Primary IP Address	Secondary IP Address	Control IP Address		
Primary Link Speed	Secondary Link Speed	Sources	Destinations	Control

Figure 47 Devices Tab - Table Headings

Figure 47 shows table headings and Table 9 describes each heading. Many of the table row items contain information read from the device by Orbit.

Table 9 Devices Tab - Column Headings

Column Headings	Description
Device GUID	Text field. Read-only. Shows the unique GUID (Globally Unique Identifier) that has been assigned to the discovered device. See Section 4.2.1 <i>Device GUID</i> on page 57.
Device Name	Editable text field. Individual name of the device. See Section 4.2.2 <i>Device Name</i> on page 58.

Table 9 Devices Tab - Column Headings (Continued)

Column Headings	Description
Device Type	Text field. Read-only. Product model name. For example, "MV-805".
Software	Text field. Read-only. Software version running on the device.
Firmware	Text field. FPGA firmware version running on device, where applicable.
Primary IP Address	Text field. Read-only. IP address of the primary media IP interface of the device. Each IP address is shown with an icon, see Section 4.1.4 Connection Scan on page 53.
Secondary IP Address	Text field. Read-only IP address of the secondary media IP interface of the device.
Control IP Address	Text field. Read-only. IP address of the control IP interface of the device, where applicable. This is used for out-of-band device control.
Primary Link Speed	Text field. Read-only. IP interface link speed of primary IP interface. For example, 10Gb, 40Gb.
Secondary Link Speed	Text field. Read-only. IP interface link speed of secondary IP interface. For example, 10Gb, 40Gb.
Sources	Text field. (Normally read-only, but this can be configurable on some devices.) Maximum number of source spigots (IP stream sources) provided by the device.
Destinations	Text field. (Normally read-only, but this can be configurable on some devices.) Maximum number of destination spigots (IP stream destinations) consumed by the device.
Control	Text field. Read-only. Read/write status of the device. All Grass Valley devices are "Read/Write". A third party device might be just Read only.

4.2.1 Device GUID

Each device is assigned a unique GUID (Globally Unique Identifier). This is shown in the **Device GUID** column.

The GUID is associated with the device and uniquely refers to the device. The GUID is stored on the device. It is also stored in the IP-RSC of a Grass Valley IP routing system.

The IP-RSC broadcasts its list of device GUIDs and device names, which is read by Orbit when a network configuration is open Orbit.

GUIDs of devices that have been previously discovered in the current project but which are currently not discoverable, are shown with a red background. See Figure 48.

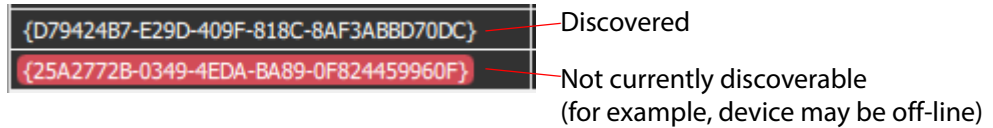


Figure 48 Device GUID Display

4.2.2 Device Name

Each device may be given an individual name, for example “MV-805 Main” or “MIX-40 3”. The **Device Name** is not stored on the device but on the IP-RSC and read by Orbit.

Devices that are discovered for the *first* time would not yet have been given a **Device Name**. Until a **Device Name** is entered for a new device, the GUID is used in the **Device Name** column, grayed-out.

Device GUID	Device Name	Device Type
{13962B6E-1DD2-11B2-8B3E-00237000494F}	Mixer Input A	KahunaIP110
{13A2877E-1DD2-11B2-9814-002370004957}	Mixer Input B	KahunaIP110
{1396798E-1DD2-11B2-A08A-00237000231B}	Mixer Output B	KahunaIPO10
{D79424B7-E29D-409F-818C-8AF3ABBD70DC}	MV-805 1	MV-805
{9298476C-A3B7-499C-A0DC-87D66380A815}	{9298476C-A3B7-499C-A0DC-87D66380A815}	MV-805

GUID used for **Device Name** of a new device.

Figure 49 New Device GUID Device Name

Note:

Device Name Choice:

Device Names are defined by the user to describe a device.

- Use unique names.
- Choose concise and meaningful names.
- Choose names to facilitate the filtering of devices that appear in the tab screens. Filtering is a useful way of selecting devices and spigots to assign or clear properties of.

4.2.3 Right-Click on Device GUID

Device GUID	Device Name	Device Type	Softv
{13A19D1E-1DD2-11B2-A229-002370003249}	IQEDGE40	IQEDGE40_8	8.82
{1A6A8520-1DD2-11B2-8E80-002370002562}	KudosProIP 1	IQMIX00	10.6
{1A6A8520-1DD2-11B2-83DA-002370002559}	KudosProIP 2	IQMIX00	10.6
{1A6A0FF... 0002561}	MIX10 1	IQMIX00	10.6
{1A6A5E1... 0002566}	MIX10 2	IQMIX00	10.6
{13A323BE... 000480F}	MIX40 1	IQMIX4000	10.6
{13A67F1E... 00047F8}	MIX40 2	IQMIX4000	10.6
{13AAEBE... 00048A1}	MIX40 3	IQMIX4000	10.6
{139E8ED... 00048B2}	MIX40 4	IQMIX4000	10.6

Figure 50 Right-Click on Device GUID - Pop-up Menu

Table 10 Devices Tab - Right-Click on GUID - Pop-up Menu Items

Right-Click Menu Item	Description
Ping	Click to ping the selected device from Orbit over the device's network connections. See Section 4.1.4 Connection Scan on page 53.
Load Control Screen	Click to display the RollCall template of the device in Orbit. This is shown in a separate tab in Orbit. See Section 2.2 Load Control Screen (RollCall Template Viewed in Orbit) on page 18.
Inspect	Click to show the device in the Orbit device inspector. See Section 17 Device Inspector Pane on page 254.
Generate SDP	Click to generate SDP information for the device. See Section 4.1.5 Generate SDP on page 54.

4.3 Status Bar

Information is shown in the **Status Bar** at the bottom of an 'Orbit for IP Routing' screen. Status fields show summary information about devices, see Figure 51.

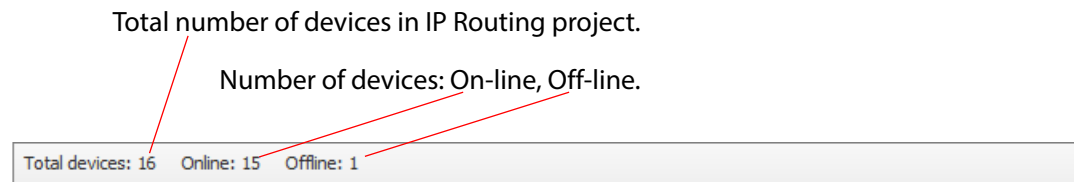
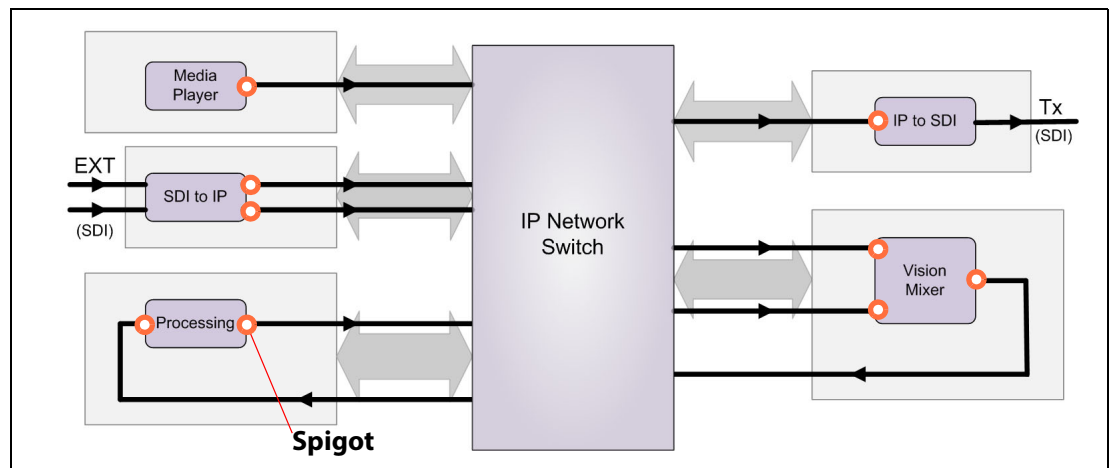


Figure 51 Devices Tab Status Bar

5

5 Tabs - Spigots Tab



Tabs - Spigots Tab

5.1 Introduction	61
5.2 Spigots Tool Bar	63
5.2.1 Assign Router Ports	65
5.2.2 Clear Router Ports	69
5.2.3 Purge Spigots	71
5.3 Spigots Tool Bar (Device Proxy Controls)	72
5.3.1 Mark for Proxy	73
5.3.2 Unmark for Proxy	73
5.3.3 Dev Proxy Config	73
5.3.4 Upload to Dev Proxy	74
5.3.5 Download from Dev Proxy	74
5.3.6 Write Dev Proxy File	75
5.3.7 Read Dev Proxy File	76
5.4 Spigots Tab Main Table	77
5.4.1 Table Columns	77
5.4.2 Inconsistent Spigots	81
5.4.3 Phantom Spigots	81
5.4.4 Reserved Spigots	82
5.4.5 Right-Click on Device Name	82
5.4.6 Right-Click on Spigot Name	85
5.5 Status Bar	85

5.1 Introduction

The **Spigots** tab shows the spigots of each video processing function within a device. Information is presented in a tabular form and device rows can be expanded to show all the spigots within. See Figure 52.

Port Name	Port Number	Mode	Unlink	Flow Types A	Flow Types B	Format	Streaming	Priority	Switch Mode
IQEDGE40									
Spigot 1	IQEDGE40 1	108	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 2	IQEDGE40 2	109	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 3	IQEDGE40 3	110	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 4	IQEDGE40 4	111	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 5	IQEDGE40 5	112	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 6	IQEDGE40 6	113	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 7	IQEDGE40 7	116	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 8	IQEDGE40 8	117	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 9	IQEDGE40 9	118	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 10	IQEDGE40 10	119	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 11	IQEDGE40 11	120	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Break before Make
Spigot 12	IQEDGE40 12	121	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Break before Make
KudoProIP 1									
Spigot 1	KudoProIP 1.1	33	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 2	KudoProIP 1.2	34	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 3	KudoProIP 1.3	35	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 4	KudoProIP 1.4	36	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD	Dual Redundant	High	Make before Break
Spigot 5	KudoProIP 1.5	33	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 6	KudoProIP 1.6	34	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 7	KudoProIP 1.7	35	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 8	KudoProIP 1.8	36	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD	Dual Redundant	High	Make before Break
KudoProIP 2									
MDX10 1									
Spigot 1	MDX10 1.1	41	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 2	MDX10 1.2	42	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 3	MDX10 1.3	43	Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 4			Src	2022-6 RFC4175 PCM Meta	2022-6 RFC4175 PCM Meta	SD, HD, 3G	Dual Redundant	High	Make before Break
Spigot 5	MDX10 1.5	43	Dst	2022-6 RFC4175 PCM	2022-6 RFC4175 PCM	SD, HD, 3G	Dual Redundant	High	Make before Break

Figure 52 Spigots Tab Screenshot (Example)

Figure 53 highlights the features of the **Spigots** tab screen.

Tool Bar, see Section 5.2 *Spigots Tool Bar* on page 63.

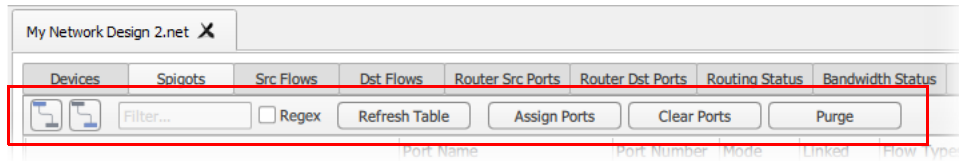
Main Table of devices, expandable to show their **Spigots**, see Section 5.4 *Spigots Tab Main Table* on page 77

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	Routing Status	Bandwidth Status	Log
<div style="border: 1px solid gray; padding: 2px;"> <input type="text" value="Iq"/> <input type="checkbox"/> regExp Refresh Table Assign Ports Clear Ports Purge </div>								
		Port Name	Port Number	Mode	Linked	Flow Types A		Flow Types
▼ IQEDGE40	Spigot 1	IQEDGE40 1	108	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 2	IQEDGE40 2	109	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 3	IQEDGE40 3	110	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 4	IQEDGE40 4	111	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 5	IQEDGE40 5	112	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 6	IQEDGE40 6	113	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 7	IQEDGE40 7	116	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 8	IQEDGE40 8	117	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 9	IQEDGE40 9	118	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 10	IQEDGE40 10	119	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 11	IQEDGE40 11	120	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 12	IQEDGE40 12	121	Dst		2022-6 RFC4175 PCM	2022-6 RF	
▼ KudosProIP	Spigot 1	KudosProIP 1 1	33	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 2	KudosProIP 1 2	34	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 3	KudosProIP 1 3	35	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 4	KudosProIP 1 4	36	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 5	KudosProIP 1 5	33	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 6	KudosProIP 1 6	34	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 7	KudosProIP 1 7	35	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 8	KudosProIP 1 8	36	Dst		2022-6 RFC4175 PCM	2022-6 RF	
▶ KudosProIP 2	Device not expanded							
▼ MIX10 1	Spigot 1	MIX10 1 1	41	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 2	MIX10 1 2	42	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 3	MIX10 1 3	43	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 4	MIX10 1 4	44	Src		2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 5	MIX10 1 5	13	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 6	MIX10 1 6	14	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 7	MIX10 1 7	15	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 8	MIX10 1 8	16	Dst		2022-6 RFC4175 PCM	2022-6 RF	
▶ MIX10 2	Device not expanded							
▼ MIX40 1	Spigot 1	4K #1 -1	49	Src	○	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 2	4K #1 -2	50	Src	●	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 3	4K #1 -3	51	Src	●	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 4	4K #1 -4	52	Src	○	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 5	4K #2 -1	53	Src	○	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 6	4K #2 -2	54	Src	●	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 7	4K #2 -3	55	Src	●	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 8	4K #2 -4	56	Src	●	2022-6 RFC4175 PCM Meta	2022-6 RF	
	Spigot 9	MBB/BBM Destination	49	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 10	my name	50	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 11	my name	51	Dst		2022-6 RFC4175 PCM	2022-6 RF	
	Spigot 12	my name	52	Dst		2022-6 RFC4175 PCM	2022-6 RF	
<div style="border: 1px solid gray; padding: 2px;"> Source spigots: 82 Online: 82 Offline: 0 Assigned: 81 Dest spigots: 114 Online: 114 Offline: 0 Assigned: 114 </div>								

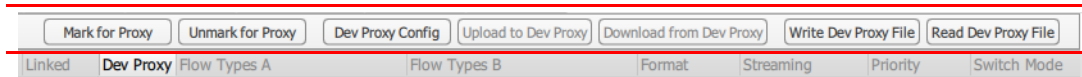
Status Bar, see Section on page 85

Figure 53 Spigots Tab Example - Annotated Screenshot

5.2 Spigots Tool Bar



a) Standard Tool Bar



b) Extra Proxy Controls (Shown when 'Show Device Proxy' property is selected)

(See Section 5.3 [Spigots Tool Bar \(Device Proxy Controls\)](#) on page 72)

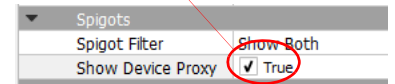


Figure 54 Spigots Tool Bar:
 a) Standard Tool Bar.
 b) Extra Device Proxy Controls.

Table 11 Spigots Standard Tool Bar Items



Tool Bar Item	Description
Tree view controls:	
	Button. Click to collapse the list to just show Devices .
	Button. Click to expand each list item to show each Spigot .
Filter controls:	Filters which Devices are presented in the main table of the tab. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.)
Filter...	Text box. Enter the text to filter on (Filter Text). Table rows are filtered on this Filter Text automatically. For the Spigots tab, rows are filtered on the Device Name column.
Regex	Check box. Select when the Filter string is a regular expression. (Perl regular expression format is used.)
Refresh Table	Button. Click to refresh the screen contents from Orbit's own, gathered information.

Table 11 Spigots Standard Tool Bar Items (Continued)

Tool Bar Item	Description
Assign Ports	<p>Button.</p> <p>Click to assign all (traditional) router source or destination ports for all devices.</p> <p>Caution: This is a high risk operation that will have a major impact on the routing system.</p> <p style="text-align: right;">See Section 5.2.1 Assign Router Ports on page 65.</p>
Clear Ports	<p>Button.</p> <p>Click to clear all (traditional) router source or destination port assignments for all devices.</p> <p>Caution: This is a high risk operation that will have a major impact on the routing system.</p> <p style="text-align: right;">See Section 5.2.2 Clear Router Ports on page 69.</p>
Purge	<p>Button.</p> <p>Click to purge spigots.</p> <p style="text-align: right;">See Section 5.2.3 Purge Spigots on page 71.</p>

5.2.1 Assign Router Ports



This is a high risk operation that will have a major impact on the routing system.

For a source spigot to generate a flow and a destination spigot to receive a flow the spigots must first be assigned a router port number.

Assigning all router ports is an operation which will have a major impact on the routing system. All current assignments will be unaffected, but the impact will still be potentially major. An authorization step is first presented before the port assigning dialog.

Authorization step:

1. Click **Assign Ports** in the **Spigots** tab.

A **HIGH RISK Alert** dialog is shown with a cautionary message, see Figure 55.

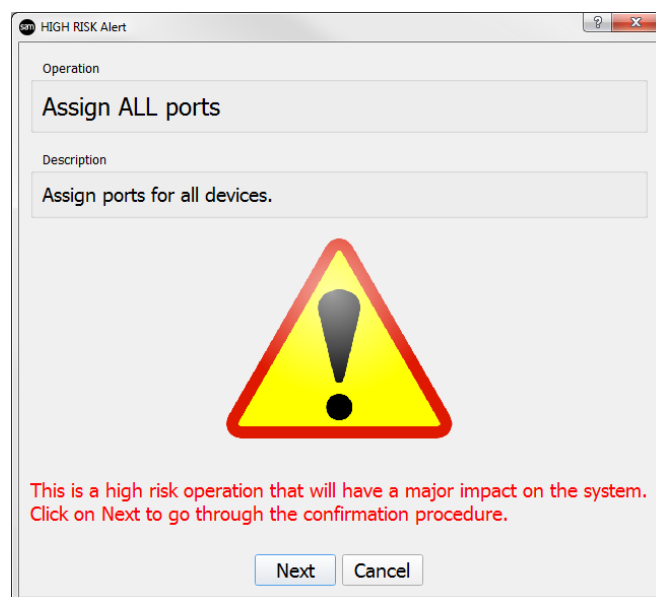


Figure 55 High Risk Alert

2. Click **Next** to continue, or click **Cancel** to abort the operation.

If continuing with the assign operation, then:

3. The dialog prompts the user for the Orbit project password. See Figure 56a.
4. Enter the password and press 'enter'. (Figure 56b). Finally, click **Next** (Figure 56c).

The **Assign Port Mappings** dialog is shown. See Figure 57.

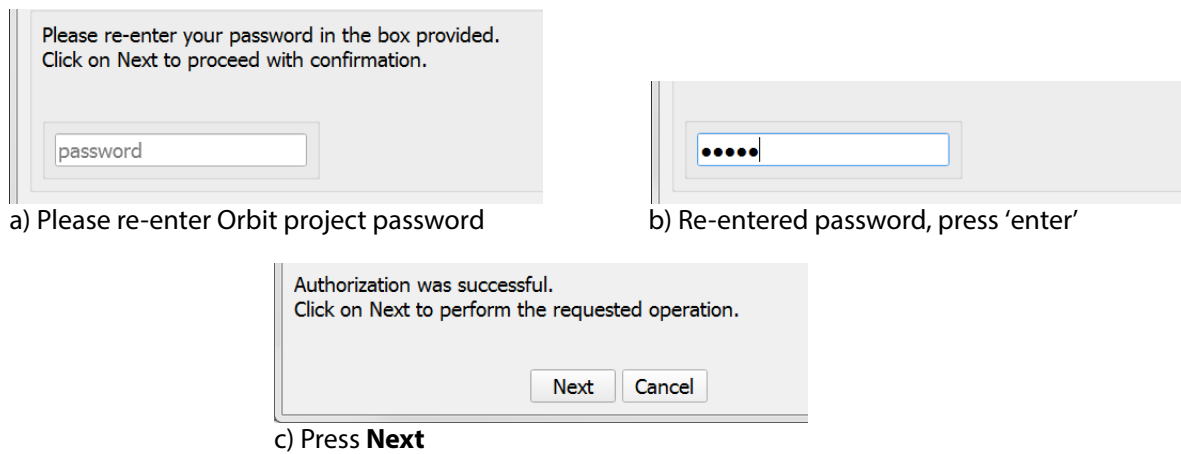


Figure 56 Authorization Steps: a), b) and c)

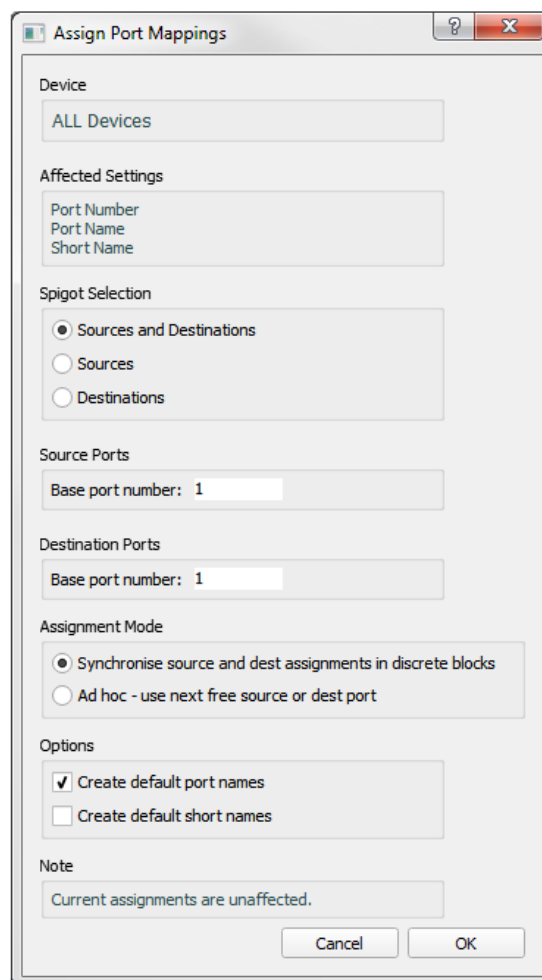


Figure 57 Assign Port Mappings Dialog

Assign Ports:

The dialog of Figure 57 will operate on all **Devices** and affect all **Router Port Numbers** and **Router Port Names**.

Any existing port assignments will be unaffected.
 This operation does nothing to a fully-assigned system.
 Use the assignment to add in a new device.

The assignment:

1. Uses any unused, gaps in the current port assignments.
2. Appends to the port assignments.

Table 12 describes the items in the **Assign Port Mappings** dialog.

Table 12 Assign Port Mappings Items

Dialog Item	Description
Device	"ALL Devices" - Displays which devices will be affected. Note: Only un assigned ports will be affected. Currently-defined ports will be unaffected.
Affected Settings	"Port Number" - Displays which device settings will be affected. "Port Name"
Spigot Selection:	Radio buttons:
Sources and Destinations	Click for both source and destination spigots to be assigned.
Sources	Click for both source spigots to assign to be assigned.
Destinations	Click for both destination spigots to be assigned.
Source Ports:	
Base port number	Value. Enter source port number to start numbering from. Assignment will not be done to port numbers below this base number.
Destination Ports:	
Base port number	Value. Enter destination port number to start numbering from. Assignment will not be done to port numbers below this base number.
Assignment Mode:	Radio buttons.
Synchronise source and dest assignments in discrete blocks	Select to assign contiguous blocks of source or destination ports.
Adhoc - use next free source or dest port	Select to assign ports from the base port number(s) specified, filling any gaps.

Table 12 Assign Port Mappings Items (Continued)

Dialog Item	Description
<p>Options:</p> <p>Create default ports names</p> <p>Check box. Select to create default port names of up to 32 characters when assigning port numbers.</p> <p>Names are of the form: <device name> <S or D> <port number> For example,</p> <p>For a source, enter: MV805 S 1</p> <p>For a destination, enter: MV805 D 6</p> <p>Create default short names</p> <p>Check box. Select to create default short names of up to 8 characters when assigning port numbers.</p> <p>Names are of the form: <S or D><port number> For example,</p> <p>“S1” for a source (without the “”).</p> <p>“D6” for a destination.</p>	
Note	<p>“Current assignments are unaffected.”</p> <p>The current port assignments will be unaffected by the assignment operation.</p>
Cancel	<p>Button. Click Cancel to abort the assign operation.</p>
OK	<p>Button. Click OK to carry out the assignment operation.</p>

5.2.2 Clear Router Ports



This is a high risk operation that will have a major impact on the routing system.

Clearing all router ports is an operation which will have a major impact on the routing system. An authorization step is first presented before the port assigning dialog.

Authorization step:

1. Click **Assign Ports** in the **Spigots** tab.

A **HIGH RISK Alert** dialog is shown with a cautionary message, see Figure 58.

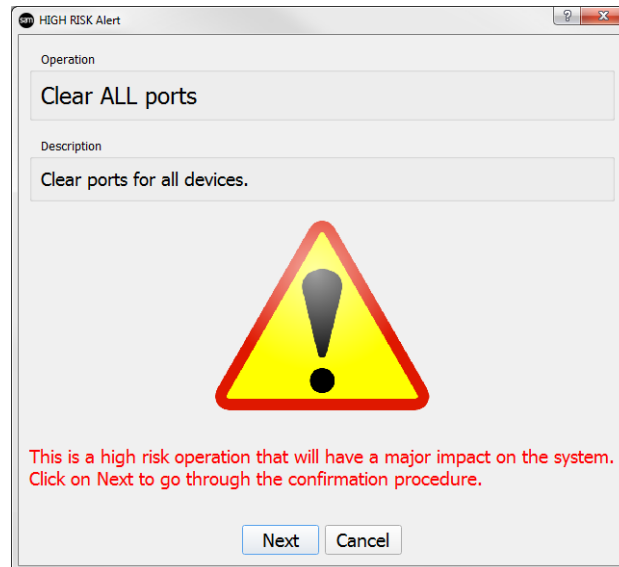


Figure 58 High Risk Alert

2. Click **Next** to continue, or click **Cancel** to abort the operation.

If continuing with the clear operation, then:

3. The dialog prompts the user for the Orbit project password, similar to Figure 56a, b and c.

Enter the password and press 'enter'. Finally, click **Next**.

The **Clear Port Mappings** dialog is shown. See Figure 59.

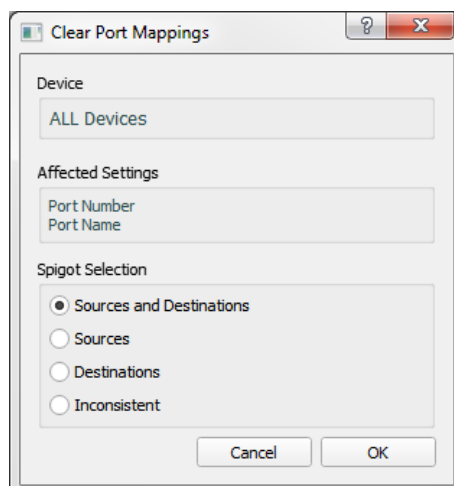


Figure 59 Clear Port Mappings Dialog

Clear Ports:

The dialog of Figure 59 will operate on all **Devices** and affect all **Router Port Numbers** and **Router Port Names**. Any existing port assignments will be affected.

Table 13 describes the items in the **Clear Port Mappings** dialog.

Table 13 Clear Port Mappings Items

Dialog Item	Description
Device	"ALL Devices" - Displays which devices will be affected.
Affected Settings	"Port Number" - Displays which device settings will be affected. "Port Name".
Spigot Selection:	Radio buttons:
Sources and Destinations	Click for both source and destination spigots to be cleared.
Sources	Click for source spigots to be cleared.
Destinations	Click for destination spigots to be cleared.
Inconsistent	Click for inconsistently-allocated spigots to be cleared.
	The Clear Port Mappings dialog can clear the port settings of inconsistent spigots. Note: This will also have the effect of clearing any inconsistent flows. See Section 5.2.3 <i>Purge Spigots</i> on page 71.
Cancel	Button. Click Cancel to abort the clear port operation.
OK	Button. Click OK to carry out the clear port operation.

5.2.3 Purge Spigots

This operation removes the selected spigots and deletes any associated router port assignments.

1. Click the **Purge** button on the **Spigots** tab.
The **Purge Spigots** dialog is shown. See Figure 60.
2. Select spigots.
3. Click **OK** to purge selected spigots.

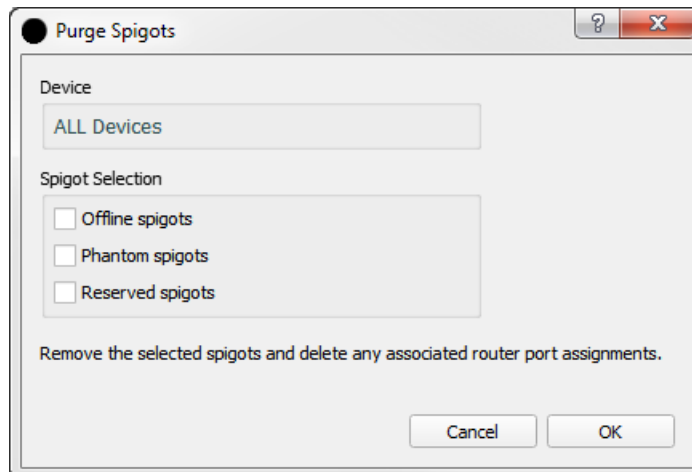


Figure 60 Purge Spigots Dialog

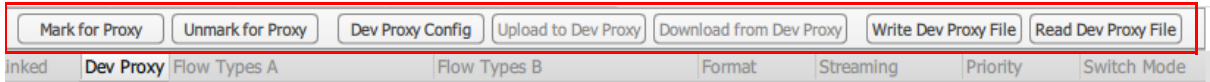
Table 14 Purge Spigots Items

Dialog Item	Description
Device	"ALL Devices" - Displays which devices will be affected.
Spigot Selection:	Radio buttons:
Offline spigots	Click to select all off-line spigots.
Phantom spigots	Click to select phantom spigots. See Section 5.4 Spigots Tab Main Table on page 77.
Reserved spigots	Click to select reserved spigots. See Section 5.4.4 Reserved Spigots on page 82

5.3 Spigots Tool Bar (Device Proxy Controls)

See Section 1.8 [Device Proxy Support](#) on page 11 for an introduction the Device Proxy feature.

Device Proxy controls (and a 'Dev Proxy' column) are shown on the **Spigots** tab when the 'Show Device Proxy' property is enabled (set to 'true').



These extra **Device Proxy** controls are shown when **Show Device Proxy** property is set 'True'

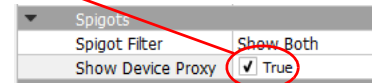


Figure 61 Spigots Tool Bar - Extra Device Proxy Controls.

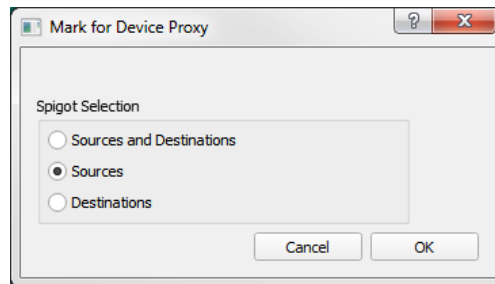
Table 15 Spigots Tool Bar - Extra Device Proxy Items

Tool Bar Item	Description
Mark for Proxy	Button. Select to enable spigot information of all devices to be sent to a device proxy server. Section 5.3.1 Mark for Proxy on page 73.
Unmark for Proxy	Button. Select to disable spigot information of all devices to be sent to a device proxy server. Section 5.3.2 Unmark for Proxy on page 73.
Dev Proxy Config	Button. Sets up proxy server information, including IP address and Client ID. Section 5.3.3 Dev Proxy Config on page 73.
Upload to Dev Proxy	Button. (Grayed out until Dev Proxy Config settings are set up.) Transfers device proxy information from Orbit to a device proxy server. Section 5.3.4 Upload to Dev Proxy on page 74.
Download from Dev Proxy	Button. (Grayed out until Dev Proxy Config settings are set up.) Transfers device proxy information from a device proxy server into Orbit. Section 5.3.5 Download from Dev Proxy on page 74.
Write Dev Proxy File	Button. Writes spigot device proxy information to a file. (This is the same information that is transferred with Upload to Dev Proxy .) Section 5.3.6 Write Dev Proxy File on page 75.
Read Dev Proxy File	Button. Reads spigot device proxy information from a device proxy file. Section 5.3.7 Read Dev Proxy File on page 76.

5.3.1 Mark for Proxy

To enable spigot information of all devices to be sent to a device proxy server:

1. Click **Mark for Proxy**.

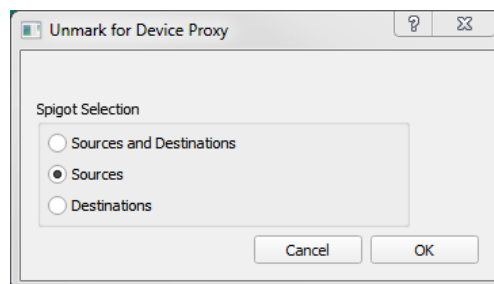


2. Select source, or destination, or source and destinations spigots.
3. Click **OK**.

5.3.2 Unmark for Proxy

To disable spigot information of all devices to be sent to a device proxy server:

1. Click **Unmark for Proxy**.



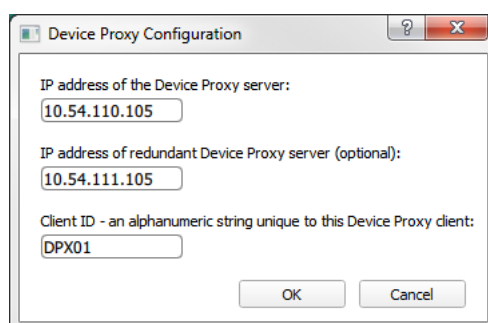
2. Select source, or destination, or source and destinations spigots.
3. Click **OK**.

5.3.3 Dev Proxy Config

A Grass Valley **Device Proxy** application running on a proxy server can use device proxy information from more than one 'Orbit for IP Routing' client. **Client ID** is used to uniquely identify each Orbit client on a **Device Proxy** application.

To set up proxy server information, including IP address and client ID:

1. Click **Dev Proxy Config**.



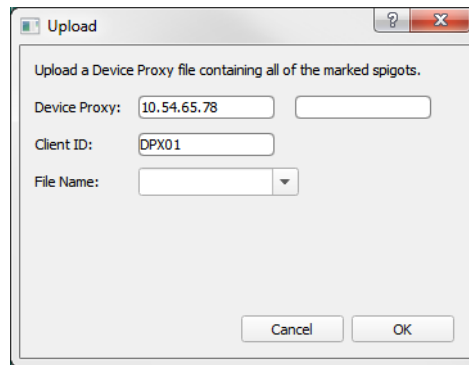
2. Enter **IP address** of the device proxy server, and also of any redundant server.

3. Enter a **Client ID** - an alphanumeric string which is unique to this 'Orbit for IP Routing' device proxy client.
4. Click **OK**.

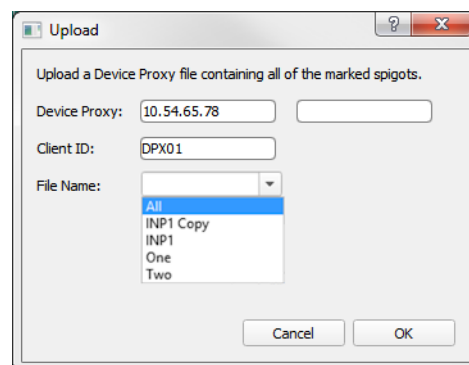
5.3.4 Upload to Dev Proxy

To transfer device proxy information from Orbit to a device proxy server:

1. Click **Upload to Dev Proxy**.



2. Enter a (new) file name or select a file from the drop-down list.



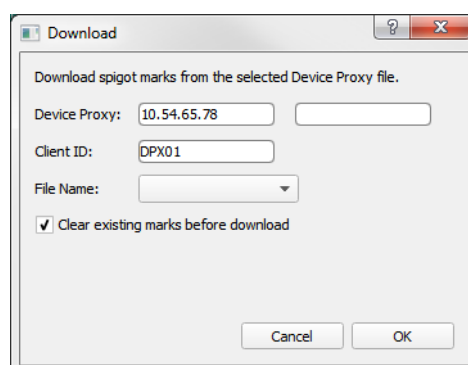
3. Click **OK**.

Information about all of the marked spigots is sent in a file to the device proxy.

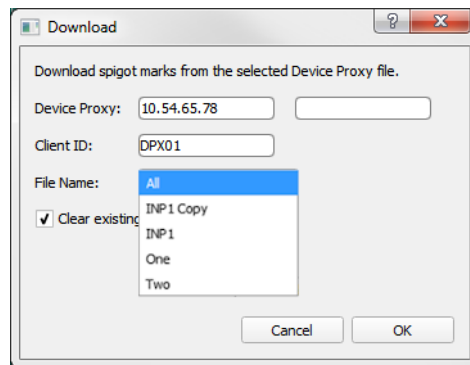
5.3.5 Download from Dev Proxy

To transfer device proxy information from a device proxy server into Orbit:

1. Click **Download from Dev Proxy**.



2. If required, select 'Clear existing marks before read' to unmark all existing spigots that are marked for device proxy.
3. Select a file to download from the **Device Proxy** server with the drop-down list.



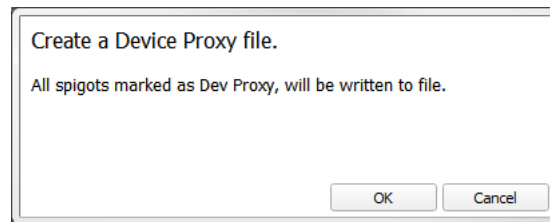
4. Click **OK**.

Information about spigots is retrieved from the Device Proxy and spigots are marked. Any existing marked spigots for Device Proxy are optionally cleared ahead of the download.

5.3.6 Write Dev Proxy File

To write spigot device proxy information to a file:
(This is the same information that is transferred with **Upload to Dev Proxy**.)

1. Click **Write Dev Proxy File**.



2. Click **OK**.
3. Select a file to write to and click **Save**.



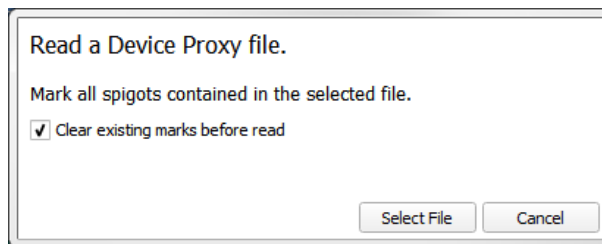
4. Click **OK**.

Information about all of the marked spigots is written to a device proxy file.

5.3.7 Read Dev Proxy File

To read spigot device proxy information from a device proxy file:

1. Click **Read Dev Proxy File**.



2. If required, select 'Clear existing marks before read' to unmark all existing spigots that are marked for device proxy.
3. Click **Select File** and select a file to read from and click **Open**.

Information about spigots is read from the device proxy file and spigots are marked. Any existing marked spigots are optionally cleared ahead of the download.

5.4 Spigots Tab Main Table

Within the **Spigots** tab, when each device item is expanded, all the spigots of the device are shown in table rows. See Figure 62.

	Port Name	Port Number	Mode	L
IQEDGE40				
Spigot 1	IQEDGE40 1	108	Src	
Spigot 2	IQEDGE40 2	109	Src	
Spigot 3	IQEDGE40 3	110	Src	
Spigot 4	IQEDGE40 4	111	Src	
Spigot 5	IQEDGE40 5	112	Src	
Spigot 6	IQEDGE40 6	113	Src	
Spigot 7	IQEDGE40 7	116	Dst	
Spigot 8	IQEDGE40 8	117	Dst	
Spigot 9	IQEDGE40 9	118	Dst	
Spigot 10	IQEDGE40 10	119	Dst	
Spigot 11	IQEDGE40 11	120	Dst	
Spigot 12	IQEDGE40 12	121	Dst	

Figure 62 Device Item Expanded to Show Spigots

Note: **Find Text:**
 The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 *Find Text* on page 39.

5.4.1 Table Columns

Spigot information is presented in the rows of the table. Many of the table row items contain information read from the device by Orbit. Column headings are shown in Figure 63 and described in Table 16.

(Device/Spigot name)

	Port Name	Port Number	Mode	Linked	Flow Types A	Flow Types B	Format	Streaming	Priority	Switch Mode
--	-----------	-------------	------	--------	--------------	--------------	--------	-----------	----------	-------------

Figure 63 Spigots Tab - Table Headings

Table 16 Spigots Tab - Column Headings

Column Headings	Description
(First column)	Device and Spigot names. Shows the device name expanded to spigot name(s).
Port Name	Editable text field. (See Note 1.) Router port name. This text field may be edited to enter a new port name or modify the port name. Orbit checks the entered name for any duplication and gives a warning message. If this port name field is deleted, then the port number field is unaffected.
Port Number	Editable text field. (See Note 1.) Router port number. This text field may be edited to enter a new port number or modify the port number. If this port number field is deleted, then the port name field is also deleted.
Mode	Text field. Shows spigot mode: source ('Src'), or destination ('Dst'), or reserved ('Reserved').
Linked	Indicates when four spigots are linked to form a quad-link connection. The first spigot in the linked group is the head spigot of the linked group.

	Port Name	Port Number	Mode	Linked	Flow Types A
MDX40 1					
Spigot 1	4K #1 -1	49	Src	<input type="radio"/>	2022-6 RFC4175 PCM Meta
Spigot 2	4K #1 -2	50	Src	<input checked="" type="radio"/>	2022-6 RFC4175 PCM Meta
Spigot 3	4K #1 -3	51	Src	<input checked="" type="radio"/>	2022-6 RFC4175 PCM Meta
Spigot 4	4K #1 -4	52	Src	<input checked="" type="radio"/>	2022-6 RFC4175 PCM Meta
Spigot 5	Camera 1	53	Src		2022-6 RFC4175 PCM Meta
Spigot 6	Camera 2	54	Src		2022-6 RFC4175 PCM Meta
Spigot 7	Camera 3	55	Src		2022-6 RFC4175 PCM Meta
Spigot 8	Camera 4	56	Src		2022-6 RFC4175 PCM Meta
Spigot 9	MBB/BBM Destination	49	Dst		2022-6 RFC4175 PCM
Spigot 10	my name	50	Dst		2022-6 RFC4175 PCM
Spigot 11	MDX40 1 11	51	Dst		2022-6 RFC4175 PCM
Spigot 12	MDX40 1 12	52	Dst		2022-6 RFC4175 PCM
Spigot 13	Screen Right -1	53	Dst	<input type="radio"/>	2022-6 RFC4175 PCM
Spigot 14	Screen Right -2	54	Dst	<input checked="" type="radio"/>	2022-6 RFC4175 PCM
Spigot 15	Screen Right -3	55	Dst	<input checked="" type="radio"/>	2022-6 RFC4175 PCM
Spigot 16	Screen Right -4	56	Dst	<input checked="" type="radio"/>	2022-6 RFC4175 PCM

Table 16 Spigots Tab - Column Headings (Continued)

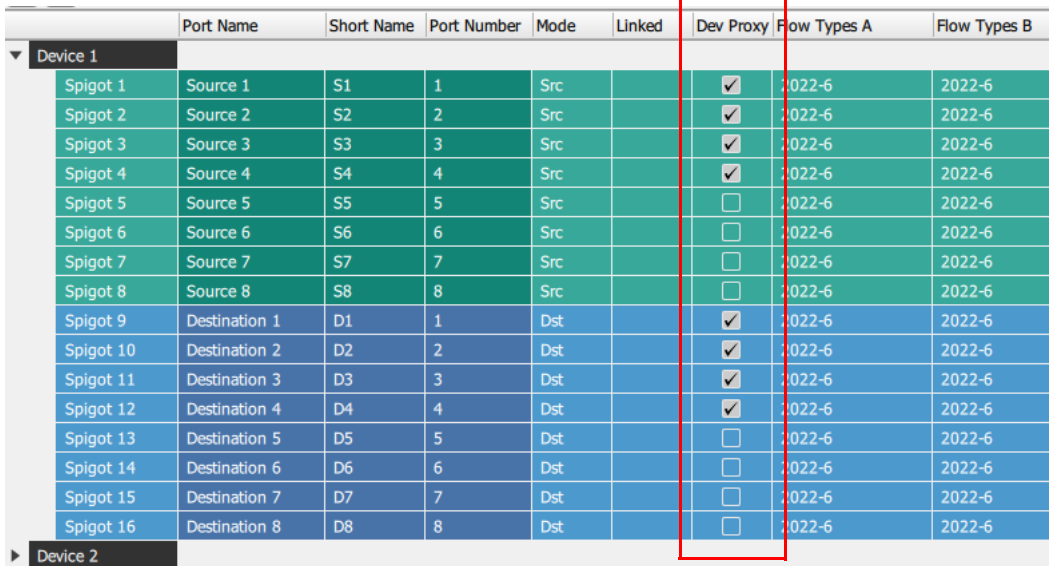
Column Headings	Description																																																																																																																																																																		
Dev Proxy	<p>Check box. (Column only shown when Show Device Proxy property is selected in the Properties box.)</p> <p>Select to enable a spigot’s information to be sent to a device proxy application.</p>																																																																																																																																																																		
 <p>The screenshot shows a table with the following data:</p> <table border="1"> <thead> <tr> <th>Device</th> <th>Port Name</th> <th>Short Name</th> <th>Port Number</th> <th>Mode</th> <th>Linked</th> <th>Dev Proxy</th> <th>Flow Types A</th> <th>Flow Types B</th> </tr> </thead> <tbody> <tr><td>Device 1</td><td>Spigot 1</td><td>Source 1</td><td>S1</td><td>1</td><td>Src</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 2</td><td>Source 2</td><td>S2</td><td>2</td><td>Src</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 3</td><td>Source 3</td><td>S3</td><td>3</td><td>Src</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 4</td><td>Source 4</td><td>S4</td><td>4</td><td>Src</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 5</td><td>Source 5</td><td>S5</td><td>5</td><td>Src</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 6</td><td>Source 6</td><td>S6</td><td>6</td><td>Src</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 7</td><td>Source 7</td><td>S7</td><td>7</td><td>Src</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 8</td><td>Source 8</td><td>S8</td><td>8</td><td>Src</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 9</td><td>Destination 1</td><td>D1</td><td>1</td><td>Dst</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 10</td><td>Destination 2</td><td>D2</td><td>2</td><td>Dst</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 11</td><td>Destination 3</td><td>D3</td><td>3</td><td>Dst</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 12</td><td>Destination 4</td><td>D4</td><td>4</td><td>Dst</td><td><input checked="" type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 13</td><td>Destination 5</td><td>D5</td><td>5</td><td>Dst</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 14</td><td>Destination 6</td><td>D6</td><td>6</td><td>Dst</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 15</td><td>Destination 7</td><td>D7</td><td>7</td><td>Dst</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 1</td><td>Spigot 16</td><td>Destination 8</td><td>D8</td><td>8</td><td>Dst</td><td><input type="checkbox"/></td><td>2022-6</td><td>2022-6</td></tr> <tr><td>Device 2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>		Device	Port Name	Short Name	Port Number	Mode	Linked	Dev Proxy	Flow Types A	Flow Types B	Device 1	Spigot 1	Source 1	S1	1	Src	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 2	Source 2	S2	2	Src	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 3	Source 3	S3	3	Src	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 4	Source 4	S4	4	Src	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 5	Source 5	S5	5	Src	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 6	Source 6	S6	6	Src	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 7	Source 7	S7	7	Src	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 8	Source 8	S8	8	Src	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 9	Destination 1	D1	1	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 10	Destination 2	D2	2	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 11	Destination 3	D3	3	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 12	Destination 4	D4	4	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 13	Destination 5	D5	5	Dst	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 14	Destination 6	D6	6	Dst	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 15	Destination 7	D7	7	Dst	<input type="checkbox"/>	2022-6	2022-6	Device 1	Spigot 16	Destination 8	D8	8	Dst	<input type="checkbox"/>	2022-6	2022-6	Device 2								
Device	Port Name	Short Name	Port Number	Mode	Linked	Dev Proxy	Flow Types A	Flow Types B																																																																																																																																																											
Device 1	Spigot 1	Source 1	S1	1	Src	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 2	Source 2	S2	2	Src	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 3	Source 3	S3	3	Src	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 4	Source 4	S4	4	Src	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 5	Source 5	S5	5	Src	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 6	Source 6	S6	6	Src	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 7	Source 7	S7	7	Src	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 8	Source 8	S8	8	Src	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 9	Destination 1	D1	1	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 10	Destination 2	D2	2	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 11	Destination 3	D3	3	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 12	Destination 4	D4	4	Dst	<input checked="" type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 13	Destination 5	D5	5	Dst	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 14	Destination 6	D6	6	Dst	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 15	Destination 7	D7	7	Dst	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 1	Spigot 16	Destination 8	D8	8	Dst	<input type="checkbox"/>	2022-6	2022-6																																																																																																																																																											
Device 2																																																																																																																																																																			
Flow Types A	<p>Lists the flow types on the spigot. For example, '2022-6', 'RFC4175', 'PCM', 'Meta'.</p> <p>Note: Flow type is configured in the device’s RollCall template.</p>																																																																																																																																																																		
Flow Types B	<p>Lists the flows types on the spigot.</p>																																																																																																																																																																		
Format	<p>Lists the video resolution standards carried on the spigot. For example, 'SD', 'HD', '3G'.</p> <p>This is an advisory field; it has no effect on routing. See Note 2.</p>																																																																																																																																																																		
Streaming	<p>The type of IP streaming.</p> <ul style="list-style-type: none"> • 'Single A'. • 'Single B'. • 'Dual Redundant'. • 'No Stream'. 																																																																																																																																																																		
Priority	<p>Text field. Shows the relative priority of the flow traffic.</p> <p>For example: 'High', 'Medium', or 'Low'.</p> <p>This is an advisory field; it is set up as part of the setting up of each device; it has no effect on routing. See Note 2.</p>																																																																																																																																																																		

Table 16 Spigots Tab - Column Headings (Continued)

Column Headings	Description
Switch Mode	Text field. The route switching mode. For example, 'Break before Make', or 'Make before Break'. This is set up as part of the setting up of each device.
<p>Note 1: Editable text fields are not editable when the device is off-line.</p> <p>Note 2: Advisory fields have no effect on routing.</p> <p>Advisory fields are used by Orbit when bandwidth checking is enabled in the network configuration settings in Orbit. In this case, Orbit uses the Format and Priority fields when enabling flows to check when a connection bandwidth is nearing its limit.</p>	

5.4.2 Inconsistent Spigots

Inconsistent spigots are spigots whose source/destination mode is inconsistent with their destination/source router port assignment. This can occur in a routing system if a device's spigot configuration has been modified.

For example, a Grass Valley IQMIX card may be re-configured.

If some or all spigots have been re-configured (from being sources/destinations to being destinations/sources), then the video IP router port assignments must also be changed to match the device; this must be done in Orbit.

Figure 64 shows how Orbit highlights inconsistent spigots.

Spigot Name	Port Name	Port Number	Spigot Mode	
Spigot 1	MIX 25 1	104	Src	Dst
Spigot 2	MIX 25 2	105	Src	Dst

a) Inconsistent Source Spigots

Spigot 9	IQ EDGE B 9	415	Dst	Src	2022-6	RFC4175	VC-2	PCM
Spigot 10	IQ EDGE B 10	416	Dst	Src	2022-6	RFC4175	VC-2	PCM

b) Inconsistent Destination Spigots

Figure 64 Inconsistent Spigots:

a) Inconsistent Source Spigots.

b) Inconsistent Destination Spigots.

Clear Router Port Settings:

To clear router port settings for inconsistent spigots:

- Click the **Clear Ports** button on the **Spigots** tab.
- Select 'Inconsistent' as the **Spigot Selection** in the **Clear Port Mappings** dialog.

5.4.3 Phantom Spigots

Phantom spigots are spigots that did exist in a video IP routing system but no longer exist. This can occur in a routing system if a device's spigot configuration has been modified.

For example, a Grass Valley IQMIX card:

- The card can have 8 inputs (routing destinations) and 8 outputs (routing sources).
- The card may be re-configured to have 4 inputs and 12 outputs.
- Four destination spigots now no longer exist. These are phantom spigots.

Some device re-configurations can delete spigots and this can lead to phantom spigots (and flows) showing in Orbit.

Figure 65 shows how Orbit highlights phantom spigots.

Spigot Name

Spigot 1	{00000000-0000-0000-0...	225	Src	2022-6 RFC4175 VC-2 PCM
Spigot 2	{00000000-0000-0000-0...	226	Src	2022-6 RFC4175 VC-2 PCM

a) Phantom Source Spigots

Spigot 1	{00000000-0000-1000-0...	19	Dst	2022-6 RFC4175 VC-2 PCM
Spigot 2	{00000000-0000-1000-0...	20	Dst	2022-6 RFC4175 VC-2 PCM

b) Phantom Destination Spigots

Figure 65 Phantom Spigots

Purging Phantom Spigots:

To purge phantom spigots:

- Click the **Purge** button on the **Spigots** tab.
- Select 'Phantom spigots' as the **Spigot Selection** in the **Purge Spigots** dialog.

5.4.4 Reserved Spigots

Reserved spigots are spigots whose source/destination mode is not yet defined.

5.4.5 Right-Click on Device Name

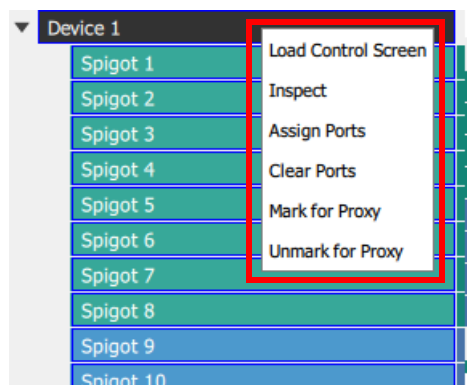


Figure 66 Spigots Tab - Right-Click on Device Name

Table 17 Spigots Tab - Right-Click on Device - Pop-up Menu Items

Pop-up Menu Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit. This is shown in a separate tab in Orbit.
Inspect	Click Inspect to show the device in the Orbit device inspector. See Section 17 Device Inspector Pane on page 254.

Table 17 Spigots Tab - Right-Click on Device - Pop-up Menu Items (Continued)

Pop-up Menu Item	Description
<p>Assign Ports</p>	<p>Click to assign ports of the selected device.</p> <p>The Assign Port Mappings dialog is shown. (See Section 5.2.1 Assign Router Ports on page 65 for a description of the dialog.)</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px auto; width: fit-content;"> </div> <p>The selected Device Name is shown in the 'Device' section of the dialog. Port assignments are only carried out for the selected Device shown.</p>

Table 17 Spigots Tab - Right-Click on Device - Pop-up Menu Items (Continued)

Pop-up Menu Item	Description
Clear Ports	<p>Click to clear ports of the selected device.</p> <p>The Clear Port Mappings dialog is shown. (See Section 5.2.2 Clear Router Ports on page 69 for a description of the dialog.)</p> <div style="text-align: center;"> </div> <p>The selected Device Name is shown in the 'Device' section of the dialog. Port assignments are only cleared for the selected Device shown.</p>
Mark for Proxy	<p>Click to mark source and/or destination spigots of just the selected device for device proxy.</p> <p>(See Mark for Proxy in Table 15 in Section 5.3 Spigots Tool Bar (Device Proxy Controls) on page 72.)</p>
Unmark for Proxy	<p>Click to unmark source and/or destination spigots of just the selected device for device proxy.</p> <p>(See Unmark for Proxy in Table 15 in Section 5.3 Spigots Tool Bar (Device Proxy Controls) on page 72.)</p>

5.4.6 Right-Click on Spigot Name

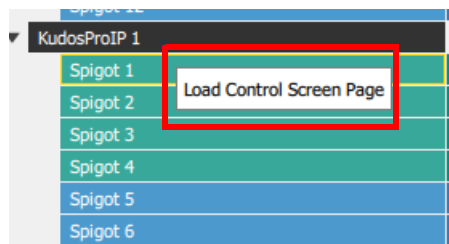


Figure 67 Spigots Tab - Right-Click on Spigot Name

Table 18 Spigots Tab - Right-Click on Spigot - Pop-up Menu Items

Pop-up Menu Item	Description
Load Control Screen Page	Click to display the relevant spigot screen page of the Device's RollCall template. This is shown in a separate tab in Orbit.

5.5 Status Bar

Information is shown in the **Status Bar** at the bottom of an 'Orbit for IP Routing' screen. Status fields show summary information about spigots, see Figure 68.

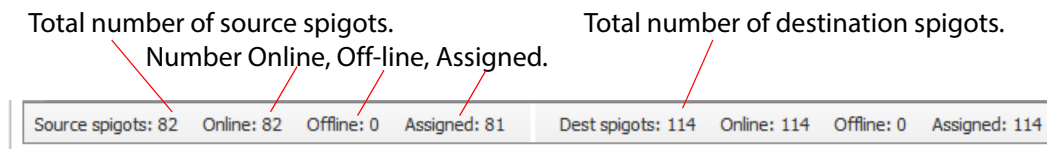
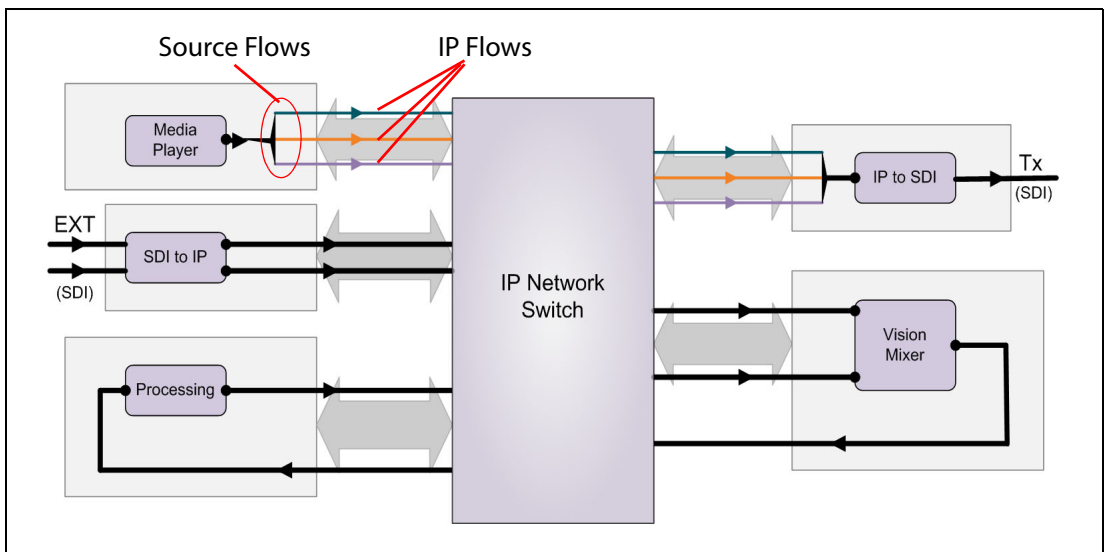


Figure 68 Spigots Tabs - Status Bar

6

6 Tabs - Source Flows (Src Flows) Tab



Tabs - Source Flows (Src Flows) Tab

- 6.1 Introduction87
- 6.2 Src Flows - Tool Bar89
 - 6.2.1 Multicast Options 92
 - 6.2.2 Assign Multicast 95
 - 6.2.3 Clear Multicast 97
 - 6.2.4 Flow Options 99
 - 6.2.5 Enable Flows100
 - 6.2.6 Disable Flows102
 - 6.2.7 HIGH RISK Alert104
 - 6.2.8 Multicast Scan106
 - 6.2.9 Bandwidth Estimate108
 - 6.2.10 Flow Summary108
- 6.3 Src Flows - Main Table 110
 - 6.3.1 Table Columns110
 - 6.3.2 Inconsistent Source Flows113
 - 6.3.3 Phantom Source Flows113
 - 6.3.4 Right-Click on Device113
 - 6.3.5 Right-Click on Spigot122
 - 6.3.6 Right-Click on Source Flow124
- 6.4 Src Flows - Status Bar 126

6.1 Introduction

The **Source Flows** tab shows the IP flows of each spigot within a device. Device, spigot and flow information is presented in a tabular form below a **Tool Bar**. Table rows can be expanded to show source spigots and, in turn, each spigot can be expanded to show its constituent **Source Flows**. See Figure 69.

Multicast IP addresses are set up in this **Src Flows** tab screen. Orbit for IP Routing manages the assignment of unique multicast IP addresses to device IP flows on spigots.

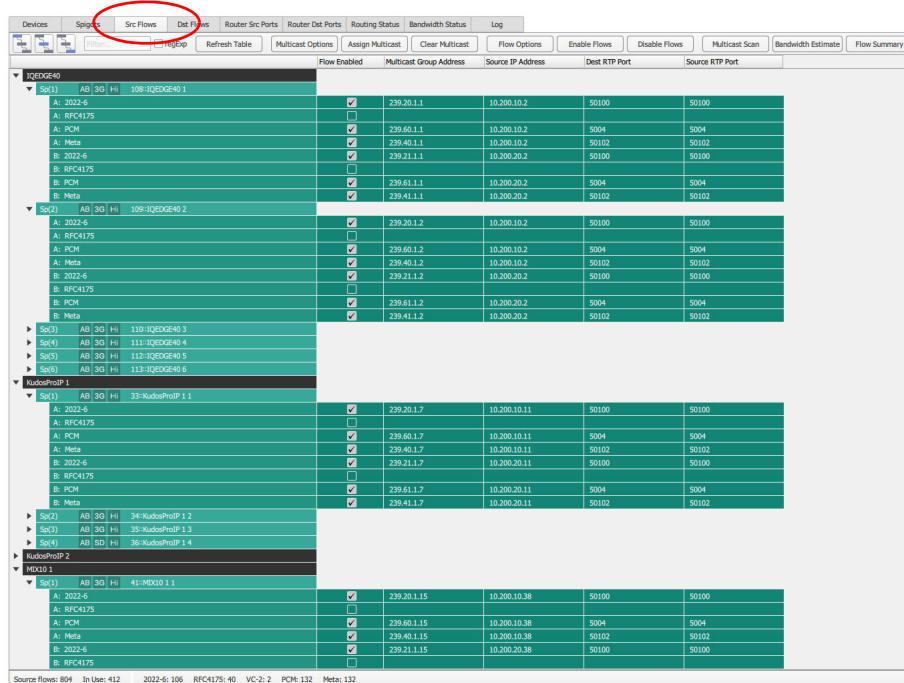


Figure 69 Src Flows Tab Screenshot (Example)

Figure 70 below highlights the features of this tab screen.

Src Flows tab selected

Tool Bar, see Section 6.2 Src Flows - Tool Bar on page 89.

Main Table of devices, expandable to show Spigots and IP Flows, see Section 6.3 Src Flows - Main Table on page 110

The screenshot displays the 'Src Flows' tab interface. At the top, there are several tabs: 'Devices', 'Spigots', 'Src Flows' (selected), 'Dst Flows', 'Router Src Ports', 'Router Dst Ports', 'Routing Status', 'Bandwidth Status', and 'Log'. Below the tabs is a tool bar with buttons for 'Filter', 'regExp', 'Refresh Table', 'Multicast Options', 'Assign Multicast', 'Clear Multicast', 'Flow Options', 'Enable Flows', 'Disable Flows', 'Multicast Scan', 'Bandwidth Estimate', and 'Flow Summary'. The main table has columns for 'Flow Enabled', 'Multicast Group Address', 'Source IP Address', 'Dest RTP Port', and 'Source RTP Port'. The table is organized into expandable sections for devices like 'IQEDGE40', 'KudosProIP 1', 'KudosProIP 2', and 'MEX10 1'. Each device section contains a list of 'Spigots' (e.g., Sp(1) through Sp(6)) and a list of 'Flows' (e.g., A: 2022-6, A: RFC4175, A: PCM, A: Meta, B: 2022-6, B: RFC4175, B: PCM, B: Meta). A status bar at the bottom shows summary statistics: 'Source flows: 804 In Use: 412 2022-6: 106 RFC4175: 40 VC-2: 2 PCM: 132 Meta: 132'.

Device item.

Source Spigot item.

Source Spigot status information, see Figure 90 on page 111.

Device expanded to show a list of Spigots

Spigot expanded to show a list of Flows

Status Bar, see Section 6.4 Src Flows - Status Bar on page 126

Figure 70 Src Flows Tab Example - Annotated Screenshot

6.2 Src Flows - Tool Bar

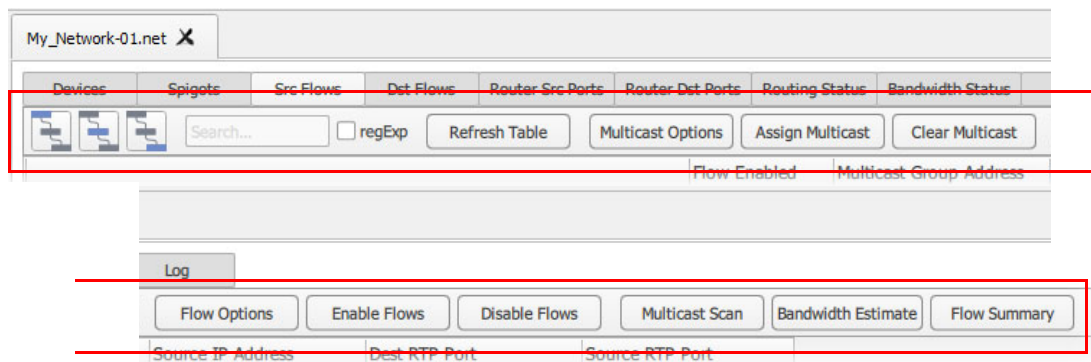


Figure 71 Source Flows Tool Bar

Table 19 Source Flows Tool Bar Items




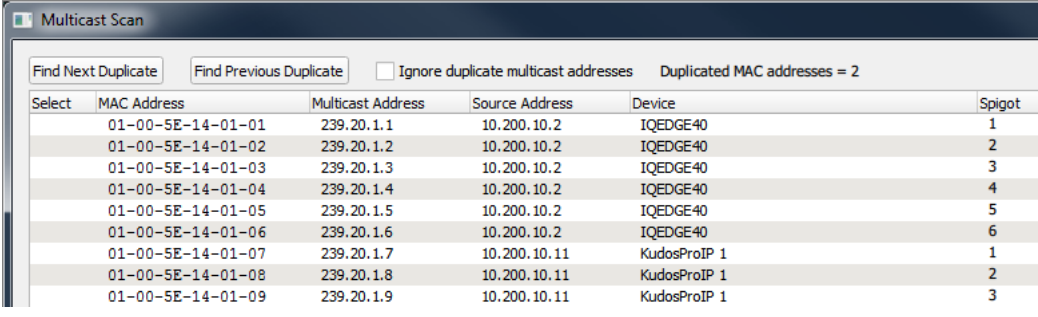
Tool Bar Item	Description
Tree view controls:	
Show Devices 	Button. Click to collapse the main table list to show Devices only.
Show Spigots 	Button. Click to set the main table list to show Devices and Spigots .
Show Flows 	Button. Click to expand the main table list to show Devices , Spigots and Flows .
Filter controls:	Filters which Devices are presented in the main table of the tab. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.)
Filter...	Text box. Enter filter text. (Filter Text search string.) Table rows are filtered on the Device Name column.
Regex	Check box. Select when the Filter Text is a Perl regular expression.
Refresh Table	Button. Click to refresh the screen contents from Orbit's own, gathered information.
Multicast Options	Button. Click to set up multicast options in the Multicast Options dialog. See Section 6.2.1 Multicast Options on page 92.

Table 19 Source Flows Tool Bar Items (Continued)

Tool Bar Item	Description
Assign Multicast	<p>Button. Click to assign multicast group IP addresses, via the Assign Multicast dialog, to Spigots of Devices present in the main table.</p> <p>(Use the Filter Text control to present the Devices of interest in the main table of the tab <i>before</i> clicking Assign Multicast.)</p> <p style="text-align: right;">See Section 6.2.2 Assign Multicast on page 95.</p> <p>See Note 1, Note 2 and Note 3.</p>
Clear Multicast	<p>Button. Click to clear all multicast group IP addresses via the Clear Multicast dialog.</p> <p>(Use the Filter Text control to present the Devices of interest in the main table of the tab <i>before</i> clicking Clear Multicast.)</p> <p style="text-align: right;">See Section 6.2.3 Clear Multicast on page 97.</p> <p>See Note 1.</p>
Flow Options	<p>Button. Click to set IP flow options via the Flow Options dialog.</p> <p style="text-align: right;">See Section 6.2.7 HIGH RISK Alert on page 104.</p>
Enable Flows	<p>Button. Click to enable IP flows via the Enable Flows dialog.</p> <p>(Use the Filter Text control to present the Devices of interest in the main table of the tab <i>before</i> clicking Enable Flows.)</p> <p style="text-align: right;">See Section 6.2.5 Enable Flows on page 100.</p> <p>See Note 1.</p>
Disable Flows	<p>Button. Click to disable IP flows via the Disable Flows dialog.</p> <p>(Use the Filter Text control to present the Devices of interest in the main table of the tab <i>before</i> clicking Disable Flows.)</p> <p style="text-align: right;">See Section 6.2.6 Disable Flows on page 102.</p> <p>See Note 1.</p>
Multicast Scan	<p>Button. Click to check on all assigned multicast IP addresses to IP flows with the Multicast Scan dialog.</p> <p>This shows a full listing of all flow items and the assigned multicast group IP addresses and derived MAC addresses.</p>

Table 19 Source Flows Tool Bar Items (Continued)

Tool Bar Item	Description
	<p>See Section 6.2.8 Multicast Scan on page 106.</p>
<p>Bandwidth Estimate</p>	<p>Button. Click to check on the estimated bandwidth usage of each device's network connection with the Bandwidth Estimate dialog.</p> <p>See Section 6.2.9 Bandwidth Estimate on page 108.</p>
<p>Flow Summary</p>	<p>Button. Click to see an IP flow summary.</p> <p>See Section 6.2.10 Flow Summary on page 108.</p>
<p>Note 1: Use of Filter:</p>	<p>Use the Filter Text control in the tool bar to filter which Devices are present in the main table.</p> <p>Functions such as Assign/Clear Multicast or Enable/Disable Flows operate on the filtered set of Devices/Spigots that are in the main table of the tab</p> <p>Filter Devices <i>before</i> clicking on Assign/Clear Multicast or on Enable/Disable Flows.</p> <p>Note 2: Assign when Devices are Online:</p> <p>If multicast addresses are assigned with Assign Multicast while some devices are temporarily <i>off-line</i>, then some IP addresses may be inadvertently assigned twice.</p> <p>Assign multicast addresses when all devices are on-line.</p> <p>Use the multicast options to control the allocation of multicast IP addresses.</p> <p>Note 3: Use of a master spreadsheet:</p> <p>Typically, multicast address allocation is driven from a master spreadsheet and the address assignment information is imported into an Orbit network configuration.</p> <p>See Section 15 Export / Import Settings on page 233.</p>

6.2.1 Multicast Options

The main configuration activity carried out by 'Orbit for IP Routing' is the assignment of IP addresses to multicast IP streams. Options for this are set up in the **Multicast Options** dialog, see Figure 72.

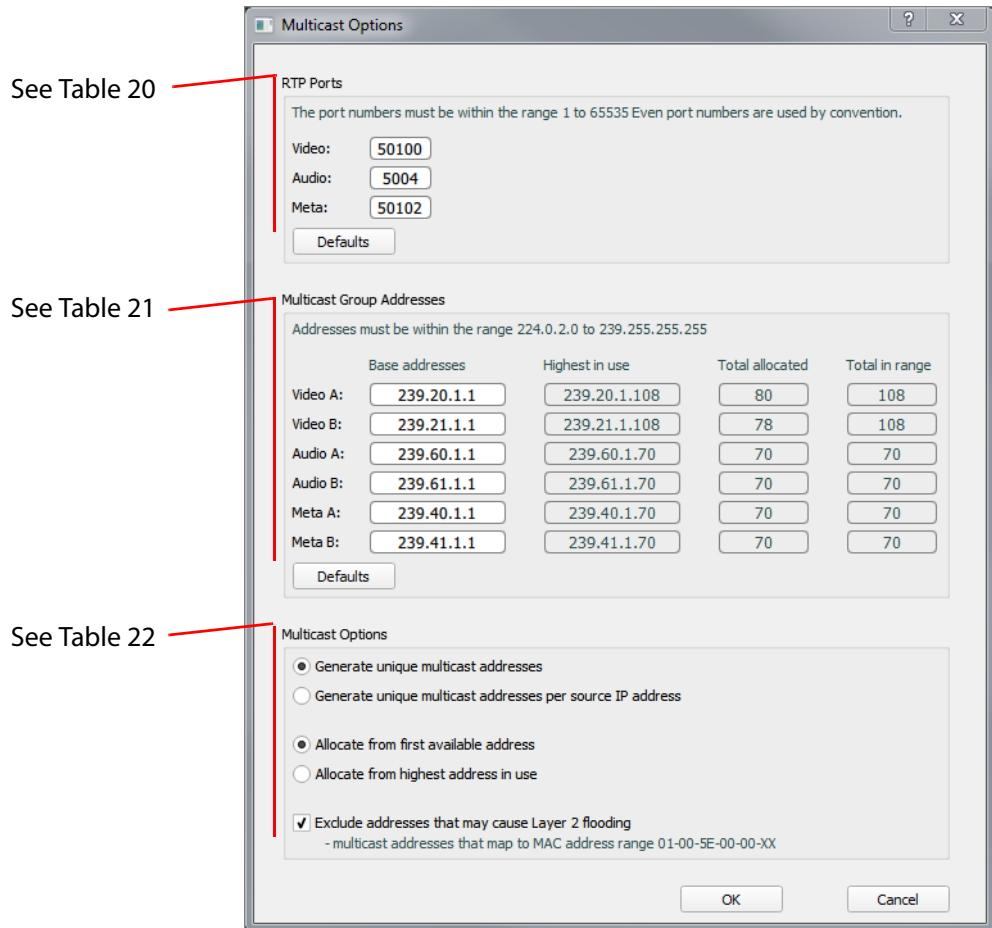


Figure 72 Multicast Options Dialog

Table 20 Multicast Options Dialog - IP Ports

Dialog Item	Description
RTP Ports	Note: The IP port numbers must be in the range 1 to 65525. Even port numbers are used by convention.
Video	Text box. Enter IP port number for video IP flows.
Audio	Text box. Enter IP port number for audio IP flows.
Meta	Text box. Enter IP port number for metadata IP flows.
Defaults	Button. Click to revert to video, audio and metadata IP port numbers to defaults: <ul style="list-style-type: none"> • Video IP port: 50100 • Audio port: 5004 • Metadata IP port: 50102

Table 21 Multicast Options Dialog - Multicast Group IP Addresses

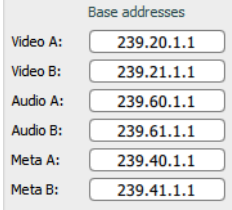
Dialog Item	Description
Multicast Group Addresses	
Base addresses:	<p>The base IP address is the IP address that multicast IP address allocation starts from in an Orbit network configuration.</p> <p>Note: IP addresses must be within the range: 224.0.2.0 to 239.255.255.255</p> <p>Text boxes. Enter base IP addresses for:</p>
Video A	Video IP flows on network fabric A.
Video B	Video IP flows on network fabric B.
Audio A	Audio IP flows on network fabric A.
Audio B	Audio IP flows on network fabric B.
Meta A	Metadata IP flows on network fabric A.
Meta B	Metadata IP flows on network fabric B.
Defaults	<p>Button. Click to revert base IP addresses to defaults:</p> 
Other information:	This information is read-only and is evaluated at the time <i>when the dialog appears</i> .
Highest in Use	Text box. Shows the highest multicast IP address in use.
Total Allocated	Text box. Shows the total number of multicast IP addresses in use from the range of multicast addresses.
Total in Range	Text box. Shows the total number of multicast IP addresses from the base IP address to the highest IP address in use.

Table 22 Multicast Options Dialog - Multicast Option Items

Dialog Item	Description
Multicast Options:	
Radio buttons: (Multicast Address Generation:)	
<p>Generate unique multicast addresses</p>	<p>Select to generate unique multicast group IP addresses across the whole Orbit network configuration.</p>
<p>Generate unique multicast addresses per source IP address</p>	<p>Select to generate unique multicast group IP addresses per source IP address.</p> <p>In this mode, multicast group IP addresses will be duplicated. That is OK because multicast IP streams are specified with <i>both</i> the multicast group IP address and the source IP address.</p>
Radio buttons: (Multicast Address Allocation:)	
<p>Allocate from first available address</p>	<p>Select to allocate multicast group IP addresses starting from the first <i>available</i> IP address.</p>
<p>Allocate from highest address in use</p>	<p>Select to allocate multicast group IP addresses starting from just above the <i>highest</i> IP address in use.</p>
<p>Exclude addresses that may cause Layer 2 flooding</p>	<p>Check box.</p> <p>Select to exclude allocating multicast IP addresses which may cause layer 2 flooding in Layer 2 IP switches.</p> <p>Note: This will avoid allocating IP addresses to multicast groups that map to the MAC address range 01-00-5E-00-00-XX.</p>

6.2.2 Assign Multicast

To assign multicast group IP addresses to **Spigots** of **Devices** present in the main table of the **Src Flows** tab:

1. In the main table:
 - Display all the **Devices**.
 or
 - Use the **Filter Text** in the tool bar control which **Device(s)** are presented in the main table and are of interest.
2. In the tool bar, click **Assign Multicast**.
An **Assign Multicast Information** dialog is shown. See Figure 73.
(This shows the number of **Spigots** and **Devices** that will be affected and the setting of the **Spigot Filter** and **Devices Filter**.)

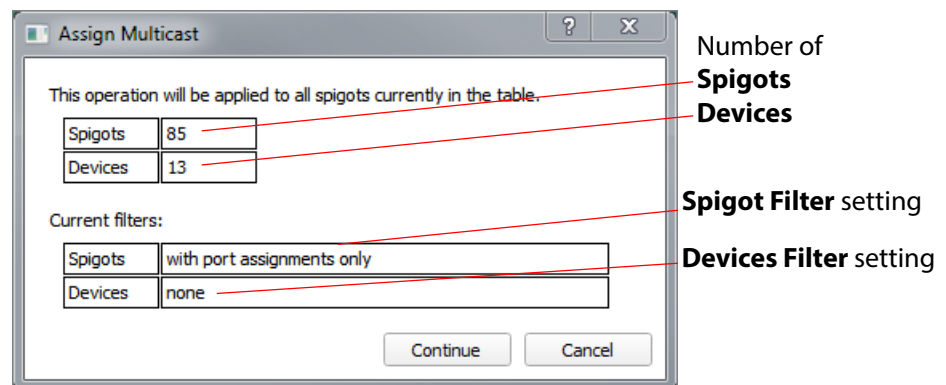
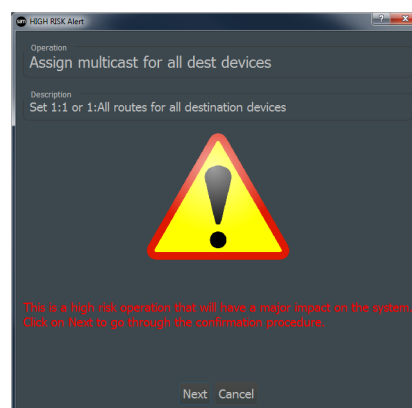


Figure 73 Assign Multicast Information Dialog Example

3. Click **Continue**.
 - a If more than one device is present in the main table, this operation is considered to be high risk.
A High Risk Alert warning dialog is displayed, which requires the user to re-enter the Orbit project password before continuing with multicast assignment.



See Section 6.2.7 **HIGH RISK Alert** on page 104.

(This aims to stop the accidental changing of settings on more than one device.)

- b If just one device is present in the main table, then the operation is not deemed to be a high risk. And the to user may continue with multicast assignment.
4. The **Assign Multicast** dialog is shown. See Figure 74:

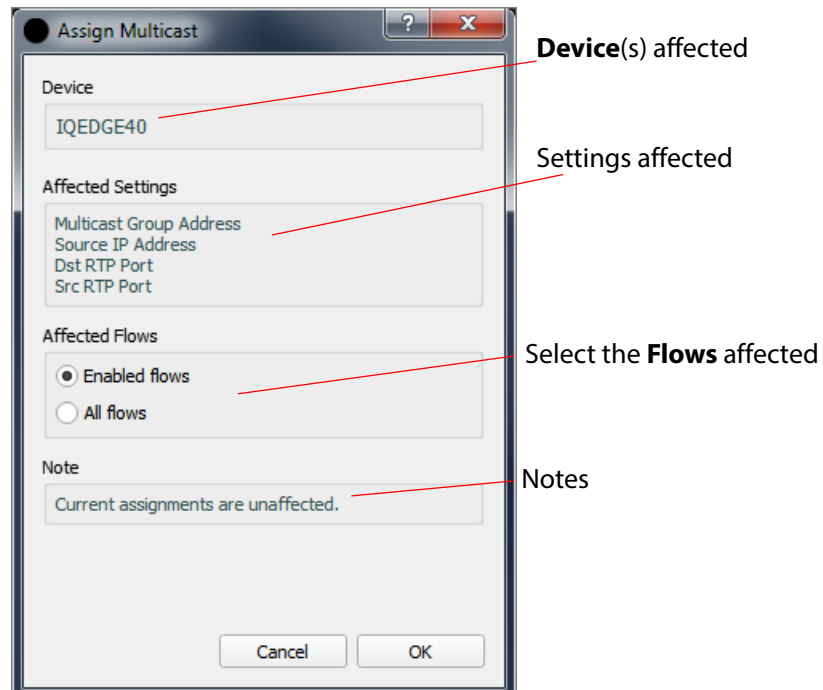


Figure 74 Assign Multicast Dialog Example

5. Select which **Flows** of the selected **Device(s)** are to be affected. (All enabled **Flows**, or enabled and disabled **Flows** of the selected **Device(s)**.)
6. Click **OK** to do the multicast assignment.

6.2.3 Clear Multicast

To clear multicast group IP addresses on **Spigots** of **Devices** in the main table of the **Src Flows** tab:

1. In the main table:
 - Display all the **Devices**.
 or
 - Use the **Filter Text** in the tool bar control which **Device(s)** are presented in the main table and are of interest
2. In the tool bar, click **Clear Multicast**.
 A **Clear Multicast Information** dialog is shown. See Figure 75.
 (This shows the number of **Spigots** and **Devices** that will be affected and the setting of the **Spigot Filter** and **Devices Filter**.)

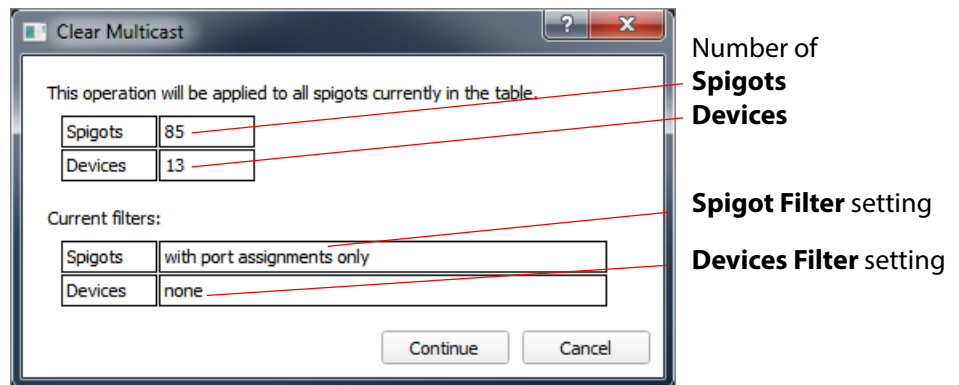
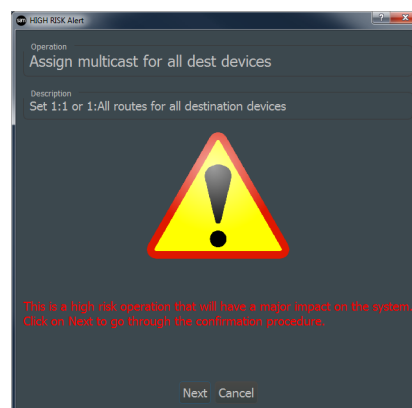


Figure 75 Clear Multicast Information Dialog Example

3. Click **Continue**.
 - a If more than one device is present in the main table, this operation is considered to be high risk.
 A **High Risk Alert** warning dialog is displayed, which requires the user to re-enter the Orbit project password before continuing with clearing multicast assignments.



See Section 6.2.7 **HIGH RISK Alert** on page 104.

(This aims to stop the accidental changing of settings on more than one device.)

- b If just one device is present in the main table, then the operation is not deemed to be a high risk. And the to user may continue with clearing multicast assignments.
4. The **Clear Multicast** dialog is shown. See Figure 76:

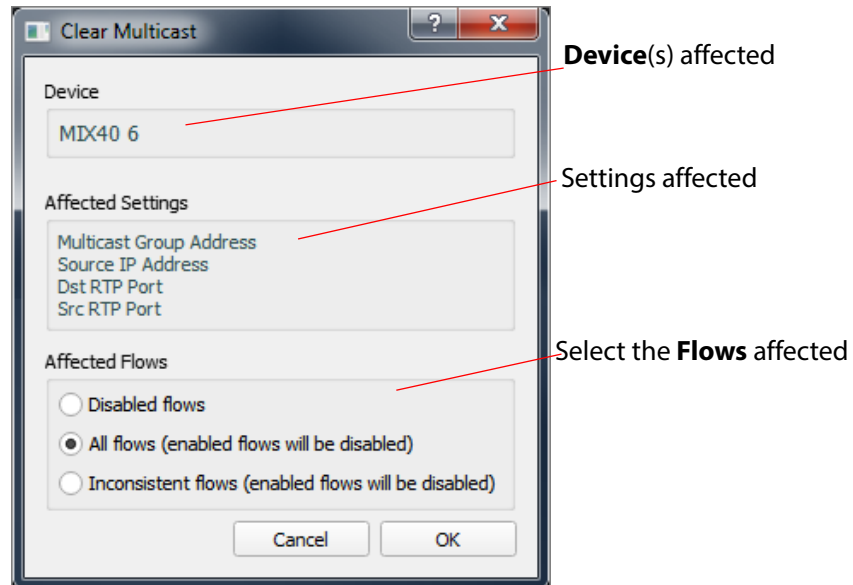


Figure 76 Clear Multicast Dialog Example

5. Select which **Flows** of the selected **Device(s)** are to be affected. (All disabled **Flows**, or all **Flows**, or 'inconsistent' **Flows**.)
6. Click **OK** to clear the multicast assignments.

6.2.4 Flow Options

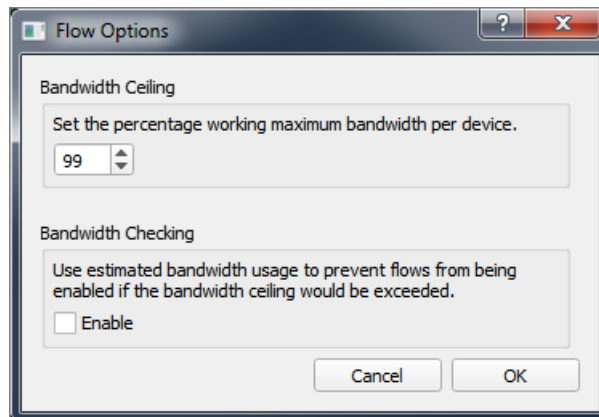


Figure 77 Flow Options Dialog

Table 23 Flow Options Dialog Items

Dialog Item	Description
Bandwidth Ceiling:	
Set the percentage working maximum bandwidth per device	
	Value. Enter the working bandwidth maximum percentage.
Bandwidth Checking:	
Use estimated bandwidth usage to prevent flows from being enabled if the bandwidth ceiling would be exceeded	
	Check box. Select to prevent flows being enabled if bandwidth ceiling exceeded.

6.2.5 Enable Flows

To enable **Flows** on **Spigots** of **Devices** in the main table of the **Src Flows** tab:

1. In the main table:
 - Display all the **Devices**.
 or
 - Use the **Filter Text** in the tool bar control which **Device(s)** are presented in the main table and are of interest
2. In the tool bar, click **Enable Flows**.
 A **Enable Flows Information** dialog is shown. See Figure 78.
 (This shows the number of **Spigots** and **Devices** that will be affected and the setting of the **Spigot Filter** and **Devices Filter**.)

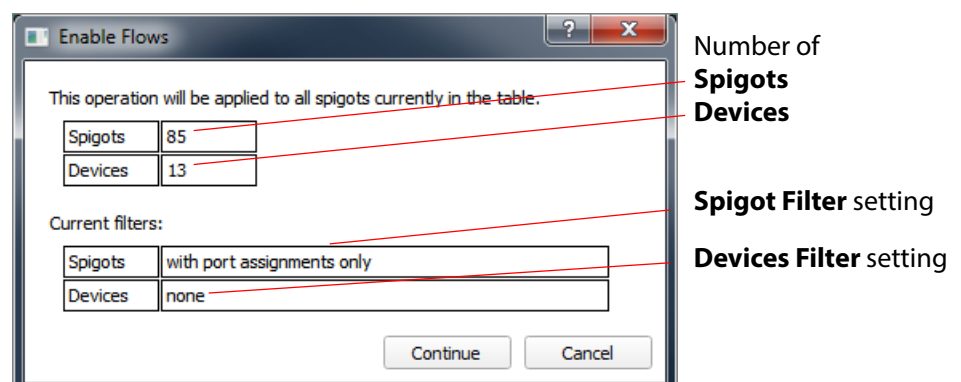
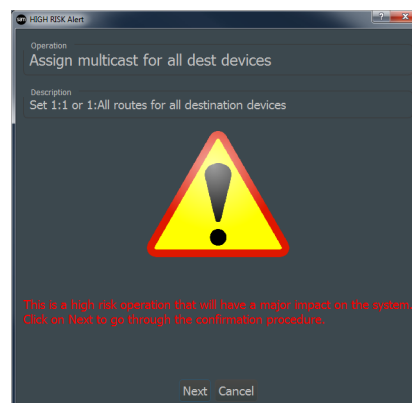


Figure 78 Enable Flows Information Dialog Example

3. Click **Continue**.
 - a If more than one device is present in the main table, this operation is considered to be high risk.
 A **High Risk Alert** warning dialog is displayed, which requires the user to re-enter the Orbit project password before continuing with enabling flows.



See Section 6.2.7 **HIGH RISK Alert** on page 104.

(This aims to stop the accidental changing of settings on more than one device.)

- b If just one device is present in the main table, then the operation is not deemed to be a high risk. And the to user may continue with enabling flows.
4. The **Enable Flows** dialog is shown. See Figure 79:

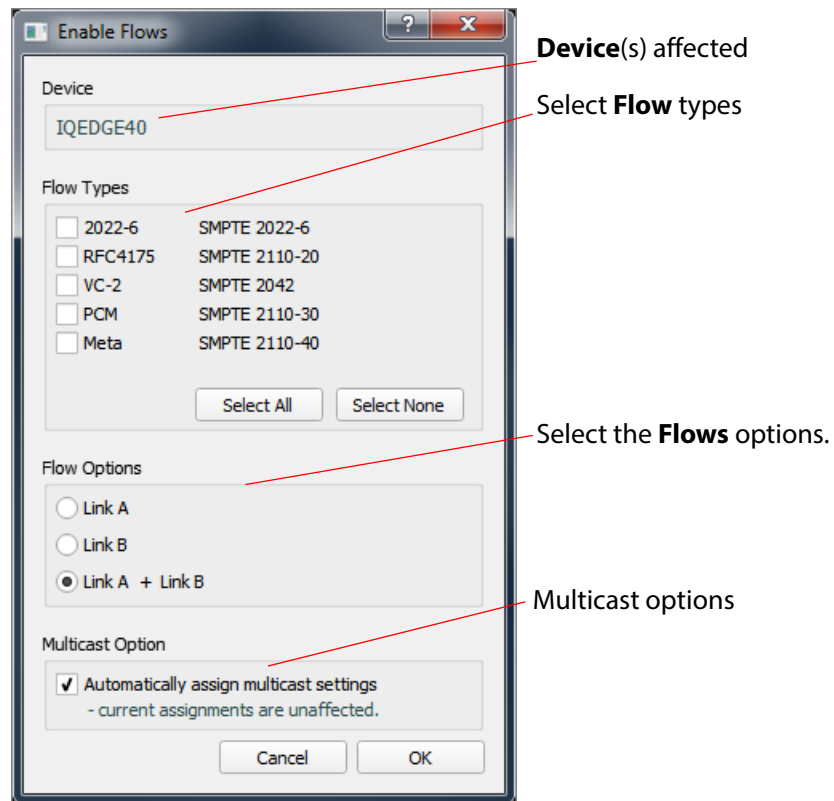


Figure 79 Enable Flows Dialog Example

5. Select:
- **Flow Types** of the selected **Device(s)** to be enabled.
 - **Flow Options** of the enabled flows.
 - **Multicast Options** for the enabled flows.
6. Click **OK** to clear the enable the flows.

6.2.6 Disable Flows

To disable **Flows** on **Spigots** of **Devices** in the main table of the **Src Flows** tab:

1. In the main table:
 - Display all the **Devices**.
 or
 - Use the **Filter Text** in the tool bar control which **Device(s)** are presented in the main table and are of interest
2. In the tool bar, click **Disable Flows**.
 A **Disable Flows Information** dialog is shown. See Figure 80.
 (This shows the number of **Spigots** and **Devices** that will be affected and the setting of the **Spigot Filter** and **Devices Filter**.)

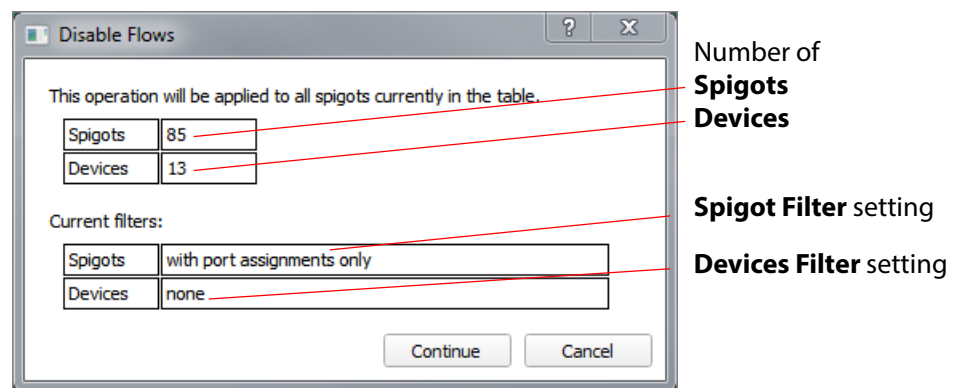
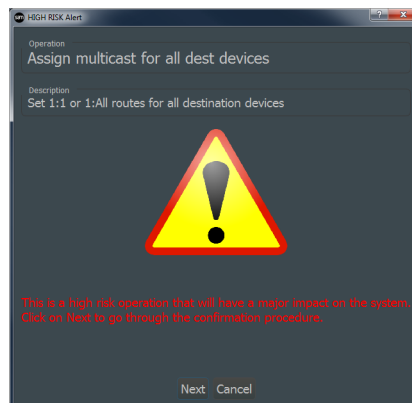


Figure 80 Disable Flows Information Dialog Example

3. Click **Continue**.
 - a If more than one device is present in the main table, this operation is considered to be high risk.
 A **High Risk Alert** warning dialog is displayed, which requires the user to re-enter the Orbit project password before continuing with disabling flows.



See Section 6.2.7 **HIGH RISK Alert** on page 104.

(This aims to stop the accidental changing of settings on more than one device.)

- b If just one device is present in the main table, then the operation is not deemed to be a high risk. And the to user may continue with disabling flows.
4. The **Disable Flows** dialog is shown. See Figure 81:

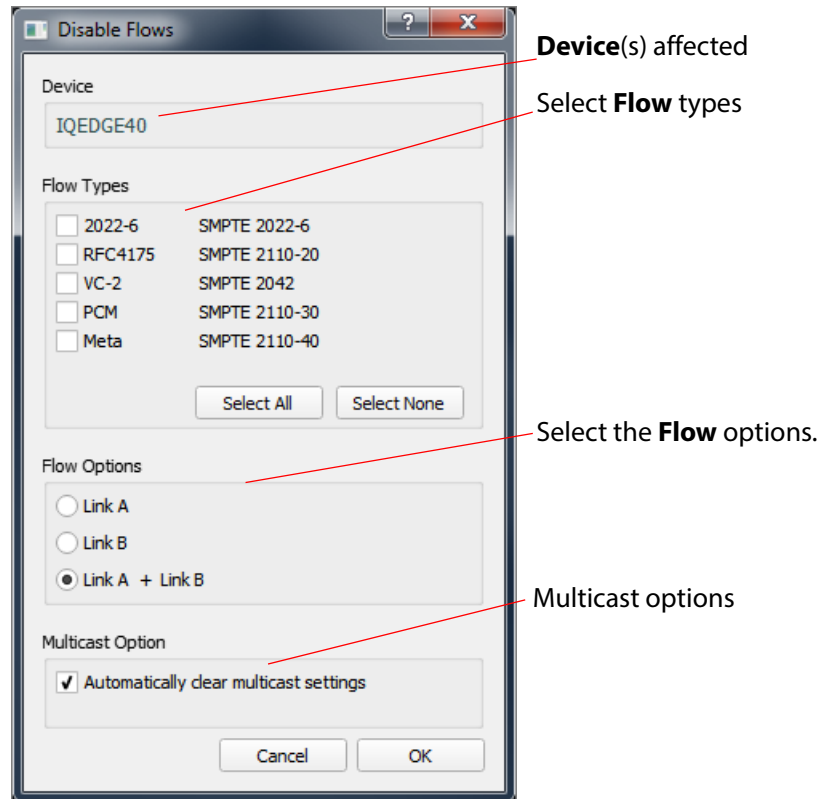


Figure 81 Disable Flows Dialog Example

5. Select:
- **Flow Types** of the selected **Device(s)** to be disabled.
 - **Flow Options** - which flow(s) to disable.
 - **Multicast Options** when disabling the flows.
6. Click **OK** to clear the disable the flows.

6.2.7 HIGH RISK Alert

A **High Risk Alert** warning dialog is displayed when carrying out certain operations in Orbit. Operations include:

- Assign MultiCast.
- Clear Multicast.
- Enable Flows.
- Disable Flows.

These Orbit operations affect one or more devices in the network system under IP routing control and could be damaging:

- If just one device is selected for an operation, it is deemed to be intentional and is allowed to continue without any High Risk Alert being shown.
- If more than one device is selected for an operation, it is deemed to be a high risk operation and a High Risk Alert is shown.

Figure 82 shows an example **High Risk Alert** warning dialog.

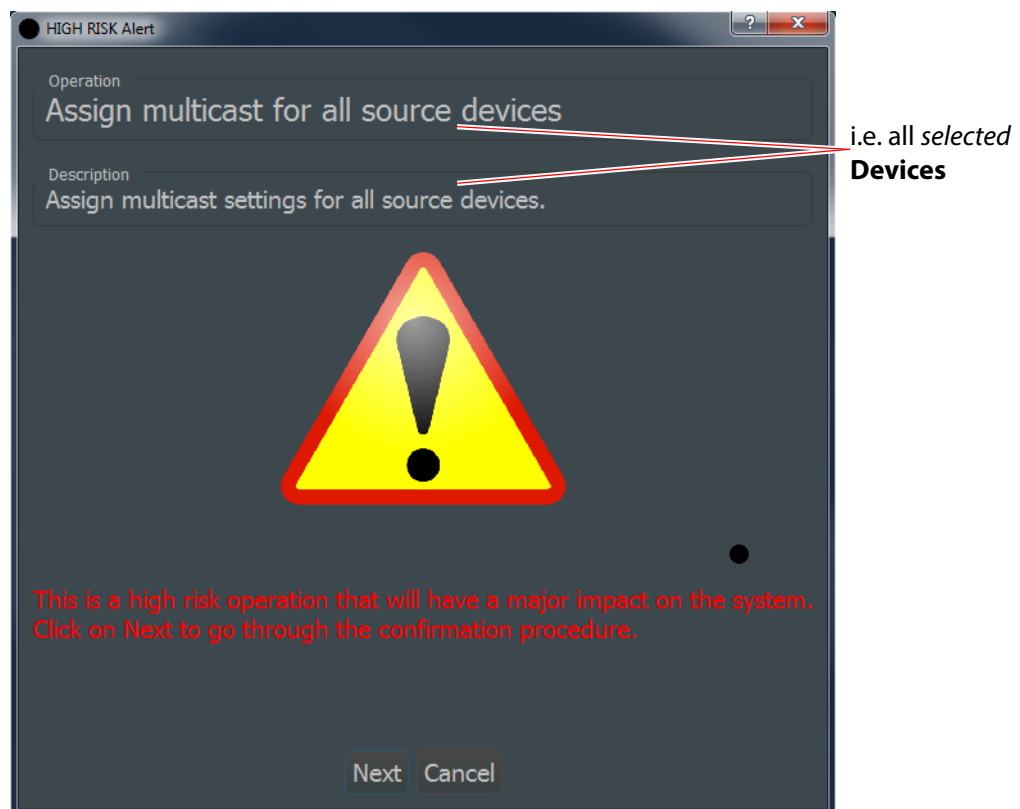


Figure 82 High Risk Alert (Example shown for Assign Multicast)

To abort the operation:

- Click **Cancel**.

To continue with the operation:

1. Click **Next**.

The user is prompted to re-enter the user password of the Orbit IP Routing project. See Figure 83.

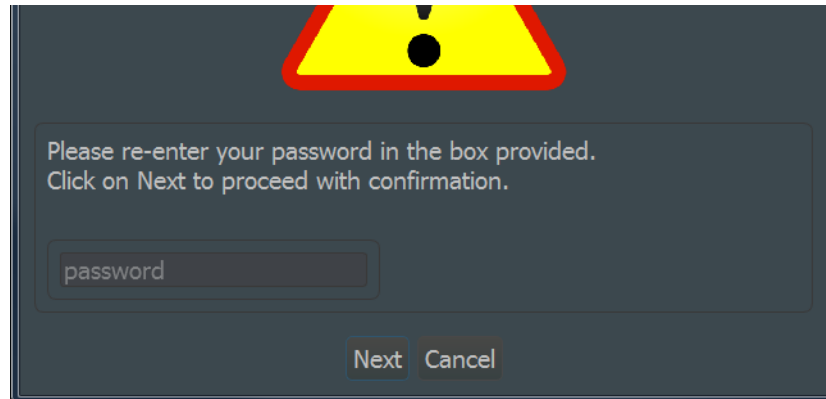


Figure 83 High Risk Alert - Orbit Project User Password Prompt

2. Enter the Orbit IP Routing project user password and click **Next**.

An 'authorization successful' message is shown in the alert dialog. See Figure 84.

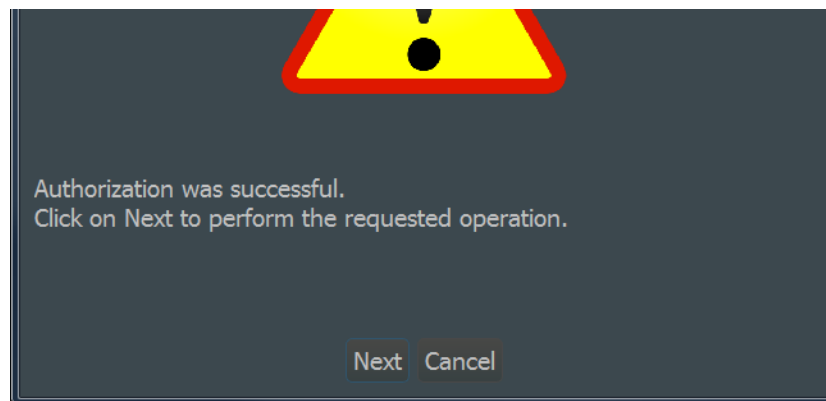


Figure 84 High Risk Alert - Authorization Successful

3. Click **Next** to proceed.
The 'high risk' Orbit operation is resumed.

The user is presented with the next dialog in the Orbit operation is carried out.

The purpose of this procedure is to prevent the accidental changing of settings on more than one device.

6.2.8 Multicast Scan

A full listing of the multicast groups comprising the IP flows in the Orbit network configuration can be generated and viewed. In the tool bar of the **Src Flows** tab:

1. Click the **Multicast Scan** button.

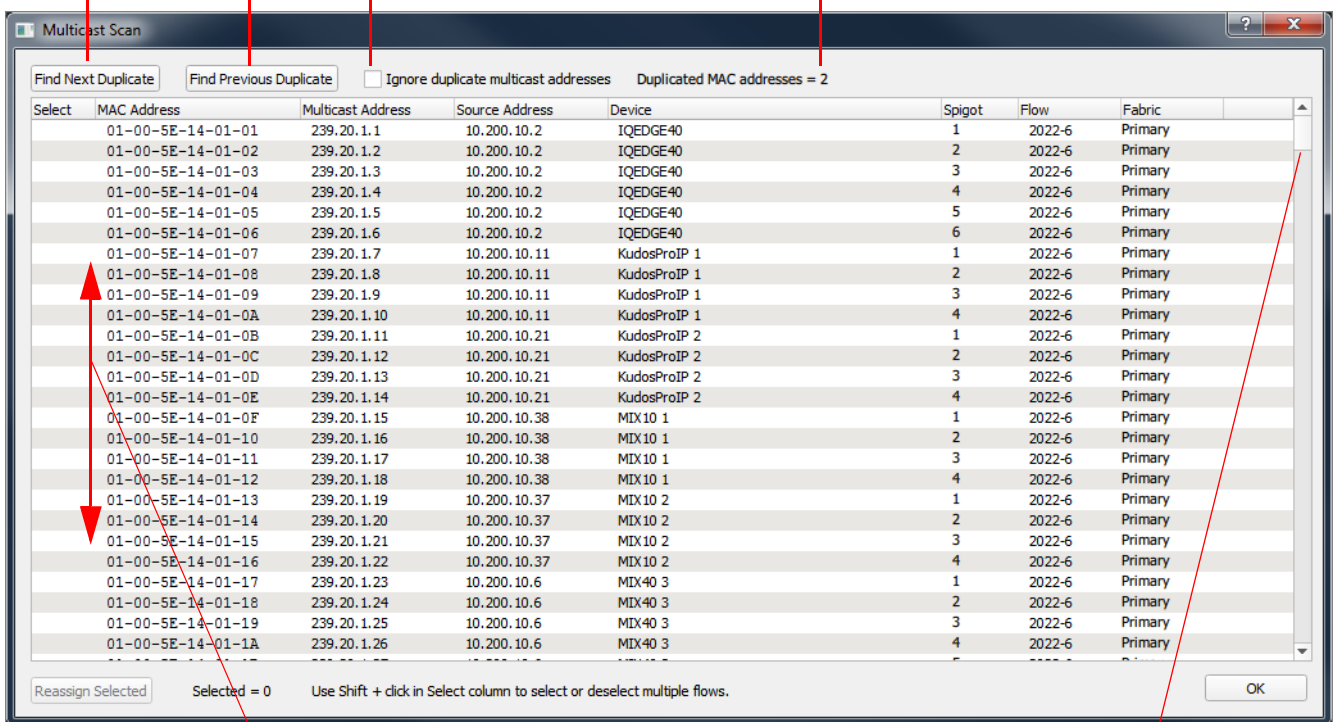
A full listing of the multicast groups in the Orbit network configuration is presented in the **Multicast Scan** dialog. See Figure 85.

Click **Find Next Duplicate** to find the next duplicate flow item in the list, if any.

Click **Find Previous Duplicate** to find the previous duplicate flow item in the list, if any.

Select to ignore duplicate multicast group MAC addresses in the list.

Indicates number of duplicate MAC addresses found.



Flow items.

Scroll through list of flow items with scroll bars.

Figure 85 Multicast Scan Dialog

Note: Legitimate, duplicate multicast MAC addresses can result from duplicated multicast group IP addresses, depending on the multicast option settings when IP addresses are assigned.

If there are any duplicate flow items in the list:

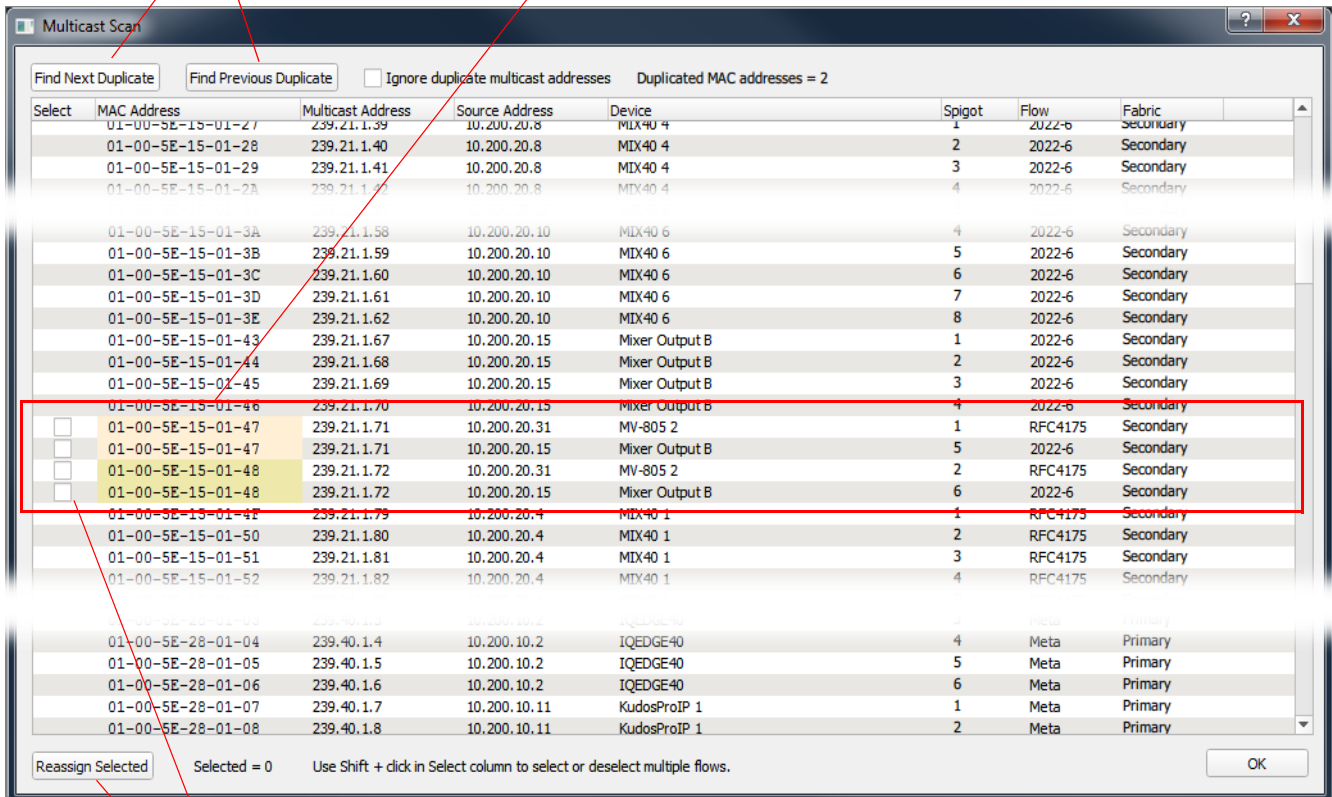
2. Navigate to these flow items with the **Find Next Duplicate** and **Find Previous Duplicate** controls.

Duplicate flow items are highlighted in the list. See Figure 86.

3. Look at the duplicate flow item(s).

Buttons to navigate to duplicate flow items

Duplicate flow items highlighted



Select duplicate flow item(s) to re-assign multicast IP addresses for

Click **Reassign Selected** to reassign multicast IP addresses to selected flow items

Figure 86 Example Duplicate Flow Items

If the duplicate flow item(s) require re-assigning with multicast addresses:

4. Select the flow item(s) to re-assign.
(Select the item(s) or use 'shift-click' to select multiple flow items.)
5. Click **Reassign Selected** at the bottom of the **Multicast Scan** dialog.

The multicast IP addresses are reassigned for the selected flow items to resolve the duplication.

6.2.9 Bandwidth Estimate

The bandwidth estimates for each device’s network connection is listed in the **Bandwidth Estimate** dialog. See Figure 87.

Current **Bandwidth Ceiling** setting, see Section 6.2.7 *HIGH RISK Alert* on page 104.

% estimate for Link A and Link B.

Device	Link A	Link B
IQEDGE40	48.60 %	48.60 %
KudosProIP 1	100.50 %	100.50 %
KudosProIP 2	129.60 %	129.60 %
MIX10 1	129.60 %	129.60 %
MIX10 2	129.60 %	129.60 %
MIX40 1	52.80 %	52.80 %
MIX40 2	52.80 %	52.80 %
MIX40 3	64.80 %	64.80 %
MIX40 4	64.80 %	64.80 %
MIX40 5	64.80 %	64.80 %
MIX40 6	64.80 %	64.80 %
MV-805 2	18.91 %	18.91 %
Mixer Output B	128.00 %	128.00 %

Figure 87 Bandwidth Estimate Dialog

6.2.10 Flow Summary

The **Flow Summary** dialog shows summary information about each device in the Orbit network configuration. See Figure 88.

Number of source **Spigot**

Number of flows for different flow types,
fabric A and fabric B

Device	Src Spigots	A: 2022-6	A: RFC4175	A: VC-2	A: PCM	A: Meta	B: 2022-6	B: RFC4175	B: VC-2	B: PCM	B: Meta
IQEDGE40	6	6	0	0	6	6	6	0	0	6	6
KudosProIP 1	4	4	0	0	4	4	4	0	0	4	4
KudosProIP 2	4	4	0	0	4	4	4	0	0	4	4
MIX10 1	4	4	0	0	4	4	4	0	0	4	4
MIX10 2	4	4	0	0	4	4	4	0	0	4	4
MIX40 1	8	0	8	0	8	8	0	8	0	8	8
MIX40 2	8	0	8	0	8	8	0	8	0	8	8
MIX40 3	8	8	0	0	8	8	8	0	0	8	8
MIX40 4	8	8	0	0	8	8	8	0	0	8	8
MIX40 5	8	8	0	0	8	8	8	0	0	8	8
MIX40 6	8	8	0	0	8	8	8	0	0	8	8
MV-805 2	4	0	4	0	0	0	0	4	0	0	0
Mixer Output B	12	4 (6)	0	0	0	0	4 (6)	0	0	0	0

Note: Click/re-click on a column heading to sort the rows in ascending/descending alpha-numerical order.

Number of enabled flows. (Number of flows set up for the device.)

Figure 88 Flow Summary Dialog

6.3 Src Flows - Main Table

Devices are listed and each **Device**-item may be expanded to show **Spigots** and, in turn, source **Flows**. See Figure 89a. **Source Flow** information is presented in the rows of the table. For the case of redundant flows using two network fabrics, the flows of fabric A and of fabric B are shown on separate rows. Column headings are described in Table 24.

a) Expanded **Device** item

Flow Enabled	Multicast Group Address	Source IP Address	Dest RTP Port	Source RTP Port
--------------	-------------------------	-------------------	---------------	-----------------

b) Table column headings

Figure 89 Src Flows Tab Main Table:
 a) Device Item Expanded to Show Spigots and Flows.
 b) Column Headings.

Note: **Find Text:**
 The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 *Find Text* on page 39.

6.3.1 Table Columns

Table 24 Source Flows Table Headings



Column Headings	Description
(First column)	<p>Device, Spigot and Flow names. Spigot and Flow information is shown.</p>  <p>See Figure 90.</p>

Table 24 Source Flows Table Headings (Continued)

Column Headings	Description
Flow Enabled	Check box. Select to enable the IP flow. 
Multicast Group Address	Text box. Read-only. IP address of the Multicast Group of the Source Flow .
Source IP Address	Text box. Read-only. IP address of the IP port providing (sourcing) the IP flow.
Dest RTP Port	Text box. Read-only. Destination IP port number of the IP flow. The IP flow is a Real-time Transport protocol (RTP) data stream.
Source RTP Port	Text box. Read-only. Source IP port number of the IP flow.

Device name

Spigot name (Spigot index)

Flow information:

Fabric A or B

Flow type(s) that the Spigot is capable of sending.

Spigot information: (See Table 25)

Dual redundant flows, fabric links A and B.

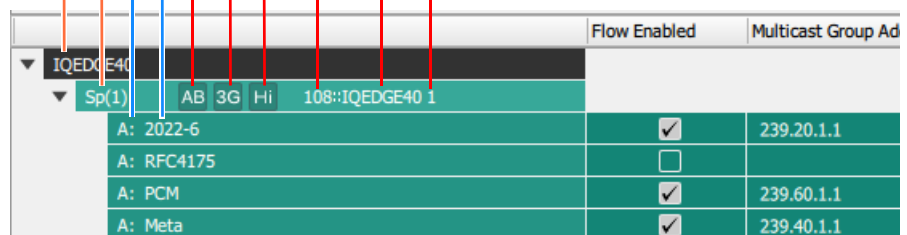
Video flow type, 3G

Flow priority, 'high'

Router source port number

Device name












Spigot index



	Flow Enabled	Multicast Group Ad
IQEDGE40		
Sp(1)		
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.1
A: RFC4175	<input type="checkbox"/>	
A: PCM	<input checked="" type="checkbox"/>	239.60.1.1
A: Meta	<input checked="" type="checkbox"/>	239.40.1.1

Figure 90 Spigot and Flow Information

Table 25 Spigot Source Flow Information

Item	Options	Description
AB	<p>AB </p> <p>AB </p> <p>AB </p> <p>A B </p> <p>AB </p>	<p>There are two network interfaces at each source spigot.</p> <ul style="list-style-type: none"> Use A and B: One network interface is connected to fabric A and the other to fabric B. All flow data is sent out onto fabric A and all onto fabric B. For example, for network redundancy. Use A: Both network interfaces are connected to fabric A. All flow data is sent out onto fabric A. For example, for bandwidth aggregation. Use B: Both network interfaces are connected to fabric B. All flow data is sent out onto fabric B. For example, for bandwidth aggregation. Use A or B: Auto-selects between using fabric A or fabric B. Not using A or B. Neither fabric may be used by a spigot if some other connection route is available. For example, a Grass Valley IQEDGE frame has internal connection channels.
3G	<p>3G </p> <p>HD </p> <p>SD </p>	<p>Video format in the flow:</p> <ul style="list-style-type: none"> 3G High definition, HD Standard definition, SD
Hi	<p>Hi </p> <p>Md </p> <p>Lo </p>	<p>Flow priority:</p> <ul style="list-style-type: none"> High Medium Low

6.3.2 Inconsistent Source Flows

Inconsistent source flows are source flows connected to a spigot of an inconsistent source/destination mode. For more information, see Section 5.4.2 *Inconsistent Spigots* on page 81.

A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.1	20.20.20.13	5010
A: RFC4175	<input checked="" type="checkbox"/>	239.60.1.1	20.20.20.13	5004

Figure 91 Inconsistent Source Flow

Clear Inconsistent Flows:

To clear inconsistent **Src Flows**:

- Click the **Clear Multicast** button on the **Src Flows** tab.
- Select 'Inconsistent flows' for the **Affected Flows** in the **Clear Multicast** dialog.

6.3.3 Phantom Source Flows

Phantom source flows are source flows that used to exist in an IP routing system. For more information, see Section 5.4.3 *Phantom Spigots* on page 81. These are unlikely to occur in practice.

6.3.4 Right-Click on Device

	Flow Enabl	Multicast Group
IQEDGE40		
Sp(1) AB 3G Hi IQEDGE40 1		
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.47
A: RFC4175	<input type="checkbox"/>	
A: PCM	<input checked="" type="checkbox"/>	239.60.1.13
A: Meta	<input checked="" type="checkbox"/>	239.40.1.42
B: 2022-6	<input checked="" type="checkbox"/>	239.21.1.47
B: RFC4175	<input type="checkbox"/>	
B: PCM	<input checked="" type="checkbox"/>	239.61.1.13
B: Meta	<input checked="" type="checkbox"/>	239.41.1.42
Sp(2) AB 3G Hi 109::IQEDGE40 2		
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.48
A: RFC4175	<input type="checkbox"/>	
A: PCM	<input checked="" type="checkbox"/>	239.60.1.14

Figure 92 Src Flows Tab - Right-Click on Device - Pop-up Menu

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items

Pop-up Menu Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit. This is shown in a separate tab in Orbit.
Inspect	Click to show the device in the Orbit device inspector. See Section 17 Device Inspector Pane on page 254.
Show Spigots	Click to expand the Device in the main table to show its Spigot information. 
Show Flows	Click to expand the Device in the main table to show its Spigot and Flows information. 

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

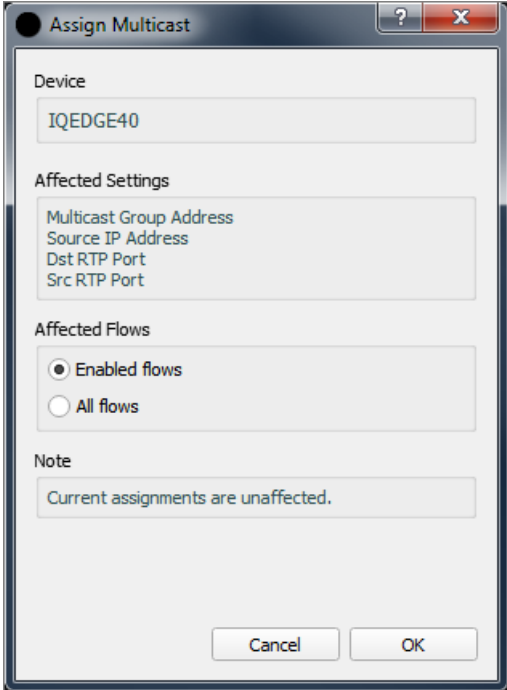
Pop-up Menu Item	Description
<p>Assign Multicast</p>	<p>Click to assign multicast IP addresses etc. for the selected device with the Assign Multicast dialog:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> • The selected device is stated. • The settings to be affected are listed in the dialog. <p>Select which flows of the device are to be affected:</p> <ul style="list-style-type: none"> • Click Enabled flows or All flows. <p>Note: Current assignments are unaffected.</p> <ul style="list-style-type: none"> • Click OK to assign the multicast settings. <p>Note: This Assign Multicast is similar to the one described in Section 6.2.2 Assign Multicast on page 95, but it just applies to the one selected device clicked on.</p>

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

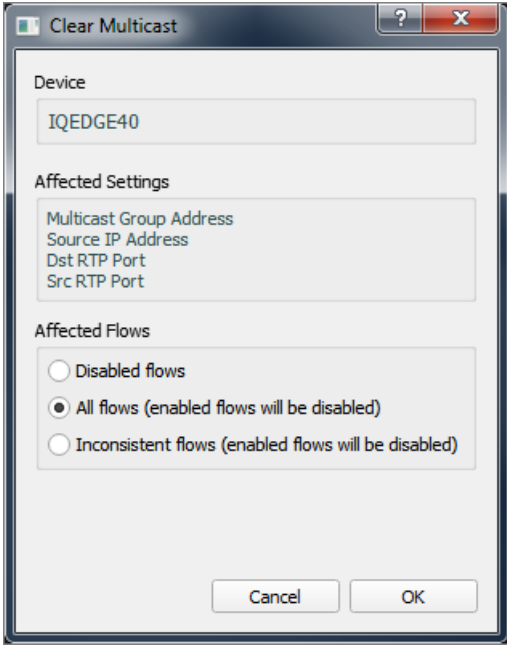
Pop-up Menu Item	Description
<p>Clear Multicast</p>	<p>Click to clear multicast IP addresses etc. for the selected device with the Clear Multicast dialog:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> • The select device is stated. • The settings to be affected are listed in the dialog. <p>Select which flows of the device are to be affected:</p> <ul style="list-style-type: none"> • Click Disabled flows, or All flows (enabled flows will be disabled), or Inconsistent flows (enabled flows will be disabled). <p>Note: Current assignments are unaffected.</p> <ul style="list-style-type: none"> • Click OK to clear the multicast settings. <p>Note: This Clear Multicast is similar to the one described in Section 6.2.3 Clear Multicast on page 97, but it just applies to the one selected device clicked on.</p>

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

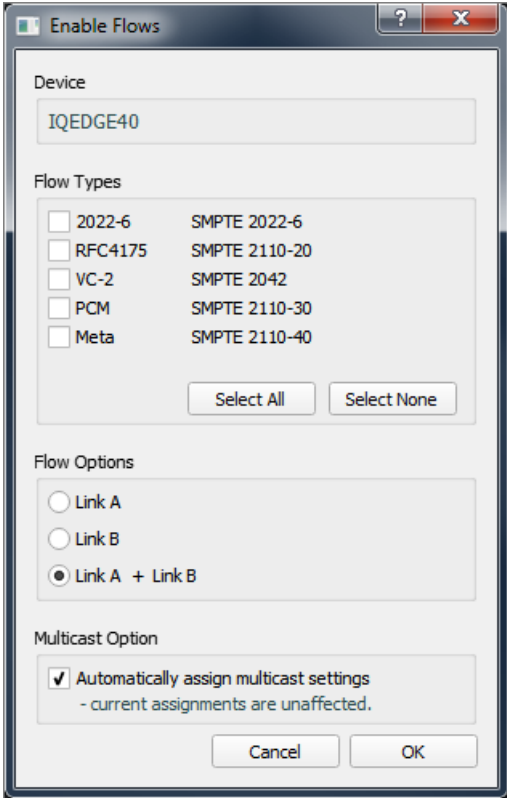
Pop-up Menu Item	Description
<p>Enable Flows</p>	<p>Click to enable IP flows for the selected device with the Enable Flows dialog:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> The select device is stated. <p>Then select:</p> <ul style="list-style-type: none"> Which Flow Types of the device to enable. Which Flow Options to enable: Whether to assign Multicast Options when enabling the flow(s). <p>Note: Current multicast option assignments are unaffected.</p> <ul style="list-style-type: none"> Click OK to enable flows. <p>Note: This Enable Flows is similar to the one described in Section 6.2.5 Enable Flows on page 100, but it just applies to the one selected device clicked on.</p>

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

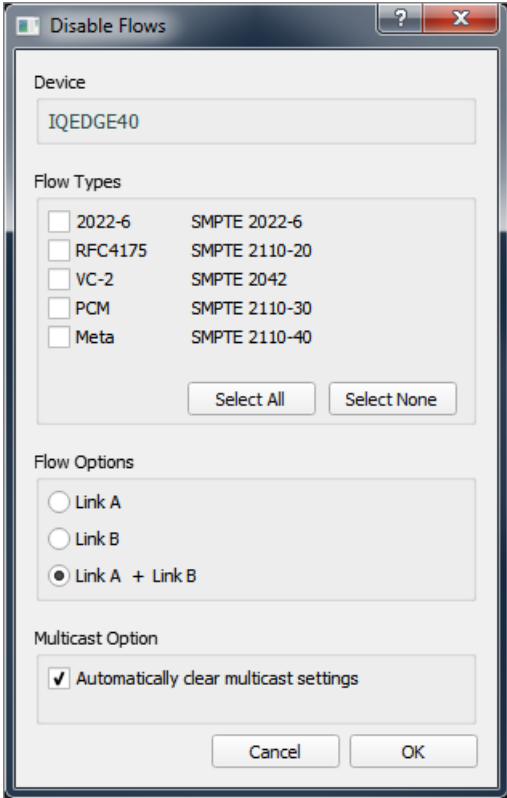
Pop-up Menu Item	Description
<p>Disable Flows</p>	<p>Click to disable IP flows for the selected device with the Disable Flows dialog:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> The selected device is stated. <p>Then select:</p> <ul style="list-style-type: none"> Which Flow Types of the device to disable. Which Flow Options to disable: Whether to clear multicast settings when disabling the flow(s). <p>Then:</p> <ul style="list-style-type: none"> Click OK to disable flows. <p>Note: This Disable Flows is similar to the one described in Section 6.2.6 Disable Flows on page 102, but it just applies to the one selected device clicked on.</p>

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

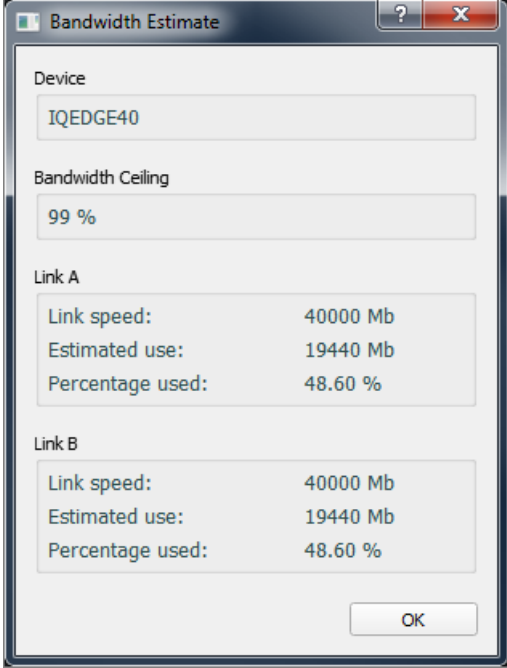
Pop-up Menu Item	Description
Bandwidth Estimate	<p>Click to see Bandwidth Estimate figures for the selected device:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> • The selected device is stated. • The Bandwidth Ceiling setting is shown. <p>For network Links A and B of the device, the following are shown:</p> <ul style="list-style-type: none"> • Link speed, Estimated usage, and Percent usage. <p>Click OK to close the window.</p>

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

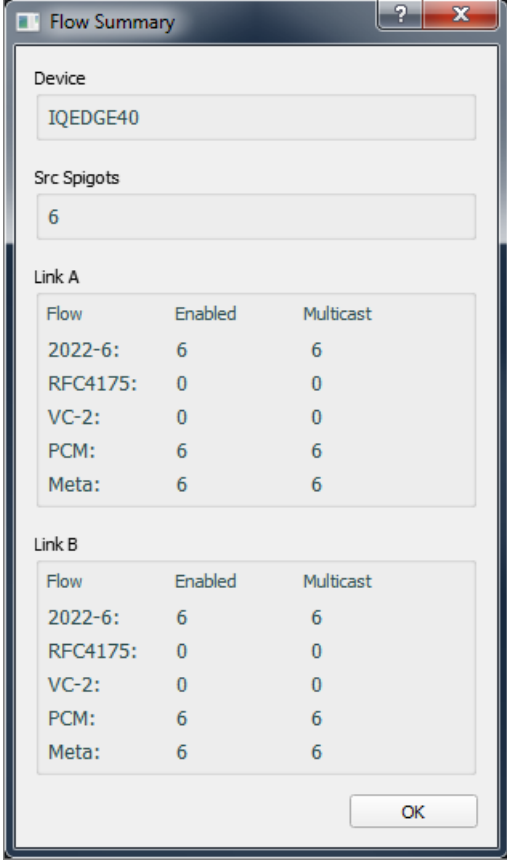
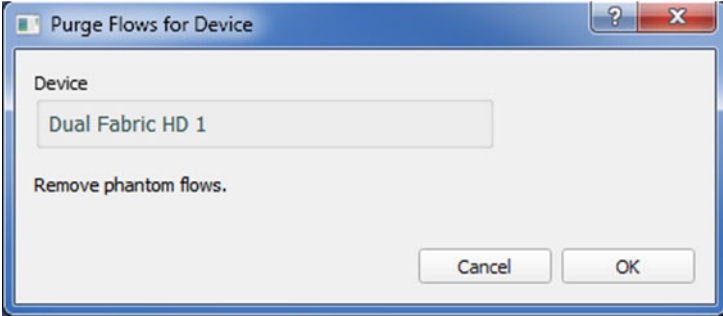
Pop-up Menu Item	Description
<p>Flow Summary</p>	<p>Click to see a summary of IP flow figures for the selected device:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> The selected device is stated. The number of source spigots of the device is shown. <p>For network Links A and B of the device, for each flow type the following numbers are shown:</p> <ul style="list-style-type: none"> Number of enabled flows. Total number of multicast flows. <p>Click OK to close the window.</p>

Table 26 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

Pop-up Menu Item	Description
Purge	<p>Click to Purge Flows for a Device.</p> <p>Note: This menu item only appears if there are phantom flows present.</p> <p>The Purge Flows for Device dialog is shown:</p>  <p>Click OK.</p>

6.3.5 Right-Click on Spigot

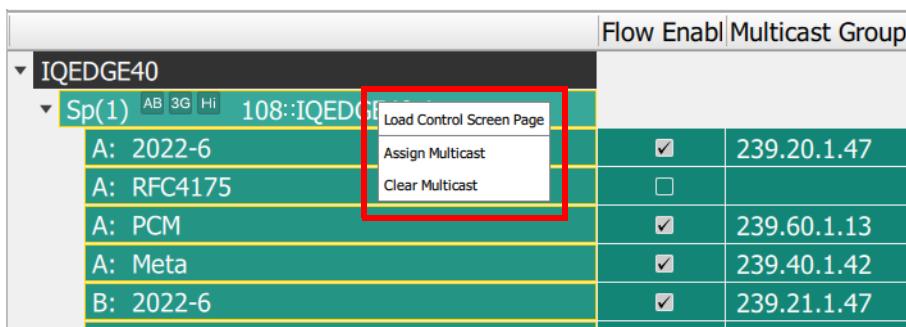
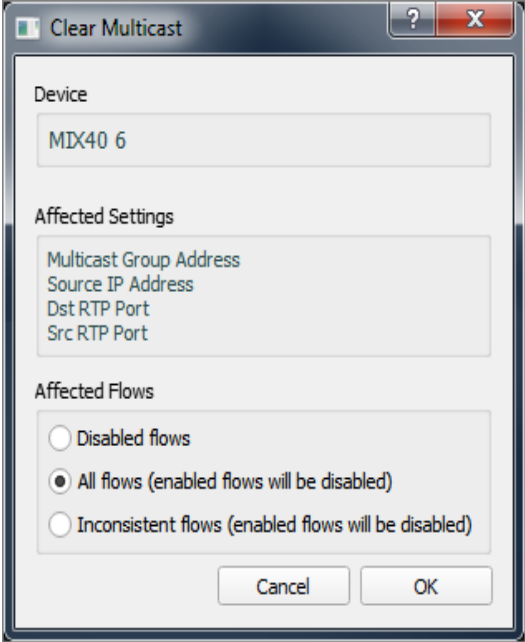


Figure 93 Src Flows Tab - Right-Click on Spigot - Pop-up Menu

Table 27 Src Flows Tab - Right-Click on Device - Pop-up Menu Items

Pop-up Menu Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit. The template appears in a new tab in Orbit.
Assign Multicast	<p>Click to assign multicast settings for the selected spigot with the Assign Multicast dialog:</p> <p>In the dialog:</p> <ul style="list-style-type: none"> The selected Device and Spigot are stated. The settings to be assigned are stated. <p>Select which flows of the device are to be affected:</p> <ul style="list-style-type: none"> Click Enabled flows or All flows. <p>Note: Current assignments are unaffected.</p> <ul style="list-style-type: none"> Click OK to assign the multicast settings.

Table 27 Src Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

Pop-up Menu Item	Description
<p>Clear Multicast</p>	<p>Click to clear multicast settings for the selected spigot with the Clear Multicast dialog:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> • The select device is stated. • The settings to be affected are listed in the dialog. <p>Select which flows of the device are to be affected:</p> <ul style="list-style-type: none"> • Click Disabled flows, or All flows (enabled flows will be disabled), or Inconsistent flows (enabled flows will be disabled). <p>Note: Current assignments are unaffected.</p> <ul style="list-style-type: none"> • Click OK to clear the multicast settings.

6.3.6 Right-Click on Source Flow

	Flow Enabl	Multicast Group
IQEDGE40		
Sp(1) AB 3G Hi 108::IQEDGE40 1		
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.47
A: RFC4175	<input type="checkbox"/>	
A: PCM	<input checked="" type="checkbox"/>	239.60.1.13

Figure 94 Src Flows Tab - Right-Click on Source Flow

Table 28 Src Flows Tab - Right-Click on Source Flow

Pop-up Menu Item	Description
Clear Multicast	Click to clear the multicast settings for the Flow . See Figure 95 "Source Flow: a), b) and c) Clear Multicast. d), e) and f) Assign Multicast."
Assign Multicast	Click to assign multicast settings for the Flow . Note: After assignment, the flow is disabled. See Figure 95 "Source Flow: a), b) and c) Clear Multicast. d), e) and f) Assign Multicast."

MDX40 6		Sp(1)	AB	3G	Hi	21::MDX40 6 1				
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.55	10.200.10.10	50100	50					
A: RFC4175	<input type="checkbox"/>									
A: PCM	<input checked="" type="checkbox"/>	239.60.1.63	10.200.10.10	5004	50					
A: Meta	<input checked="" type="checkbox"/>	239.40.1.63	10.200.10.10	50102	50					

a) A Flow in Src Flows tab main table

MDX40 6		Sp(1)	AB	3G	Hi	21::MDX40 6 1				
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.55	10.200.10.10	50100	50					
A: RFC4175	<input type="checkbox"/>									
A: PCM	<input checked="" type="checkbox"/>	239.60.1.63	10.200.10.10	5004	50					
A: Meta	<input checked="" type="checkbox"/>	239.40.1.63	10.200.10.10	50102	50					

b) Right-Click on flow and select **Clear Multicast**



MDX40 6		Sp(1)	AB	3G	Hi	21::MDX40 6 1				
A: 2022-6	<input type="checkbox"/>									
A: RFC4175	<input type="checkbox"/>									
A: PCM	<input checked="" type="checkbox"/>	239.60.1.63	10.200.10.10	5004	50					
A: Meta	<input checked="" type="checkbox"/>	239.40.1.63	10.200.10.10	50102	50					

c) Flow settings are cleared

MDX40 6		Sp(1)	AB	3G	Hi	21::MDX40 6 1				
A: 2022-6	<input type="checkbox"/>									
A: RFC4175	<input type="checkbox"/>									
A: PCM	<input checked="" type="checkbox"/>	239.60.1.63	10.200.10.10	5004	50					
A: Meta	<input checked="" type="checkbox"/>	239.40.1.63	10.200.10.10	50102	50					

d) Right-Click on flow and select **Assign Multicast**



MDX40 6		Sp(1)	AB	3G	Hi	21::MDX40 6 1				
A: 2022-6	<input type="checkbox"/>	239.20.1.55	10.200.10.10	50100	50					
A: RFC4175	<input type="checkbox"/>									
A: PCM	<input checked="" type="checkbox"/>	239.60.1.63	10.200.10.10	5004	50					
A: Meta	<input checked="" type="checkbox"/>	239.40.1.63	10.200.10.10	50102	50					

e) Flow settings are assigned, and IP flow is disabled.

MDX40 6		Sp(1)	AB	3G	Hi	21::MDX40 6 1				
A: 2022-6	<input checked="" type="checkbox"/>	239.20.1.55	10.200.10.10	50100	50					
A: RFC4175	<input type="checkbox"/>									
A: PCM	<input checked="" type="checkbox"/>	239.60.1.63	10.200.10.10	5004	50					
A: Meta	<input checked="" type="checkbox"/>	239.40.1.63	10.200.10.10	50102	50					

f) Enable the IP flow.

Figure 95 Source Flow:
a), b) and c) Clear Multicast.
d), e) and f) Assign Multicast.

6.4 Src Flows - Status Bar

Information is shown in the **Status Bar** at the bottom of an 'Orbit for IP Routing' **Src Flows** tab screen. Status fields show summary information about source flows, see Figure 96.

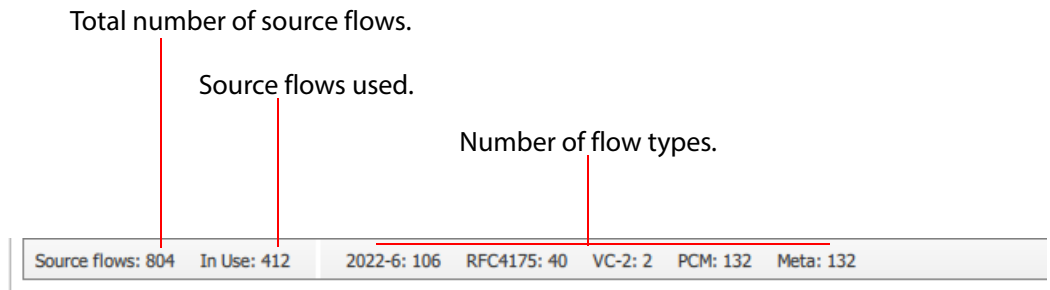
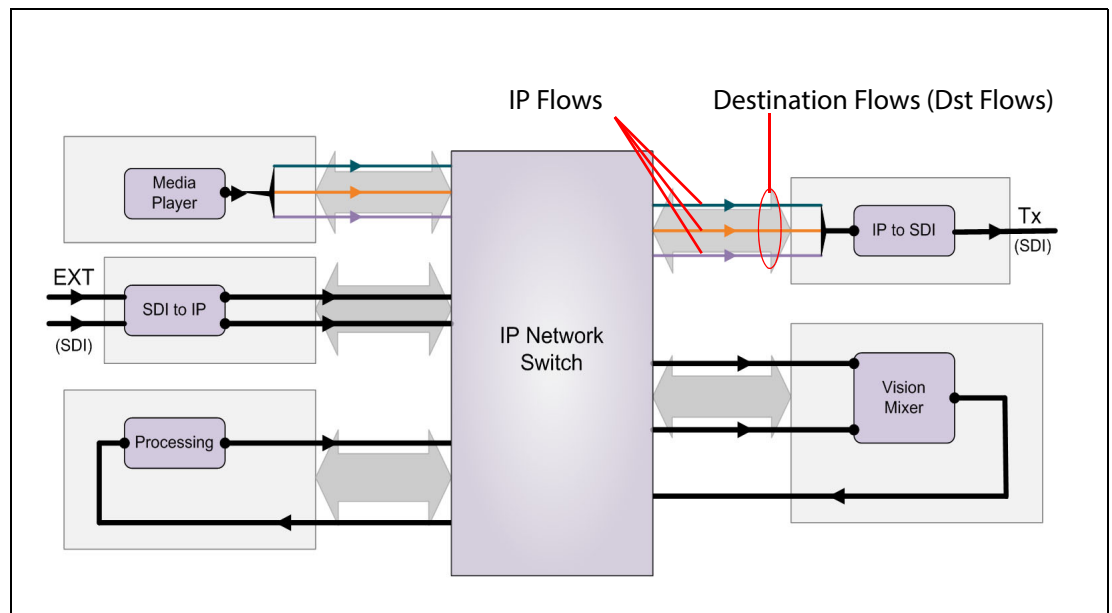


Figure 96 Source Flows Tab - Status Bar

7

7 Tabs - Destination Flows (Dst Flows) Tab



Tabs - Destination Flows (Dst Flows) Tab

7.1 Introduction	128
7.2 Dst Flows - Tool Bar	130
7.2.1 Route 1:All	131
7.2.2 Clear Routes	133
7.3 Dst Flows - Main Table	137
7.3.1 Table Columns	137
7.3.2 Inconsistent Dest Flows	140
7.3.3 Phantom Dest Flows	140
7.3.4 Right-Click on Device	141
7.3.5 Right-Click on Spigot	146
7.4 Dst Flows - Status Bar	146

7.1 Introduction

The **Dst Flows** tab reports the multicast groups routed to each destination spigot, i.e. the result of the routes made. Information is presented in a tabular form and device rows can be expanded to show all the spigots and flows within. **Devices, Spigots** and **Destination Flows** are listed. See Figure 97.

Device	Spigot	Src Flow	Routed Flo	Routed Source	Multicast Group	Source IP	Dest RTP	Source RTI
IQEDGE40								
Sp(7) 116::IQEDGE40 7								
A:	2022-6	RFC4175	2022-6		239.20.1.58	10.200.10.5	50100	50100
A:	PCM							
B:	2022-6	RFC4175	2022-6		239.21.1.59	10.200.20.5	50100	50100
B:	PCM							
Sp(8) 117::IQEDGE40 8								
A:	2022-6	RFC4175						
A:	PCM							
B:	2022-6	RFC4175						
B:	PCM							
Sp(9) 118::IQEDGE40 9								
A:	2022-6	RFC4175						
A:	PCM							
B:	2022-6	RFC4175						
B:	PCM							
Sp(10) 119::IQEDGE40 10								
A:	2022-6	RFC4175						
A:	PCM							
B:	2022-6	RFC4175						
B:	PCM							
Sp(11) 120::IQEDGE40 11								
A:	2022-6	RFC4175						
A:	PCM							
B:	2022-6	RFC4175						
B:	PCM							
Sp(12) 121::IQEDGE40 12								
A:	2022-6	RFC4175						
A:	PCM							
R:	2022-6	RFC4175						

Figure 97 Dst Flows Tab Screenshot

The information presented reflects the signal routes set up in the traditional router that the Orbit network configuration has set up. Routes are typically made by external control panels and protocols via the Grass Valley IP routing system controller (IP-RSC server) of the IP routing system.

Figure 98 below highlights the features of this tab screen.

Tool Bar, see Section 7.2 *Dst Flows - Tool Bar* on page 130.

Main Table of devices, expandable to show **Spigots** and **IP Flows**, see Section 7.3 *Dst Flows - Main Table* on page 137

The screenshot displays the 'Destination Flows' tab. At the top, there is a navigation bar with tabs for 'Devices', 'Spigots', 'Src Flows', 'Dst Flows', 'Router Src Ports', 'Router Dst Ports', 'Routing Status', 'Bandwidth Status', and 'Log'. Below this is a toolbar with buttons for search, refresh, and other actions. The main table is titled 'Routed Flo Routed Source Multicast Group Source IP Addr: Dest RTP F Source RTI'. It shows a tree view of devices, with 'IQEDGE40' expanded to show spigots Sp(7) through Sp(12). Each spigot is associated with IP flows (A and B) and their status. A status bar at the bottom provides summary statistics: Destination flows: 576, In Use: 131, 2022-6: 121, RFC4175: 0, VC-2: 0, PCM: 10, Meta: 0.

Device expanded to show **Spigots** and **IP Flows**

Destination Spigot item.

Destination Spigot status information, see Figure 108 on page 138.

Status Bar, see Section 7.4 *Dst Flows - Status Bar* on page 146

Figure 98 Dst Flows Tab - Annotated Screenshot

7.2 Dst Flows - Tool Bar

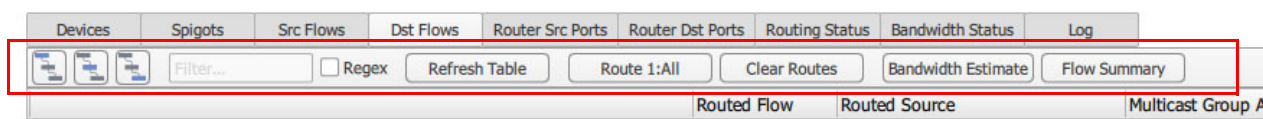


Figure 99 Destination Flows Tool Bar

Table 29 Destination Flows Tool Bar Items




Tool Bar Item	Description
Tree view controls:	
Show Devices 	Button. Click to collapse list to show Devices only.
Show Spigots 	Button. Click to set list to show Devices and Spigots .
Show Flows 	Button. Click to expand list to show Devices , Spigots and Flows .
Filter controls:	
Filter...	Filters which Devices are presented in the main table of the tab. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.) Text box. Enter filter text. (Filter Text search string.) Table rows are filtered on the Device Name column.
Regex	Check box. Select when the Filter Text is a Perl regular expression.
Refresh Table	Button. Click to refresh the screen contents from Orbit's own, gathered information.
Route 1:All	Button. Click to set all routing to one-to-all. I.e. route one source to all destinations. See Section 7.2.1 Route 1:All on page 131.
Clear Routes	Button. Click to clear all routes of the router. See Section 7.2.2 Clear Routes on page 133.
Bandwidth Estimate	Button. Click to check on the estimated bandwidth usage of each device's network connection with the Bandwidth Estimate dialog. See Section 6.2.9 Bandwidth Estimate on page 108.

Table 29 Destination Flows Tool Bar Items (Continued)

Tool Bar Item	Description
Flow Summary	<p>Button.</p> <p>Click to see an IP flow summary.</p> <p>See Section 6.2.10 Flow Summary on page 108.</p>

7.2.1 Route 1:All

Orbit offers the facility to route a single source to all or some destinations. This can be useful when commissioning a system because it is a simple way to route a known working source to all destinations; this enables all destinations in the system to be checked (for example, checked for wiring or configuration errors).

One source can be routed to all destinations; alternatively, one source can be routed to selected destinations by using a filtering facility.

This routing operation can be disruptive to router operation and requires an authorization step.

To select which destinations to route to:

- In the main table:
 - Display all the **Devices**.

or

 - Use the **Filter Text** in the tool bar control which **Device(s)** are presented in the main table and are of interest.

The **Spigots** of the **Devices** present in the main table are selected for the **Route 1:All** operation.

To route 1 to all:

- In the tool bar, click **Route 1:All**.
 A **Route 1:All Information** dialog is shown. See Figure 100.
 (This shows the number of **Spigots** and **Devices** that will be affected and the setting of the **Spigot Filter** and **Devices Filter**.)

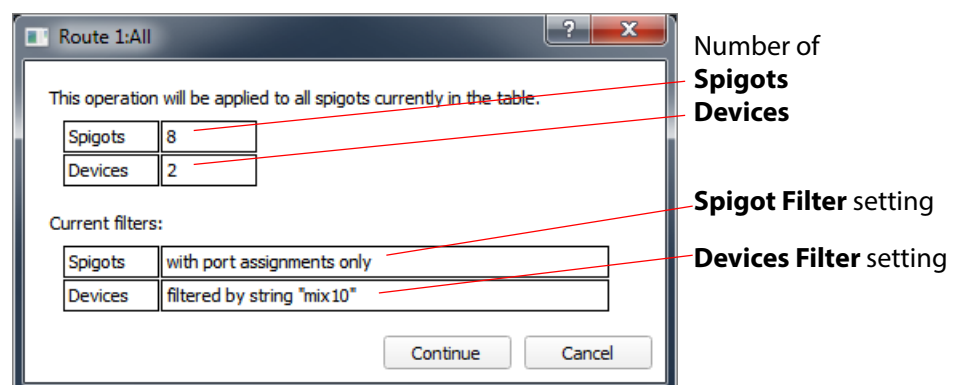
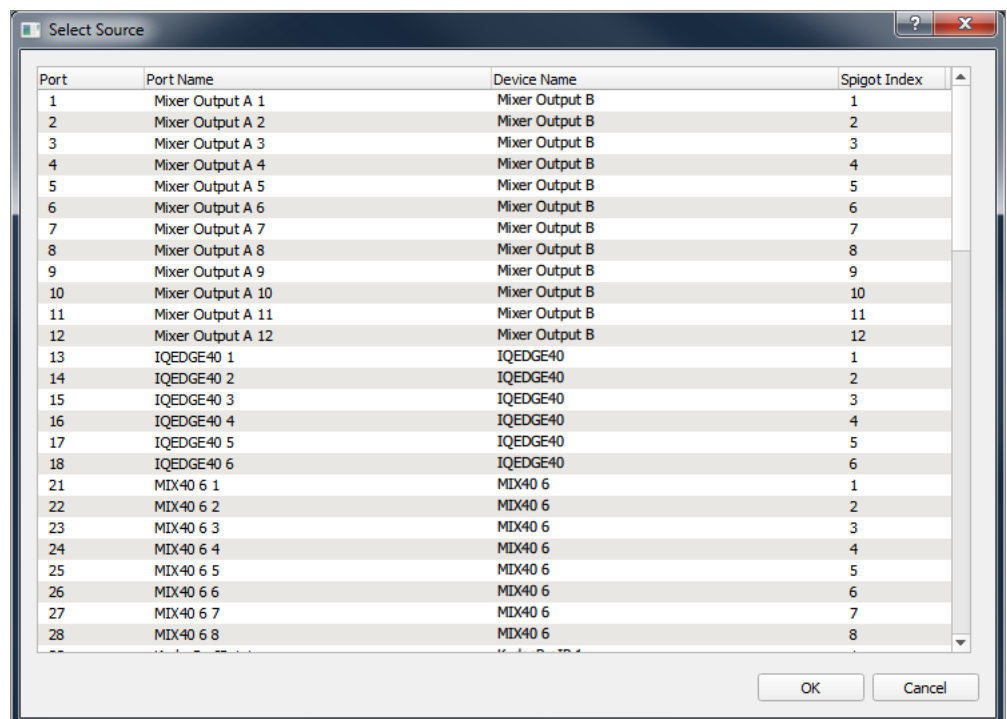


Figure 100 Route 1:All Information Dialog Example

- Click **Continue**.

- a If more than one device is present in the main table, this operation is considered to be high risk.
- A **High Risk Alert** warning dialog is displayed, which requires the user to authorize the action by re-entering the Orbit project password before continuing with this routing operation.
- See Section 6.2.7 *HIGH RISK Alert* on page 104.
- (This aims to stop the accidental changing of routes to more than one device.)
- b If just one device is present in the main table, then the operation is not deemed to be a high risk. And the to user may continue with the routing operation.
4. The **Select Source** dialog is shown. See Figure 101a:



a) **Select Source** dialog



b) Selected source highlighted

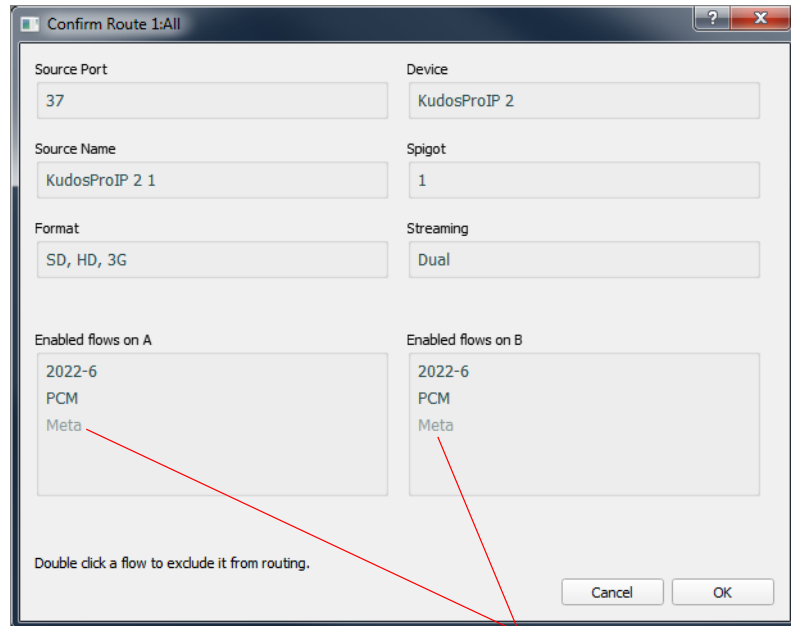
Figure 101 Select Source Dialog Example:

a) Dialog.

b) Selected source highlighted.

- Click on a source in the list to select it. The source row is highlighted, see Figure 101b.
- Click **OK** to close the dialog.

The **Confirm Route 1:All** dialog is shown, see Figure 102.
The dialog summarizes the source information for the **Route 1:All**.



Flow type 'Meta' has been excluded.

Figure 102 Confirm Route 1:All Dialog Example.

If an IP flow type should be excluded from the **Route 1:All** operation, then:

7. Double-click on the flow type name in the 'Enabled flows on A' and/or 'Enabled flows on B' section of the dialog, as required.
8. The flow type name(s) remains in the dialog list(s) but are de-emphasized.

When any exclusions are set:

9. Click **OK** in the **Confirm Route 1:All** dialog.
The 'one to all route' operation is carried out:
The selected **Source** is routed to the selected **Spigots**.

7.2.2 Clear Routes

Orbit offers the facility to clear routes to all or some destinations. This can be useful:

- to undo the effect of a **Route 1:All** operation when commissioning a system; or
- to clear all routes when a system is being reconfigured for a new job (for example, a flypack system or for an OB truck).

To clear routes of IP flows to destination **Spigots** of **Devices** in the main table of the **Dst Flows** tab:

1. In the main table:
 - Display all the **Devices**.
 or
 - Use the **Filter Text** in the tool bar control which **Device(s)** are presented in the main table and are of interest.

The **Spigots** of the **Devices** present in the main table are selected for the **Clear Route** operation.

2. In the tool bar, click **Clear Routes**.
A **Clear Routes Information** dialog is shown. See Figure 103.
(This shows the number of **Spigots** and **Devices** that will be affected and the setting of the **Spigot Filter** and **Devices Filter**.)

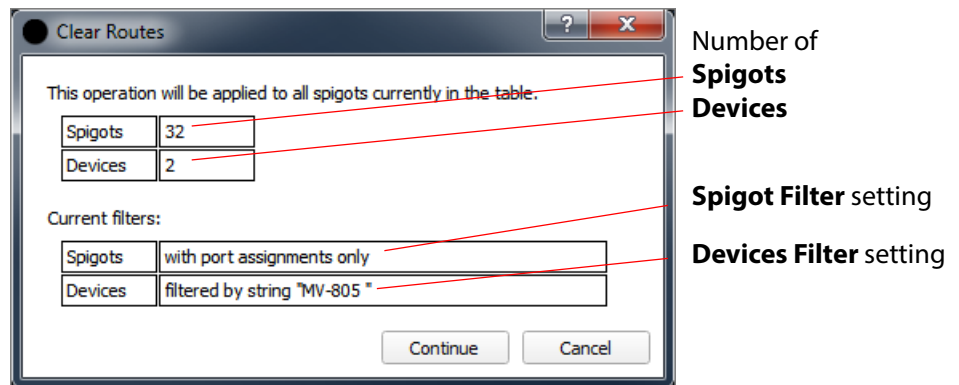


Figure 103 Clear Routes Information Dialog Example

3. Click **Continue**.
 - a If more than one device is present in the main table, this operation is considered to be high risk.

A **High Risk Alert** warning dialog is displayed, which requires the user to re-enter the Orbit project password before continuing with clearing routes.

See Section 6.2.7 *HIGH RISK Alert* on page 104.

(This aims to stop the accidental changing of settings on more than one device.)
 - b If just one device is present in the main table, then the operation is not deemed to be a high risk. And the to user may continue with clearing routes.
4. The **Clear Routes** dialog is shown. See Figure 104:

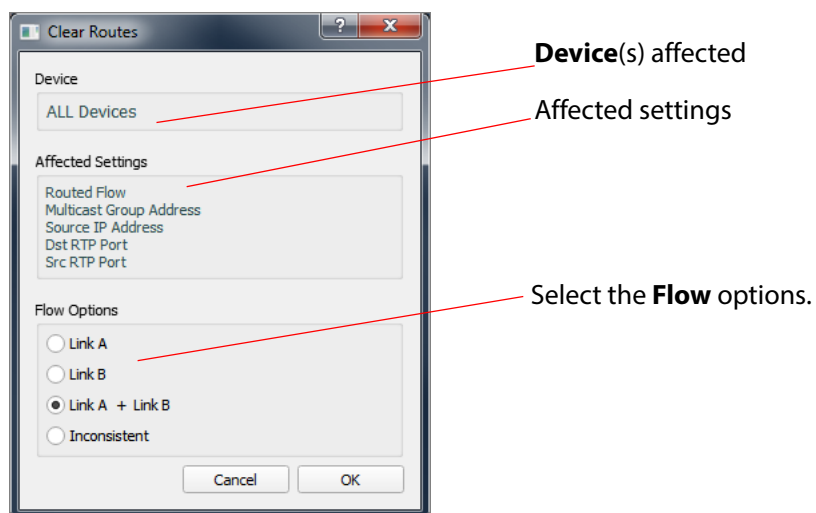


Figure 104 Clear Routes Dialog Example

5. Select which flows to clear the routes of ('Flow Options' in the dialog).
6. Click **OK** to clear the routes for the selected flows.

The **Dst Flows** tab main table items are cleared. See Figure 105.

Sp	AB	3G	Hi	BM	99:MV-805 1 1	Routed Flow	Routed Source	Multicast Group Address	Source IP Address	Dest RTP Port	Source RTP Port
Sp(5)	A:	2022-6	RFC4175	VC-2		2022-6	37-KudosProIP 2 1	239.20.1.11	10.200.10.21	50100	50100
	A:	PCM				PCM	37-KudosProIP 2 1	239.60.1.11	10.200.10.21	5004	5004
	A:	Meta				Meta	37-KudosProIP 2 1	239.40.1.11	10.200.10.21	50102	50102
	B:	2022-6	RFC4175	VC-2		2022-6	37-KudosProIP 2 1	239.21.1.11	10.200.20.21	50100	50100
	B:	PCM				PCM	37-KudosProIP 2 1	239.61.1.11	10.200.20.21	5004	5004
	B:	Meta				Meta	37-KudosProIP 2 1	239.41.1.11	10.200.20.21	50102	50102

a) Dst Flows tab main table before Clear Routes

b) Dst Flows tab main table after Clear Routes

Sp	AB	3G	Hi	BM	99:MV-805 1 1	Routed Flow	Routed Source	Multicast Group Address	Source IP Address	Dest RTP Port	Source RTP Port
Sp(5)	A:	2022-6	RFC4175	VC-2							
	A:	PCM									
	A:	Meta									
	B:	2022-6	RFC4175	VC-2							
	B:	PCM									
	B:	Meta									

Cleared routes

Figure 105 Dst Flows Tab - Cleared Routes Example:

a) Before.

b) After.

7.3 Dst Flows - Main Table

When each **Device** list-item and its corresponding **Spigot** items in the main table are expanded, the **Source Flows** of the device are shown in adjacent table rows. See Figure 106.

Note: The Orbit IP Routing property **Flow -> Spigot Filter** determines which **Flows** of the **Devices** are presented. (See Section 3.6.2 *Spigot Filter* on page 38.)

	Routed Flo	Routed Source	Multic
IQEDGE40			
Sp(7) 116::IQEDGE40 7			
A: 2022-6 RFC4175	2022-6		239.2
A: PCM			
B: 2022-6 RFC4175	2022-6		239.2
B: PCM			
Sp(8) 117::IQEDGE40 8			
A: 2022-6 RFC4175			
A: PCM			

Figure 106 Device Item Expanded to Show Spigots

Note: **Find Text:** The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 *Find Text* on page 39.

7.3.1 Table Columns

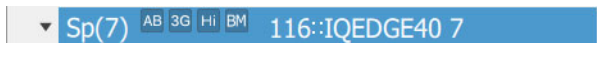
Destination Flow information is presented in the rows of the table. For the case of redundant flows using two network fabrics, the flows of Fabric A and of Fabric B are shown on separate rows.

Column headings are shown in Figure 107 and described in Table 30.

Routed Flow	Routed Source	Multicast Group Address	Source IP Address	Dest RTP Port	Source RTP Port
-------------	---------------	-------------------------	-------------------	---------------	-----------------

Figure 107 Dst Flows - Column Headings

Table 30 Dst Flows Column Headings

Column Headings	Description
(First column)	<p>Device, Spigot and Flow names. Spigot and Flow information is shown.</p>  <p>Figure 108 describes the Spigot information in this column.</p>
Routed Flow	Text. The flow type routed to the Spigot .
Routed Source	Text. Source port name and number routed to the Spigot . (Port Number:: Port Name)
Multicast Group Address	Text. Editable. Multicast group IP address of the IP flow routed to the Spigot .
Source IP Address	Text. Editable. Source IP address of the IP flow routed to the Spigot .
Dest RTP Port	Text. Editable. IP port number that the IP flow is routed to for the Spigot .
Source RTP Port	Text. Editable. IP port number that the IP flow is routed from, at its source.

Device name

Spigot name (Spigot index)

Flow information:

Fabric A or B

Flow type(s) the **Spigot** is capable of receiving.

Spigot information: (See Table 31)

Dual redundant flows, fabric links A and B.

Video flow type

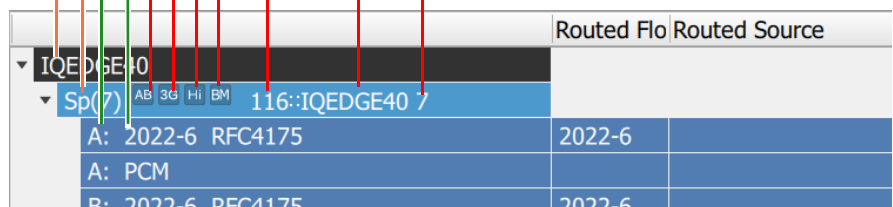
Flow priority, high.

Route switching mode.

Router source port number

Device name


















Spigot index



	Routed Flo	Routed Source
IQEDGE40		
Sp(7) AB 3G Hi BM 116::IQEDGE40 7		
A: 2022-6 RFC4175	2022-6	
A: PCM		
B: 2022-6 RFC4175	2022-6	

Figure 108 Spigot and Flow Information

Table 31 Spigot Destination Flow Information

Item	Options	Description
	<p>AB </p> <p>AB </p> <p>AB </p> <p>A B </p> <p>AB </p>	<p>There are two network interfaces at each destination spigot.</p> <ul style="list-style-type: none"> Use A and B: One network interface is connected to fabric A and the other to fabric B. All flow data is received from fabric A and all from fabric B. For example, for network redundancy. Use A: Both network interfaces are connected to fabric A. All flow data is received from fabric A. For example, for bandwidth aggregation. Use B: Both network interfaces are connected to fabric B. All flow data is received from fabric B. For example, for bandwidth aggregation. Use A or B: Auto-selects between using fabric A or fabric B. Not using A or B. Neither fabric may be used by a spigot if some other connection route is available. For example, a Grass Valley IQEDGE frame has internal connection channels.
	<p>3G </p> <p>HD </p> <p>SD </p>	<p>Video format in the flow:</p> <ul style="list-style-type: none"> 3G High definition, HD Standard definition, SD
	<p>Hi </p> <p>Md </p> <p>Lo </p>	<p>Flow priority:</p> <ul style="list-style-type: none"> High Medium Low
	<p>BM </p> <p>MB </p>	<p>Route switching mode:</p> <ul style="list-style-type: none"> Break before Make Make before Break

7.3.2 Inconsistent Dest Flows

Inconsistent destination flows are destination flows connected to a spigot of an inconsistent source/destination mode. For more information, see Section 5.4.2 [Inconsistent Spigots](#) on page 81.

A: 2022-6 RFC4175 VC-2	2022-6		239.20.1.47
A: PCM			

Figure 109 Inconsistent Dest Flow

Clear Inconsistent Flows:

To clear inconsistent **Dest Flows**:

- Click the **Clear Routes** button on the **Dst Flows** tab.
- Select 'Inconsistent' for the **Flow Selection** in the **Clear Routes** dialog.

7.3.3 Phantom Dest Flows

Phantom destination flows are destination flows that used to exist in an IP routing system. For more information, see Section 5.4.3 [Phantom Spigots](#) on page 81.

A: PCM	PCM		239.60.1.47
A: Meta	Meta		239.40.1.47

Figure 110 Phantom Dest Flow

Purge Phantom Flows:

To purge phantom **Flows**:

- Right-Click a device name in either the **Src Flows** tab or **Dst Flows** tab.
- Select **Purge** in the drop-down menu.
(**Note:** The **Purge** menu item is only shown if there are phantoms flows.)

The **Purge Flows for Device** dialog is shown.

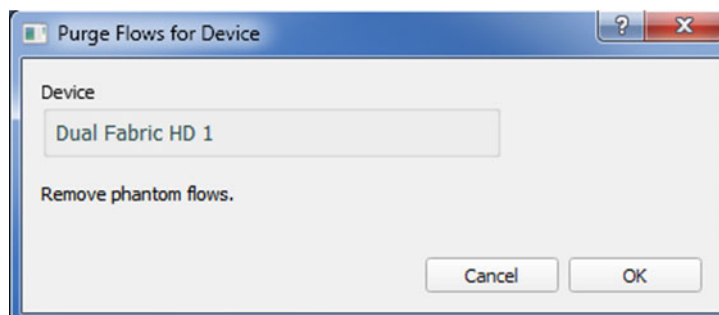


Figure 111 Purge Flows for Device Dialog

7.3.4 Right-Click on Device

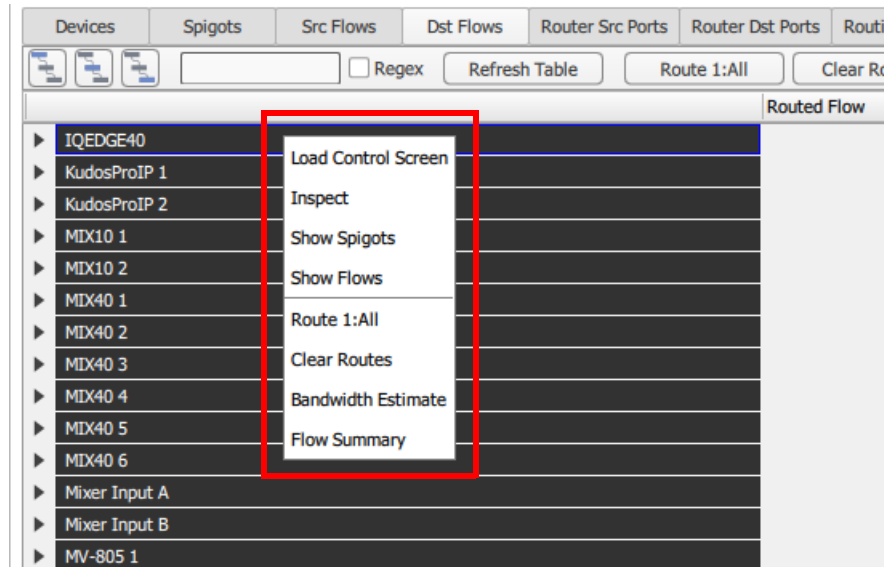


Figure 112 Right-Click on Device - Pop-up Menu

Table 32 Dst Flows Tab - Right-Click on Device - Pop-up Menu Items

Pop-up Menu Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit, in a new separate main tab
Inspect	Click to show the device in the Orbit device Inspector. See Section 17 Device Inspector Pane on page 254.
Show Spigots	Click to expand the Device in the main table to show its Spigot information.

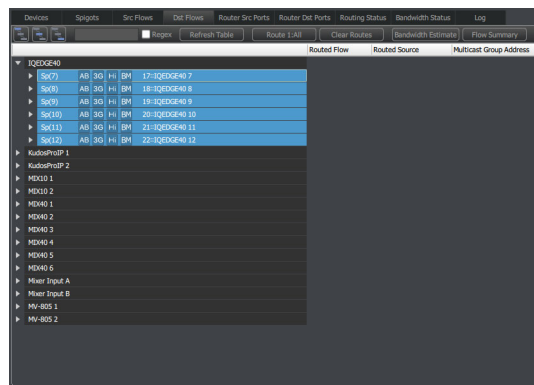


Table 32 Dst Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

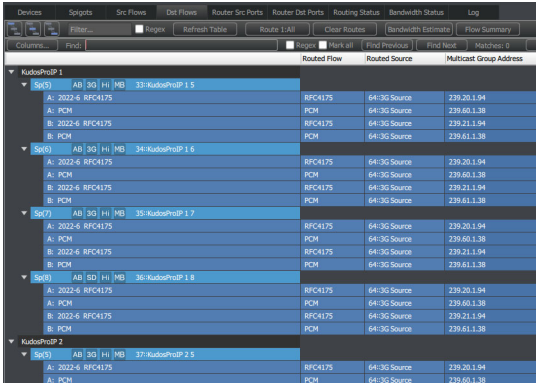
Pop-up Menu Item	Description
<p>Show Flows</p>	<p>Click to expand the Device in the main table to show its Spigot and Flows information.</p> 
<p>Route 1:All</p>	<p>Click Route 1:All to route one source to all destinations of the selected Device.</p> <p>This operation may be disruptive to router operation.</p> <p>Note: This Route 1:All is similar to the one described in Section 7.2.1 Route 1:All on page 131, but it just applies to the one clicked-on device.</p> <p style="text-align: right;">See Section 7.2.1 Route 1:All on page 131.</p>
<p>Clear Routes</p>	<p>Click Clear Routes to delete the routes to all destinations of the selected Device.</p> <p>This operation may be disruptive to router operation.</p> <p>Note: This Clear Routes is similar to the one described in Section 7.2.2 Clear Routes on page 133, but it just applies to the one clicked-on device.</p> <p style="text-align: right;">See Section 7.2.2 Clear Routes on page 133.</p>

Table 32 Dst Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

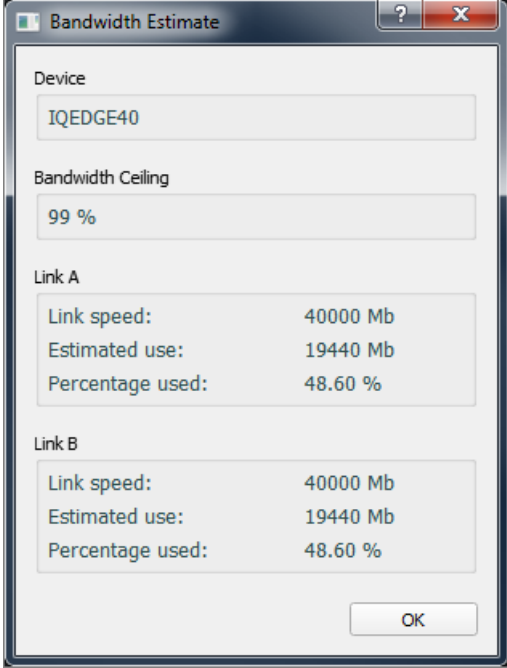
Pop-up Menu Item	Description
Bandwidth Estimate	<p>Click to see Bandwidth Estimate figures for the selected device:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> The selected device is stated. The Bandwidth Ceiling setting is shown. <p>For network Links A and B of the device, the following are shown:</p> <ul style="list-style-type: none"> Link speed, Estimated usage, and Percent usage. <p>Click OK to close the window.</p>

Table 32 Dst Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

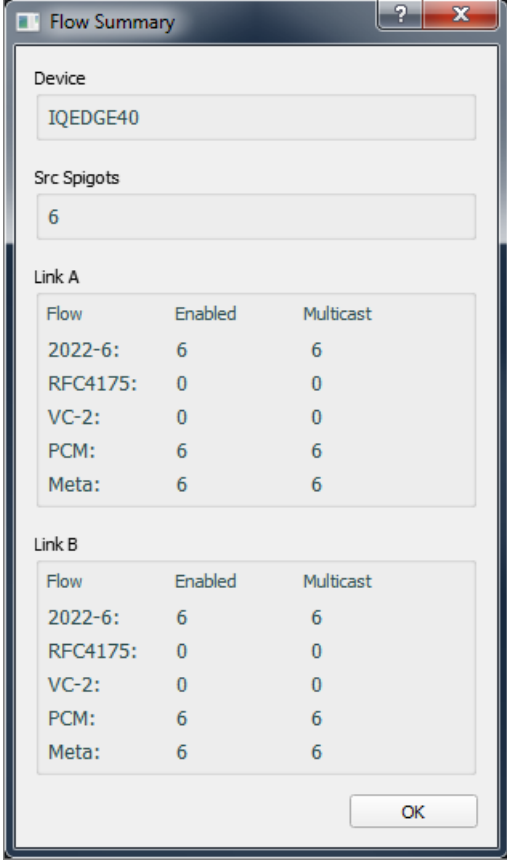
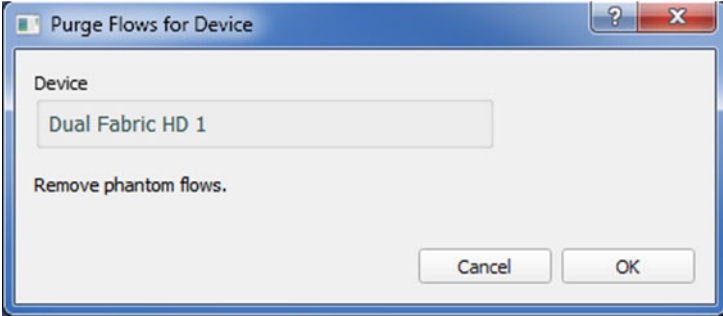
Pop-up Menu Item	Description
Flow Summary	<p>Click to see a summary of IP flow figures for the selected device:</p>  <p>In the dialog:</p> <ul style="list-style-type: none"> The selected device is stated. The number of source spigots of the device is shown. <p>For network Links A and B of the device, for each flow type the following numbers are shown:</p> <ul style="list-style-type: none"> Number of enabled flows. Total number of multicast flows. <p>Click OK to close the window.</p>

Table 32 Dst Flows Tab - Right-Click on Device - Pop-up Menu Items (Continued)

Pop-up Menu Item	Description
Purge	<p>Click to Purge Flows for a Device.</p> <p>Note: This menu item only appears if there are phantom flows present.</p> <p>The Purge Flows for Device dialog is shown:</p>  <p>Click OK.</p>

7.3.5 Right-Click on Spigot

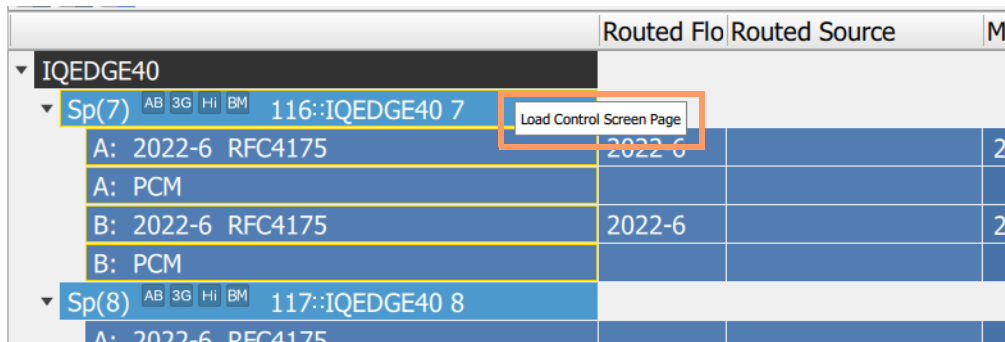


Figure 113 Right-Click on Spigot - Pop-up Menu

Table 33 Dst Flows Tab - Right-Click on Device - Pop-up Menu Items

Pop-up Menu Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit. The template is opened in a new, separate tab, at the relevant template screen for the spigot selected.

7.4 Dst Flows - Status Bar

Information is shown in the **Status Bar** at the bottom of an 'Orbit for IP Routing' screen. Status fields show summary information about destination flows are shown, see Figure 114.

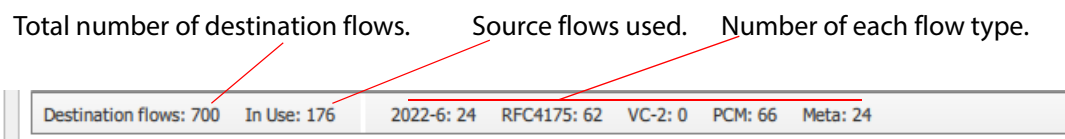
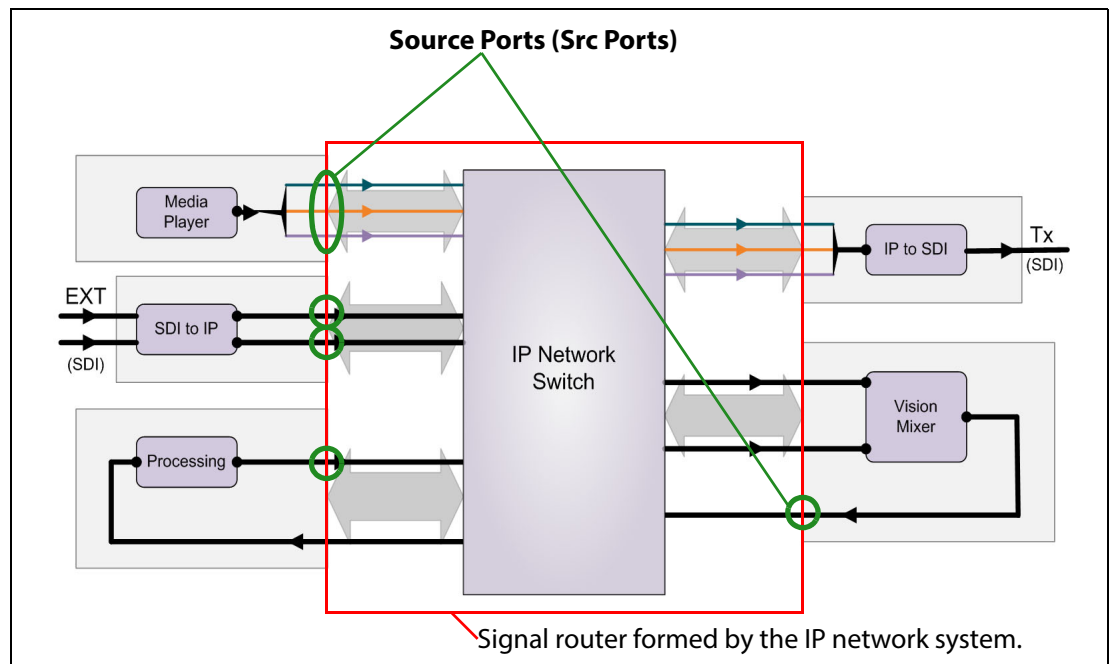


Figure 114 Destination Flows Tab - Status Bar

8

8 Tabs - Router Source Ports Tab

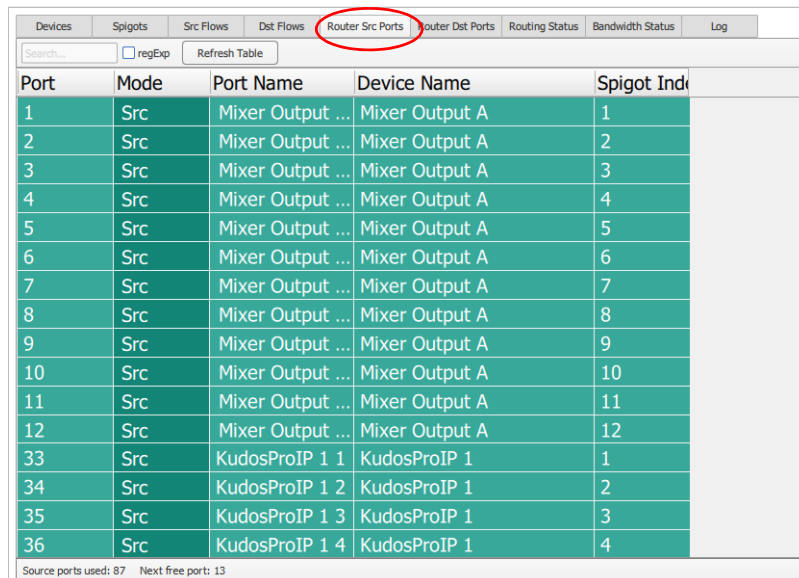


8 Tabs - Router Source Ports Tab

8.1 Introduction	148
8.2 Router Source Ports - Tool Bar	150
8.3 Router Source Ports - Main Table	151
8.4 Status Bar	153

8.1 Introduction

The router source ports tab (**Router Src Ports**) summarizes the source ports of the (video) router formed by the IP routing system. The tab screen is shown in Figure 115.



Port	Mode	Port Name	Device Name	Spigot Index
1	Src	Mixer Output ...	Mixer Output A	1
2	Src	Mixer Output ...	Mixer Output A	2
3	Src	Mixer Output ...	Mixer Output A	3
4	Src	Mixer Output ...	Mixer Output A	4
5	Src	Mixer Output ...	Mixer Output A	5
6	Src	Mixer Output ...	Mixer Output A	6
7	Src	Mixer Output ...	Mixer Output A	7
8	Src	Mixer Output ...	Mixer Output A	8
9	Src	Mixer Output ...	Mixer Output A	9
10	Src	Mixer Output ...	Mixer Output A	10
11	Src	Mixer Output ...	Mixer Output A	11
12	Src	Mixer Output ...	Mixer Output A	12
33	Src	KudosProIP 1 1	KudosProIP 1	1
34	Src	KudosProIP 1 2	KudosProIP 1	2
35	Src	KudosProIP 1 3	KudosProIP 1	3
36	Src	KudosProIP 1 4	KudosProIP 1	4

Source ports used: 87 Next free port: 13

Figure 115 Router Src Ports Tab Screenshot

Router source ports are listed in a tabular format. Columns can be sorted in alpha-numerical order, as required, by clicking on the table column heading. There is a **Tool Bar** at the top of the table.

Figure 116 below highlights the features of this tab screen.

Tool Bar, see Section 8.2 *Router Source Ports - Tool Bar* on page 150.

Table of **Router Source Ports**, see Section 8.3 *Router Source Ports - Main Table* on page 151

Port	Mode	Port Name	Device Name	Spigot Index
1	Src	Mixer Output A 1	Mixer Output B	1
2	Off	Mixer Output A 2	Mixer Output B	2
3	Src	Mixer Output A 3	Mixer Output B	3
4	Src	Mixer Output A 4	Mixer Output B	4
5	Src	Mixer Output A 5	Mixer Output B	5
6	Src	Mixer Output A 6	Mixer Output B	6
7	Src	Mixer Output A 7	Mixer Output B	7
8	Src	Mixer Output A 8	Mixer Output B	8
9	Src	Mixer Output A 9	Mixer Output B	9
10	Src	Mixer Output A 10	Mixer Output B	10
11	Src	Mixer Output A 11	Mixer Output B	11
12	Src	Mixer Output A 12	Mixer Output B	12
13	Src	IQEDGE40 1	IQEDGE40	1
14	Src	IQEDGE40 2	IQEDGE40	2
15	Src	IQEDGE40 3	IQEDGE40	3
16	Src	IQEDGE40 4	IQEDGE40	4
17	Src	IQEDGE40 5	IQEDGE40	5
18	Src	IQEDGE40 6	IQEDGE40	6
21	Src	MIX40 6 1	MIX40 6	1
22	Src	MIX40 6 2	MIX40 6	2
23	Src	MIX40 6 3	MIX40 6	3
24	Src	MIX40 6 4	MIX40 6	4
25	Src	MIX40 6 5	MIX40 6	5
26	Src	MIX40 6 6	MIX40 6	6
27	Src	MIX40 6 7	MIX40 6	7
28	Src	MIX40 6 8	MIX40 6	8
33	Src	KudosProIP 1 1	KudosProIP 1	1
34	Src	KudosProIP 1 2	KudosProIP 1	2
35	Src	KudosProIP 1 3	KudosProIP 1	3
36	Src	KudosProIP 1 4	KudosProIP 1	4
37	Src	KudosProIP 2 1	KudosProIP 2	1
38	Src	KudosProIP 2 2	KudosProIP 2	2
39	Src	KudosProIP 2 3	KudosProIP 2	3
40	Src	KudosProIP 2 4	KudosProIP 2	4
41	Src	MIX10 1 1	MIX10 1	1
42	Src	MIX10 1 2	MIX10 1	2
43	Src	MIX10 1 3	MIX10 1	3
45	Src	IQDMX Out	MIX10 2	1
46	Src	IQUDC Out	MIX10 2	2
47	Src	MIX10 2 3	MIX10 2	3

Source ports used: 87 Next free port: 13

Status Bar, see Section 8.4 *Status Bar* on page 153

Figure 116 Router Src Ports Tab - Annotated Screenshot

8.2 Router Source Ports - Tool Bar

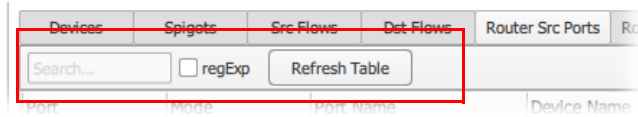


Figure 117 Router Source Ports Tool Bar

Table 34 Router Source Ports Tool Bar Items

Tool Bar Item	Description
Filter controls:	Filters which Router Source Ports are presented in the main table of the tab. The filter tool works in a similar way to the Device Filter tool but it will filter across all table columns on this Router Src Ports tab. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.)
Filter...	Text box. Enter filter text. (Filter Text search string.) Table rows are filtered on all columns.
Regex	Check box. Select when the Filter Text is a Perl regular expression.
Refresh Table	Button. Click to refresh table contents.

8.3 Router Source Ports - Main Table

This tab is a useful summary of router source ports that have been allocated.

Note: **Router Size:**
 For an N x M sized router (N sources, M destinations):

- the source port number range is 1 to N; and
- the destination port number range is 1 to M.

The router N x M size is set up as part of the Grass Valley IP routing system controller (IP-RSC server) set up.

Source port information is presented in rows of the table. The rows can be sorted on any column: Click on a column heading to sort the table items in ascending or descending alpha-numerical order. See Figure 118.

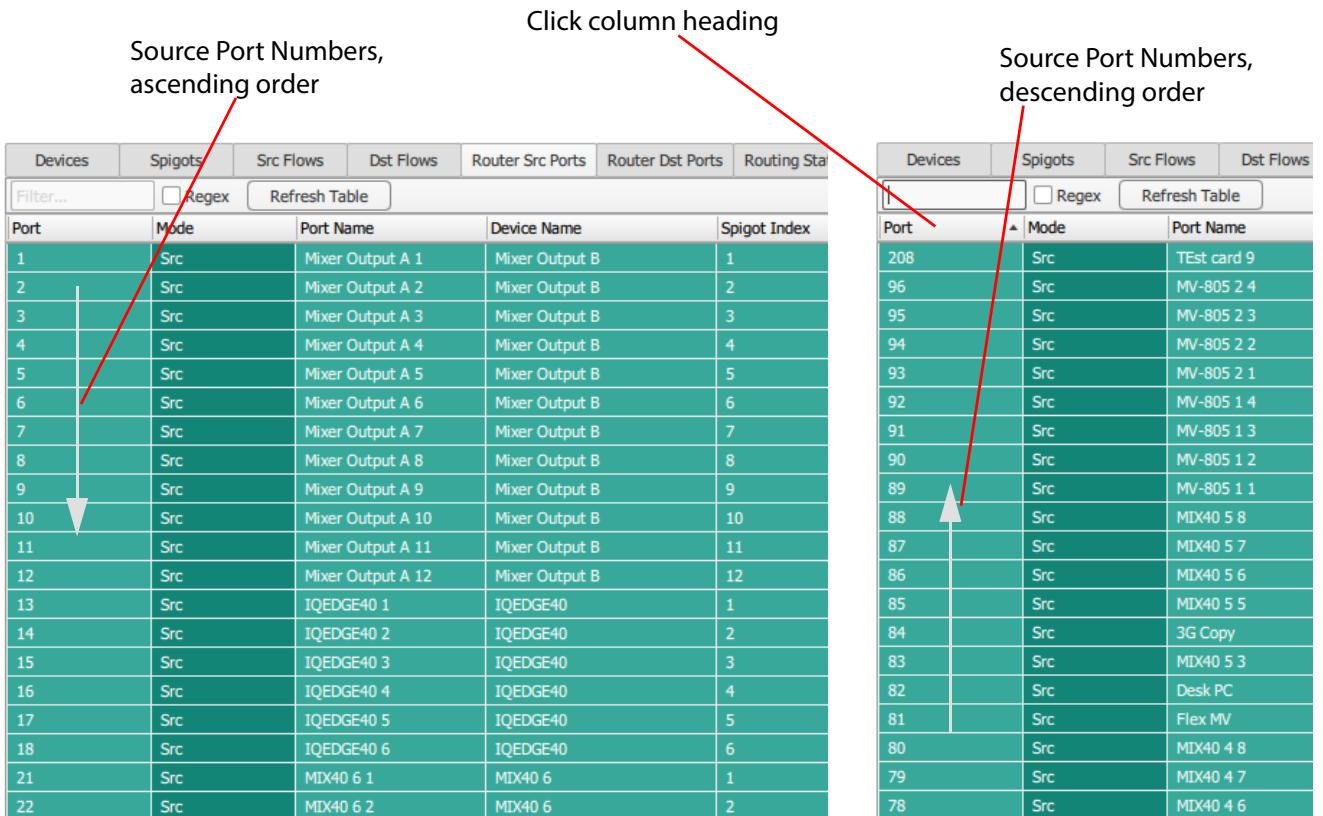


Figure 118 Source Ports - Sorting on Columns

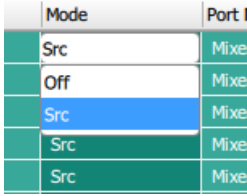
Note: **Find Text:**
 The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 [Find Text](#) on page 39.

Port	Mode	Port Name	Device Name	Spigot Index
------	------	-----------	-------------	--------------

Figure 119 Source Ports Column Headings

Column headings are described in Table 35.

Table 35 Router Src Ports Column Headings

Column Heading	Description
Port	Router source port number.
Mode	<p>Drop-down text. Editable. Select mode:</p> <ul style="list-style-type: none"> Src: Source port. Off: No port, disabled. 
Port Name	Router source port name.
Device Name	Device name with the source port.
Spigot Index	<p>Spigot index number.</p> <p>Devices have Spigots. A spigot on a device is given a number to identify it. For example, 1, 2, 3, etc.</p> <p>A device will have source spigots and destination spigots. For each device:</p> <ul style="list-style-type: none"> Source spigots are numbered from 1 onwards. Numbering continues with the destination spigots. <p>Thus:</p> <ul style="list-style-type: none"> The first source spigot on a device has index '1'. The first destination spigot on a device will have a spigot index = 'number of source Spigots' + 1.

8.4 Status Bar

Information is shown in the **Status Bar** at the bottom of an 'Orbit for IP Routing' screen. Status fields show summary information about router source ports, see Figure 120.

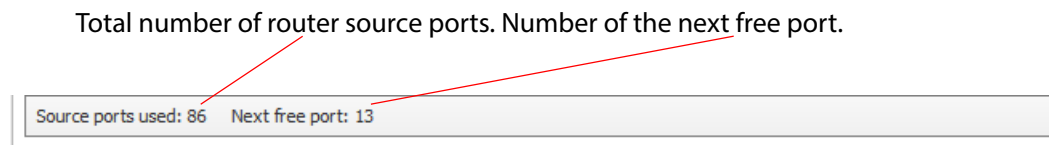
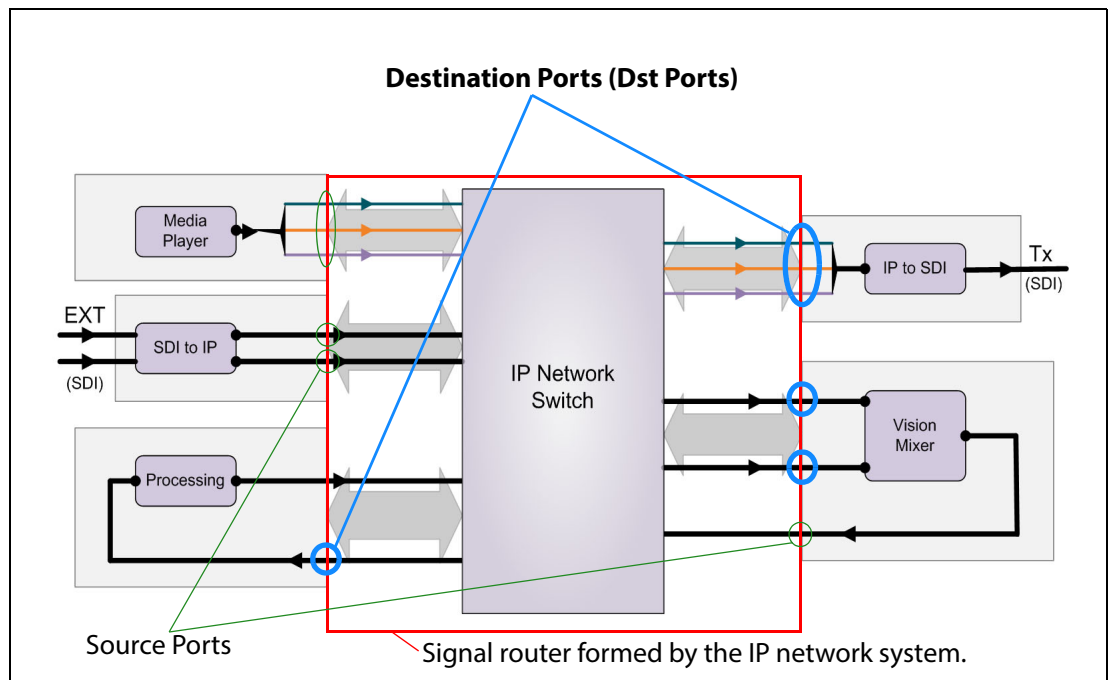


Figure 120 Router Source Ports Tab - Status Bar

9

9 Tabs - Router Destination Ports Tab

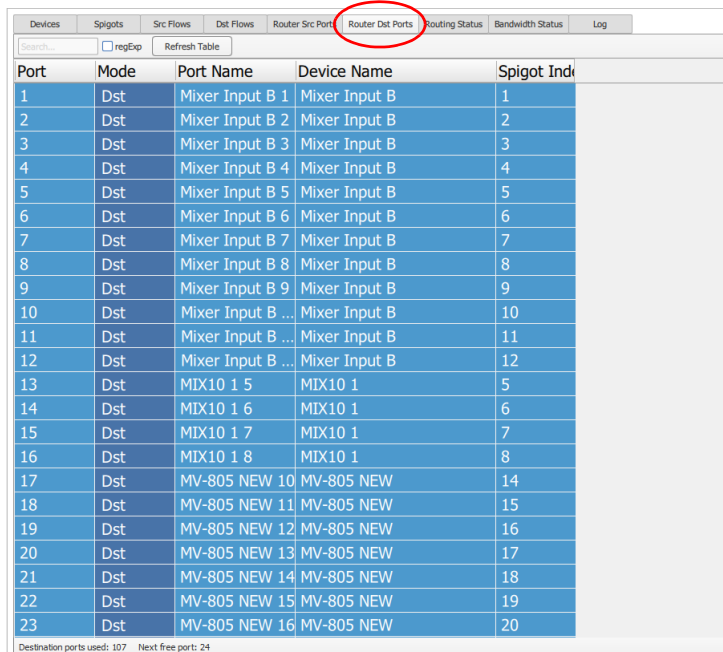


9 Tabs - Router Destination Ports Tab

9.1 Introduction	155
9.2 Router Dest Ports - Tool Bar	157
9.3 Router Dest Ports - Main Table	158
9.4 Status Bar	159

9.1 Introduction

The router destination ports tab (**Router Dst Ports**) summarizes the destination ports of the (video) router formed by the IP routing system. The tab screen is shown in Figure 121.



Port	Mode	Port Name	Device Name	Spigot Index
1	Dst	Mixer Input B 1	Mixer Input B	1
2	Dst	Mixer Input B 2	Mixer Input B	2
3	Dst	Mixer Input B 3	Mixer Input B	3
4	Dst	Mixer Input B 4	Mixer Input B	4
5	Dst	Mixer Input B 5	Mixer Input B	5
6	Dst	Mixer Input B 6	Mixer Input B	6
7	Dst	Mixer Input B 7	Mixer Input B	7
8	Dst	Mixer Input B 8	Mixer Input B	8
9	Dst	Mixer Input B 9	Mixer Input B	9
10	Dst	Mixer Input B ...	Mixer Input B	10
11	Dst	Mixer Input B ...	Mixer Input B	11
12	Dst	Mixer Input B ...	Mixer Input B	12
13	Dst	MIX10 1 5	MIX10 1	5
14	Dst	MIX10 1 6	MIX10 1	6
15	Dst	MIX10 1 7	MIX10 1	7
16	Dst	MIX10 1 8	MIX10 1	8
17	Dst	MV-805 NEW 10	MV-805 NEW	14
18	Dst	MV-805 NEW 11	MV-805 NEW	15
19	Dst	MV-805 NEW 12	MV-805 NEW	16
20	Dst	MV-805 NEW 13	MV-805 NEW	17
21	Dst	MV-805 NEW 14	MV-805 NEW	18
22	Dst	MV-805 NEW 15	MV-805 NEW	19
23	Dst	MV-805 NEW 16	MV-805 NEW	20

Destination ports used: 107 Next free port: 24

Figure 121 Router Dst Ports Tab Screenshot

Router destination ports are listed in a tabular format. Columns can be sorted in alpha-numerical order, as required, by clicking on the table column heading. There is a **Tool Bar** at the top of the table.

Figure 122 below highlights the features of this tab screen.

Tool Bar, see Section 9.2 *Router Dest Ports - Tool Bar* on page 157.

Table of **Router Dest Ports**, see Section 9.3 *Router Dest Ports - Main Table* on page 158

Port	Mode	Port Name	Device Name	Spigot Index
55	Dst	Camera 1 loop 2	MDX40 1	15
56	Off	MDX40 1 16	MDX40 1	16
57	Dst	Screen Right -1	MDX40 2	9
58	Dst	Screen Right -2	MDX40 2	10
59	Dst	Screen Right -3	MDX40 2	11
60	Dst	Screen Right -4	MDX40 2	12
61	Dst	MVFlex in 1	MDX40 2	13
62	Dst	MVFlex in 2	MDX40 2	14
63	Dst	MVFlex in 3	MDX40 2	15
64	Dst	MVFlex in 4	MDX40 2	16
65	Dst	Screen Left -1	MDX40 3	9
66	Dst	Screen Left -2	MDX40 3	10
67	Dst	Screen Left -3	MDX40 3	11
68	Dst	Screen Left -4	MDX40 3	12
69	Dst	MVFlex in 5	MDX40 3	13
70	Dst	MVFlex in 6	MDX40 3	14
71	Dst	MVFlex in 7	MDX40 3	15
72	Dst	MVFlex in 8	MDX40 3	16
74	Dst	MDX40 4 10	MDX40 4	10
75	Dst	VC-2 1 dest	MDX40 4	11
76	Dst	MDX40 4 12	MDX40 4	12
77	Dst	MDX40 4 13	MDX40 4	13
78	Dst	MDX40 4 14	MDX40 4	14
79	Dst	MDX40 4 15	MDX40 4	15
80	Dst	MDX40 4 16	MDX40 4	16
81	Dst	MVFlex in 9	MDX40 5	9
82	Dst	MVFlex in 10	MDX40 5	10
83	Dst	MVFlex in 11	MDX40 5	11
84	Dst	MVFlex in 12	MDX40 5	12
85	Dst	MDX40 5 13	MDX40 5	13
86	Dst	MDX40 5 14	MDX40 5	14
87	Dst	MDX40 5 15	MDX40 5	15
88	Dst	MDX40 5 16	MDX40 5	16
89	Dst	MV-805 1 1	MV-805 1	5
90	Dst	MV-805 1 2	MV-805 1	6
91	Dst	MV-805 1 3	MV-805 1	7
92	Dst	MV-805 1 4	MV-805 1	8
93	Dst	MV-805 1 5	MV-805 1	9
94	Dst	MV-805 1 6	MV-805 1	10
95	Dst	MV-805 1 7	MV-805 1	11
96	Dst	MV-805 1 8	MV-805 1	12
97	Dst	MV-805 1 9	MV-805 1	13
98	Dst	MV-805 1 10	MV-805 1	14
99	Dst	MV-805 1 11	MV-805 1	15
100	Dst	MV-805 1 12	MV-805 1	16

Destination ports used: 126 Next free port: 23

Status Bar, see Section 9.4 *Status Bar* on page 159

Figure 122 Router Dst Ports Tab - Annotated Screenshot

9.2 Router Dest Ports - Tool Bar

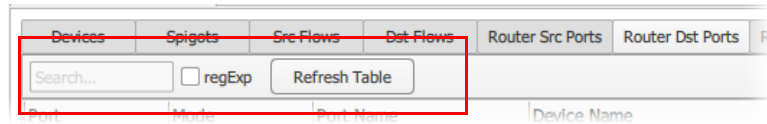


Figure 123 Router Dest Ports Tool Bar

Table 36 Router Dest Ports Tool Bar Items

Tool Bar Item	Description
Filter controls:	Filters which Router Dest Ports are presented in the main table of the tab.
Filter...	<p>The filter tool works in a similar way to the Device Filter tool but it will filter across all table columns on this Router Dst Ports tab.</p> <p>(See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.)</p> <p>Text box. Enter filter text. (Filter Text search string.)</p>
Regex	<p>Table rows are filtered on all columns.</p> <p>Check box. Select when the Filter Text is a Perl regular expression.</p>
Refresh Table	<p>Button. Click to refresh table contents.</p>

9.3 Router Dest Ports - Main Table

This tab is a useful summary of router destination ports that have been allocated.

Note:

Router Size:

For an N x M sized router (N sources, M destinations):

- the source port number range is 1 to N,
- and the destination port number range is 1 to M.

The router N x M size is set up as part of the Grass Valley IP routing system controller (IP-RSC server) set up.

Destination port information is presented in rows of the table. See Figure 124.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dest Ports	Routing Status
MV	<input type="checkbox"/> Regex	Refresh Table				
Port	Mode	Port Name	Device Name	Spigot Index		
1	Dst	Mixer Input B 1	Mixer Input B	1		
2	Dst	Mixer Input B 2	Mixer Input B	2		
3	Dst	Mixer Input B 3	Mixer Input B	3		
4	Dst	Mixer Input B 4	Mixer Input B	4		
5	Dst	Mixer Input B 5	Mixer Input B	5		
6	Dst	Mixer Input B 6	Mixer Input B	6		
7	Dst	Mixer Input B 7	Mixer Input B	7		
8	Dst	Mixer Input B 8	Mixer Input B	8		
9	Dst	Mixer Input B 9	Mixer Input B	9		
10	Dst	Mixer Input B 10	Mixer Input B	10		
11	Dst	Mixer Input B 11	Mixer Input B	11		
12	Dst	Mixer Input B 12	Mixer Input B	12		
13	Dst	MDX10 1 5	MDX10 1	5		
14	Dst	MDX10 1 6	MDX10 1	6		
15	Dst	MDX10 1 7	MDX10 1	7		
16	Dst	MDX10 1 8	MDX10 1	8		
17	Dst	IQEDGE40 7	IQEDGE40	7		
18	Dst	IQEDGE40 8	IQEDGE40	8		
19	Dst	IQEDGE40 9	IQEDGE40	9		
20	Dst	IQEDGE40 10	IQEDGE40	10		
21	Dst	IQEDGE40 11	IQEDGE40	11		
22	Dst	IQEDGE40 12	IQEDGE40	12		
24	Dst	Mixer Input A 1	Mixer Input A	1		

Figure 124 Destination Ports Listed

The rows can be sorted on any column. Click the column heading once or twice to sort in ascending or descending alpha-numerical order. This is identical to sorting columns in the **Router Src Ports** tab (Section 8.3 on page 151).

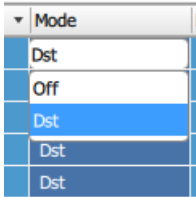
Note:

Find Text:

The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 [Find Text](#) on page 39.

Column headings are described in Table 37.

Table 37 Router Dest Ports Table Column Headings

Column Heading	Description
Port	Router destination port number.
Mode	Drop-down text. Editable. Select mode: <ul style="list-style-type: none"> • Dst: Destination port. • Off: No port, disabled. 
Port Name	Router destination port name.
Device Name	Device name with the destination port.
Spigot Index	Spigot index number. Devices have Spigots . A spigot on a device is given a number to identify it. For example, 1, 2, 3, etc. A device will have source spigots and destination spigots. For each device: <ul style="list-style-type: none"> • Source spigots are numbered from 1 onwards, • Numbering continues with the destination spigots. Thus: <ul style="list-style-type: none"> • The first source spigot on a device has index '1'. • The first destination spigot on a device will have a spigot index = 'number of source Spigots' + 1.

9.4 Status Bar

Information is shown in the **Status Bar** at the bottom of an 'Orbit for IP Routing' screen. Status fields show summary information about router destination ports, see Figure 125.

Total number of router destination ports. Number of the next free port.

Destination ports used: 119 Next free port: 97

Figure 125 Router Destination Ports Tab - Status Bar

10

10 Tabs - LLDP Tabs

Tabs - LLDP Tabs

10.1 Introduction	161
10.2 Tool Bars	163
10.3 Main Table	164
10.3.1 Column Headings	164
10.4 Status Bar	165

10.1 Introduction

The **LLDP** tabs show LLDP information read from the IP network switch.

Note: **LLDP:**
Link Layer Discovery Protocol (**LLDP**) is an open IP protocol used to discover a network device’s identity, abilities, and local physical network topology.

Note: LLDP information is only available from an IP network switch if the switch has been configured with LLDP enabled.

The LLDP tabs provides a table of information which helps with IP network system fault finding:

- The IP network switch and a switch port to which an endpoint device is connected can be looked up.
- Mis-connected devices can be seen in the table (for example, use to see devices connected to the wrong media network).
- When connected to the IP network switch’s remote interface, it is possible to see the name of the device connected on a specific switch port.

Note: Only Grass Valley devices will show LLDP information in Orbit. Third party devices that support LLDP will not be shown.

The following tabs are shown in Orbit:

- **LLDP** tab - Shows LLDP information for both fabric A and fabric B.
- **LLDP A** tab - Shows information for fabric A.
- **LLDP B** tab - Shows information for fabric B.

All **LLDP** tabs have a similar tabular format; see Figure 126 and Figure 127.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP B	Routing Status	Bandwidth Status	Log		
<input type="checkbox"/> Regexp <input type="button" value="Refresh Table"/>													
Device Name	Device Type	MAC Address A	IP Address A	Switch Name A	Port ID A	Port VLAN A	Link A	MAC Address B	IP Address B	Switch Name B	Port ID B	Port VLAN B	Link B
IQMDX-41	IQMDX00	00237000226B	172.19.164.75	Arista7504R	Ethernet3/8/3	164	✓	00237000226C	172.19.166.75				✓
IQMDX-21	IQMDX00	002370002114	172.19.164.43	Arista7504R	Ethernet3/25/3	164	✓	002370002113	172.19.166.43	Juniper	xe-0/0/27:2	166	✓
IQMDX-44	IQMDX00	00237000213C	172.19.164.82	Arista7504R	Ethernet3/7/2	164	✓	00237000213B	172.19.166.82	Juniper	xe-0/0/2:2	166	✓
IQMDX-46	IQMDX00	002370002156	172.19.164.84	Arista7504R	Ethernet3/7/4	164	✓	002370002155	172.19.166.84				✗
IQMDX-36	IQMDX00	00237000218D	172.19.164.66	Arista7504R	Ethernet3/29/2	164	✓	00237000218E	172.19.166.66	Juniper	xe-0/0/28:3	166	✓
IQMDX-22	IQMDX00	002370002176	172.19.164.44	Arista7504R	Ethernet3/25/4	164	✓	002370002175	172.19.166.44	Juniper	xe-0/0/27:3	166	✓
IQMDX-31	IQMDX00	002370002132	172.19.164.61	Arista7504R	Ethernet3/28/1	164	✓	002370002131	172.19.166.61	Juniper	xe-0/0/24:1	166	✓
IQMDX-20	IQMDX00	00237000217C	172.19.164.42	Arista7504R	Ethernet3/25/2	164	✓	00237000217B	172.19.166.42	Juniper	xe-0/0/27:1	166	✓
IQMDX-23	IQMDX00	002370002154	172.19.164.45	Arista7504R	Ethernet3/27/1	164	✓	002370002153	172.19.166.45	Juniper	xe-0/0/24:2	166	✓
IQMDX-33	IQMDX00	00237000212E	172.19.164.63	Arista7504R	Ethernet3/28/3	164	✓	00237000212D	172.19.166.63	Juniper	xe-0/0/28:0	166	✓
IQMDX-24	IQMDX00	002370002158	172.19.164.46	Arista7504R	Ethernet3/27/2	164	✓	002370002157	172.19.166.46	Juniper	xe-0/0/24:0	166	✓
IQMDX-42	IQMDX00	0023700020D3	172.19.164.76	Arista7504R	Ethernet3/8/4	164	✓	0023700020D4	172.19.166.76				✗
IQMDX-27	IQMDX00	002370002184	172.19.164.53	Arista7504R	Ethernet3/26/1	164	✓	002370002183	172.19.166.53	Juniper	xe-0/0/26:0	166	✓
IQMDX-38	IQMDX00	00237000215D	172.19.164.72	Arista7504R	Ethernet3/29/4	164	✓	00237000215E	172.19.166.72	Juniper	xe-0/0/2:1	166	✓
Total devices: 16 Online: 15 Offline: 1													

Figure 126 LLDP Tab

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP B	Routing Status	Bandwidth Status	Log
<input type="checkbox"/> Regex <input type="button" value="Refresh Table"/>											
Device Name	Device Type	MAC Address	IP Address	Switch Name	Port ID	Port VLAN	Link				
IQMDX-41	IQMDX00	00237000226B	172.19.164.75	Arista7504R	Ethernet3/8/3	164					
IQMDX-21	IQMDX00	002370002114	172.19.164.43	Arista7504R	Ethernet3/25/3	164					
IQMDX-44	IQMDX00	00237000213C	172.19.164.82	Arista7504R	Ethernet3/7/2	164					
IQMDX-46	IQMDX00	002370002156	172.19.164.84	Arista7504R	Ethernet3/7/4	164					
IQMDX-36	IQMDX00	00237000218D	172.19.164.66	Arista7504R	Ethernet3/29/2	164					
IQMDX-22	IQMDX00	002370002176	172.19.164.44	Arista7504R	Ethernet3/25/4	164					
IQMDX-31	IQMDX00	002370002132	172.19.164.61	Arista7504R	Ethernet3/28/1	164					
IQMDX-20	IQMDX00	00237000217C	172.19.164.42	Arista7504R	Ethernet3/25/2	164					
IQMDX-23	IQMDX00	002370002154	172.19.164.45	Arista7504R	Ethernet3/27/1	164					
IQMDX-33	IQMDX00	00237000212E	172.19.164.63	Arista7504R	Ethernet3/28/3	164					
IQMDX-24	IQMDX00	002370002158	172.19.164.46	Arista7504R	Ethernet3/27/2	164					
IQMDX-42	IQMDX00	0023700020D3	172.19.164.76	Arista7504R	Ethernet3/8/4	164					
IQMDX-27	IQMDX00	002370002184	172.19.164.53	Arista7504R	Ethernet3/26/1	164					
IQMDX-38	IQMDX00	00237000215D	172.19.164.72	Arista7504R	Ethernet3/29/4	164					
Total devices: 16 Online: 16 Offline: 0											

Figure 127 LLDP A Tab or LLDP B Tab (LLDP A shown)

10.2 Tool Bars

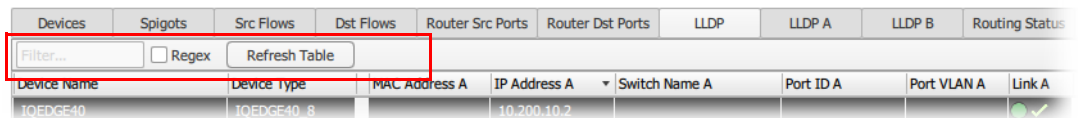


Figure 128 LLDP Tabs - Tool Bar

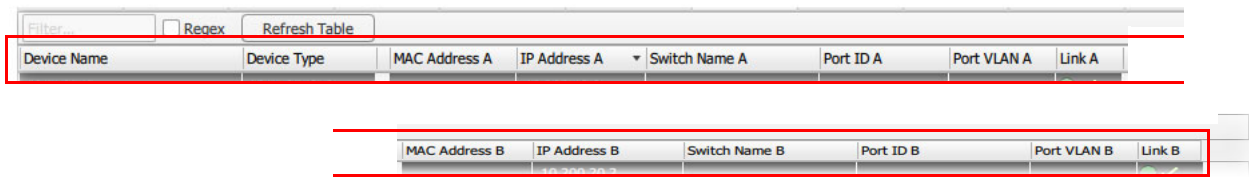
Table 38 LLDP Tabs - Tool Bar Items

Tool Bar Item	Description
Filter controls:	Filters which Devices are presented in the main table of the tab. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.)
Filter...	Text box. Enter the text to filter on (Filter Text). Table rows are filtered on this Filter Text automatically. For the Spigots tab, rows are filtered on the Device Name column.
Regex	Check box. Select when the Filter string is a regular expression. (Perl regular expression format is used.)
Refresh Table	Button. Click to refresh the screen contents from Orbit's own, gathered information.

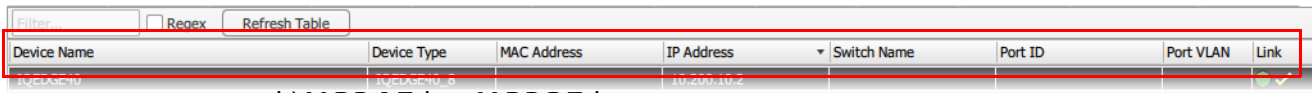
10.3 Main Table

Note: **Find Text:**
 The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 [Find Text](#) on page 39.

10.3.1 Column Headings



a) LLDP Tab



b) LLDP A Tab or LLDP B Tab


Figure 129 LLDP Tabs - Column Headings:

- a) LLDP Tab.
- b) LLDP A Tab or LLDP B Tab (LLDP a shown)

Table 39 LLDP Tabs - Column Headings

Column	Description
Device Name	Name of the device. For example, 'Mixer 2'.
Device Type	Type of device. For example, 'Kahuna IPO 10'.
Fabric A columns:	Information about the fabric A network connection. See Table 40.
Fabric B columns:	Information about the fabric A network connection. See Table 40.

Table 40 LLDP Tabs - Fabric A or Fabric B Columns

Column	Description
MAC Address	Device MAC address.
IP Address	Device IP address.
Switch Name	Name of the network IP switch used. For example, 'QFX5200'.
Port ID	Port ID used of the network IP switch used.
Port VLAN	VLAN Port used of the network IP switch used.
Link	Status of the link to the device.  This shows the result of the last Connection Scan in icons See Figure 42 Connection Status Icons on page 53.

10.4 Status Bar

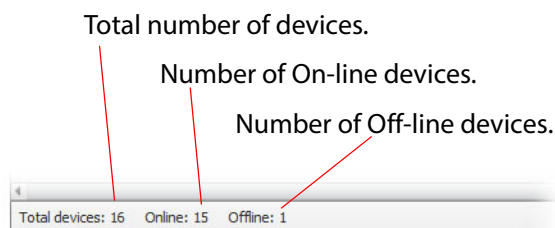
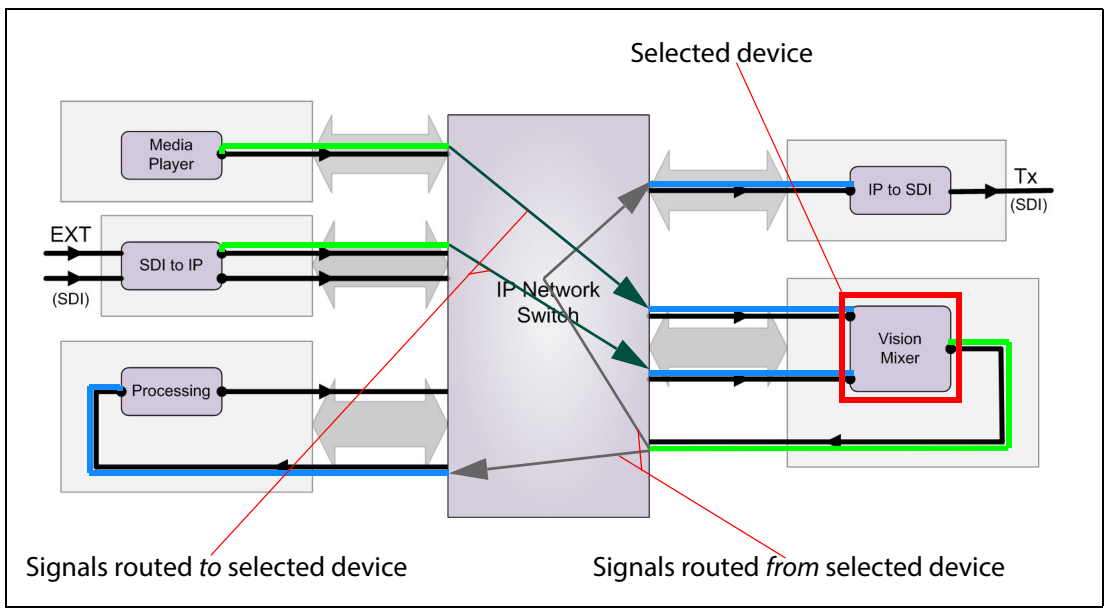


Figure 130 Status Bar

11

11 Tabs - Routing Status Tab



Tabs - Routing Status Tab

- 11.1 Introduction 167
- 11.2 Port View 169
 - 11.2.1 Port View Tool Bar170
 - 11.2.2 Port View Main Table172
 - 11.2.3 Right-Click in Port View174
- 11.3 Device View 176
 - 11.3.1 Device View Tool Bar177
 - 11.3.2 Device View Schematic179
 - 11.3.3 Navigating Around Devices in Device View186
 - 11.3.4 Right-Click in Device View187

11.1 Introduction

The **Routing Status** tab presents information about signal routing; two views are used:

- **Port View** - A list of (video) router source and destination ports and their signals.
- **Device View** - A schematic representation of signals to/from a chosen device.

To select the view on the **Routing Status** tab:

- Click the **Port View** or **Device View** button, see Figure 131.

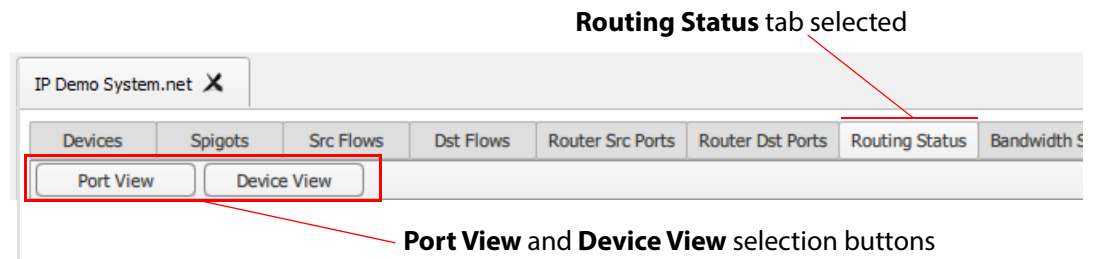


Figure 131 Selection of Port View and Device View

The two views are shown in Figure 132.

Port	Destination Name	Signal	Levels	Married	Link A	Link B	Streams	Port	Source Name	S.gnal	Error Status
53	Camera 1 loop 1	●	V A	Yes	●	●	Dual	57	Camera 1	●	
55	Camera 1 loop 2	●	V A	Yes	●	●	Dual	57	Camera 1	●	
54	Camera 2 loop	●	V A	Yes	●	●	Dual	58	Camera 2	●	
45	IQDMX In	●	V A	Yes	●	●	Dual	60	Camera 4	●	
20	IQEDGE40 10				●	●	Dual				
21	IQEDGE40 11				●	●	Dual				
22	IQEDGE40 12				●	●	Dual				
17	IQEDGE40 7				●	●	Dual				
18	IQEDGE40 8				●	●	Dual				
19	IQEDGE40 9				●	●	Dual				
46	IQUDC In	●	V A	Yes	●	●	Dual	57	Camera 1	●	
33	KudosProIP 1 5		V A	Yes	●	●	Dual	64	3G Source		
34	KudosProIP 1 6		V A	Yes	●	●	Dual	64	3G Source		
35	KudosProIP 1 7		V A	Yes	●	●	Dual	64	3G Source		
36	KudosProIP 1 8		V A	Yes	●	●	Dual	64	3G Source		
37	KudosProIP 2 5		V A	Yes	●	●	Dual	64	3G Source		
38	KudosProIP 2 6		V A	Yes	●	●	Dual	64	3G Source		
39	KudosProIP 2 7		V A	Yes	●	●	Dual	64	3G Source		
40	KudosProIP 2 8		V A	Yes	●	●	Dual	64	3G Source		
49	MBB/BBM Destination	●	V A	Yes	●	●	Dual	63	Camera 1 copy 2	●	
13	MIX10 1 5				●	●	Dual				
14	MIX10 1 6				●	●	Dual				
15	MIX10 1 7				●	●	Dual				
16	MIX10 1 8				●	●	Dual				
47	MIX10 2 7				●	●	Dual				

↑ Router destinations
↑ Router sources

a) **Routing Status** tab - **Port View**, see Section 11.2 *Port View* on page 169.

Sources from devices

Destinations, at devices

Chosen Device

b) **Routing Status** tab - **Device View**, see Section 11.3 *Device View* on page 176.

Figure 132 Routing Status Tab Example Screenshots:

- a) Port View.
- b) Device View.

11.2 Port View

Figure 133 below highlights the features of the **Routing Status** tab **Port View** screen. A tool bar is shown above a main table section which lists signal destination and source ports, and their respective status. The **Port View** presents a summary of the sources that supply each destination port.

Port routing information is presented in rows of the table: The **Port View** shows an ordered list of router ports, showing the various routes made in the router between destination ports and source ports. The table can be sorted on any column.

Port View selected

Tool Bar, see Section 11.2.1 *Port View Tool Bar* on page 170.

Main table, see Section 11.2.2 *Port View Main Table* on page 172.

Port	Destination Name	Signal	Levels	Married	Link A	Link B	Streams	Port	Source Name	Signal	Error Status
1	Mixer Input B 1		V A M	Yes	●	●	Dual	57	Camera 1	●	
2	Mixer Input B 2		V A M	Yes	●	●	Dual	58	Camera 2	●	
3	Mixer Input B 3		V A M	Yes	●	●	Dual	59	Camera 3	●	
4	Mixer Input B 4		V A M	Yes	●	●	Dual	60	Camera 4	●	
5	Mixer Input B 5				●	●	Dual				
6	Mixer Input B 6				●	●	Dual				
7	Mixer Input B 7				●	●	Dual				
8	Mixer Input B 8				●	●	Dual				
9	Mixer Input B 9				●	●	Dual				
10	Mixer Input B 10				●	●	Dual				
11	Mixer Input B 11				●	●	Dual				
12	Mixer Input B 12				●	●	Dual				
13	MDX10 1 5				●	●	Dual				
14	MDX10 1 6				●	●	Dual				
15	MDX10 1 7				●	●	Dual				
16	MDX10 1 8				●	●	Dual				
17	IQEDGE40 7				●	●	Dual				
18	IQEDGE40 8				●	●	Dual				
19	IQEDGE40 9				●	●	Dual				
20	IQEDGE40 10				●	●	Dual				
21	IQEDGE40 11				●	●	Dual				
22	IQEDGE40 12				●	●	Dual				
24	Mixer Input A 1		V A M	Yes	●	●	Dual	57	Camera 1	●	
25	Mixer Input A 2		V A M	Yes	●	●	Dual	58	Camera 2	●	
26	Mixer Input A 3		V A M	Yes	●	●	Dual	59	Camera 3	●	
27	Mixer Input A 4		V A M	Yes	●	●	Dual	60	Camera 4	●	
28	Mixer Input A 5				●	●	Dual				
29	Mixer Input A 6				●	●	Dual				
30	Mixer Input A 7				●	●	Dual				
31	Mixer Input A 8				●	●	Dual				
32	Mixer Input A 9				●	●	Dual				
33	KudosProIP 1 5		V A	Yes	●	●	Dual	64	3G Source		
34	KudosProIP 1 6		V A	Yes	●	●	Dual	64	3G Source		
35	KudosProIP 1 7		V A	Yes	●	●	Dual	64	3G Source		
36	KudosProIP 1 8		V A	Yes	●	●	Dual	64	3G Source		
37	KudosProIP 2 5		V A	Yes	●	●	Dual	64	3G Source		
38	KudosProIP 2 6		V A	Yes	●	●	Dual	64	3G Source		
39	KudosProIP 2 7		V A	Yes	●	●	Dual	64	3G Source		
40	KudosProIP 2 8		V A	Yes	●	●	Dual	64	3G Source		
41	Mixer Input A 10				●	●	Dual				
42	Mixer Input A 11				●	●	Dual				
43	Mixer Input A 12				●	●	Dual				
45	IQDMX In	●	V A	Yes	●	●	Dual	60	Camera 4	●	
46	IQUDC In	●	V A	Yes	●	●	Dual	57	Camera 1	●	
47	MDX10 2 7				●	●	Dual				

Destinations

Sources

Figure 133 Routing Status - Port View Tab Screen

11.2.1 Port View Tool Bar

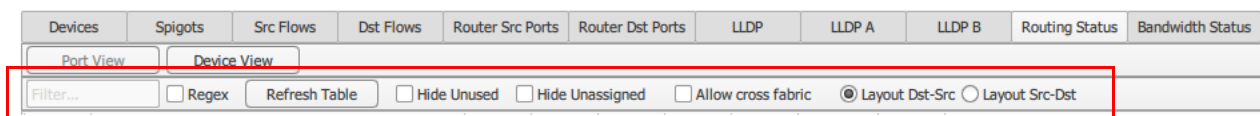


Figure 134 Routing Status Tab - Port View Tool Bar

Table 41 Router Dest Ports Tool Bar Items

Tool Bar Item	Description
Filter controls:	Filters which router ports are presented in the main table of the tab. The filter tool works in a similar way to the Device Filter tool but it will filter across all Port View table columns. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this Device Filter tool.)
Filter...	Text box. Enter filter text. (Filter Text search string.)
Regex	Table rows are filtered on all columns. Check box. Select when the Filter Text is a Perl regular expression.
Refresh Table	Button. Click to refresh table contents.
Hide Unused	Check box. Select to hide destination ports (spigots) with no signals routed to them. See Note 1 .
Hide Unassigned	Check box. Select to hide destination ports (spigots) not assigned to a router port. See Note 1 .
Allow Cross Fabric	Check box. Select to suppress 'cross-fabric' error messages. IP flows routed from fabric A to fabric B, or vice versa, are normally considered to be an error condition and are highlighted with an error message. This option can be used to suppress these error messages if these 'cross-fabric' flow routes are valid. For example, enable Allow Cross Fabric where a flow is routed onto both the A and B fabrics. This is useful where: <ul style="list-style-type: none"> A and B interfaces on a device endpoint are used on the same network fabric for greater bandwidth; or a "non 2022-7 compliant" source is routed to both the A and B fabrics.

Table 41 Router Dest Ports Tool Bar Items (Continued)

Tool Bar Item	Description
Layout Layout Dst-Src Layout Src-Dst	Radio buttons. These select the layout of the tab screen: Select to see destinations listed on left-hand side. Select to see sources listed on left-hand side.
<p>Note 1: Hide Unused and Hide Unassigned controls filter the ports shown. Filtering is applied <i>once</i>, as the corresponding check box is selected. Filtering is <i>not</i> actively applied <i>while</i> the check box is selected.</p> <p>Thus, an unused destination port (spigot) will be hidden by selecting Hide Unused. But the port will not automatically re-appear in the table if a signal is then routed to that destination port. Hide Unused must be deselected for the port to re-appear.</p>	

11.2.2 Port View Main Table

Port routing information is presented in rows of the table. See Figure 133 on page 169. The maximum number of rows shown is determined by the number of router destinations or sources, whichever is the greater. A table row shows:

- Destination port and corresponding source port information for a signal route.
- Destination port information on its own, if there is no signal route made to it.
- Source port information on its own, if there is no signal route made from the source.

Rows can be sorted on any column:

- Click a column heading once to toggle sorting into ascending/descending alpha-numerical order.

(Thus, an ordered list of destination ports versus source ports, or vice versa, can be viewed.)

Note:

Find Text:

The **Find Text** tool may be used in the main table by typing 'control-F' in the screen. This reveals the **Find Text** tool bar, see Section 3.7 *Find Text* on page 39.

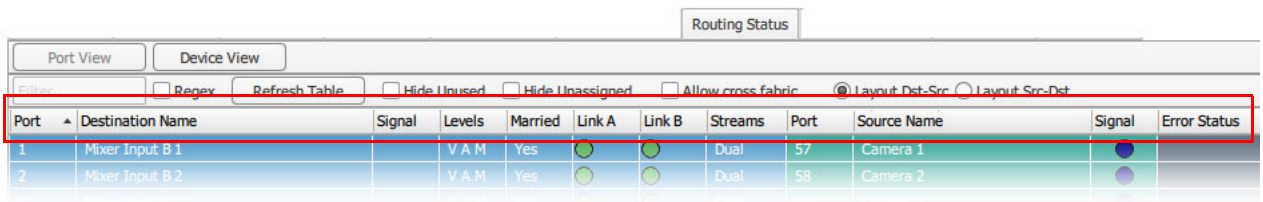


Figure 135 Port View Column Headings

Column headings are described in Table 42.

Table 42 Routing Status Port View - Table Column Headings


Column Heading	Description
Destination port information:	
Port	Router destination port number.
Destination Name	Router destination port name.
Signal	Icon. Indicates if an IP stream is arriving at the destination port. 
Levels	Indicates which flow types are present in the flows: <ul style="list-style-type: none"> • V - Video flow type. For example: 2022-6, RFC4175, VC-02. • A - Audio flow type. For example: PCM. • M - Metadata, with video.

Table 42 Routing Status Port View - Table Column Headings (Continued)







Column Heading	Description
Married	Indicates any married status for routes: <ul style="list-style-type: none"> • Yes - 'Married': All flows come from the same source spigot. • No - 'Not married': Some flows come from different source spigots. • ? - Married status not known.
Link A	Show fabric A link status with an icon: <ul style="list-style-type: none"> •  Device reports its IP link is up. •  Device reports its IP link is down.
Link B	Show fabric B link status with an icon: <ul style="list-style-type: none"> •  Device reports its IP link is up. •  Device reports its IP link is down.
Streams	Describes the fabric IP stream(s) forming the route: <ul style="list-style-type: none"> • Dual - Fabric A and fabric B IP streams. • Single A - Fabric A IP stream. • Single B - Fabric B IP stream.
Source port information: Port Source Name Signal	Router source port number. Router source port name. Icon. Indicates if an IP stream is being generated at the source port. 
Other information: Error State	One or more error messages are shown in the event of an error condition.  See Table 43 for a list of error messages.

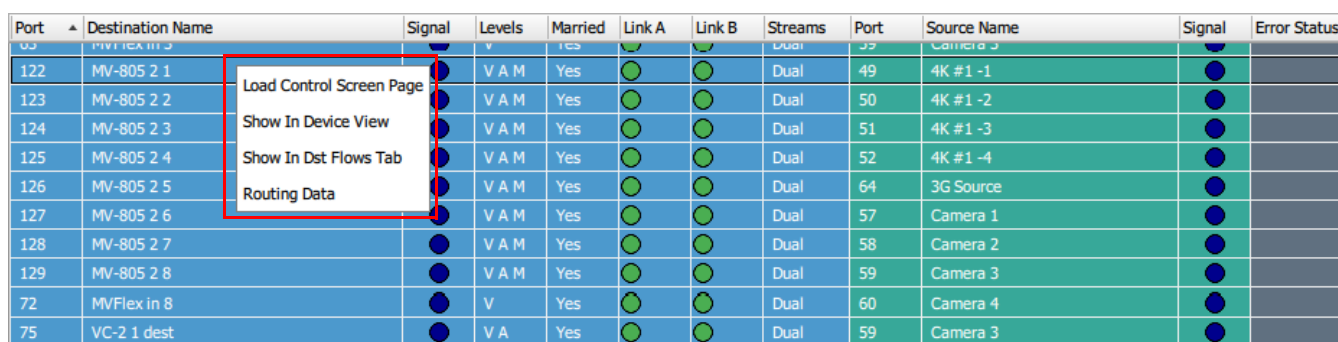
Table 43 Error State Messages

Error State	Description
DUPLICATE_SOURCES	More than one source matches the destination flow.
UNKNOWN_SOURCE	No sources match the destination flow.
WRONG_TYPE	Source flow type is wrong for the destination flow.
CROSS_FABRIC	Source flow fabric differs from the destination flow fabric.
DIFFERENT_TYPES	Fabric A and fabric B flow types differ.
DIFFERENT_SOURCES	Fabric A and fabric B flows originate from a different spigot.
SOURCE_DISABLED	Source flow is currently disabled.
FABRIC_MISCOUNT	There are a different number of flows on each fabric.
LINK_DOWN	A source or destination link is down.

11.2.3 Right-Click in Port View

11.2.3.1 Right-Click on Destination Name

- Right-click on an item in the **Destination Name** column. A drop-down context menu appears with options for the selected destination port. See Figure 136.



Port	Destination Name	Signal	Levels	Married	Link A	Link B	Streams	Port	Source Name	Signal	Error Status
122	MV-805 2 1	●	V A M	Yes	●	●	Dual	49	4K #1 -1	●	
123	MV-805 2 2	●	V A M	Yes	●	●	Dual	50	4K #1 -2	●	
124	MV-805 2 3	●	V A M	Yes	●	●	Dual	51	4K #1 -3	●	
125	MV-805 2 4	●	V A M	Yes	●	●	Dual	52	4K #1 -4	●	
126	MV-805 2 5	●	V A M	Yes	●	●	Dual	64	3G Source	●	
127	MV-805 2 6	●	V A M	Yes	●	●	Dual	57	Camera 1	●	
128	MV-805 2 7	●	V A M	Yes	●	●	Dual	58	Camera 2	●	
129	MV-805 2 8	●	V A M	Yes	●	●	Dual	59	Camera 3	●	
72	MVFlex in 8	●	V	Yes	●	●	Dual	60	Camera 4	●	
75	VC-2 1 dest	●	V A	Yes	●	●	Dual	59	Camera 3	●	

Figure 136 Context Menu (Right-Click on Destination Name)

Context menu items are described in Table 44.

Table 44 Context Menu Items

Menu Item	Description
Load Control Screen Page	Loads the RollCall template for the device and opens it in a new Orbit main tab. The RollCall template for the selected destination port (spigot) is shown.
Show In Device View	Shows the destination port (spigot), and its device, in a Device View .
Show In Dst Flows Tab	Shows the device in the Dst Flows Tab .
Routing Data	A dialog shows the routing data for the selected destination port. See Figure 137 'Routing Data For' Dialog. The Routing Data For dialog shows each routed level (video, audio, and metadata) for each of the fabrics A and B that is routed to the selected destination port (spigot).

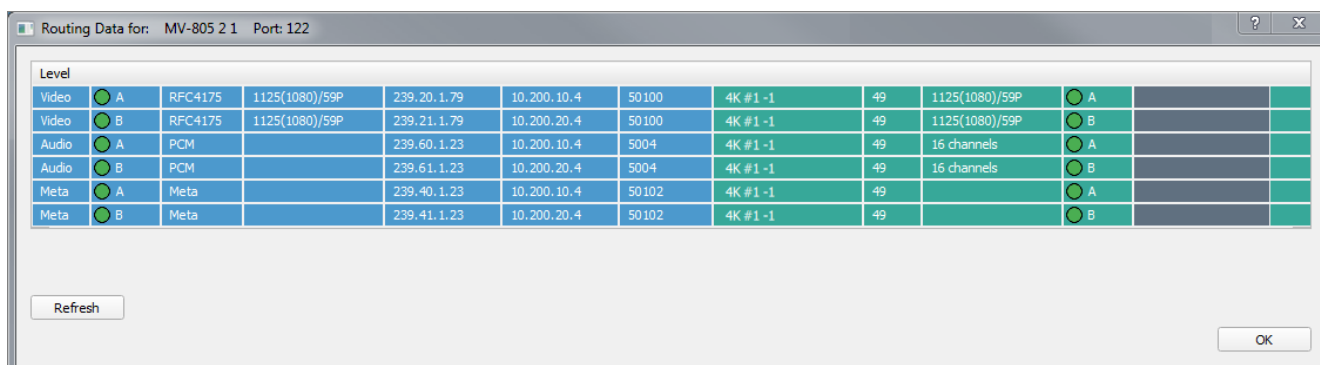


Figure 137 'Routing Data For' Dialog

11.2.3.2 Right-Click on Source Name

- Right-click on an item in the **Source Name** column. A drop-down context menu appears with options for the selected source port. See Figure 138.

Port	Destination Name	Signal	Levels	Married	Link A	Link B	Streams	Port	Source Name	Signal	Error Status
122	MV-805 2.1	●	V A M	Yes	●	●	Dual	49	4K #1 -1	●	
123	MV-805 2.2	●	V A M	Yes	●	●	Dual	50	4K #1 -2	●	
124	MV-805 2.3	●	V A M	Yes	●	●	Dual	51	4K #1 -3	●	
125	MV-805 2.4	●	V A M	Yes	●	●	Dual	52	4K #1 -4	●	
126	MV-805 2.5	●	V A M	Yes	●	●	Dual	64	3G Source	●	
127	MV-805 2.6	●	V A M	Yes	●	●	Dual	57	Camera 1	●	
128	MV-805 2.7	●	V A M	Yes	●	●	Dual	58	Camera 2	●	

Figure 138 Context Menu (Right-Click on Source Name)

Context menu items are described in Table 45.

Table 45 Context Menu Items

Menu Item	Description
Load Control Screen Page	Loads the RollCall template for the device and opens it in a new Orbit main tab. The RollCall template for the selected source port (spigot) is shown.
Show In Device View	Shows the source port (spigot), and its device, in a Device View .
Show In Src Flows Tab	Shows the device in the Src Flows Tab .

11.3 Device View

The **Device View** tab screen shows a schematic representation of all the routes made to/from a selected device. A tool bar is shown above a main schematic section. Information presented includes:

- Spigot information.
- Originating devices - i.e devices sourcing IP streams going to destination spigots.
- Destination devices - i.e. devices receiving IP streams from source spigots.
- IP flow information - flow types, A/B flows.
- IP flow activity.

The user can navigate around the devices of the IP routing system. Originating source devices and all destination devices connected to the selected device can be visited.

Features of the **Routing Status** screen are shown in Figure 139.

Tool Bar, see Section 11.3.1 *Device View Tool Bar* on page 177.

Routing Status Device View schematic, see Section 11.3.2 *Device View Schematic* on page 179

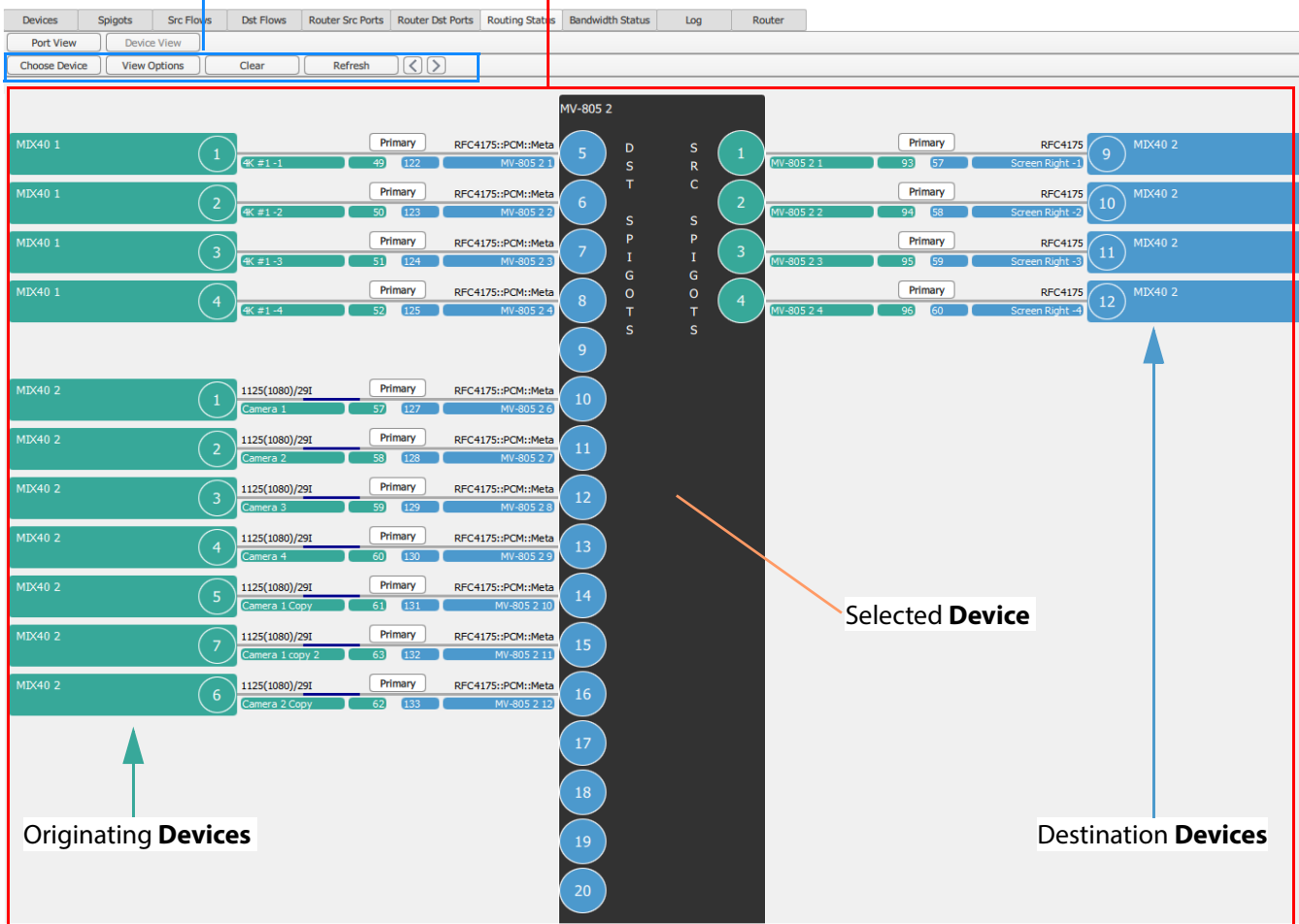


Figure 139 Device View of Routing Status Tab (Example)

11.3.1 Device View Tool Bar

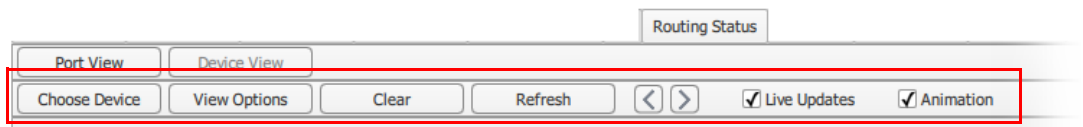


Figure 140 Routing Status Tab - Device View Tool Bar

Table 46 Routing Status Tab - Device View Tool Bar Items

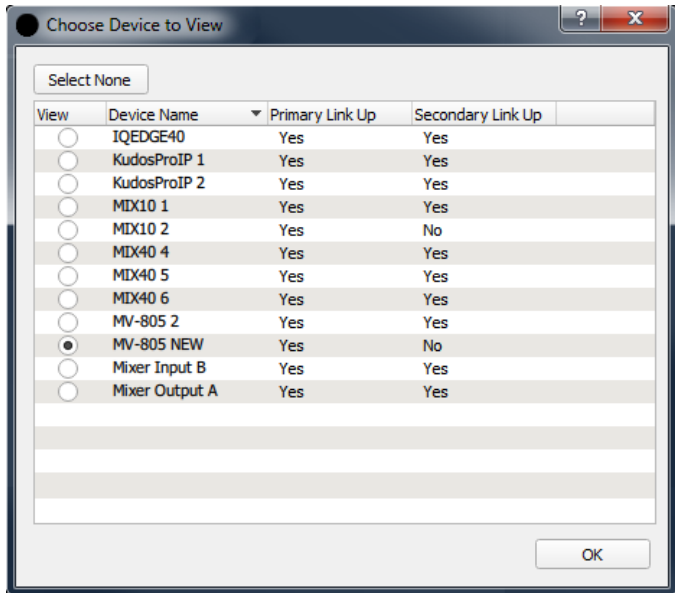
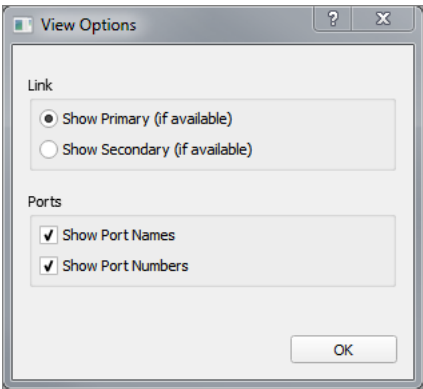
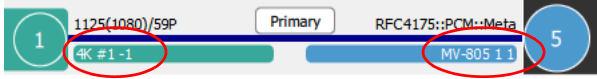
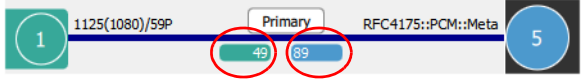


Device View Tool Bar Item	Description
Choose Device	<p>Button.</p> <p>Click to select the device to show.</p> <p>The Choose Device to View dialog is shown:</p> 
View Options	<p>Button.</p> <ol style="list-style-type: none"> Click to set viewing options on the Device View schematic. The View Options dialog is shown:  <p>(See below for a description of the View Options dialog.)</p>

Table 46 Routing Status Tab - Device View Tool Bar Items (Continued)

Device View Tool Bar Item	Description
<p>View Options dialog:</p> <p>Link: Radio buttons to select which fabric to see in the schematic:</p> <p>Show Primary (if available) Click to see primary network link (Fabric A) information.</p> <p>Show Secondary (if available) Click to see secondary network link (Fabric B) information.</p> <p>Ports:</p> <p>Show Port Names Check box. Select to show Port Names on the schematic.</p>  <p>Show Port Numbers Check box. Select to show Port Numbers on the schematic.</p> 	
Clear	Button. Click to clear the schematic area.
Refresh	Button. Click to update the schematic information.
<p>Navigation controls:</p>  	<p>Button. 'Go back'. Click to go back to a previous Device View schematic (if any).</p> <p>Button. 'Go forward'. Click to go forward to a later Device View schematic (if any).</p>
Live Updates	Check box. Select to enable live updating of information on the schematic.
Animation	Check box. Select to enable animation on the schematic.

11.3.2 Device View Schematic

The **Routing Status** tab's **Device View** shows information about signal routing (IP flow routing) that originates from and is received by a chosen device. Information is presented in a schematic form. Routing is made over IP network links and route information presented includes:

- Spigot information.
- Port information.
- IP link information.
- IP stream and flow information.
- Originating and destination devices.

Figure 141 shows an example **Device View** schematic.

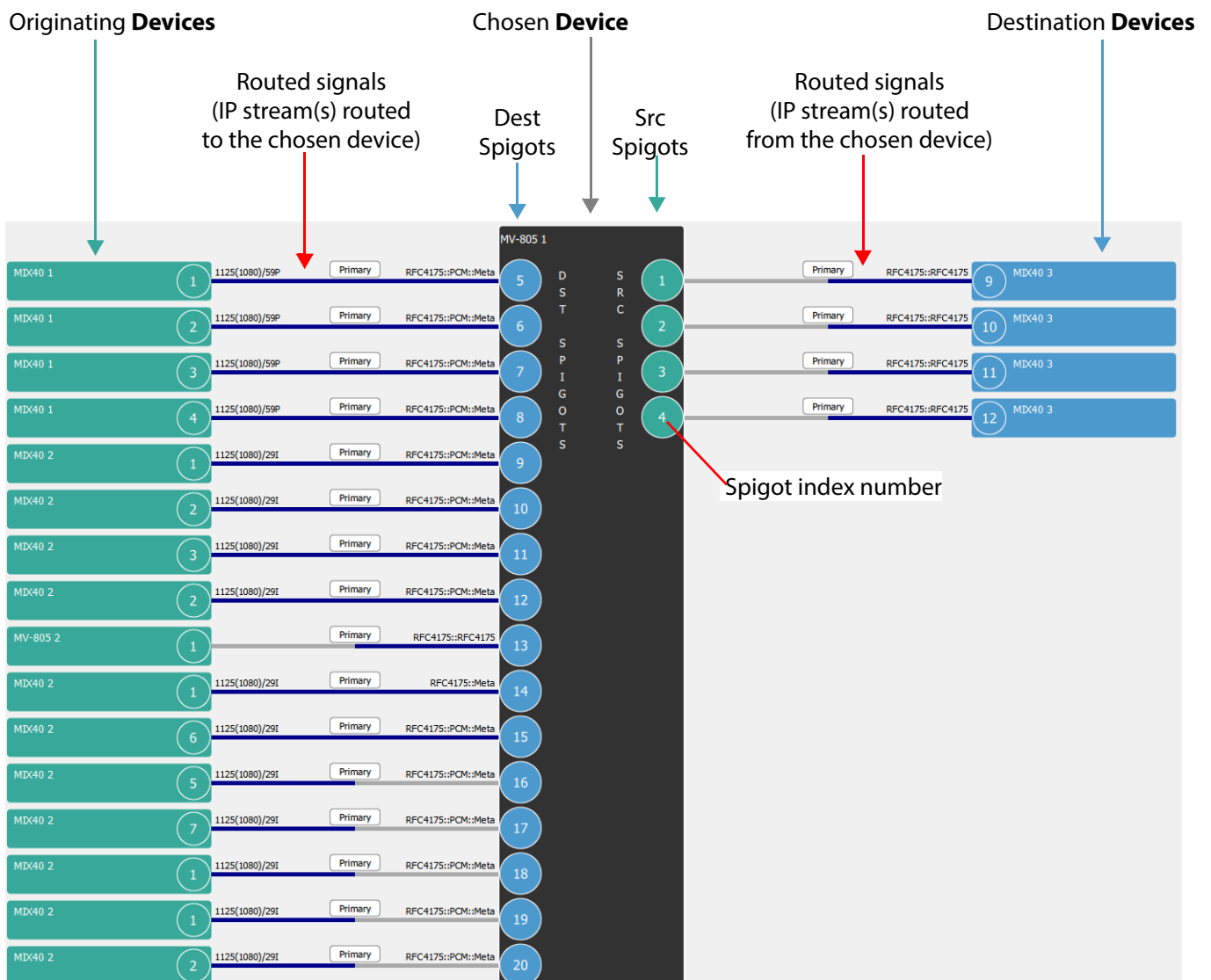


Figure 141 Routing Status Schematic (Example)

The **Device View** shows the following for the selected (chosen) device:

- All IP flow routes to destination spigots.
- All IP flow routes from source spigots.

11.3.2.1 Routes in the Device View

A route between a source and a destination (spigot) is shown with a line in the **Device View**. A route may carry a signal and, in the case of a 'video' router, it is a video or an audio signal.

Figure 142 shows the representation of a route on the **Device View** schematic.

Figure 143 shows primary and secondary link route representations, and how to switch between them.

Figure 144 shows two representations of active routes with IP stream(s).

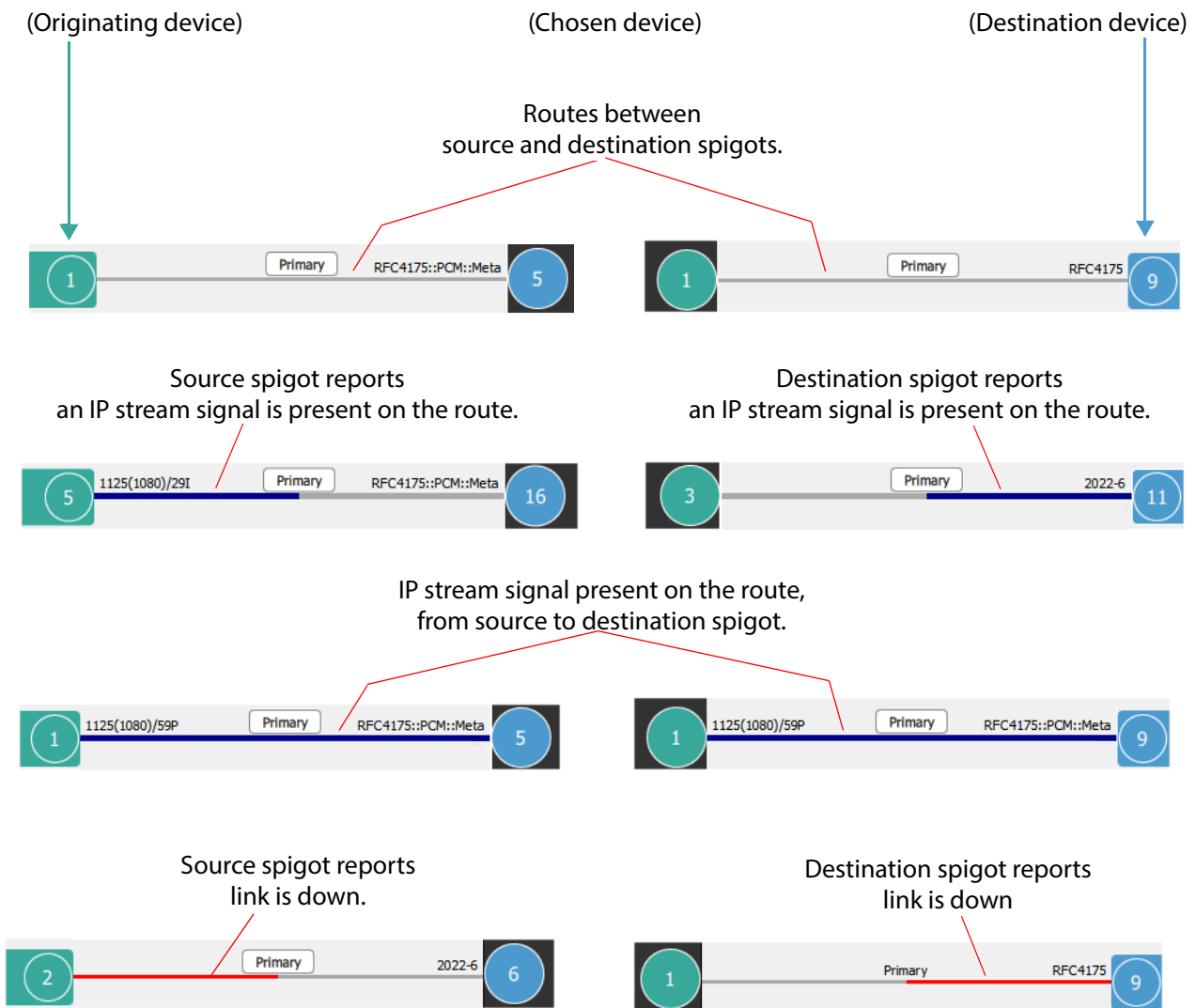


Figure 142 Device View - Routes

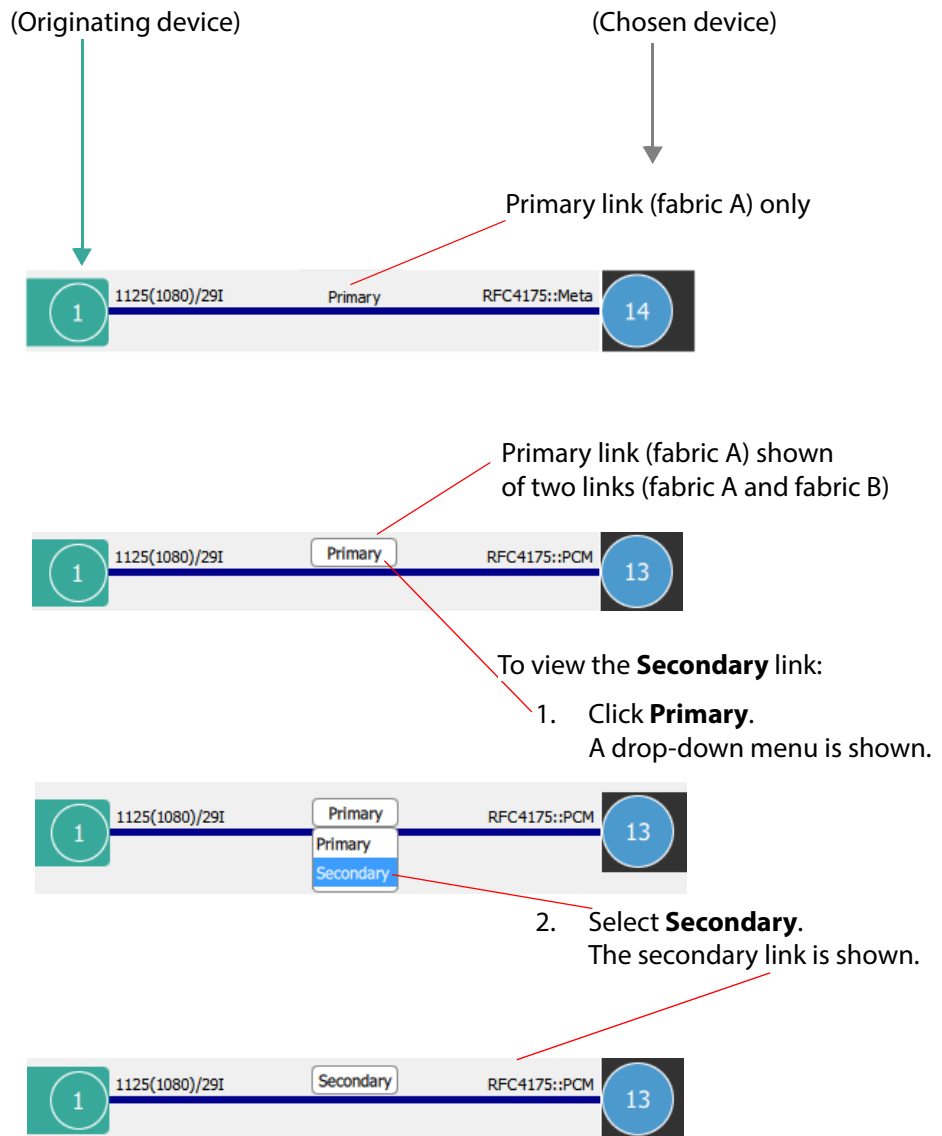


Figure 143 Device View - Primary or Secondary Links

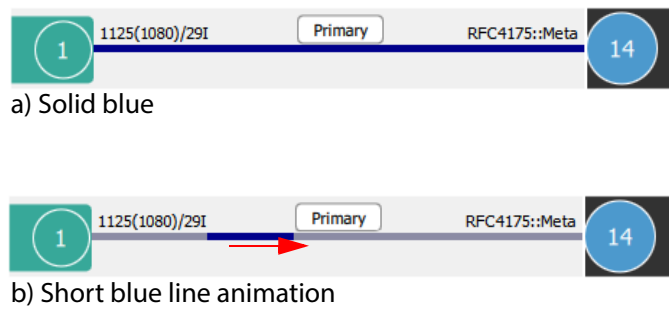


Figure 144 Device View - Active Routes with IP Stream Signal(s):
a) Solid blue line.
b) Short blue line animation.

11.3.2.2 Route Information in the Device View

Figure 145 describes the information shown about the routes in the **Device View**.

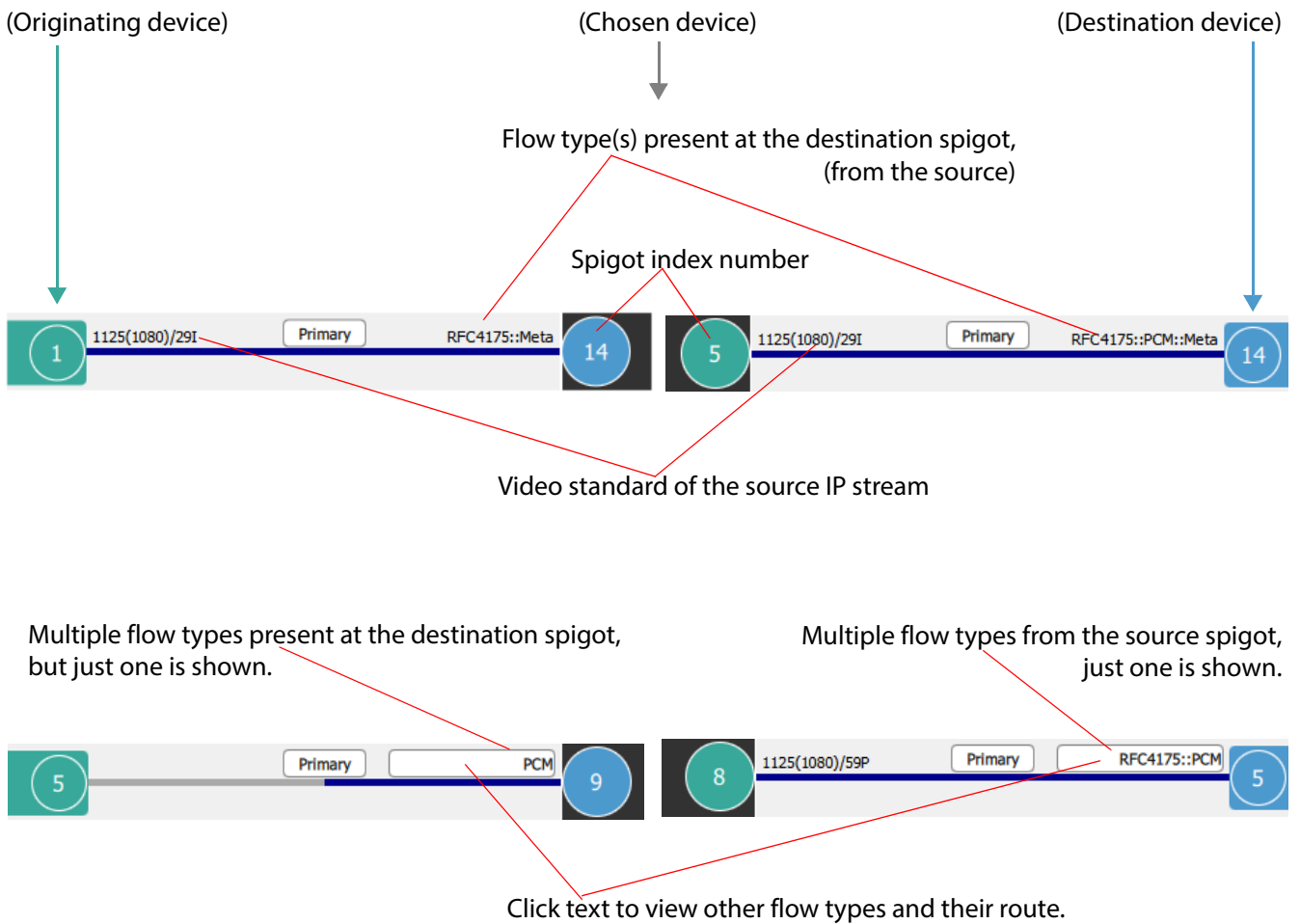


Figure 145 Device View - Route Information

11.3.2.3 Multiple Routes to a Destination Spigot

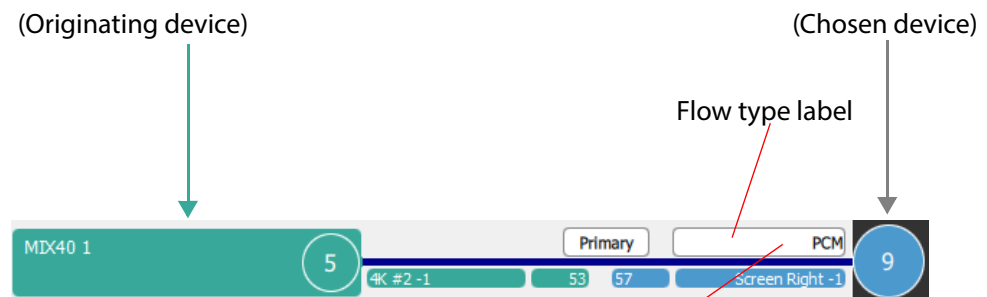
A destination spigot may use different sources for each of the IP flows it requires. Thus, there can be more than one source spigot supplying a destination spigot, i.e multiple routes to the destination spigot.

For example, video IP flows and audio IP flows may be taken from different source spigots on different devices.

Note: The multicast settings at a destination spigot determine which IP flows from which sources are routed to the destination spigot and consumed.

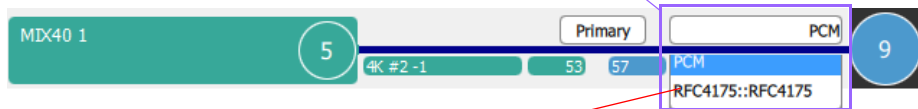
If there are multiple routes to a destination spigot of the chosen device, this is shown on the **Device View** schematic by the flow type label. See Figure 146.

Click on the flow type label text to view a different flow type route to the destination.



To see another route to a destination spigot of the chosen device:

1. Click on flow type text. A drop-down list appears which shows all the IP stream routes to the destination.



3. Click on a flow type item.

The schematic now shows the selected IP stream route and its source.

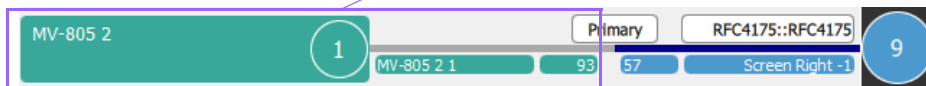


Figure 146 Device View - To See another Route to a Destination

11.3.2.4 Multiple Routes from a Source Spigot:

Note:

A source spigot may transmit multiple flows. Not all the source flows will be routed to a destination spigot.

Possible source spigot flows include:

- IP flows on fabric A and fabric B.
- Various IP flow types:
 - Video - flow types: RFC4175, 2022-6.
 - Audio - flow type 'PCM'.
 - Metadata.

A source spigot can supply many destinations (a source IP flow is *broadcast*) and different flow types are possible from the one source spigot. But not all those destinations will necessarily consume all the IP flows from the source.

Different Flow Types:

For the chosen device in the **Device View**, if a source spigot of the chosen device has more than one flow type, it is indicated by the flow type label at the destination spigot on the schematic. See Figure 147.

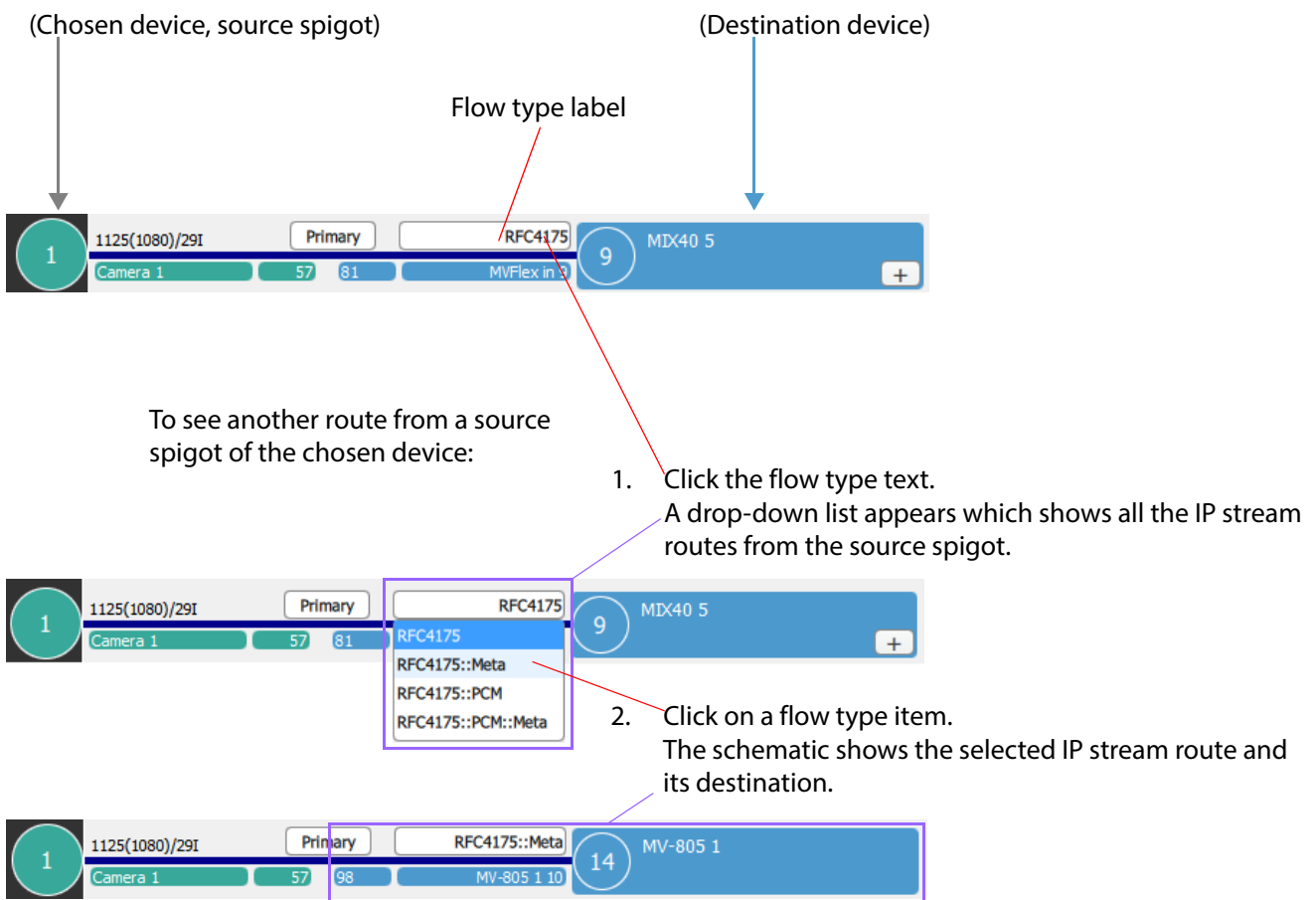


Figure 147 Device View - To see Another Route from a Source

Flow Type Destinations:

For the chosen device in the **Device View**, when a source IP flow type has more than one destination, it is indicated by a **+** symbol on the destination spigot. See Figure 148.

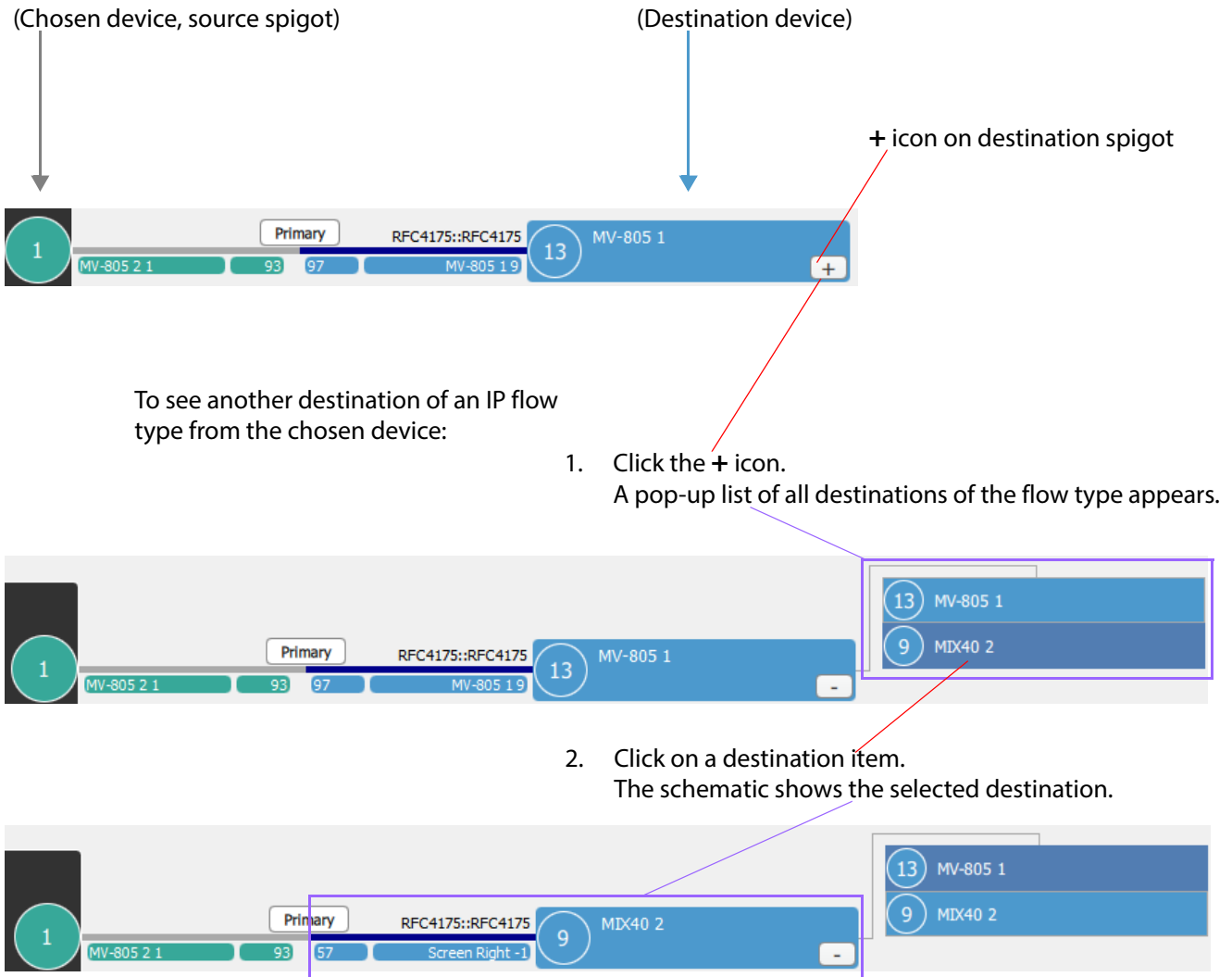




Figure 148 Device View - To See Another Destination of an IP Flow Type

11.3.3 Navigating Around Devices in Device View

The **Device View** schematic is centered on a chosen device. Originating devices or destination devices in the schematic can be selected to be the chosen device and then viewed as the subject of a new **Device View** schematic.

1. Click on a source (originating) device or on a destination device in the **Device View** schematic.
A new schematic of the 'clicked-on' device is shown.
2. Click the  ('Go back') navigation control to go back to the first schematic.
3. Click the  ('Go forward') navigation control to go forward to the new schematic.

See Figure 149.

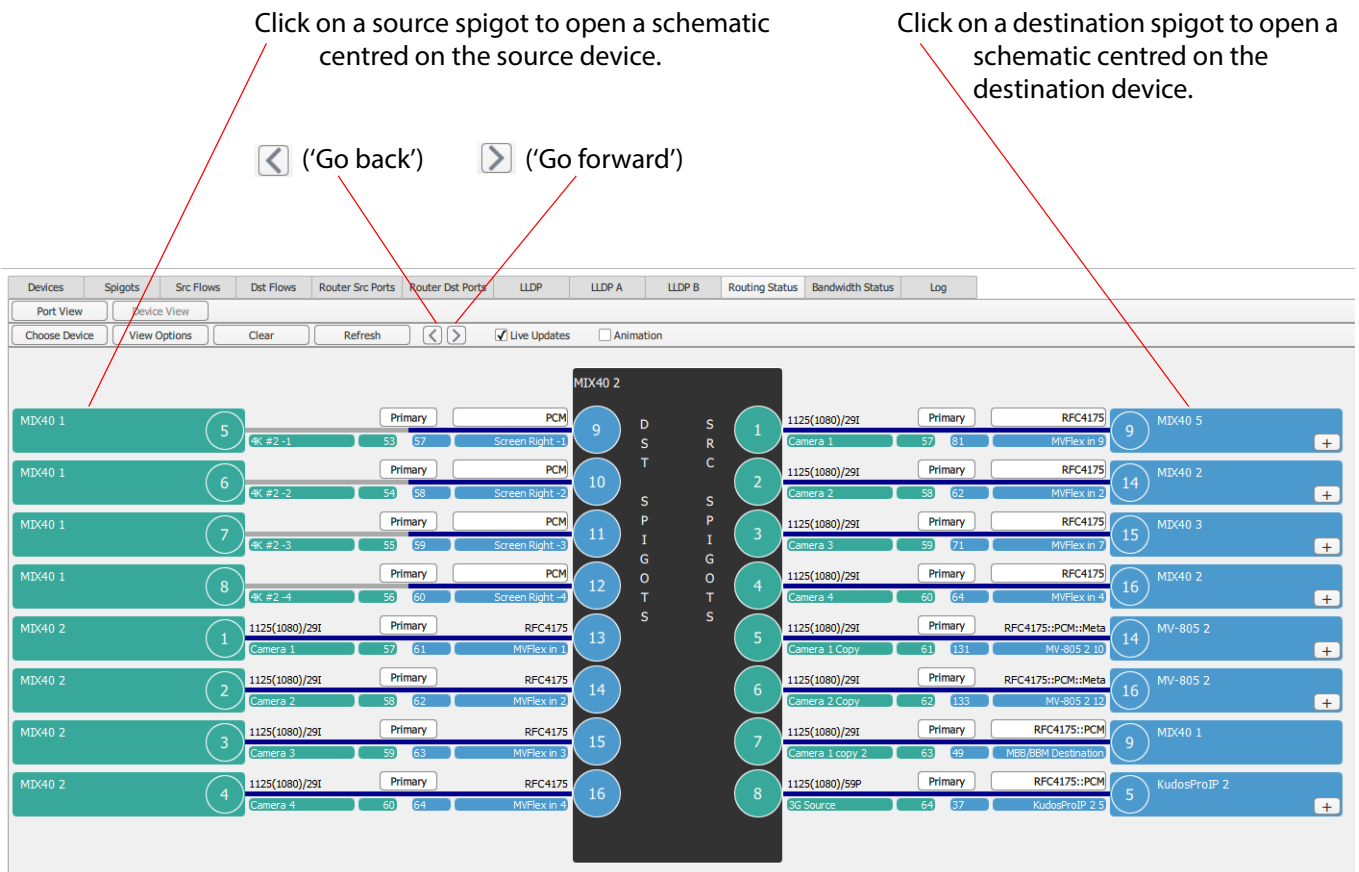


Figure 149 Device View Schematic - Go Back, Go Forward

11.3.4 Right-Click in Device View

Table 47 Routing Status Tab - Device View Tool Bar Items

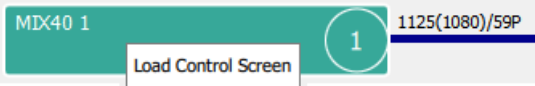
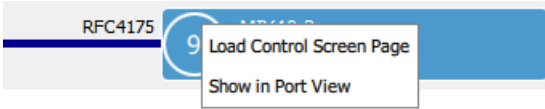
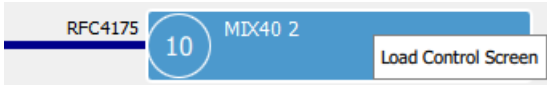
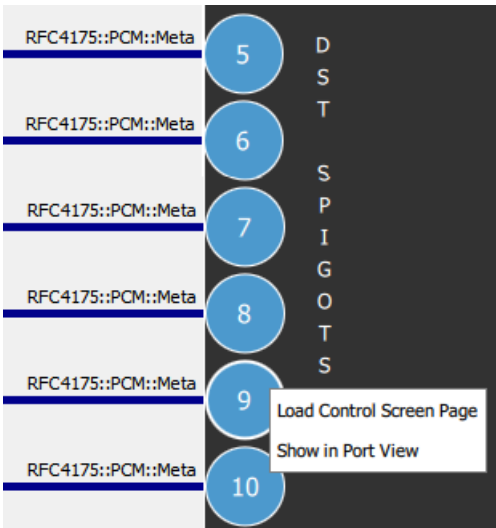
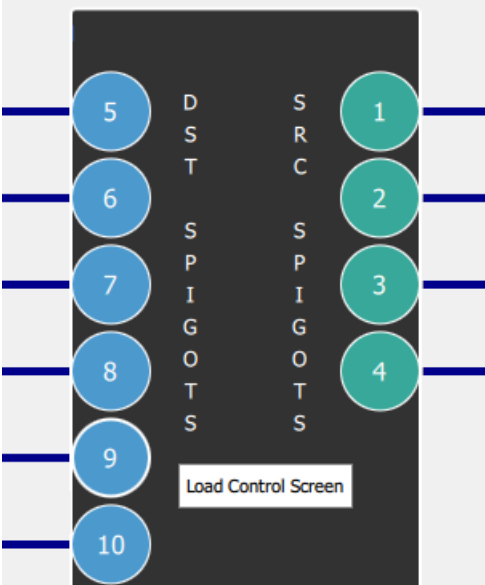
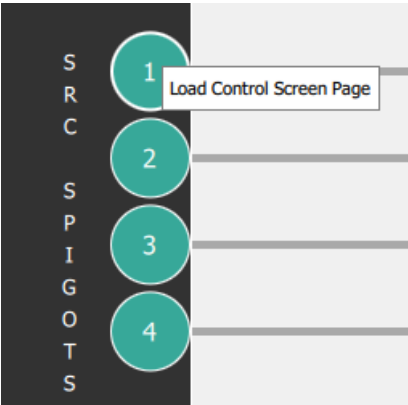
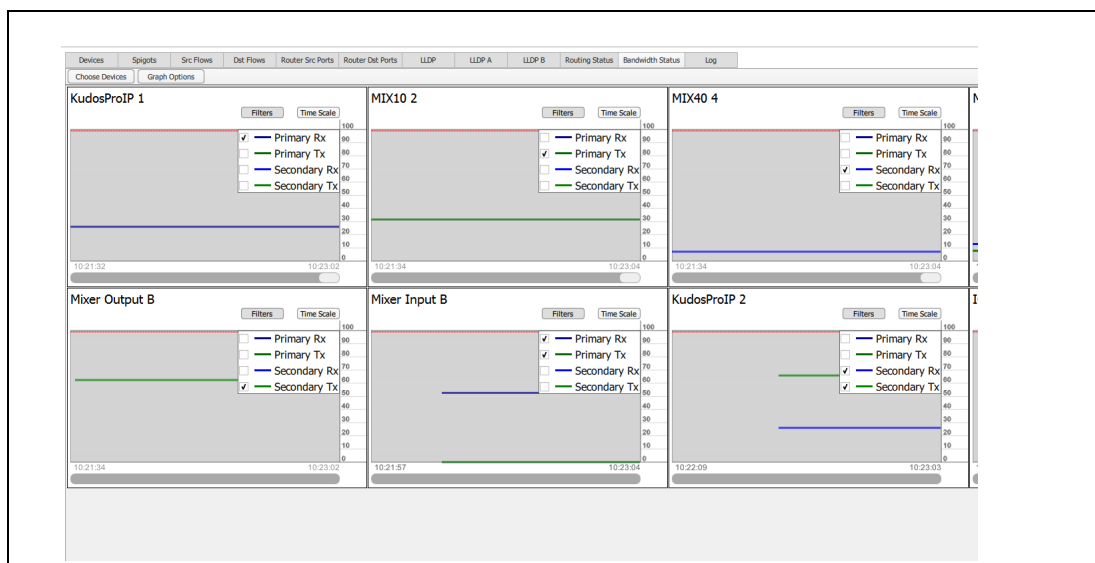
Right-Click Item	Description
<p>Originating Device:</p>  <p>Load Control Screen</p>	<p>Load the RollCall template for the source device and open it in a new Orbit main tab.</p>
<p>Destination Device:</p> <p>Spigot</p>  <p>Load Control Screen Page</p>	<p>Load RollCall template for the device and open it in a new Orbit main tab. The RollCall template for the selected spigot is shown.</p>
<p>Show in Port View</p>	<p>Open the Routing Status tab Port View and show the selected spigot.</p>
<p>Device</p>  <p>Load Control Screen</p>	<p>Load the RollCall template for the destination device and open it in a new Orbit main tab.</p>
<p>Chosen Device</p> <p>Destination Spigot</p>  <p>Load Control Screen Page</p>	<p>Load RollCall template for the device and open it in a new Orbit main tab. The RollCall template for the selected spigot is shown.</p>
<p>Show in Port View</p>	<p>Open the Routing Status tab Port View and show the selected spigot.</p>

Table 47 Routing Status Tab - Device View Tool Bar Items (Continued)

Right-Click Item	Description
<p>Device</p>  <p>Load Control Screen</p>	<p>Load the RollCall template for the source device and open it in a new Orbit main tab.</p>
<p>Source Spigot</p>  <p>Load Control Screen Page</p>	<p>Load RollCall template for the device and open it in a new Orbit main tab. The RollCall template for the selected spigot is shown.</p>

12

12 Tabs - Bandwidth Status Tab



Tabs - Bandwidth Status Tab

12.1 Introduction	190
12.2 Bandwidth Status Tool Bar	192
12.3 Bandwidth Status Graphs	194
12.3.1 Redundant Flows on Primary and Secondary Links	195
12.3.2 Filters Button	195
12.3.3 Time Scale Button	197

12.1 Introduction

The **Bandwidth Status** tab graphically shows the bandwidth usage of the IP links of selected devices. The information is presented on a line-graph with time along the horizontal axis and bandwidth usage plotted vertically.

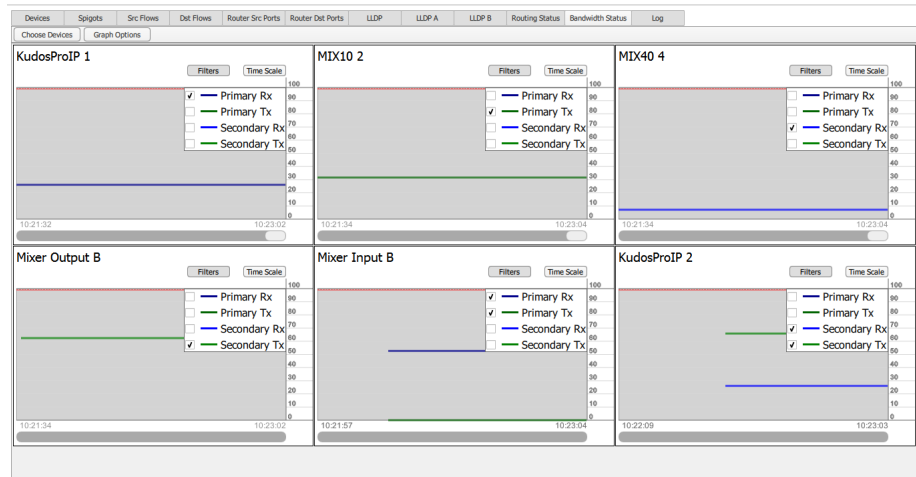


Figure 150 Bandwidth Router Screen

Tool bar, see Section 12.2 [Bandwidth Status Tool Bar](#) on page 192

Main graph area, see Section 12.3 [Bandwidth Status Graphs](#) on page 194

Bandwidth Status tab selected

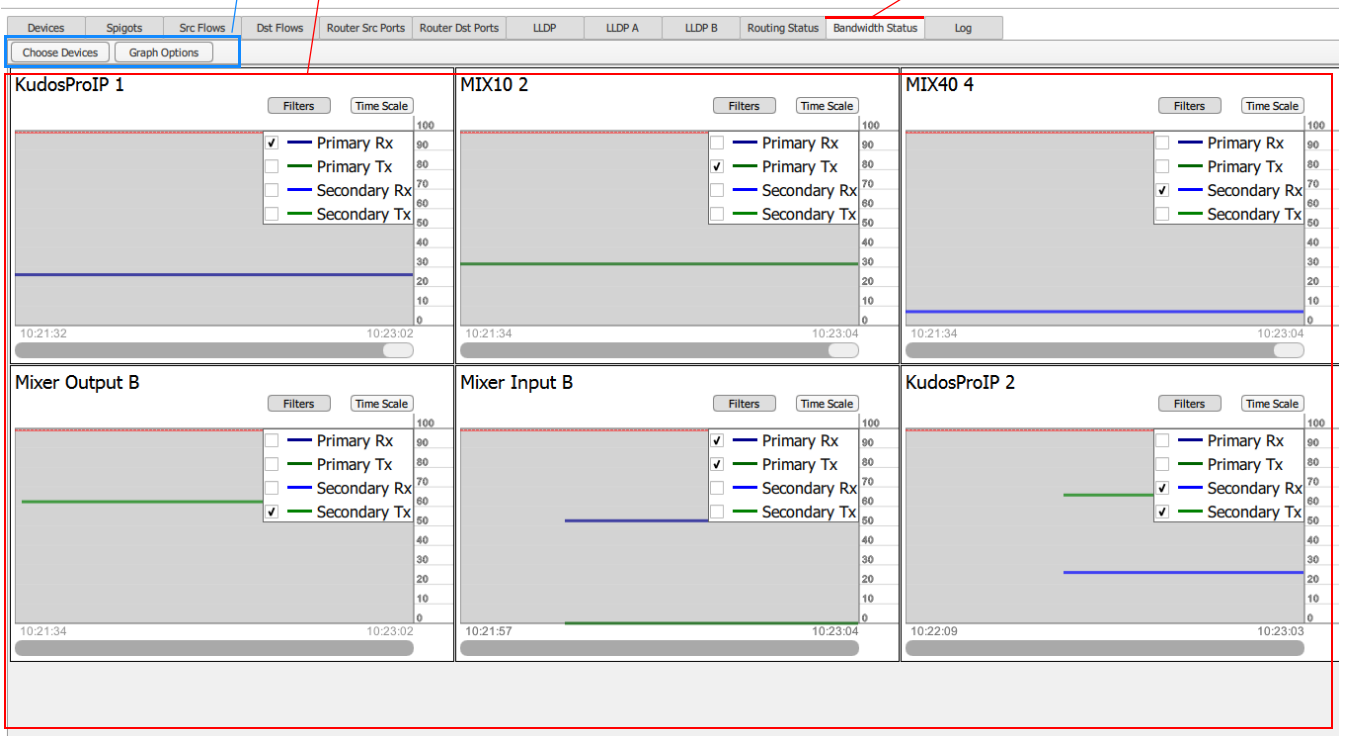


Figure 151 Bandwidth Status Tab Screenshot, Annotated

12.2 Bandwidth Status Tool Bar

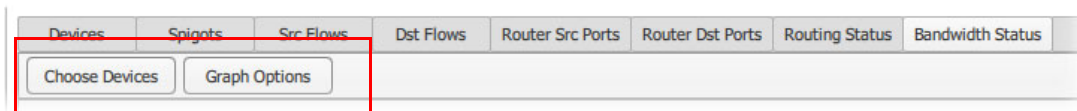


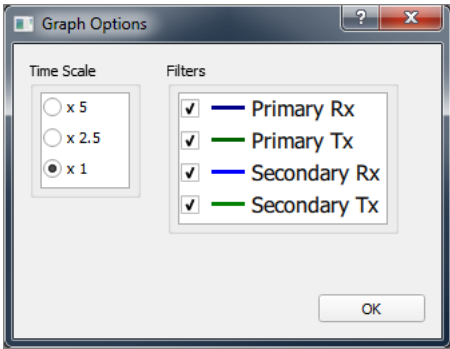
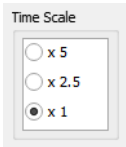
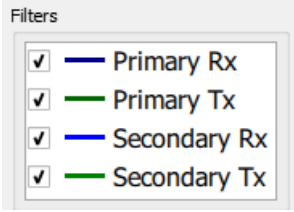
Figure 152 Bandwidth Status Tool Bar

The Tool Bar controls which devices are monitored and sets ‘tab-wide’ graph settings.

Table 48 Bandwidth Status Tool Bar Items

Tool Bar Item	Description
<p>Choose Device</p>	<p>Button. Click to choose which device(s) to monitor for bandwidth usage.</p> <p>The Choose Devices to Monitor dialog is shown:</p> <div> </div> <ol style="list-style-type: none"> 1. Select one or more devices to monitor. 2. Click OK. <p>A bandwidth status graph for each selected device appears in the main graph screen area.</p> <p>Alternatively, when viewing the Choose Devices to Monitor dialog:</p> <p>To select all devices:</p> <ol style="list-style-type: none"> 3. Click Select All to select all devices. 4. Click OK. Graphs for all devices appear in the main graph screen area. <p>To clear all graphs:</p> <ol style="list-style-type: none"> 5. Click Deselect All to deselect all devices. 6. Click OK. All graphs are cleared from the main graph screen area.

Table 48 Bandwidth Status Tool Bar Items (Continued)

Tool Bar Item	Description
<p>Graph Options</p>	<p>Button. Click to set options for all graphs on the Bandwidth Status screen. The Graph Options dialog is shown:</p>  <p>The options are described below. Select the option(s) and click OK.</p>
<p>Time Scale</p>	<p>Radio buttons. Select time scale zoom-factor:</p> <ul style="list-style-type: none"> • x5 - Zoomed out view. • x2.5 • x1 - Zoomed in view. 
<p>Filters</p>	<p>Check boxes. Select to select which links to monitor and display. Bandwidth usage filters select the following IP links:</p> <ul style="list-style-type: none"> • Primary Rx - received at destination spigot on Fabric A. • Primary Tx - transmitted from source spigot on Fabric A. • Secondary Rx - received at destination spigot on Fabric B. • Secondary Tx - transmitted from source spigot on Fabric B. 

12.3 Bandwidth Status Graphs

Graphs of bandwidth usage appear for each selected device. Graph options may be changed locally for each graph using buttons on each graph.

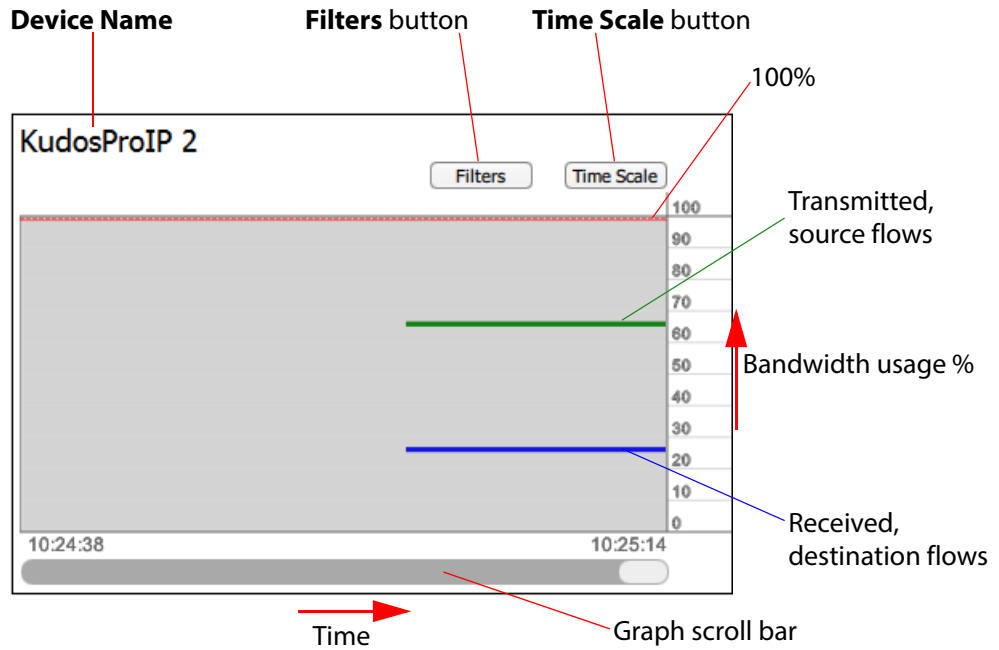


Figure 153 Bandwidth Status Graph

Graph axes are:

- Horizontal axis - Time axis.
- Vertical axis - Bandwidth usage as a percentage of maximum on the IP link to/from the device.

Each graph can show up to four bandwidth usage plots; i.e. Source and Destination bandwidth usages for Fabric A and Fabric B. Displaying of plots is controlled by the **Filter** control on each graph.

The most recent bandwidth usage is shown on the right-hand side of the graph. As time progresses, the plotted graph lines move left-wards across the graph.

The time axis can be:

- Zoomed in and out, using a **Time Scale** control on each graph.
- Scrolled along, using the scroll-bar along the bottom of each graph.

12.3.1 Redundant Flows on Primary and Secondary Links

For systems with redundant flows on two network fabrics, bandwidth usages for both Fabric A and Fabric B (primary and secondary) are presented.

In normal operation, both primary and secondary bandwidth usages should be the same and the plotted lines will be coincident on the graph.

If Fabric A and Fabric B plots are not coincident, a fault condition is indicated. See Figure 154.

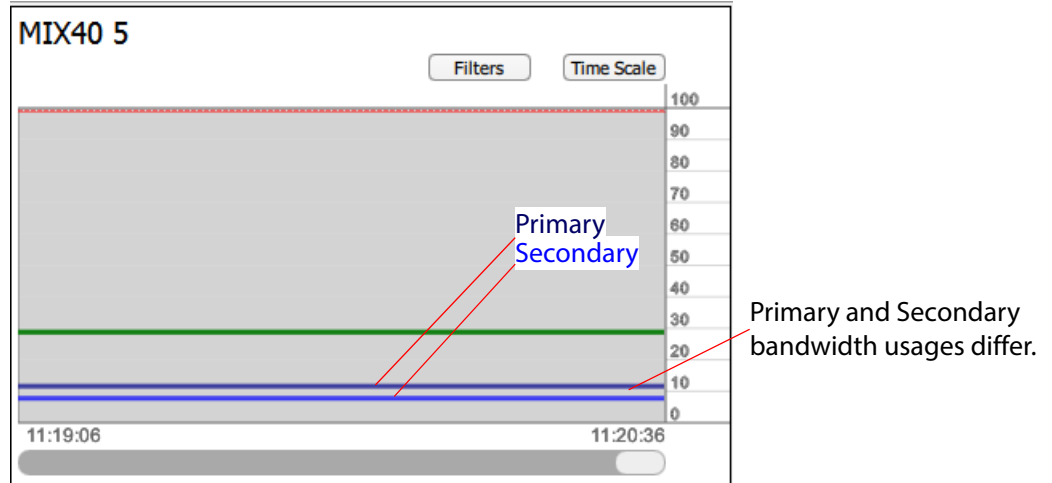


Figure 154 Differing Primary and Secondary Bandwidth Usages

Note: **Differing Primary and Secondary Bandwidth Usages:**
For redundant systems using two network fabrics, if bandwidth usages differ on the graph, this is a possible fault condition.

12.3.2 Filters Button

1. Click the **Filters** button on a graph. A drop-down context menu appears. See Figure 155.
2. Select or deselect items to select which plots are shown on the graph. See Figure 156 for some examples.

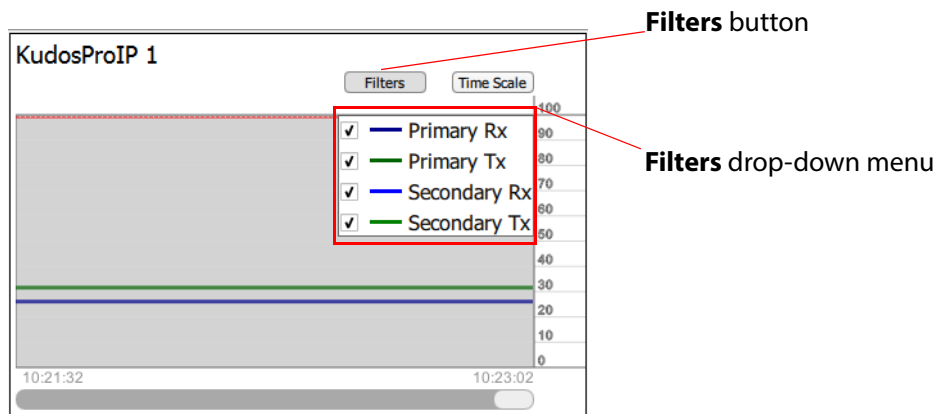


Figure 155 Bandwidth Status Graph

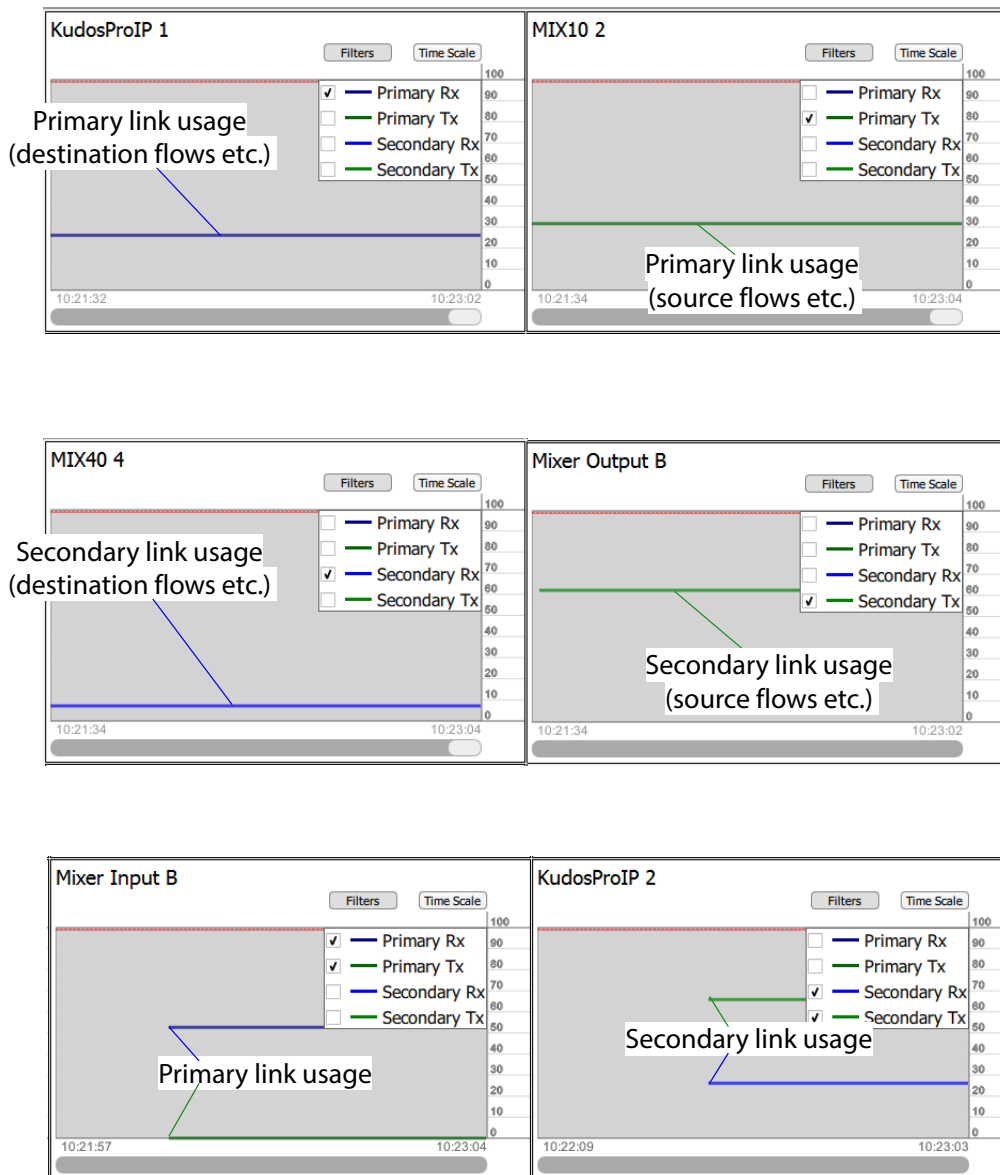


Figure 156 Bandwidth Status Graph - Filter Examples

12.3.3 Time Scale Button

1. Click the **Time Scale** button on a graph.
A drop-down context menu appears. See Figure 157.
2. Select the time scale zoom factor required: x5, x2.5 or x1. See Figure 157.

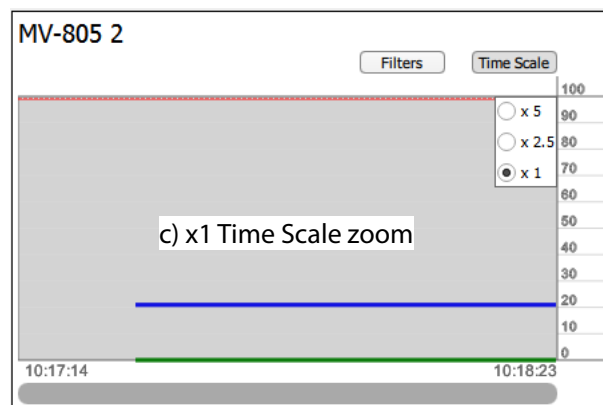
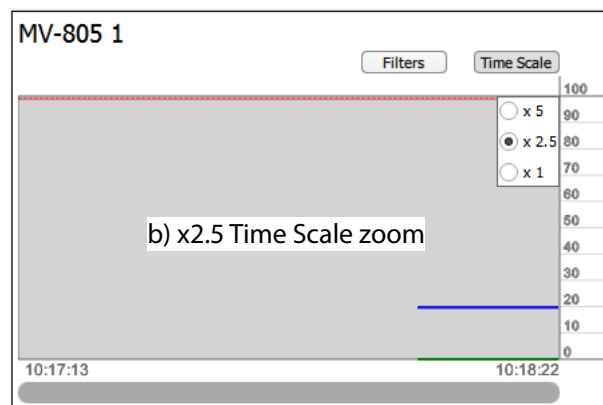
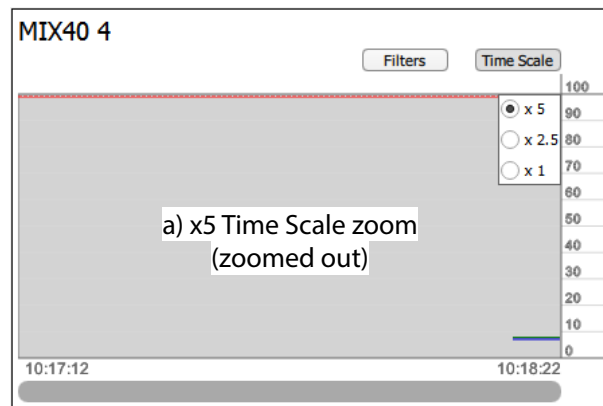
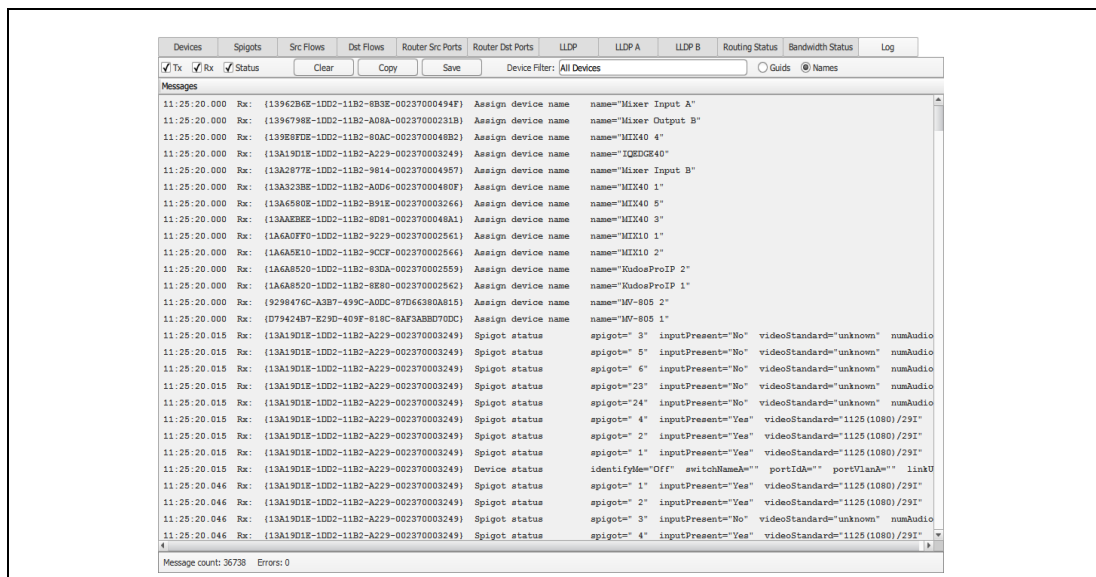


Figure 157 Bandwidth Status - Time Scale Examples:

- a) x5.
- b) x2.5.
- c) x1.

13

13 Tabs - Log Tab



Tabs - Log Tab

13.1 Introduction	199
13.2 Log Tab Tool Bar	200
13.3 System Message Format	201
13.3.1 Sample Saved System Message Text	202
13.4 Log Tab - Status Bar	203

13.1 Introduction

The **Log** tab shows IP routing system messages sent and received by Orbit on its RollCall+ domain. Messages are sent to and received from devices. Messages concern Orbit’s network configuration function.

(Note: These messages are different to RollCall log messages.)

Operate Orbit for IP Routing with logging disabled in normal operation.

Logging would be enabled at the request of Grass Valley Customer Support to help debug a particular issue.

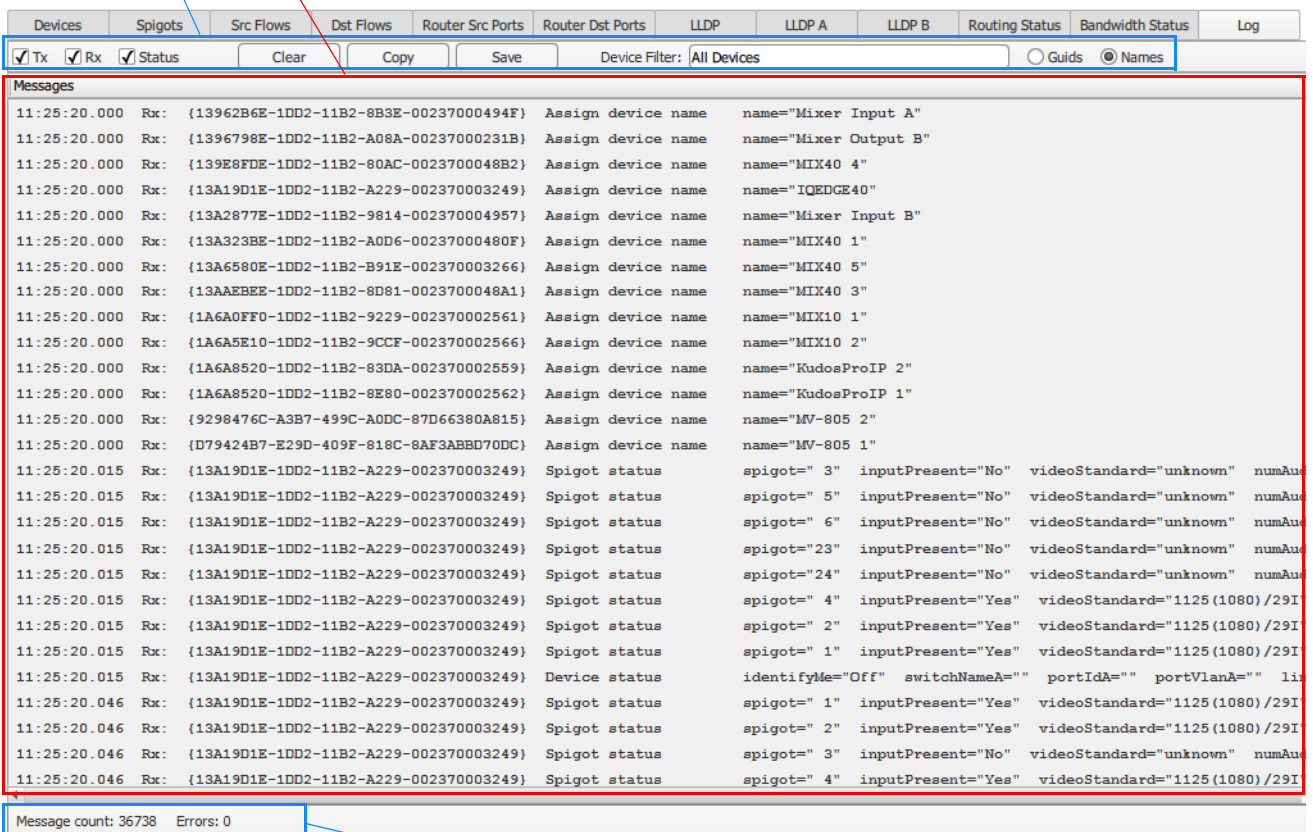
Note: Logging should be disabled in normal operation because:

- There is a memory cost when logging is enabled (approximately 500MB).
- The output log files are not managed for size and operating with logging enabled will cause file space on the host machine to be consumed.

Figure 158 shows the **Log** tab screen.

Tool bar, see Section 13.2 *Log Tab Tool Bar* on page 200

System messages area



Status Bar, see Section 13.4 *Log Tab - Status Bar* on page 203

Figure 158 Log Tab Screenshot

13.2 Log Tab Tool Bar

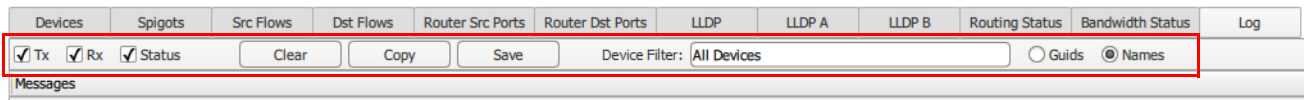


Figure 159 Log Tool Bar

Table 49 Log Tool Bar Items

Tool Bar Item	Description
Capture controls:	To control what IP routing system messages are captured and displayed by Orbit:
Tx	Check box. Select to capture and display messages sent by Orbit.
Rx	Check box. Select to capture and display messages received by Orbit.
Status	Check box. Select to capture and display status messages.
Clear	Button. Click to clear the system message area.
Copy	Button. Click to copy the filtered and captured system messages to the clipboard.
Save	Button. Click to save the filtered and captured system messages to a text file. See Section 13.3.1 Sample Saved System Message Text on page 202.
Device Filter	Select one device or all devices. IP routing system messages for the selected device(s) will be captured and shown.
Device select:	Drop-down box. Select the device.
Guids	Radio button. Select to show device GUIDs in the Device Filter drop-down box. This provides a useful way of translating between device GUID and device name.
Names	Radio button. Select to show Device Names in the drop-down box.

13.3 System Message Format

Example, Message text:

```
10:27:13.101 Rx: {9298476C-A3B7-499C-A0DC-87D66380A815} Device status
  identifyMe="Off" switchNameA="QFX5200" portIdA="" portVlanA="1020"
  linkUpA="Yes" txUsageA="0" rxUsageA="20936" switchNameB="" portIdB=""
  portVlanB="0" linkUpB="Yes" txUsageB="0" rxUsageB="20936"
```

The general format of the system messages is:

- Time stamp - 10:27:26.515
- Rx or Tx - Rx:
- Device GUID - {D79424B7-E29D-409F-818C-8AF3ABBD70DC}
- Packet type - Device status
- Packet data fields - identifyMe="Off" switchNameA=""
 portIdA="" linkUpA="Yes" txUsageA="0"
 rxUsageA="19695" linkUpB="Yes"
 txUsageB="0" rxUsageB="19695"

Some messages are multi-part and span more than one line in the message area. See Figure 160

```
14:03:58.823 Tx: {13A67F1E-1DD2-11B2-858A-0023700047F8} Set flows spigot=" 9"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="A:1" type="RFC4175" mcastAdd="239.20.1.83" srcAdd="10.200.10.4" dstPort="50100" srcPort="50100"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="A:2" type="PCM " mcastAdd="239.60.1.27" srcAdd="10.200.10.4" dstPort=" 5004" srcPort=" 5004"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="A:3" type="RFC4175" mcastAdd="239.20.1.83" srcAdd="10.200.10.4" dstPort="50100" srcPort="50100"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="B:1" type="RFC4175" mcastAdd="239.21.1.83" srcAdd="10.200.20.4" dstPort="50100" srcPort="50100"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="B:2" type="PCM " mcastAdd="239.61.1.27" srcAdd="10.200.20.4" dstPort=" 5004" srcPort=" 5004"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="B:3" type="RFC4175" mcastAdd="239.21.1.83" srcAdd="10.200.20.4" dstPort="50100" srcPort="50100"
```

Figure 160 Example Multi-Part Message

13.3.1 Sample Saved System Message Text

Example, Message text file extract:

```

14:03:37.138 Rx: {D79424B7-E29D-409F-818C-8AF3ABBD70DC} Device status identifyMe="Off"
switchNameA="" portIdA="" portVlanA="0" linkUpA="Yes" txUsageA="0" rxUsageA="19695"
switchNameB="" portIdB="" portVlanB="" linkUpB="Yes" txUsageB="0" rxUsageB="19695"
14:03:42.695 Rx: {9298476C-A3B7-499C-A0DC-87D66380A815} Device status identifyMe="Off"
switchNameA="QFX5200" portIdA="" portVlanA="1020" linkUpA="Yes" txUsageA="0" rxUsageA="20936"
switchNameB="" portIdB="" portVlanB="0" linkUpB="Yes" txUsageB="0" rxUsageB="20936"
14:03:47.143 Rx: {D79424B7-E29D-409F-818C-8AF3ABBD70DC} Device status identifyMe="Off"
switchNameA="" portIdA="" portVlanA="0" linkUpA="Yes" txUsageA="0" rxUsageA="19695"
switchNameB="" portIdB="" portVlanB="" linkUpB="Yes" txUsageB="0" rxUsageB="19695"
14:03:52.685 Rx: {9298476C-A3B7-499C-A0DC-87D66380A815} Device status identifyMe="Off"
switchNameA="QFX5200" portIdA="" portVlanA="1020" linkUpA="Yes" txUsageA="0" rxUsageA="20936"
switchNameB="" portIdB="" portVlanB="0" linkUpB="Yes" txUsageB="0" rxUsageB="20936"
14:03:57.151 Rx: {D79424B7-E29D-409F-818C-8AF3ABBD70DC} Device status identifyMe="Off"
switchNameA="" portIdA="" portVlanA="0" linkUpA="Yes" txUsageA="0" rxUsageA="19695"
switchNameB="" portIdB="" portVlanB="" linkUpB="Yes" txUsageB="0" rxUsageB="19695"
14:03:58.823 Tx: {13A67F1E-1DD2-11B2-858A-0023700047F8} Set flows spigot=" 9"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="A:1" type="RFC4175"
mcastAdd="239.20.1.83" srcAdd="10.200.10.4" dstPort="50100" srcPort="50100"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="A:2" type="PCM "
mcastAdd="239.60.1.27" srcAdd="10.200.10.4" dstPort=" 5004" srcPort=" 5004"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="A:3" type="RFC4175"
mcastAdd="239.20.1.83" srcAdd="10.200.10.4" dstPort="50100" srcPort="50100"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="B:1" type="RFC4175"
mcastAdd="239.21.1.83" srcAdd="10.200.20.4" dstPort="50100" srcPort="50100"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="B:2" type="PCM "
mcastAdd="239.61.1.27" srcAdd="10.200.20.4" dstPort=" 5004" srcPort=" 5004"
{13A67F1E-1DD2-11B2-858A-0023700047F8} flow="B:3" type="RFC4175"
mcastAdd="239.21.1.83" srcAdd="10.200.20.4" dstPort="50100" srcPort="50100"
14:03:58.823 Tx: {13A67F1E-1DD2-11B2-858A-0023700047F8} Set flows spigot="10"

```

13.4 Log Tab - Status Bar

Some status information is shown at the bottom of the system message area. See Figure 161.

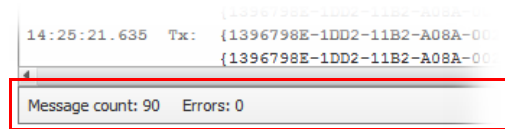


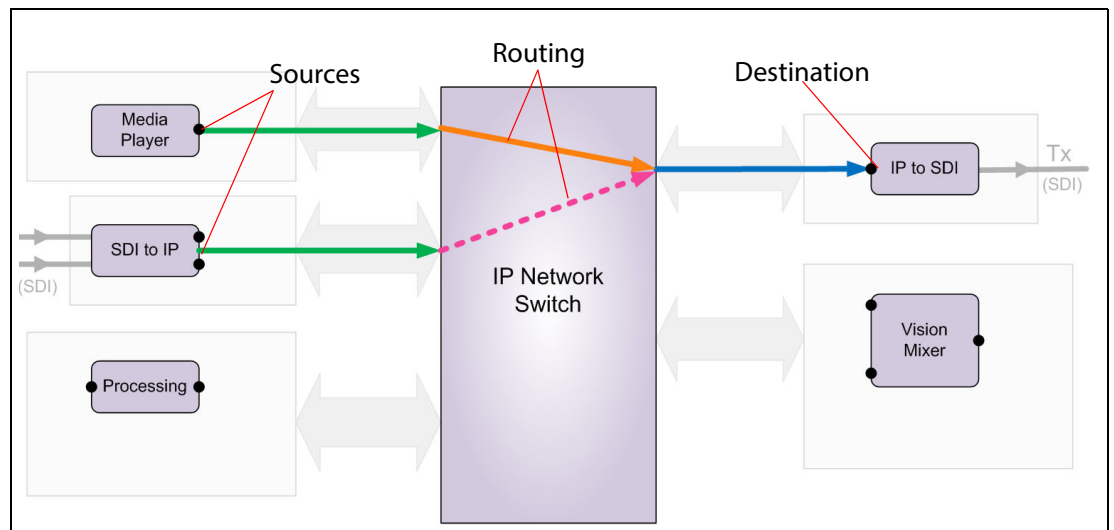
Figure 161 Log Tab Status Bar

Table 50 Log Tab - Status Bar Items

Status Item	Description
Message count	Number of system messages logged since the system messages area was cleared.
Errors	Number of error messages received since the system message area was cleared.

14

14 Tabs - Router Tab



Tabs - Router Tab

14.1 Introduction	205
14.2 Router Tab Tool Bar	208
14.2.1 Router Options	209
14.3 Router Sources Pane	212
14.3.1 Routable Sources and Destinations	212
14.3.2 Sources Column Colors	213
14.3.3 Right-Click on Device	213
14.3.4 Right-Click on Spigot	213
14.4 Router Destinations Pane	214
14.4.1 Destinations Column Colors	215
14.4.2 Right-Click on Device	215
14.4.3 Right-Click on a Spigot	216
14.5 Making a Route	217
14.5.1 Examples	217
14.5.2 Spigot Routing - Immediate Take, No Undo	218
14.5.3 Pre-select With Take	219
14.5.4 Pre-select with Take and Undo	221
14.5.5 With Pre-select Undo with Take	222
14.5.6 Routing to Linked Spigots	223
14.5.7 Selecting Flows to Route	225
14.5.8 Routing Flows from Different Source Spigots	227
14.5.9 Flow Routing	230
14.5.10 Clear Routes to a Destination Spigot	231
14.5.11 Clear a Flow Route to a Destination Flow	232

14.1 Introduction

The **Router** tab is designed to be an engineering tab for managing routes and it also provides a way of making routes in a small-scale system where there is *no Grass Valley* IP routing system controller (IP-RSC server). (Configuration with/without an IP-RSC is part of the Orbit network configuration in the **Comms Setup** dialog, see Figure 162.)

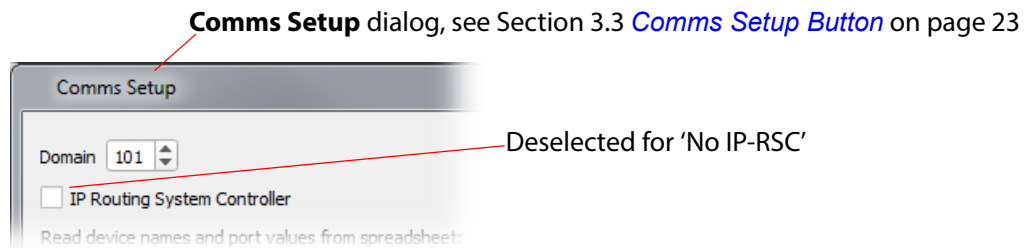


Figure 162 Orbit Network Configuration Set with 'No IP-RSC'

Showing the Router Tab:

The **Router** tab is:

- Shown automatically for systems which are configured *without* an IP-RSC unit.
- *Not* normally shown for systems configured *with* an IP-RSC unit.

To make the **Router** tab appear in this latter case:

- Type 'Control-R'.
The **Router** tab will appear, see Figure 163.

Note: If 'Control R' is used to show the **Router** tab, then the tab will be automatically removed when the Orbit network configuration editor is closed.

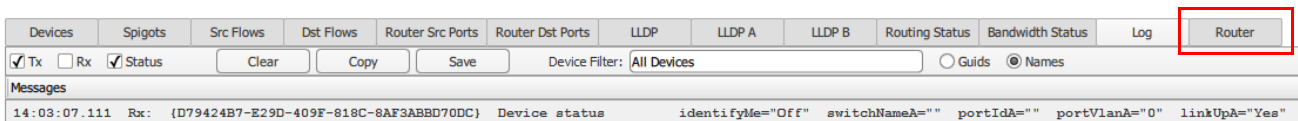


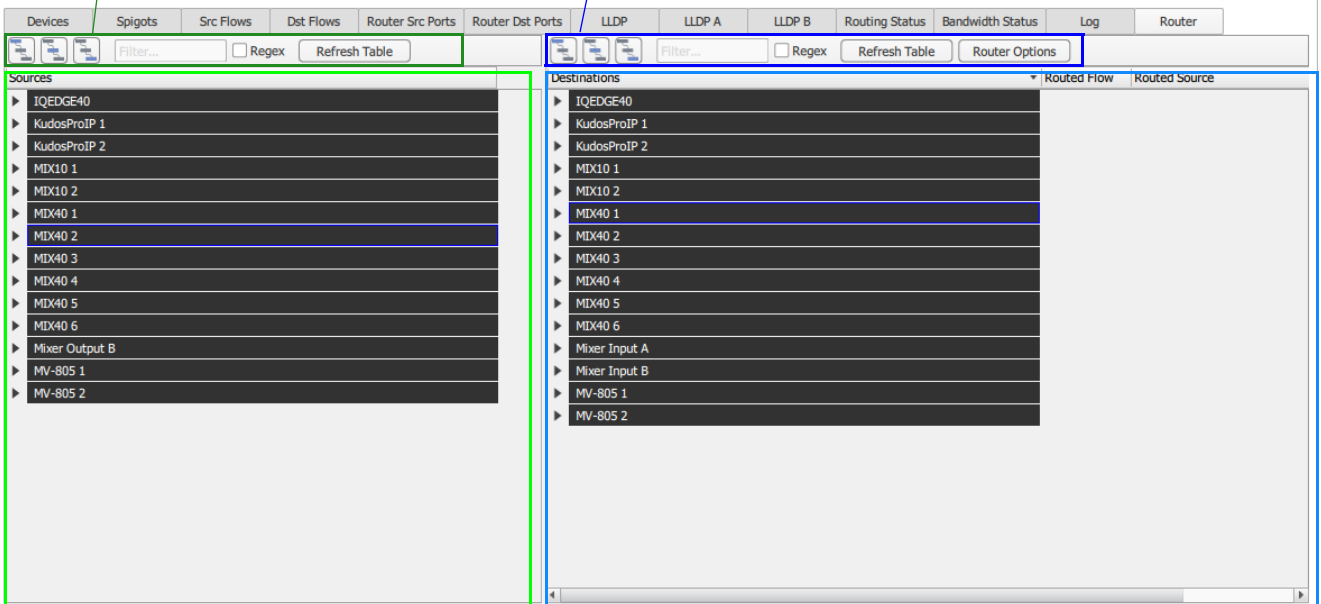
Figure 163 Router Tab Appears

The **Router** tab screen is shown in Figure 164. The tab has a **Router Sources** pane and a **Router Destinations** pane.

Router Sources pane tool bar

(See Section 14.2 Router Tab Tool Bar on page 208

Router Destinations pane tool bar



Router Sources pane, see Section 14.3 Router Sources Pane on page 212.

Router Destinations pane, see Section 14.4 Router Destinations Pane on page 214.

Sources shown partially expanded

Destinations shown partially expanded

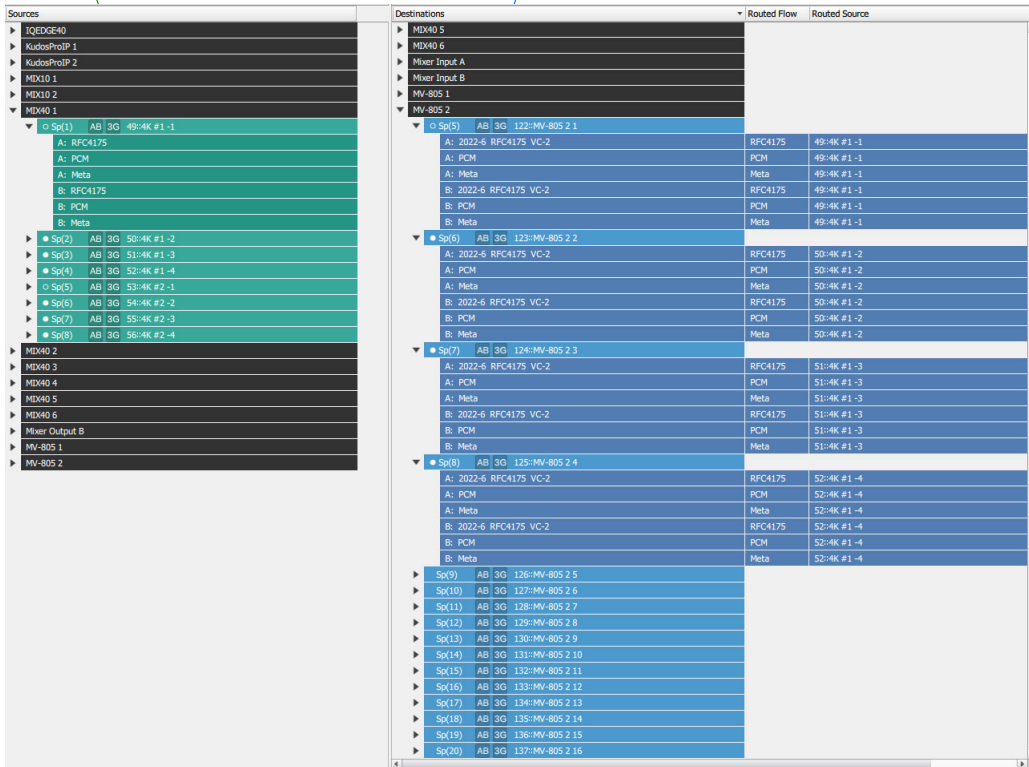


Figure 164 Router Tab Screen

14.2 Router Tab Tool Bar

The tool bars for the Router Sources pane and Router Destinations pane are similar and are shown in Figure 165.

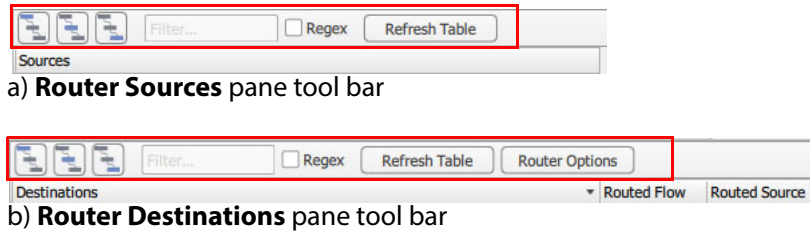





Figure 165 Router Tab - Tool Bars:
 a) Router Sources Pane.
 b) Router Destinations Pane.

Table 51 Router Tab - Tool Bar Items

Tool Bar Item	Description
Tree view controls:	(For items listed in either pane.)
Show Devices 	Button. Click to collapse the list to show devices only.
Show Spigots 	Button. Click to set the list to show devices and spigots (router ports).
Show Flows 	Button. Click to expand the list to show devices, spigots (router ports) and IP flows.
Filter controls:	Filters which sources and which destinations are presented. Note: Both Device Name and Device Type are used to filter on. (See Section 3.6.1 Device Filter Tool on page 35 for more information about this filter tool.)
Filter...	Text box. Enter the text to filter on (Filter Text).
Regex	Check box. Select when the Filter string is a regular expression. (Perl regular expression format is used.)
Refresh Table	Button. Click to refresh the pane contents from Orbit's own, gathered information.
Router Options	Button. (Router Destinations pane only) Click to set route setting options. The Router Options dialog is shown. See Section 14.2.1 Router Options on page 209.

14.2.1 Router Options

Set up operational settings for routing with the **Router** tab in the **Router Options** dialog. Click OK to apply the settings.

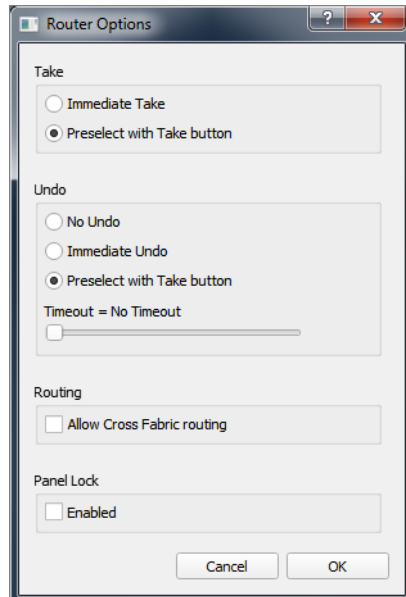
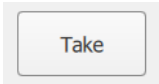
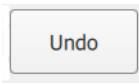


Figure 166 Router Options Dialog

Table 52 Router Options Dialog Items

Router Option Item	Description
Take:	'Take' button configuration.
Immediate Take	Radio button. Click to make a route immediately after a destination and a source have been selected. No 'Take' button.
Preselect with Take button	Radio button. Click to make a route by clicking a 'Take' button after a destination and a source have been selected. 
Undo:	Configuring an 'Undo' facility for the last route made.
No Undo	Radio button. Click for no 'Undo' facility.
Immediate Undo	Radio button. Click to undo the last route by clicking an 'Undo' button. 

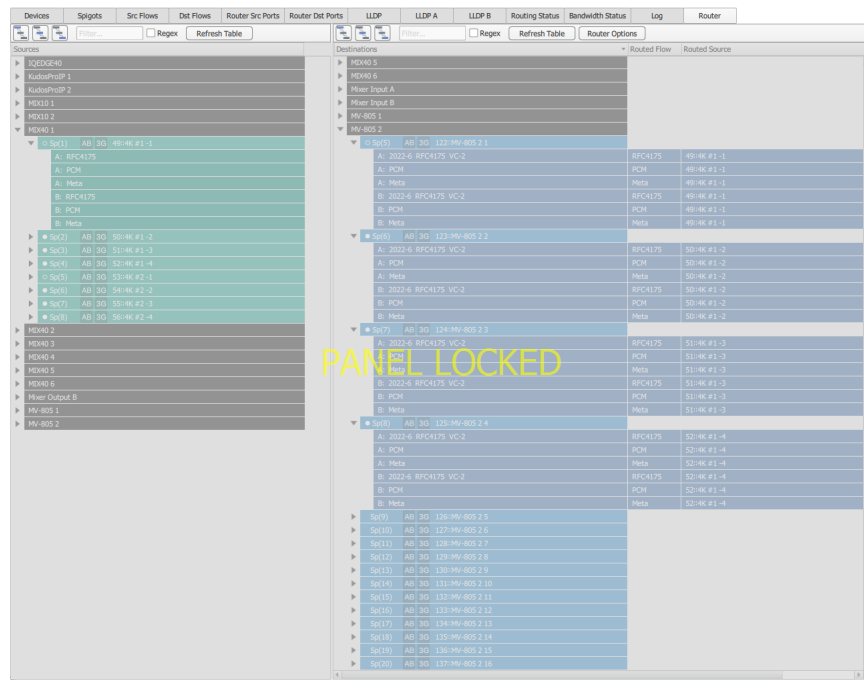


Figure 167 Router Options - Panel Lock Enabled

14.3 Router Sources Pane

Items in the pane can be expanded or collapsed to show sources of interest. The **Router Sources** pane shows **Devices**, **Spigots** and **Flows** in the 'Sources' column. See Figure 168.

'Sources' column

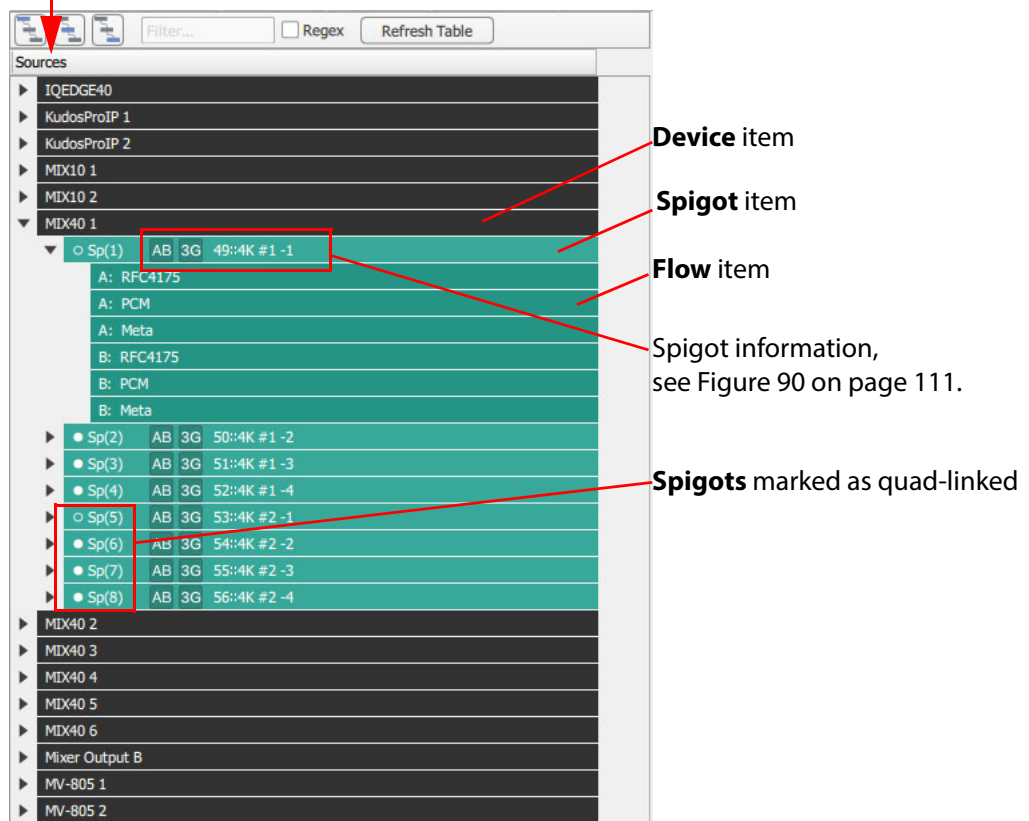


Figure 168 Router Sources Pane

14.3.1 Routable Sources and Destinations

Only 'routable' sources and destinations are shown in the panes.

14.3.1.1 Routable Destination

A destination is routable if the destination flow is:

- compatible with the IP flow settings of the destination spigot.

14.3.1.2 Routable Source

A source is routable if the source flow is:

- compatible with the source spigot's IP flow settings;
- enabled;
- and has multicast parameters.

Routes can be made with or without a TAKE button and there is a configurable 'undo' facility.

14.3.2 Sources Column Colors

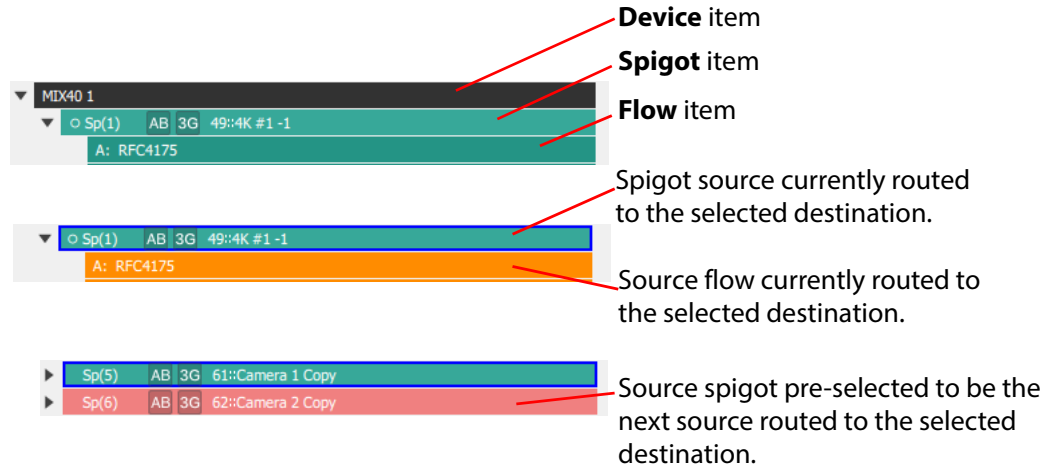


Figure 169 Router Sources - Item Colors

14.3.3 Right-Click on Device

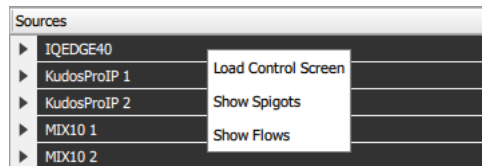


Figure 170 Router Sources Pane - Right-Click Device

Table 53 Right-Click on Device

Right-Click Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit. The template is opened in a new, separate tab, at the relevant template screen for the spigot selected.
Show Spigots	Click to expand the Device in the pane to show its Spigot information in a tree view.
Show Flows	Click to expand the Device in the pane to show its Spigot and Flows information in a tree view.

14.3.4 Right-Click on Spigot

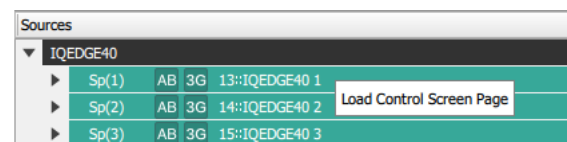


Figure 171 Router Sources Pane - Right-Click on Spigot

Table 54 Right-Click on Spigot

Right-Click Item	Description
Load Control Screen Page	Click to display the relevant spigot screen page of the device’s RollCall template. This is shown in a separate tab in Orbit.

14.4 Router Destinations Pane

Items in the pane can be expanded or collapsed to show destinations of interest. The **Router Sources** pane shows **Devices**, **Spigots** and **Flows** in the 'Destinations' column. See Figure 172. Information is listed for each flow routed to a destination spigot.

Router source port routed to destination.
(Port Number :: Port Name)

'Destinations' column Type of flow routed to destination

Destinations		Routed Flow	Routed Source
▶	MIX40 5		
▶	MIX40 6		
▶	Mixer Input A		
▶	Mixer Input B		
▶	MV-805 1		
▼	MV-805 2		
○	Sp(5)	AB 3G 122::MV-805 2 1	
A:	2022-6 RFC4175 VC-2	RFC4175	49::4K #1 -1
A:	PCM	PCM	49::4K #1 -1
A:	Meta	Meta	49::4K #1 -1
B:	2022-6 RFC4175 VC-2	RFC4175	49::4K #1 -1
B:	PCM	PCM	49::4K #1 -1
B:	Meta	Meta	49::4K #1 -1
●	Sp(6)	AB 3G 123::MV-805 2 2	
A:	2022-6 RFC4175 VC-2	RFC4175	50::4K #1 -2
A:	PCM	PCM	50::4K #1 -2
A:	Meta	Meta	50::4K #1 -2
B:	2022-6 RFC4175 VC-2	RFC4175	50::4K #1 -2
B:	PCM	PCM	50::4K #1 -2
B:	Meta	Meta	50::4K #1 -2
●	Sp(7)	AB 3G 124::MV-805 2 3	
A:	2022-6 RFC4175 VC-2	RFC4175	51::4K #1 -3
A:	PCM	PCM	51::4K #1 -3
A:	Meta	Meta	51::4K #1 -3
B:	2022-6 RFC4175 VC-2	RFC4175	51::4K #1 -3
B:	PCM	PCM	51::4K #1 -3
B:	Meta	Meta	51::4K #1 -3
●	Sp(8)	AB 3G 125::MV-805 2 4	
A:	2022-6 RFC4175 VC-2	RFC4175	52::4K #1 -4
A:	PCM	PCM	52::4K #1 -4
A:	Meta	Meta	52::4K #1 -4
B:	2022-6 RFC4175 VC-2	RFC4175	52::4K #1 -4
B:	PCM	PCM	52::4K #1 -4
B:	Meta	Meta	52::4K #1 -4
▶	Sp(9)	AB 3G 126::MV-805 2 5	
▶	Sp(10)	AB 3G 127::MV-805 2 6	
▶	Sp(11)	AB 3G 128::MV-805 2 7	
▶	Sp(12)	AB 3G 129::MV-805 2 8	
▶	Sp(13)	AB 3G 130::MV-805 2 9	
▶	Sp(14)	AB 3G 131::MV-805 2 10	
▶	Sp(15)	AB 3G 132::MV-805 2 11	
▶	Sp(16)	AB 3G 133::MV-805 2 12	
▶	Sp(17)	AB 3G 134::MV-805 2 13	
▶	Sp(18)	AB 3G 135::MV-805 2 14	

Spigots marked as quad-linked

Spigot information, see Figure 108 on page 138.

Figure 172 Router Destinations Pane

14.4.1 Destinations Column Colors

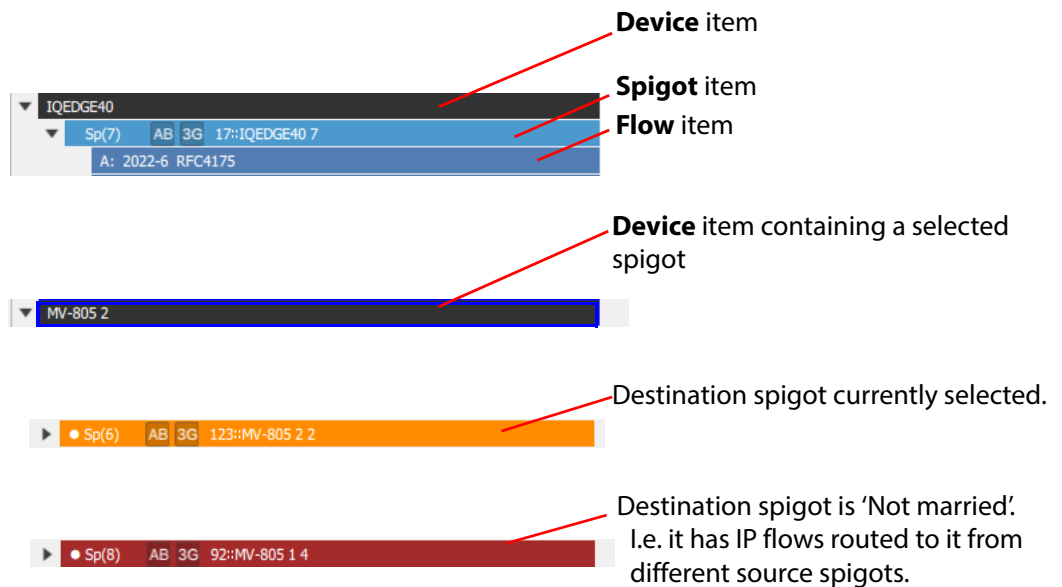


Figure 173 Router Destinations - Item Colors

14.4.2 Right-Click on Device

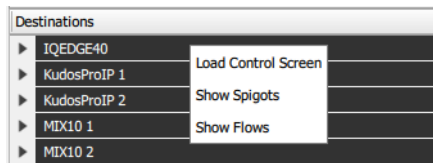


Figure 174 Router Destinations Pane - Right-Click Device

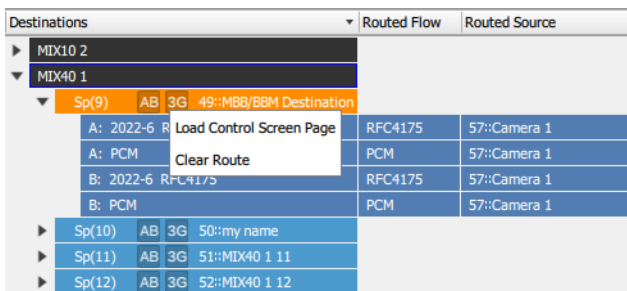
Table 55 Right-Click on Device

Right-Click Item	Description
Load Control Screen	Click to display the RollCall template of the device in Orbit. The template is opened in a new, separate tab, at the relevant template screen for the spigot selected.
Show Spigots	Click to expand the Device in the pane to show its Spigot information in a tree view.
Show Flows	Click to expand the Device in the pane to show its Spigot and Flows information in a tree view.

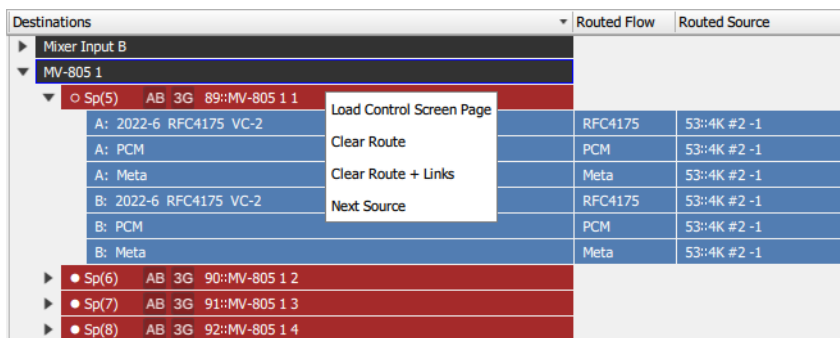
14.4.3 Right-Click on a Spigot



a) Right-click on a spigot



b) Right-click on a routed destination spigot



c) Right-click on a routed, linked and 'Not married' destination spigot

Figure 175 Router Destinations Pane - Right-Click on a Spigot:

- a) Right-click on a Spigot.
- b) On a Routed Destination Spigot.
- c) On a Routed, Linked and 'Not married' Spigot.

Table 56 Router Destinations pane - Right-Click device

Right-Click Item	Description
Load Control Screen Page	
	Click to display the relevant spigot screen page of the Device’s RollCall template. This is shown in a separate tab in Orbit.
Clear Route	Click to undo the route to the spigot.
Clear Route and Links	
	Click to undo the routes to the linked spigots and undo the spigot links.
Next Source	Click to go to the next source spigot of a 'Not married' destination spigot.

14.5 Making a Route

Some examples of making routes with the **Router** tab are given in this section. Various use cases are given; the route-making sequence of operation is:

1. Select a destination.
2. Pre-select a source.
3. Make the route.
4. (Undo the route.)

Within an IP routing system, it is real time multicast IP flows that are routed around from a source to a destination. With the **Router** tab, IP flows can be routed to a spigot or to a destination flow:

- **Spigot Routing:** Route flows to a destination spigot.
- **Flow Routing:** Route an individual flow to a destination spigot.

14.5.1 Examples

Examples for making routes are given in the following sub-sections:

14.5.2	Spigot Routing - Immediate Take, No Undo	page 218
14.5.3	Pre-select With Take	page 219
14.5.4	Pre-select with Take and Undo	page 221
14.5.5	With Pre-select Undo with Take	page 222
14.5.6	Routing to Linked Spigots	page 223
14.5.7	Selecting Flows to Route	page 225
14.5.8	Routing Flows from Different Source Spigots	page 227
14.5.9	Flow Routing	page 230
14.5.10	Clear Routes to a Destination Spigot	page 231
14.5.11	Clear a Flow Route to a Destination Flow	page 232

14.5.2 Spigot Routing - Immediate Take, No Undo

When routing spigots, all flows to the spigot are routed.

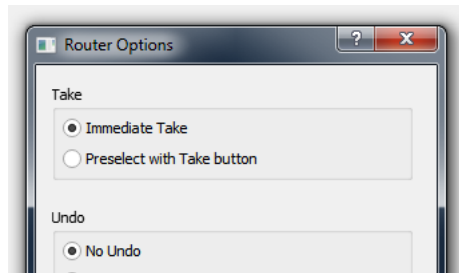
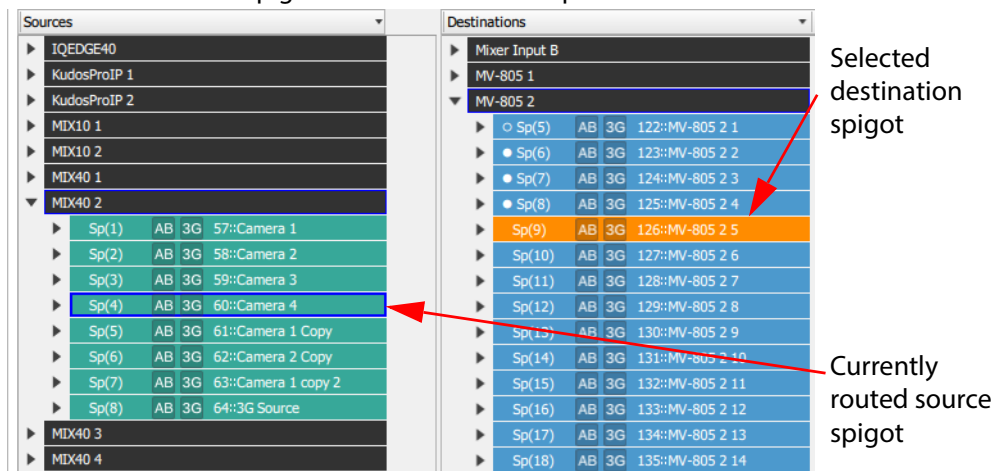


Figure 176 Router Options

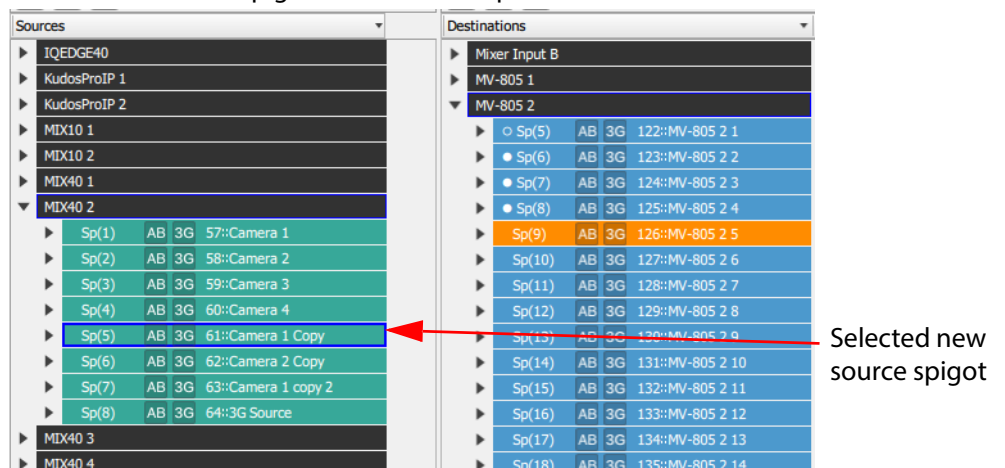
To make a route to a spigot (immediate Take, no Undo):

1. Select a destination spigot in the **Destinations** pane.



The source spigot currently routed to this destination is highlighted in the **Sources** pane.

2. Select a new source spigot in the **Sources** pane.



The new source spigot is shown highlighted in the **Sources** pane and the route is made.

The route is made immediately to the selected destination spigot. All the video, audio and metadata flows are routed.

14.5.3 Pre-select With Take

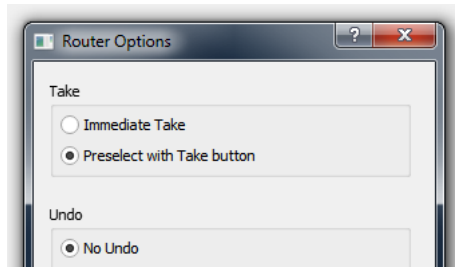
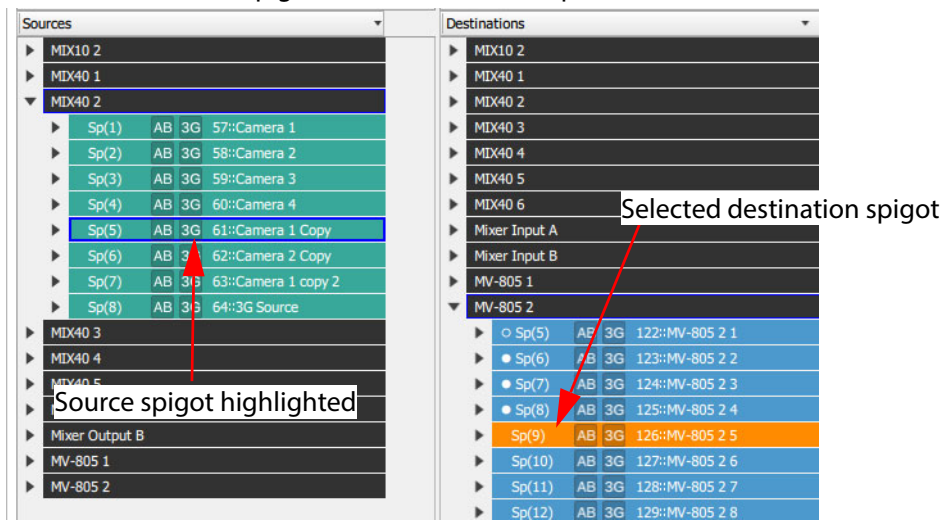


Figure 177 Router Options

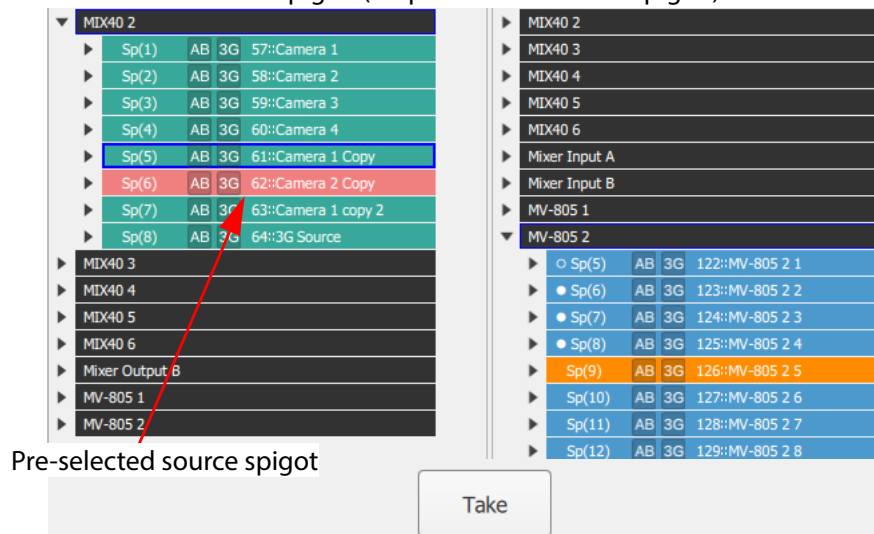
To make a route to a spigot (with Take):

1. Select a destination spigot in the **Destinations** pane.



The source spigot currently routed to the destination is highlighted.

2. Select a new source spigot. (I.e. pre-select a source spigot.)

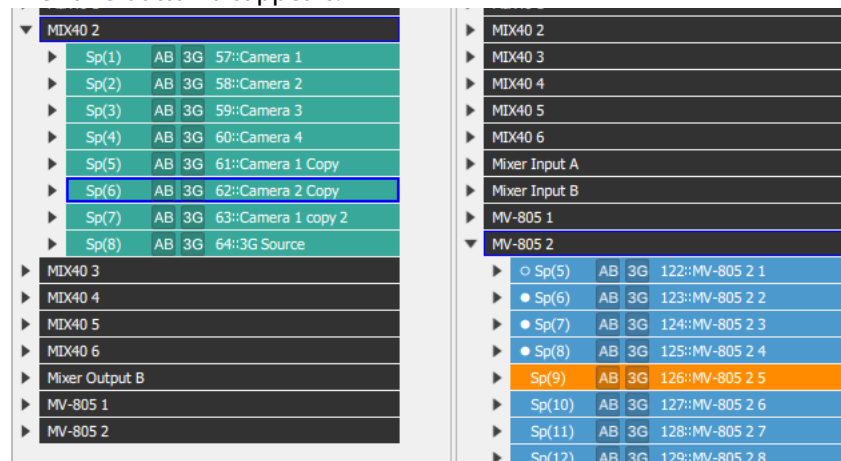


The pre-selected source is highlighted in the **Sources** pane and a **Take** button appears.

3. Click **Take** to make the route.

The pre-selected source is routed to the destination.

The **Take** button disappears.



The route is made to the destination spigot.

14.5.4 Pre-select with Take and Undo

14.5.4.1 With Immediate Undo

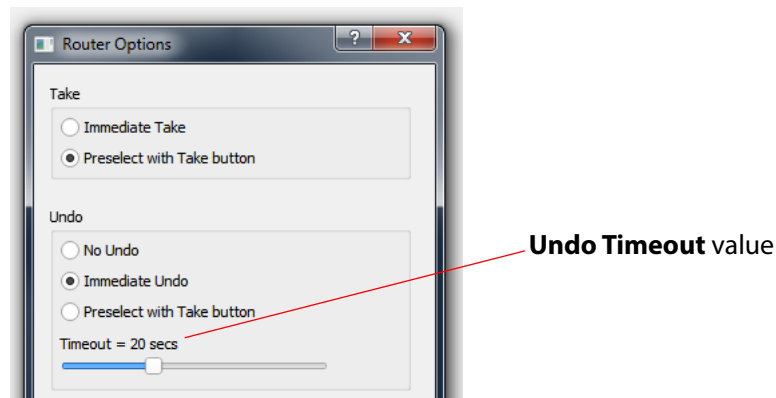
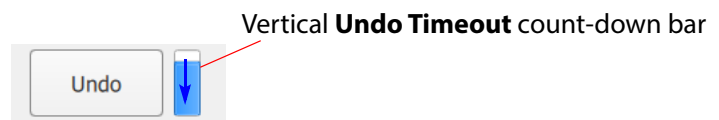


Figure 178 Router Options

To make a route to a spigot:

1. Select a destination spigot in the **Destinations** pane.
The source spigot currently routed to the destination is highlighted in the **Sources** pane.
2. Select a new source spigot. (This has pre-selected a source.)
The pre-selected source is highlighted in the **Sources** pane and a **Take** button appears at the bottom of the screen.
3. Click **Take** to make the route.
The route is made to the spigot.
The **Take** button disappears;
the pre-selected source is routed to the destination and is highlighted in the **Sources** pane.
4. An **Undo** button and an **Undo Timeout** count-down then appear at the bottom of the screen..



5. The count-down bar counts down for the duration of the **Undo Timeout** time.
6. When the time-out expires,
the **Undo** button disappears and it is not possible to undo the route just made.
7. Before the time-out expires,
click the **Undo** button to undo the route just made.

Routing is done.

14.5.5 With Pre-select Undo with Take

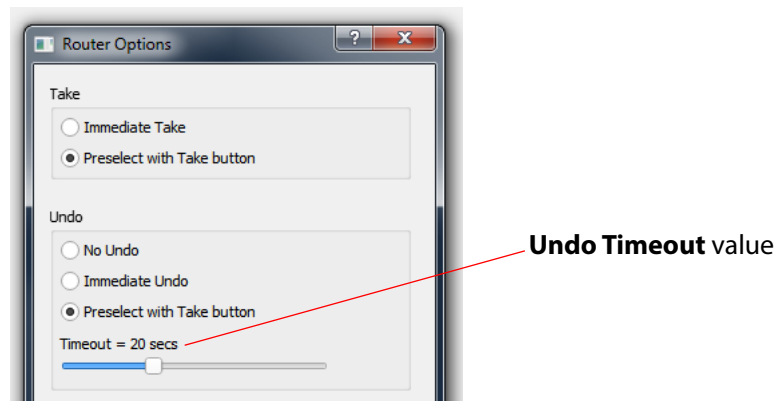


Figure 179 Router Options

To make a route to a spigot:

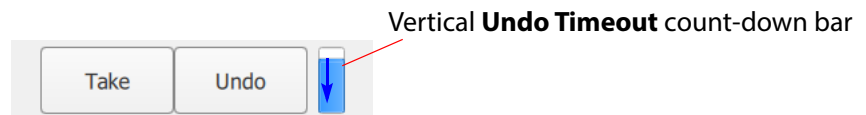
1. Select a destination spigot in the **Destinations** pane.
2. Select a new source spigot. (Pre-select)
3. Click **Take** to make the route.

The route is made to the spigot.

The **Take** button disappears;

the pre-selected source is routed to the destination and is highlighted in the **Sources** pane.

4. A **Take** button, an **Undo** button and an **Undo Timeout** count-down then appear at the bottom of the screen. .



5. The count-down bar counts down for the duration of the **Undo Timeout** time.
6. When the time-out expires, the **Take** and **Undo** buttons disappear and it is not possible to undo the route just made.
7. Before the time-out expires, click the **Undo** button (this stops the count-down) and then click **Take**. The route just made is undone when **Take** is clicked.

Routing is done.

14.5.6 Routing to Linked Spigots

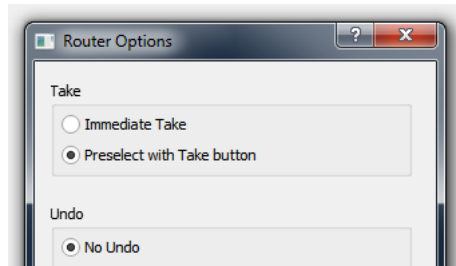
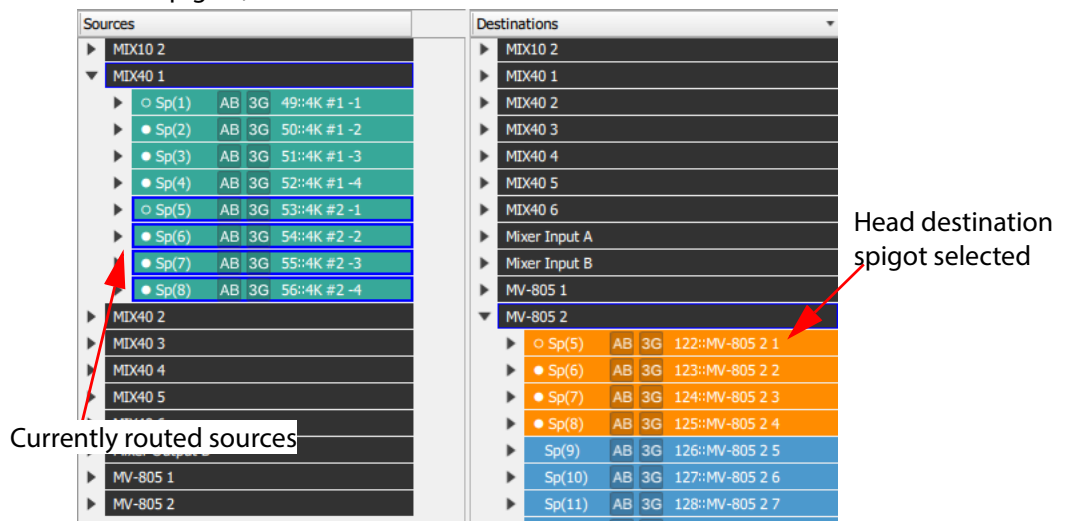


Figure 180 Router Options

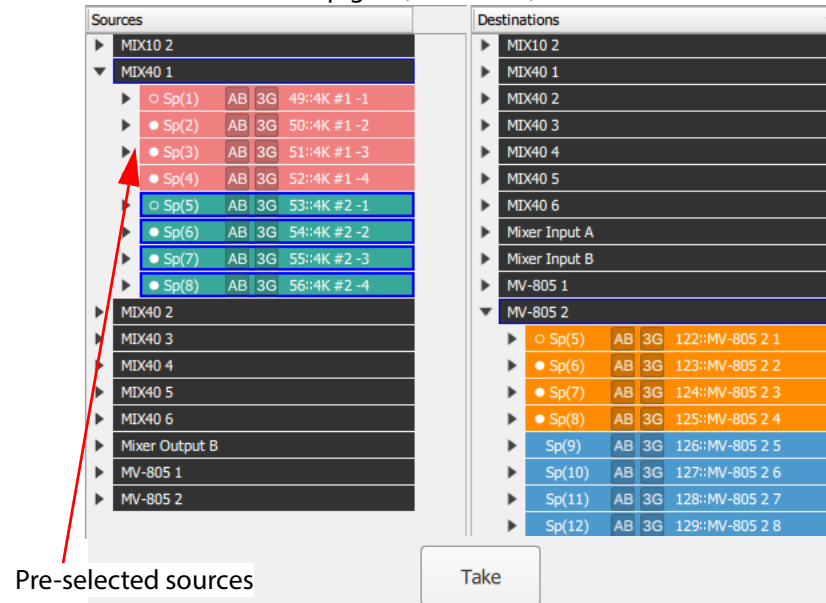
To make a route to linked spigots:

1. In the **Destinations** pane, select the head spigot of a linked set spigots to select the linked spigots, .



The source currently routed to the destination is highlighted in the **Sources** pane.

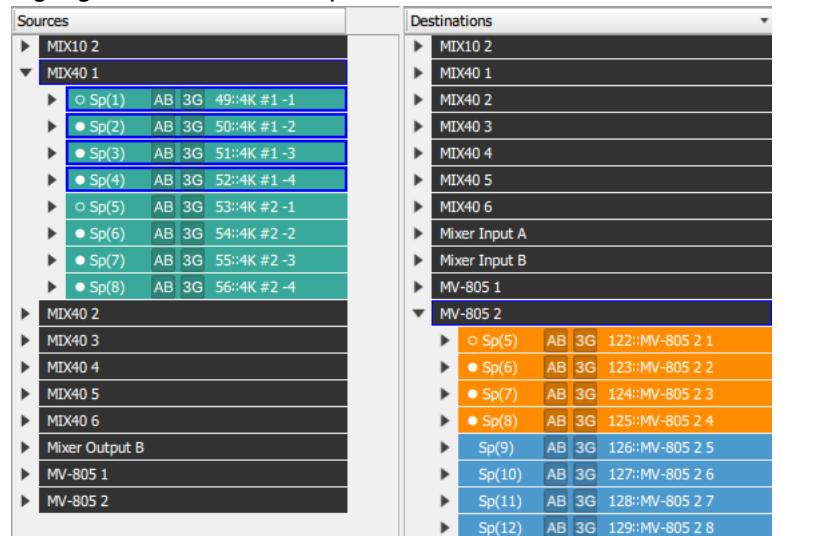
2. Select a new source spigot. (Pre-select.)



The new linked set of source spigots is highlighted in the **Sources** pane and a **Take** button appears.

3. Click **Take** to make the route.

The **Take** button disappears; the pre-selected source is routed to the destination and is highlighted in the **Sources** pane.



The route is made to the linked destination spigots.

14.5.7 Selecting Flows to Route

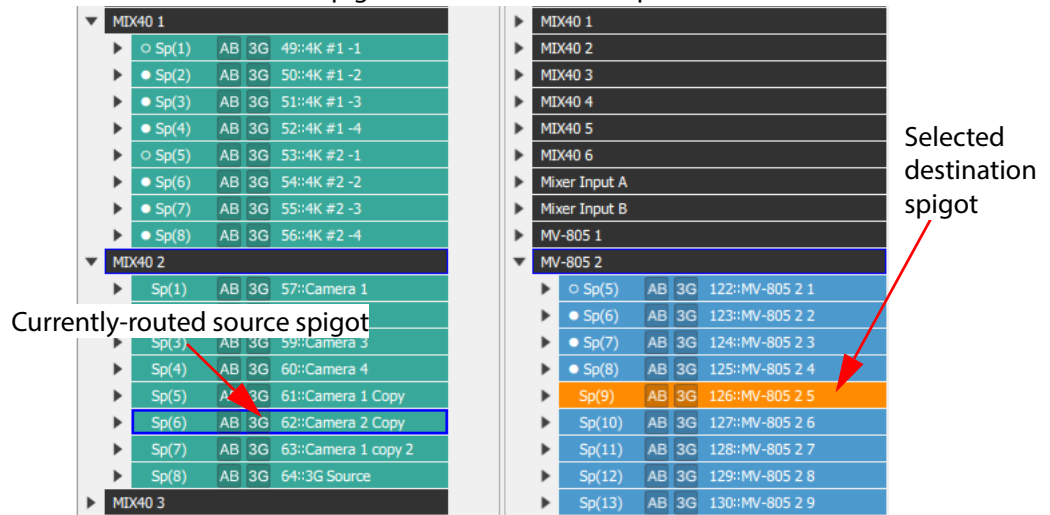
When routing to spigots, all flows are selected and routed. Routing examples so far have all been for spigot routing where all flows have been selected.

Individual *source* flows from pre-selected source spigots can, additionally, be selected or deselected.

To de-select some flows and make a route to a spigot:

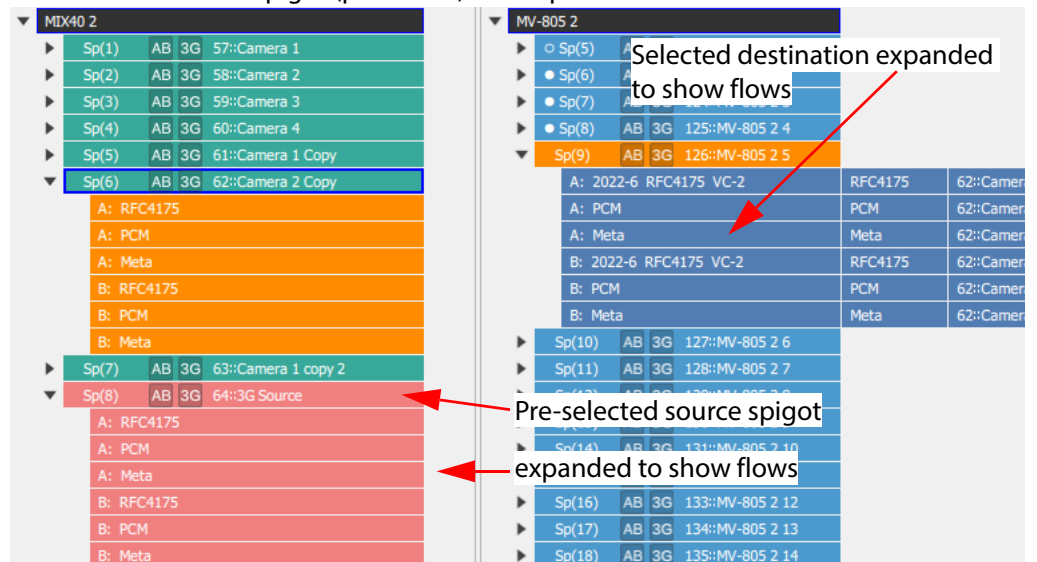
(**Note:** The example below use a **Take** button.)

1. Select a destination spigot in the **Destinations** pane.



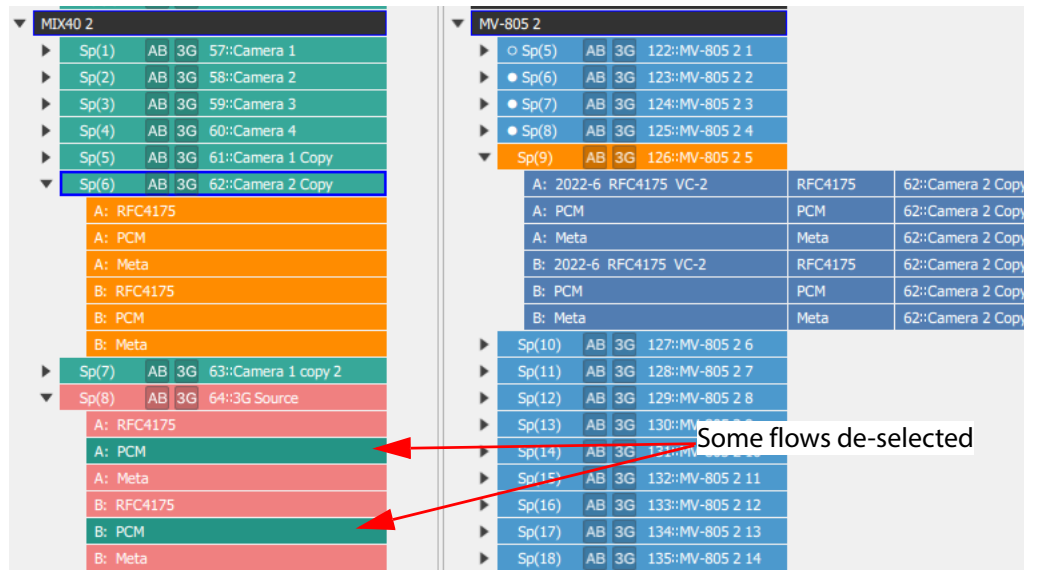
The source currently routed to the destination is highlighted in the **Sources** pane.

2. Select a new source spigot (pre-select) and expand it to see its flows.



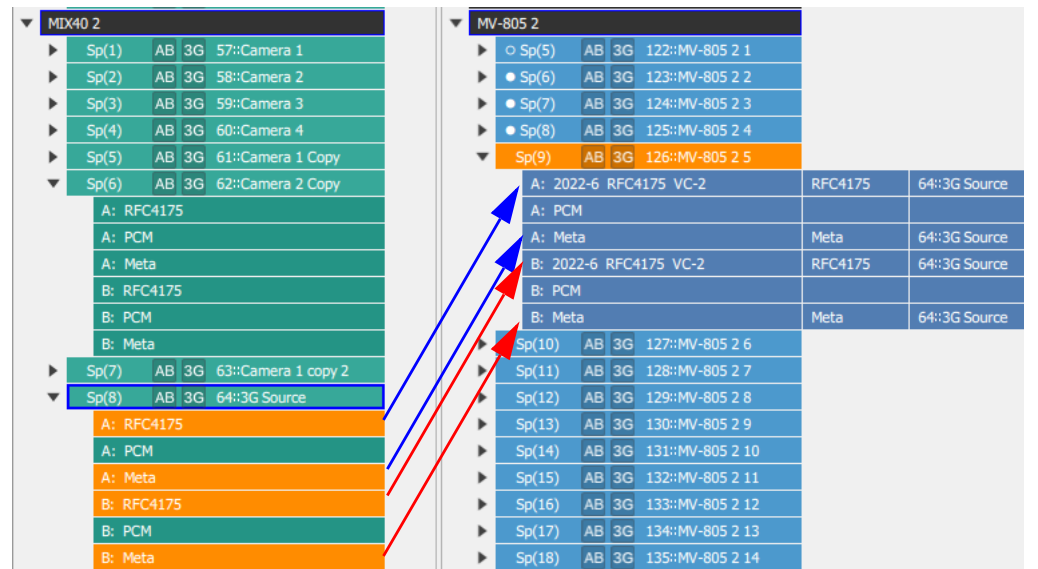
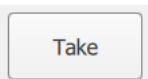
For example, to de-select the source audio flows in fabric A and fabric B:

- 3. Click on the audio source flow items - one in fabric A and one in fabric B. The audio flows are deselected.



(Clicking toggles deselection/re-selection.)

- 4. Click the **Take** button.



The new source is routed to the selected destination spigot.
 Only those selected flows are routed.
 Other flows to the destination are cleared.

The routed flows are shown in the **Destinations** pane in the **Routed Flow** and **Routed Source** columns.

This has routed all flows except audio flows from a pre-selected source spigot to a destination spigot. The audio flows to the destination spigot are cleared in this example.

14.5.8 Routing Flows from Different Source Spigots

When routing to destination spigots, all selected flows are routed; source flows can be pre-selected from different source spigots.

To select flows from two different spigots:

(**Note:** The example below use a **Take** button.)

1. Select a destination spigot in the **Destinations** pane.
(The source currently routed to the destination is highlighted in the **Sources** pane.)
2. Expand the two different source spigots in the **Sources** pane.
And pre-select one new source spigot.

Expanded source spigot

The screenshot displays the routing configuration interface. On the left, the 'Sources' pane is expanded to show 'Sp(3)' and 'Sp(8)'. 'Sp(3)' is highlighted with a red box, and 'Sp(8)' is highlighted with a blue box. On the right, the 'Destinations' pane shows a list of destinations, with 'Sp(9)' selected. Below the destinations, a table shows the routed flows and sources.

	Routed Flow	Routed Source
A: 2022-6 RFC4175 VC-2	RFC4175	63::Camera 1 copy 2
A: PCM	PCM	63::Camera 1 copy 2
A: Meta	Meta	63::Camera 1 copy 2
B: 2022-6 RFC4175 VC-2	RFC4175	63::Camera 1 copy 2
B: PCM	PCM	63::Camera 1 copy 2
B: Meta	Meta	63::Camera 1 copy 2

Expanded and pre-selected source spigot

- For the second source spigot, click on its audio source flows to select them.

Selected flows

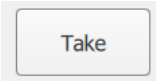
The screenshot shows the 'Sources' and 'Destinations' panes. In the 'Sources' pane, the second source spigot (Sp(7)) is selected, and its audio flows (A: RFC4175, A: PCM, A: Meta, B: RFC4175, B: PCM, B: Meta) are highlighted in orange. In the 'Destinations' pane, the corresponding audio flows are highlighted in blue, indicating they are selected. Red arrows point from the 'Selected flows' label to the orange flows in the 'Sources' pane and the blue flows in the 'Destinations' pane. The label 'De-selected flows' is positioned below the 'Destinations' pane.

De-selected flows

Note: Audio source flows in the first source spigot are automatically deselected when audio source flows in the second source spigot are selected.

The video and metadata flows are now selected from the first new source spigot and audio flows are selected from the second new source spigot.

- 4. Click the **Take** button.



The selected source flows are routed to the selected destination spigot to replace the de-selected flows.

The screenshot shows the routing interface with two main panels: 'Sources' on the left and 'Destinations' on the right. The 'Sources' panel lists various spigots (Sp(1) to Sp(8)) and their associated flows (A: RFC4175, A: PCM, A: Meta, B: RFC4175, B: PCM, B: Meta). The 'Destinations' panel lists various spigots (MDX40 3 to Sp(20)) and their associated flows. A table at the bottom right, titled 'Routed Flow' and 'Routed Source', shows the resulting routed flows. A red box highlights the 'Routed Source' column, and a purple arrow points to the 'Destination is 'Not married'' text.

Routed Flow	Routed Source
RFC4175	64::3G Source
PCM	59::Camera 3
Meta	64::3G Source
RFC4175	64::3G Source
PCM	59::Camera 3
Meta	64::3G Source

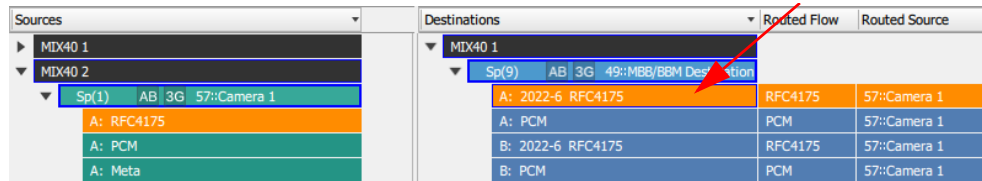
The resulting routed flows are shown in the destinations pane, in the **Routed Flow** and **Routed Source** columns.

Note: When the routed flows are from different source spigots, it is termed 'Not married' and the **Destination** pane spigot item is highlighted.

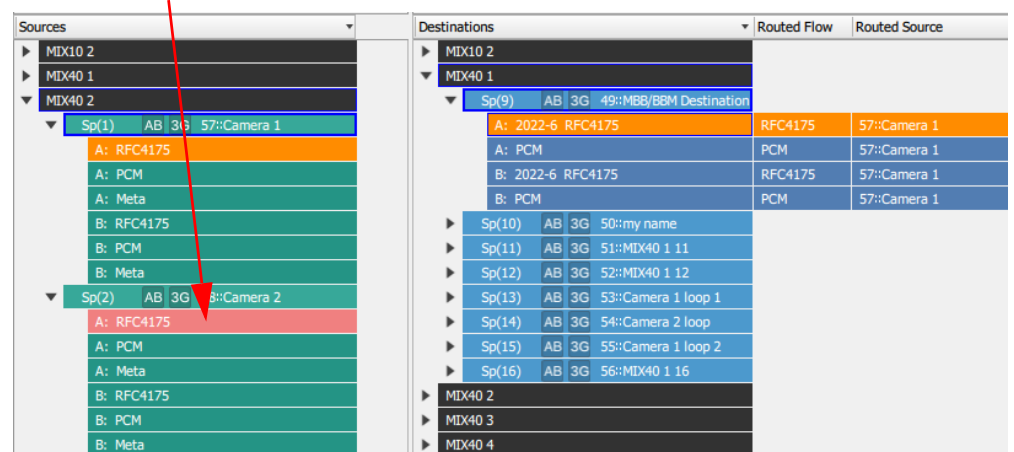
14.5.9 Flow Routing

Individual flows may be routed:

1. In the **Destinations** pane, expand a device to show flows. Select a destination flow.



2. Select a new source flow in the **Sources** pane (pre-select).

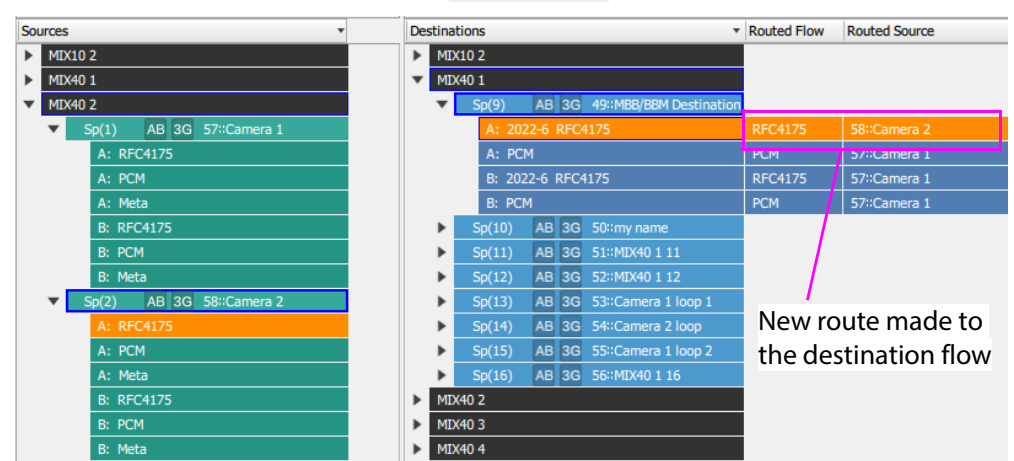


Note: **Compatible Flows:**
Only source flows compatible with the selected destination flow can be selected. I.e. video to video, audio to audio, and metadata to metadata.

Note: **Cross-fabric Routes:**
To permit routing between fabric A and fabric B, select the 'Allow Cross Fabric Routing' option in the **Router Options** dialog. (See Table 52 on page 209.)
Ordinarily, it is not possible to between fabrics A and B.

And a **Take** button appears at the bottom of the screen.

3. Click **Take** button to make the route.

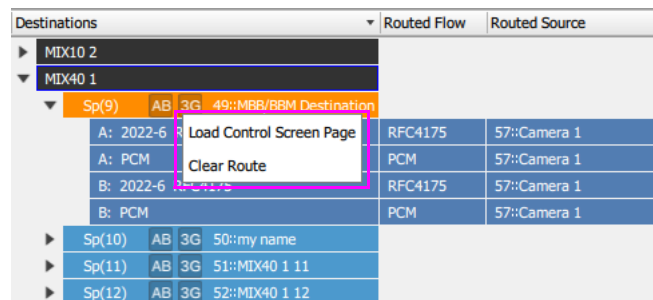


The pre-selected source flow has been routed to the selected destination flow. This is reflected in the **Routed Flow** and **Routed Source** columns of the **Destinations** pane.

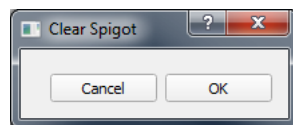
14.5.10 Clear Routes to a Destination Spigot

To clear an existing route to a destination spigot (independently of any **Router Options**):

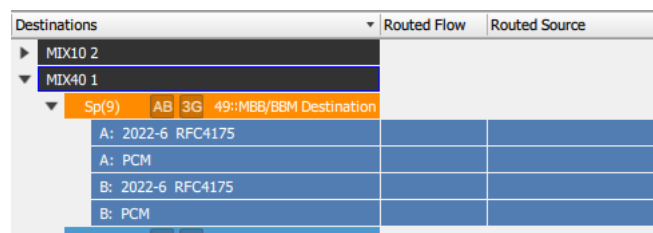
1. Right-click on the destination spigot.
A drop-down menu appears.



2. Select **Clear Route**.
A **Clear Spigot** dialog is shown.



3. Click **OK**.
The all the (flow) routes to the selected destination spigot are cleared.



The **Routed Flow** and **Routed Source** columns in the **Destinations** pane are now empty for the selected destination spigot.

For a linked set of destination spigots, right-click on the head spigot.

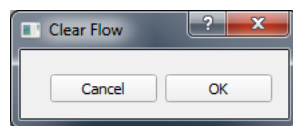
14.5.11 Clear a Flow Route to a Destination Flow

To clear an existing route to a destination flow (independently of any **Router Options**):

1. Right-click on destination flow.
A drop-down menu appears.

Destinations	Routed Flow	Routed Source
MIX40 1		
Sp(9) AB 3G 49::MBB/BBM Destination		
A: 2022-6 RFC4175	RFC4175	57::Camera 1
A: PCM	PCM	58::Camera 2
B: 2022-6 RFC4175	RFC4175	58::Camera 2
B: PCM	PCM	58::Camera 2
Sp(10) AB 3G 50::my name		
Sp(11) AB 3G 51::MIX40 1 11		
Sp(12) AB 3G 52::MIX40 1 12		

2. Select **Clear Route**.
A **Clear Flow** dialog appears.



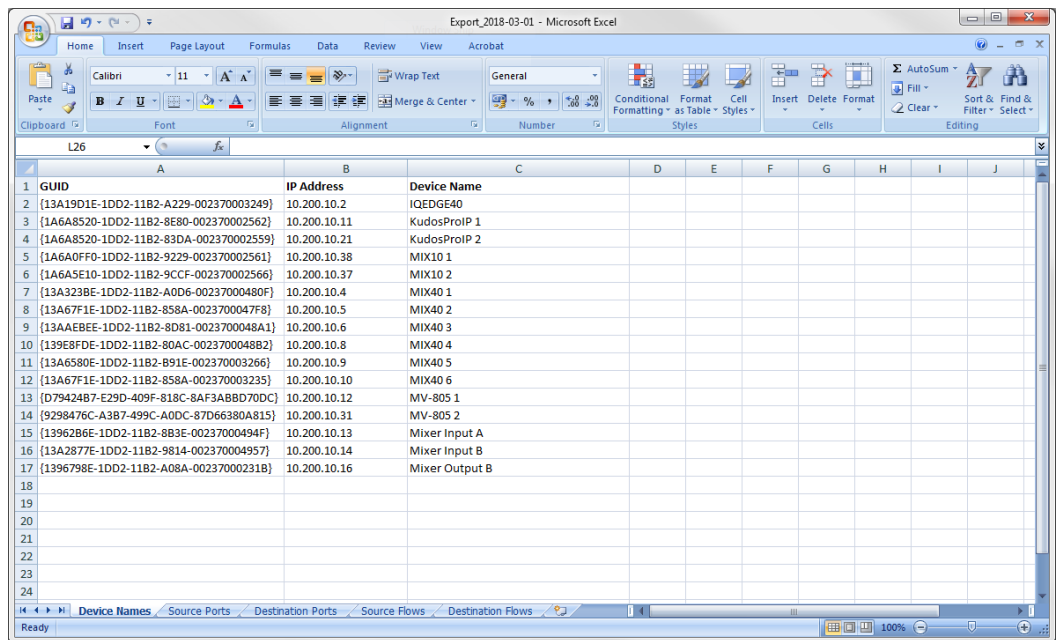
3. Click **OK**.
The route is cleared.

Destinations	Routed Flow	Routed Source
MIX40 1		
Sp(9) AB 3G 49::MBB/BBM Destination		
A: 2022-6 RFC4175		
A: PCM	PCM	58::Camera 2
B: 2022-6 RFC4175	RFC4175	58::Camera 2
B: PCM	PCM	58::Camera 2

The **Routed Flow** and **Routed Source** columns in the **Destinations** pane are now empty for the selected destination flow.

15

15 Export / Import Settings



The screenshot shows a Microsoft Excel spreadsheet titled 'Export_2018-03-01'. The spreadsheet has three columns: GUID, IP Address, and Device Name. The data is as follows:

	A	B	C	D	E	F	G	H	I	J
1	GUID	IP Address	Device Name							
2	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40							
3	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1							
4	{1A6A8520-1DD2-11B2-83DA-002370002559}	10.200.10.21	KudosProIP 2							
5	{1A6A0FF0-1DD2-11B2-9229-002370002561}	10.200.10.38	MIX10 1							
6	{1A6A5E10-1DD2-11B2-9CCF-002370002566}	10.200.10.37	MIX10 2							
7	{13A323BE-1DD2-11B2-A0D6-00237000480F}	10.200.10.4	MIX40 1							
8	{13A67F1E-1DD2-11B2-858A-0023700047F8}	10.200.10.5	MIX40 2							
9	{13AAEBEE-1DD2-11B2-8D81-0023700048A1}	10.200.10.6	MIX40 3							
10	{139E8FDE-1DD2-11B2-80AC-0023700048B2}	10.200.10.8	MIX40 4							
11	{13A6580E-1DD2-11B2-891E-002370003266}	10.200.10.9	MIX40 5							
12	{13A67F1E-1DD2-11B2-858A-002370003235}	10.200.10.10	MIX40 6							
13	{D79424B7-E29D-409F-818C-8AF3ABBD70DC}	10.200.10.12	MV-805 1							
14	{9298476C-A3B7-499C-A0DC-87D66380A815}	10.200.10.31	MV-805 2							
15	{13962B6E-1DD2-11B2-8B3E-00237000494F}	10.200.10.13	Mixer Input A							
16	{13A2877E-1DD2-11B2-9814-002370004957}	10.200.10.14	Mixer Input B							
17	{1396798E-1DD2-11B2-A08A-00237000231B}	10.200.10.16	Mixer Output B							
18										
19										
20										
21										
22										
23										
24										

Export / Import Settings

15.1 Introduction	234
15.2 Export Settings	235
15.3 Exported Spreadsheet File	236
15.3.1 Device Names Work Sheet	236
15.3.2 Source Ports Worksheet and Destination Ports Worksheet	237
15.3.3 Source Flows Worksheet and Destination Flows Worksheet	238
15.4 Import Settings	239
15.5 Import Dialog Options	241
15.5.1 Import Dialog - Spreadsheet Section	242
15.5.2 Import Dialog - Options Section	247
15.5.3 Import Dialog - Import Preview	248

15.1 Introduction

All IP endpoint settings (device name, spigot and flow settings) of an Orbit for IP Routing network configuration project may be exported (saved) to a file or imported from a file. The file is a spreadsheet file and it may be created off-line from scratch; or an exported spreadsheet may be used and edited off-line (which is easier).

The exported file is in a spreadsheet format and can:

- be edited;
- provide a 'template' spreadsheet;
- be used during system set up;
- be the primary source of information;
- be the Orbit project backup mechanism.

Exporting or importing is done in the **Devices** tab by clicking on the **Export** or on the **Import** buttons in the tab's tool bar. (See Section 4.1 [Devices Tab Tool Bar](#) on page 46.)

Table 57 *Devices Tool Bar - Import and Export*

Devices Tab Tool Bar Item	Description
Export	Button. Click Export to save all Orbit IP routing system settings to a file. (See Section 4.1 Devices Tab Tool Bar on page 46.)
Import	Button. Click Import to import all Orbit IP routing system settings from a file. (See Section 4.1 Devices Tab Tool Bar on page 46.)

15.2 Export Settings

In the **Devices** tab tool bar, to export all Orbit IP routing system settings to a file:

1. Click **Export**.

An **Export** dialog is shown. Figure 181.

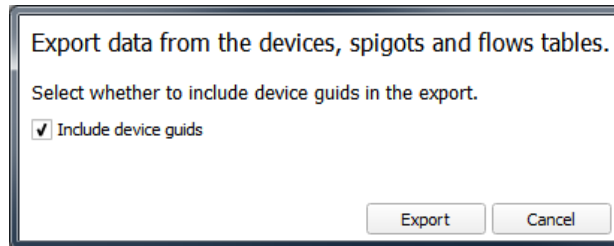


Figure 181 Export Dialog

2. Select whether to include the device GUIDs in the export file.
 - Select to include GUIDs.
 - Deselect to exclude GUIDs.
3. Click **Export**.

A file-browsing dialog is shown.

4. Navigate to where the exported settings file is to be saved.
And enter the file name.
5. Click **Save**.

Orbit settings are saved to the file and an **Export** completion dialog is shown. See Figure 182.

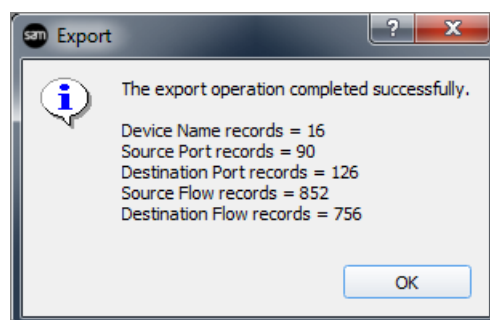


Figure 182 Export Completion Dialog

6. Click **OK**.

15.3 Exported Spreadsheet File

The saved file is in an MS Office spreadsheet format (file extension .xlsx). There are five work sheets in the file (see Figure 183):

- Device Names
- Source Ports
- Destination Ports
- Source Flows
- Destination Flows

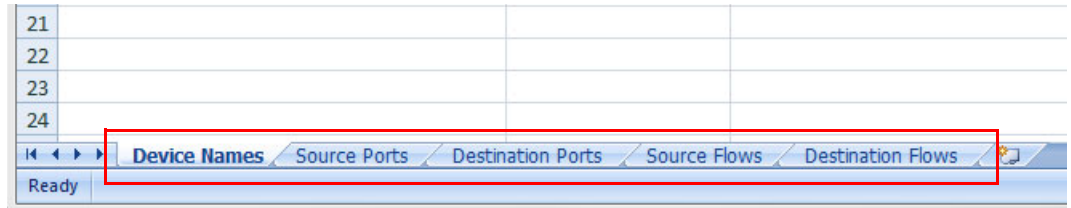


Figure 183 Work Sheet Tabs

Each worksheet contains two sorts of data columns:

- **Key Field** columns - these list parameters which define a **Device**, a **Spigot** or a **Flow**. These fields simply report existing settings and should not be changed.
- **Value Field** columns - these hold user-defined values that may be changed in the spreadsheet.

Thus, each worksheet row has **Key Fields** and **Value Fields**.

15.3.1 Device Names Work Sheet

Each row represents a **Device**. A **Device** is defined either by the device GUID or by the device IP address; the IP address can be either the primary (fabric A) or secondary (fabric B) address. If both the GUID and the IP address are present then the GUID is used to identify the device. See Figure 184.

Each row represents a **Device**

Key fields → Value Field

	A	B	C
1	GUID	IP Address	Device Name
2	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40
3	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1
4	{1A6A8520-1DD2-11B2-83DA-002370002559}	10.200.10.21	KudosProIP 2
5	{1A6A0FF0-1DD2-11B2-9229-002370002561}	10.200.10.38	MIX10 1
6	{1A6A5E10-1DD2-11B2-9CCF-002370002566}	10.200.10.37	MIX10 2
7	{13A323BE-1DD2-11B2-A0D6-00237000480F}	10.200.10.4	MIX40 1
8	{13A67F1E-1DD2-11B2-858A-0023700047F8}	10.200.10.5	MIX40 2
9	{13AAEBEE-1DD2-11B2-8D81-0023700048A1}	10.200.10.6	MIX40 3
10	{139E8FDE-1DD2-11B2-80AC-0023700048B2}	10.200.10.8	MIX40 4
11	{13A6580E-1DD2-11B2-B91E-002370003266}	10.200.10.9	MIX40 5

Figure 184 Device Names Work Sheet Example

15.3.2 Source Ports Worksheet and Destination Ports Worksheet

These two worksheets are similar.

Each row represents a **Spigot**, defined by the device GUID, or a device IP address, or the device name, and a spigot index number

The GUID, if present, is used in preference to either the IP address or device name.

The IP address, if present, is used in preference to the device name.

See Figure 185 and Figure 186.

Each row represents a **Spigot**

	A	B	C	D	E	F	G
1	GUID	IP Address	Device Name	Spigot Index	Port Number	Port Name	Short Name
2	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	13	IQEDGE40 1	
3	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	2	14	IQEDGE40 2	
4	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	3	15	IQEDGE40 3	
5	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	4	16	IQEDGE40 4	
6	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	5	17	IQEDGE40 5	
7	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	6	18	IQEDGE40 6	
8	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1	1	33	KudosProIP 1 1	
9	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1	2	34	KudosProIP 1 2	

Figure 185 Source Ports Work Sheet Example

Each row represents a **Spigot**

	A	B	C	D	E	F	G
1	GUID	IP Address	Device Name	Spigot Index	Port Number	Port Name	Short Name
2	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	17	IQEDGE40 7	
3	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	8	18	IQEDGE40 8	
4	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	9	19	IQEDGE40 9	
5	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	10	20	IQEDGE40 10	
6	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	11	21	IQEDGE40 11	
7	{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	12	22	IQEDGE40 12	
8	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1	5	33	KudosProIP 1 5	
9	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1	6	34	KudosProIP 1 6	
10	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1	7	35	KudosProIP 1 7	
11	{1A6A8520-1DD2-11B2-8E80-002370002562}	10.200.10.11	KudosProIP 1	8	36	KudosProIP 1 8	

Figure 186 Destination Ports Work Sheet Example

15.3.3 Source Flows Worksheet and Destination Flows Worksheet

The two worksheets are similar.

Each row represents a **Flow**, defined by the device GUID or a device IP address or the device name, and by a spigot index number

The GUID, if present, is used in preference to either the IP address or device name.

The IP address, if present, is used in preference to the device name.

See Figure 187 and Figure 188.

Note: **Flow Index** is for information only - created at **Export** and ignored during **Import**.

Each row represents a **Flow**

GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface	Flow Type	Flow Enabled	Multicast Address	Source Address	Dst RTP Port	Src RTP Port
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	1	A	2022-6	Y	239.20.1.1	10.200.10.2	50100	50100
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	2	A	RFC4175					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	2	B	RFC4175					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	3	A	PCM	Y	239.60.1.1	10.200.10.2	5004	5004
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	3	B	PCM	Y	239.61.1.1	10.200.20.2	5004	5004
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	4	A	Meta	Y	239.40.1.1	10.200.10.2	50102	50102
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	1	4	B	Meta	Y	239.41.1.1	10.200.20.2	50102	50102

Figure 187 'Source Flows Work Sheet Example

Each row represents a **Flow**

GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface	Flow Type	Flow Enabled	Multicast Address	Source Address	Dst RTP Port	Src RTP Port
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	1	A	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	1	B	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	2	A	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	2	B	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	3	A	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	7	3	B	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	8	1	A	None					
{13A19D1E-1DD2-11B2-A229-002370003249}	10.200.10.2	IQEDGE40	8	1	B	None					

Figure 188 'Destination Flows Work Sheet Example

15.4 Import Settings

In the **Devices** tab tool bar, to import some or all Orbit IP routing system settings from a file:

1. Click **Import**.
A file-browsing dialog is shown.
2. Navigate to the settings file and click **Open**.
An **Import** dialog is shown. See Figure 189.

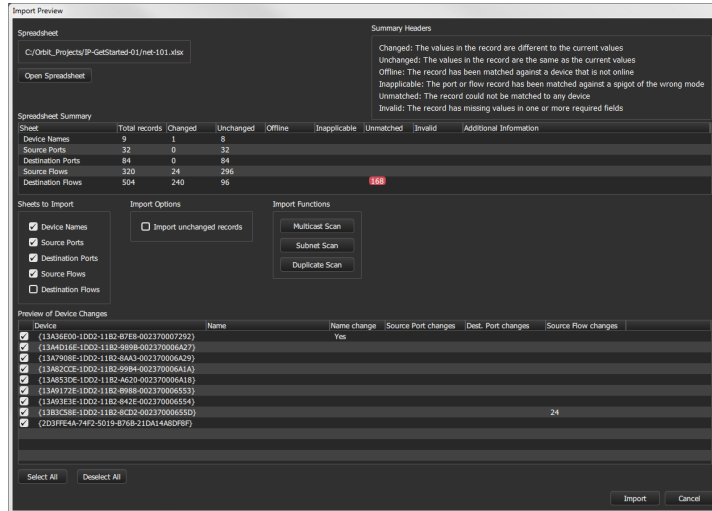


Figure 189 Import Dialog

3. Select the **Import** options required.
(See Section 8. [Click Next](#). on page 240 for a description of each option.)

When **Import** options have been selected:

4. Click **OK**.
A HIGH RISK **Import** alert message is shown (see Figure 190), warning that an import operation may have a major impact on the IP routing system.

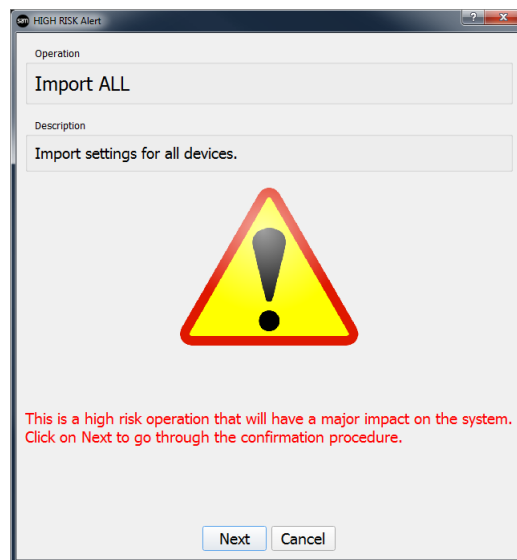


Figure 190 High Risk Import Alert Message

To abort the **Import** operation:

5. Click **Cancel**.

To continue with the **Import** operation:

6. Click **Next**.

The user is prompted to re-enter the user password of the Orbit IP Routing project. See Figure 191.

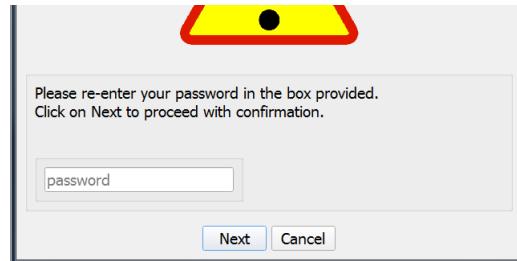


Figure 191 High Risk Alert - Orbit Project User Password Prompt

7. Enter the Orbit IP Routing project user password and click **Next**.

An 'authorization successful' message is shown in the alert dialog. See Figure 192.

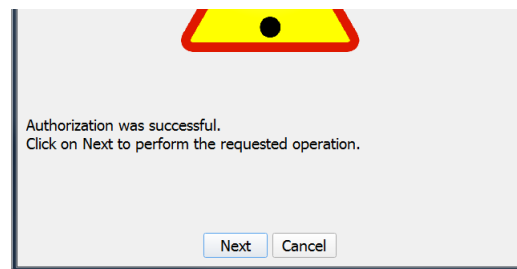


Figure 192 High Risk Alert - Authorization Successful

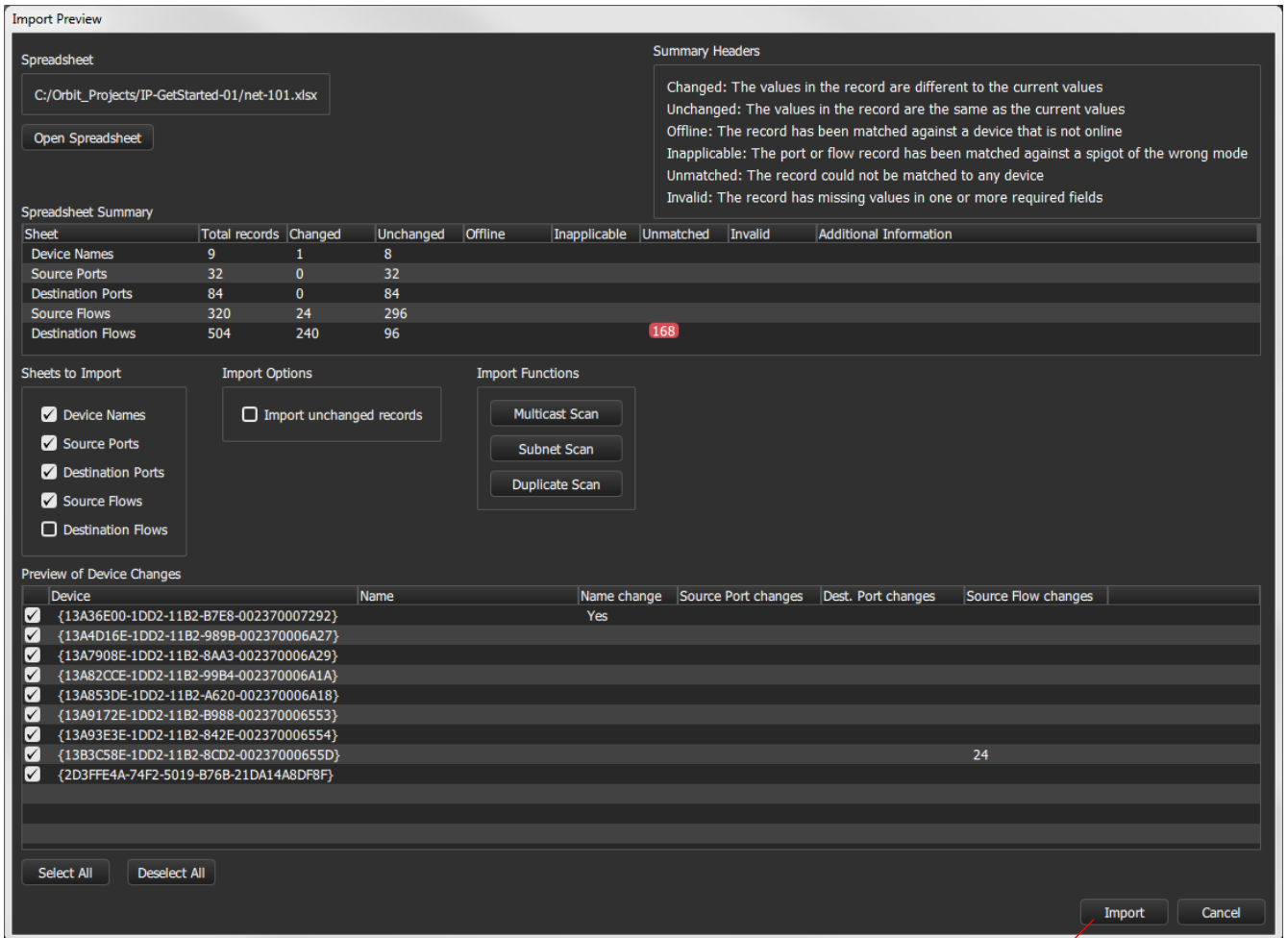
To import the selected Orbit IP Routing settings:

8. Click **Next**.

The settings have been imported.

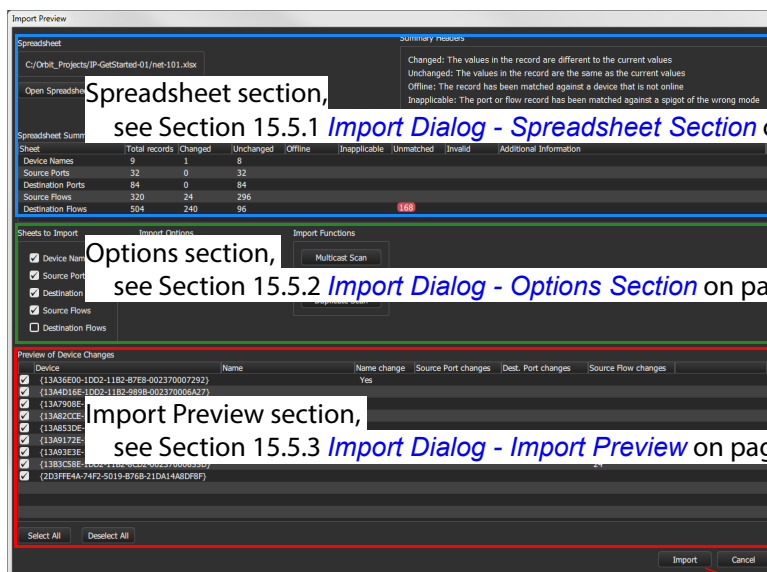
15.5 Import Dialog Options

In the **Devices** tab, click **Import** to show the **Import Preview** dialog, see Figure 193.



a) Dialog

Click to **Import**



b) Annotated Dialog

Click to **Import**

Figure 193 Import Preview: a) Dialog; b) Annotated Dialog.

15.5.1 Import Dialog - Spreadsheet Section

The spreadsheet section of the Import dialog contains a 'Spreadsheet Summary' (see Figure 194 and Table 58), which summarizes information present in the worksheets of the selected spreadsheet. This provides a useful means of checking:

- the selected spreadsheet is the correct one before importing;
- any issues with the spreadsheet; and
- any difference the spreadsheet contains compared to the currently-open Orbit IP routing project

(Any issues with or differences in the selected spreadsheet are indicated in the dialog.)

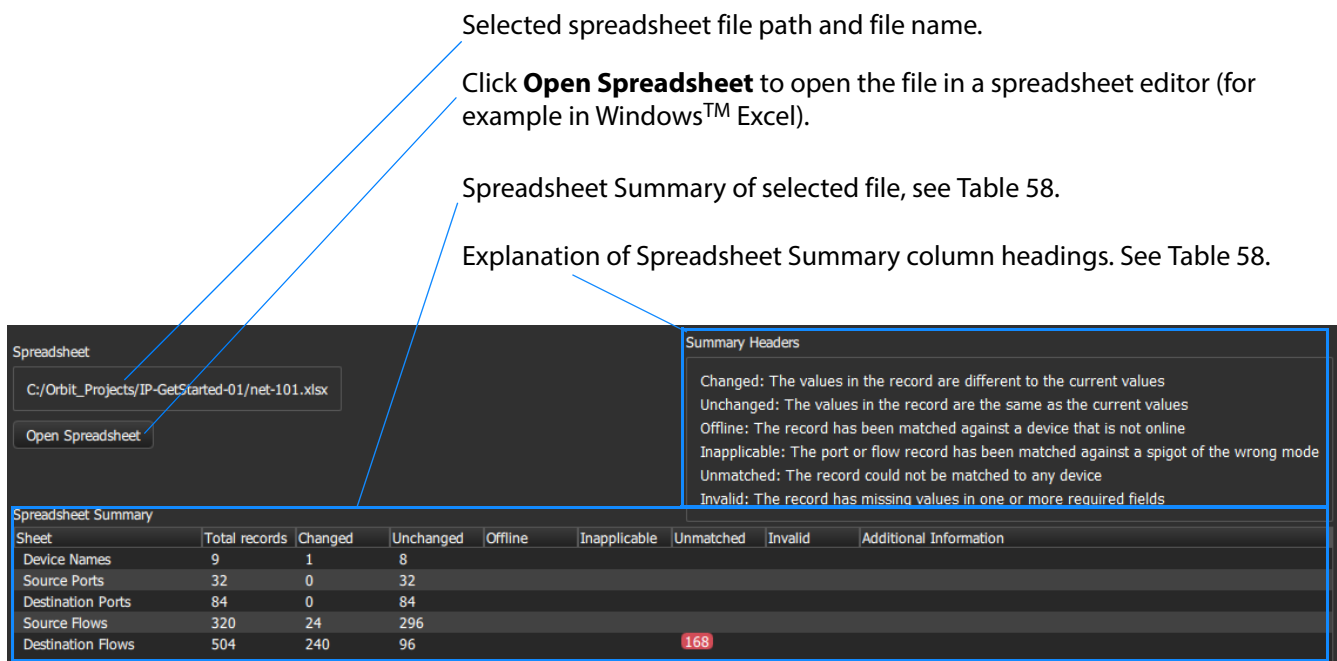
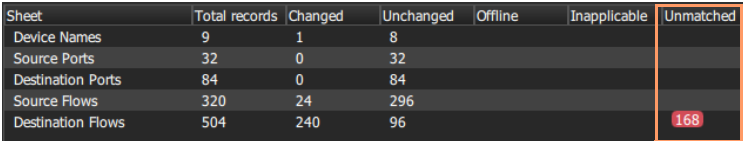


Figure 194 Import Dialog - Spreadsheet Information

Table 58 Spreadsheet Summary - Column Headings

Column Heading	Description
Sheet	Name of a worksheet in the spreadsheet file.
Total records	Number of row items in the worksheet.
Changed	Number of row items that are different to current values.
Unchanged	Number of row items that are the same as current values.
Offline	Number of row items that match to a device that is off-line.

Table 58 Spreadsheet Summary - Column Headings (Continued)

Column Heading	Description																																										
Inapplicable	<p>Number of row items that are inconsistent with the current open Orbit IP routing project:</p> <ul style="list-style-type: none"> For a spigot row item: Spigot is set to the wrong mode, or it is a phantom. <p>Note: A phantom spigot has an entry in the routing system’s working port table but does not exist on the device.</p> <ul style="list-style-type: none"> For a flow row item: Parent spigot is the wrong mode or its parent device is not on-line. <p>For example, a Grass Valley IQMIX IP modular card may have been re-configured to have a different number of inputs and outputs (i.e. destinations and sources).</p>																																										
Unmatched	<p>Number of row items not matched to any device. I.e. an item does not have a counterpart in the currently-open Orbit IP routing project; or an item is not found in the open project.</p> <p>For example:</p> <ul style="list-style-type: none"> A device may be temporarily off-line. On a live routing system, the current routes to/from destination/source spigots will differ from any “snapshot” captured in a spreadsheet.  <table border="1"> <thead> <tr> <th>Sheet</th> <th>Total records</th> <th>Changed</th> <th>Unchanged</th> <th>Offline</th> <th>Inapplicable</th> <th>Unmatched</th> </tr> </thead> <tbody> <tr> <td>Device Names</td> <td>9</td> <td>1</td> <td>8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Source Ports</td> <td>32</td> <td>0</td> <td>32</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Destination Ports</td> <td>84</td> <td>0</td> <td>84</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Source Flows</td> <td>320</td> <td>24</td> <td>296</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Destination Flows</td> <td>504</td> <td>240</td> <td>96</td> <td></td> <td></td> <td>168</td> </tr> </tbody> </table>	Sheet	Total records	Changed	Unchanged	Offline	Inapplicable	Unmatched	Device Names	9	1	8				Source Ports	32	0	32				Destination Ports	84	0	84				Source Flows	320	24	296				Destination Flows	504	240	96			168
Sheet	Total records	Changed	Unchanged	Offline	Inapplicable	Unmatched																																					
Device Names	9	1	8																																								
Source Ports	32	0	32																																								
Destination Ports	84	0	84																																								
Source Flows	320	24	296																																								
Destination Flows	504	240	96			168																																					
Invalid	<p>Number of row items that are malformed. I.e. an item with missing values in one or more required fields.</p>																																										
Additional Information	<p>Provides additional information about work sheets.</p>																																										

15.5.1.1 Example Summary Status:

The Spreadsheet Summary can indicate several issues with the form and content of a spreadsheet compared to the currently-open Orbit IP routing project. Some example spreadsheet issues are presented here.

Figure 195 shows an example Spreadsheet Summary. Each red item is caused by an issue in the selected spreadsheet, shown in Figure 196a-f.

1. One unmatched issue on the Device Names worksheet, see Figure 196a.
2. Two unmatched issues for Source Ports, see Figure 196b.
3. Three unmatched issues for Destination Ports, see Figure 196c.
4. Four unmatched issues for Source Flows, see Figure 196d.
5. Five 'inappropriate' issues for Destination Ports, see Figure 196e.

Sheet	Total records	Changed	Unchanged	Offline	Inapplicable	Unmatched	Invalid
Device Names	14	0	13			1	
Source Ports	50	0	48			2	
Destination Ports	135	0	132			3	
Source Flows	484	0	480			4	
Destination Flows	792	514	6		5	261	6

261 unmatched issues for Destination Ports - because the open Orbit IP routing project is for a live IP routing system and routes have been changed.

6. Six 'invalid' issues for Destination Ports, see Figure 196f.

Figure 195 Example Spreadsheet Summary

1	GUID	IP Address	Device Name			
7	{13A4D16E-1DD2-11B2-989B-002370006A27}	10.100.10.20				
8	{13A7908E-1DD2-11B2-8AA3-002370006A29}	10.100.10.10				
9	{13A82CCE-1DD2-11B2-99B4-002370006A1A}	10.100.10.50				
10	{13A853DE-1DD2-11B2-A620-002370006A18}	10.100.10.40				
11	{13A9172E-1DD2-11B2-B988-002370006553}	10.100.10.110				
12	{13A93E3E-1DD2-11B2-842E-002370006554}	10.100.10.130				
13	{13B3C58E-1DD2-11B2-8CD2-00237000655D}	10.100.10.120				
14	{2D3FFE4A-74F2-5019-B76B-21DA14A8DF8F}					
15	{139F0130-1DD2-11B2-BEC9-00237000C123}		MY NEW DEVICE			
16						
17						

a) An Unmatched New Device New device row item

1	GUID	IP Address	Device Name	Spigot Index	Port Number	Port Nam
2	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE	1	500	
3	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE	2	501	
4	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1		
5	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		2		
6	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		3		
7	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		4		
8	{139F2840-1DD2-11B2-896E-00237000C47B}	10.100.10.45		1		
9	{139F2840-1DD2-11B2-896E-00237000C47B}	10.100.10.45		2		
10	{139F2840-1DD2-11B2-896E-00237000C47B}	10.100.10.45		3		
11	{139F2840-1DD2-11B2-896E-00237000C47B}	10.100.10.45		4		
12	{13A060C0-1DD2-11B2-AEFC-00237000C47B}	10.100.10.55		1		

b) Two Unmatched New Source Ports New source port rows

1	GUID	IP Address	Device Name	Spigot Index	Port Number	Port
2	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		1	500 MY I
3	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		2	501 MY I
4	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		3	502 MY I
5	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		5		
6	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6		
7	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		7		
8	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		8		
9	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		9		
10	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		10		
11	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		11		
12	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		12		

c) Three Unmatched New Destination Ports New destination port rows

Figure 196 Example Spreadsheet Issues:
 a) An Unmatched New Device;
 b) Two Unmatched New Source Ports;
 c) Three Unmatched New Destination Ports;
 d) Four Unmatched New Source Flows;
 e) Five Inappropriate Destination Flow Row Items;
 f) Six Invalid Destination Flow Row Items.

1	GUID	IP Address	Device Name	Spigot Index	Flow Index
2	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		1
3	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		1
4	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		1
5	{139F0130-1DD2-11B2-BEC9-00237000C123}	10.101.10.113	MY NEW DEVICE		1
6	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	1
7	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	1
8	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	2
9	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	2
10	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	3
11	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	3
12	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	4

d) Four Unmatched New Source Flows

New source flow rows

1	GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface
2	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	1	A
3	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	1	B
4	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	2	A
5	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	2	B
6	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	3	A
7	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		5	3	B
8	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	1	A
9	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	1	B
10	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	2	A
11	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	2	B
12	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	3	A

e) Five Inapplicable Destination Flow

The spigot index used here for a **Destination** spigot index is actually the index for a **Source** spigot on the device.

1	GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface	Flow T
6	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	1	A	2022-6
7	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	1	B	2022-6
8	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	2	A	RFC417
9	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	2	B	RFC417
10	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	3	A	PCM
11	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	3	B	PCM
12	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	4	A	Meta
13	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	4	B	Meta
14	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	5	A	None
15	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		1	5	B	None
16	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		2	1	A	2022-6

Source spigot indexes

1	GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface
11	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	2	B
12	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	3	A
13	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		6	3	B
14				7	1	A
15				7	1	B
16				7	2	A
17				7	2	B
18				7	3	A
19				7	3	B
20	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		8	1	A
21	{139F0130-1DD2-11B2-BEC9-00237000C49E}	10.100.10.15		8	1	B

f) Six Invalid Destination Flows

Row items are invalid - each does not have a GUID nor an IP Address entry.

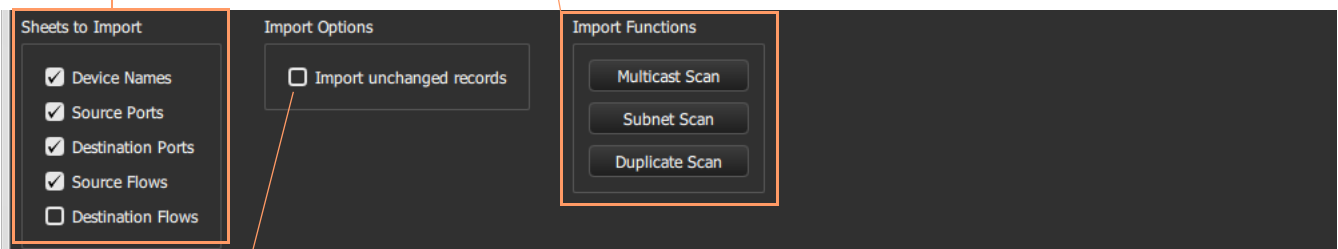
Figure 196 (Continued) Example Spreadsheet Summary

15.5.2 Import Dialog - Options Section

Select worksheets to import

Click to perform an action on import:

- **Multicast Scan** - see Section 6.2.8 [Multicast Scan](#) on page 106.
- **Subnet Scan** - see Section 4.1.2 [Subnet Scan](#) on page 49.
- **Duplicate Scan** - see Section 4.1.3 [Duplicate Scan](#) on page 52.



Import Option:

Select **Import unchanged records** to import and apply all spreadsheet records when importing the spreadsheet. (This forces an IP Routing project into a known state.)

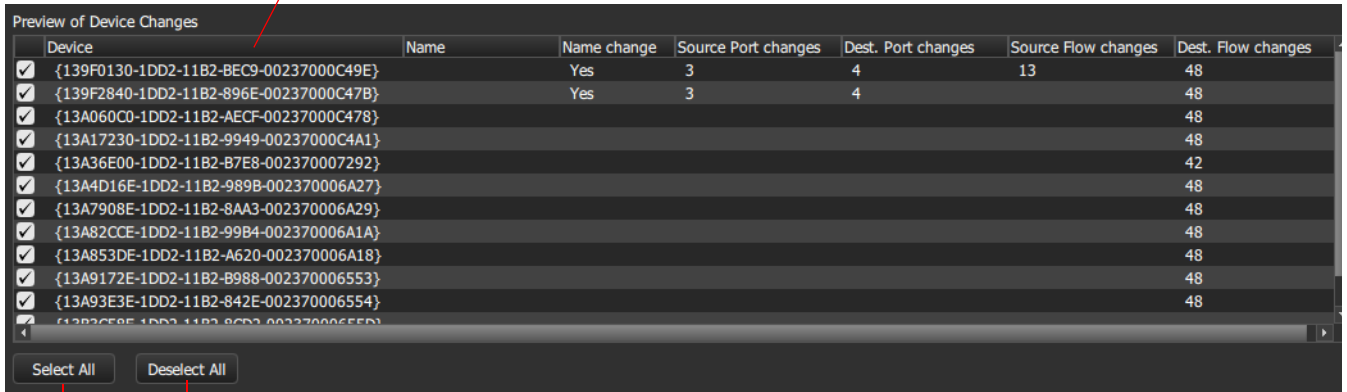
Note: When deselected, only the changed records are imported and applied, which sets an IP Routing project into a known state anyway.

Figure 197 Import Dialog - Options

15.5.3 Import Dialog - Import Preview

The Import Preview dialog will indicate the nature of changes that would occur to the Orbit IP routing project if the spreadsheet were imported.

Full previewed list of changed settings items, see Table 59.



Click **Deselect All** to deselect all preview items.

Click **Select All** to select all preview items.

Figure 198 Import Dialog - Import Preview

Table 59 Import Preview - Column Headings

Import Preview Column Headings	Description
(First column) <input checked="" type="checkbox"/> <input type="checkbox"/>	Check box. Tick to select item for importing.
Device	Device GUID.
Name	Device name.
Name change	'Yes' - Device name has changed.
Source Port changes	'NN' - number of source ports that have settings changes, where NN is an integer number.
Dest Port changes	'NN' - number of destination ports that have settings changes, where NN is an integer number.
Source Flow changes	'NN' - number of source flows that have settings changes, where NN is an integer number.
Dest Flow changes	'NN' - number of destination flows that have settings changes, where NN is an integer number.

16

16 Device Transfer (Swapping Out a Device)

Device Transfer (Swapping Out a Device)	
16.1 Introduction	249
16.2 Preliminaries	250
16.3 Device Transfer	251

16.1 Introduction

The **Device Transfer** feature in Orbit is used when replacing a network device that has been configured by Orbit (for example, swapping out a Grass Valley IQMIX modular card).

The 'device to be swapped out' must be one which Orbit has configured.

The replacement device must be:

- of the same device type as the 'device to be swapped out';
- cloned from the 'device to be swapped out' - i.e. have the same settings etc; and

The Orbit **Device Transfer** facility transfers the Orbit IP routing device name and router port assignments from the 'device to be swapped out' to the replacement device.

The procedure is described in this section.

16.2 Preliminaries

1. The 'device to be swapped out' must be powered down and removed from the Orbit IP Routing system.

Orbit will show any powered down and/or removed device as 'not currently discoverable' in the Orbit tabs. The procedure is described in this section. See Figure 199.

Device is not currently discoverable

Device GUID	Device Name
{7AF93376-4D15-4727-8E88-54E9F754756A}	IQMIX 8

Figure 199 Device 'Not Currently Discoverable'

2. Make a clone of the device.
(The procedure for cloning a device to form a replacement device is specific to each device type. For example, a Grass Valley IQMIX modular card is cloned via an SD card swap.)

After cloning, the replacement device will have the same settings as the device being swapped out, except for the device GUID and MAC address.

3. Power up the replacement device and connect the replacement device into the IP network system.

The replacement device is now on-line and discoverable by Orbit.

4. Open the Orbit for IP Routing project in Orbit and view the **Devices** tab.

Orbit will show the device as 'new', with no device GUID nor device name. See Figure 200.

Device is new

Device GUID	Device Name	Device Type
{00000000-0000-0000-0000-000000000001}	{00000000-0000-0000-0000-000000000001}	IQMIX

Figure 200 New Device

16.3 Device Transfer

The old device and new device will be shown in the Orbit **Devices** tab. See Figure 201.

Old device (off-line)

{7AF93376-4D15-4727-8E88-54E9F754756A}	IQMIX B	
{00000000-0000-0000-0000-000000000001}	{00000000-0000-0000-0000-000000000001}	IQMIX

New device (on-line)

Figure 201 Old and New Device

1. Right-click on the old device GUID and select **Transfer From** in the drop-down menu. See Figure 202.

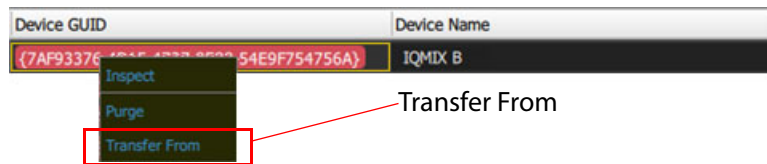


Figure 202 Transfer From

A **Device Transfer** pane appears at the bottom of the Orbit screen and the old device's details appear in the **Transfer From** section (left-hand side) of the pane. See Figure 203.

Old device details

Transfer From section

Transfer button

Transfer To section

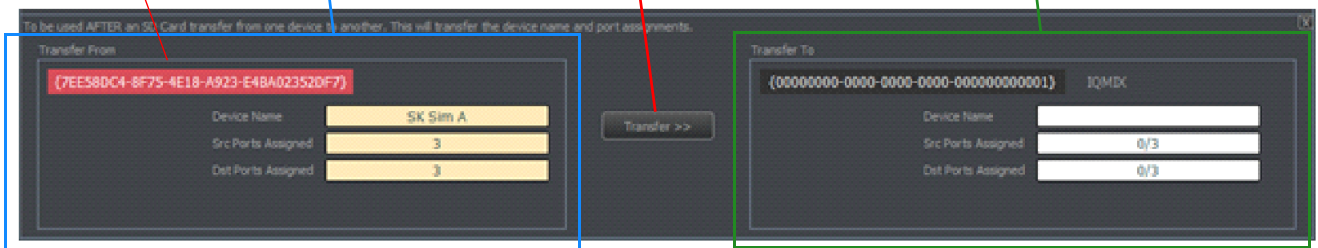


Figure 203 Device Transfer Pane

2. Right-click on the new device's GUID and select **Transfer To** in the drop-down menu. See Figure 204.

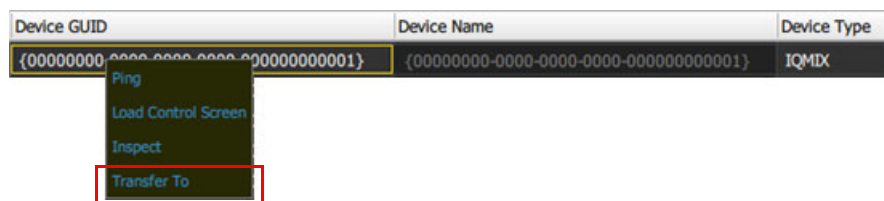


Figure 204 Transfer To

- 3. The new device's details appear in the **Transfer To** section (right-hand side) of the **Device Transfer** pane.

The **Device Transfer** pane shows information on both devices, see Figure 206.

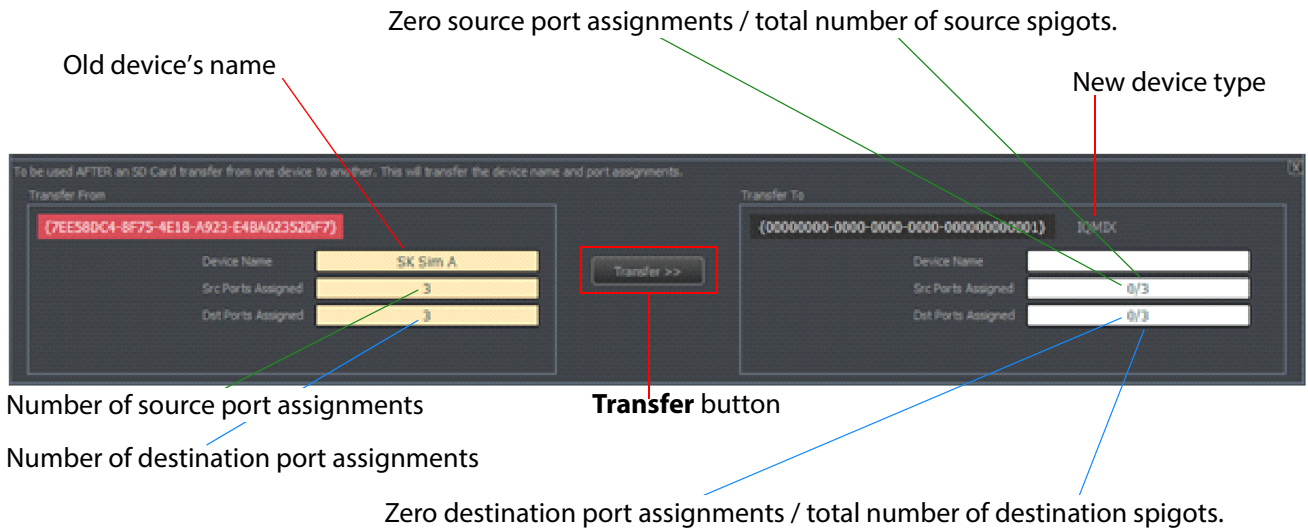


Figure 205 Device Transfer Pane - Device Information

- 4. Click the **Transfer** button in the **Device Transfer** pane.
A **Device Transfer** confirmation dialog is shown. See Figure 206.

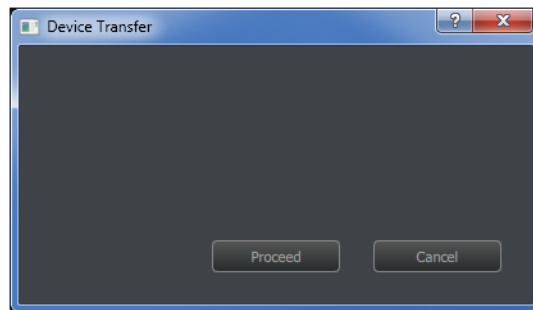


Figure 206 Device Transfer Confirmation Dialog

- 5. Click **Proceed** to carry out the transfer of Orbit IP routing settings from the old device to the new device.

The **Device Transfer** pane shows the result of the transfer (see Figure 207) and the old device is purged from the IP routing system.

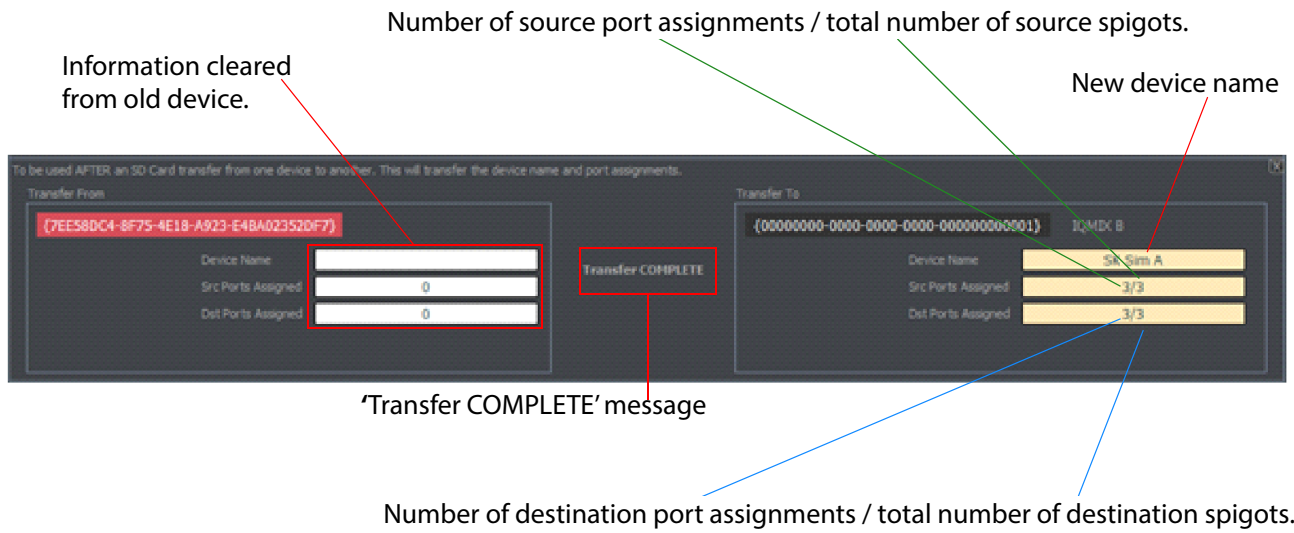


Figure 207 Device Transfer Pane - Transfer Complete

If the devices are incompatible, the an incompatible devices warning is shown.

17

17 Device Inspector Pane

Device Inspector Pane

17.1 Introduction 254

17.1 Introduction

The **Device Inspector** pane shows information about a chosen device. To open the pane or to change the chosen device:

1. Right-click on a **Device GUID** or **Device Name** item in an Orbit tab. A pop-up context menu appears.
2. Select 'Inspect' in the context menu. The **Device Inspector** pane appears at the bottom of the tab. See Figure 208.

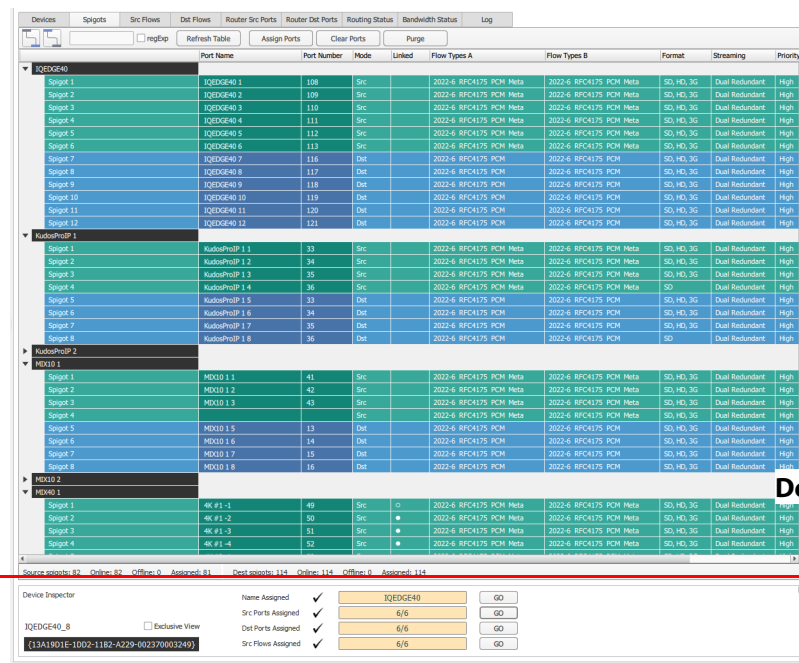


Figure 208 Device Inspector Pane at Bottom of a Tab

The **Device Inspector** pane now remains on-screen whichever Orbit tab is selected. The pane is shown in Figure 209.

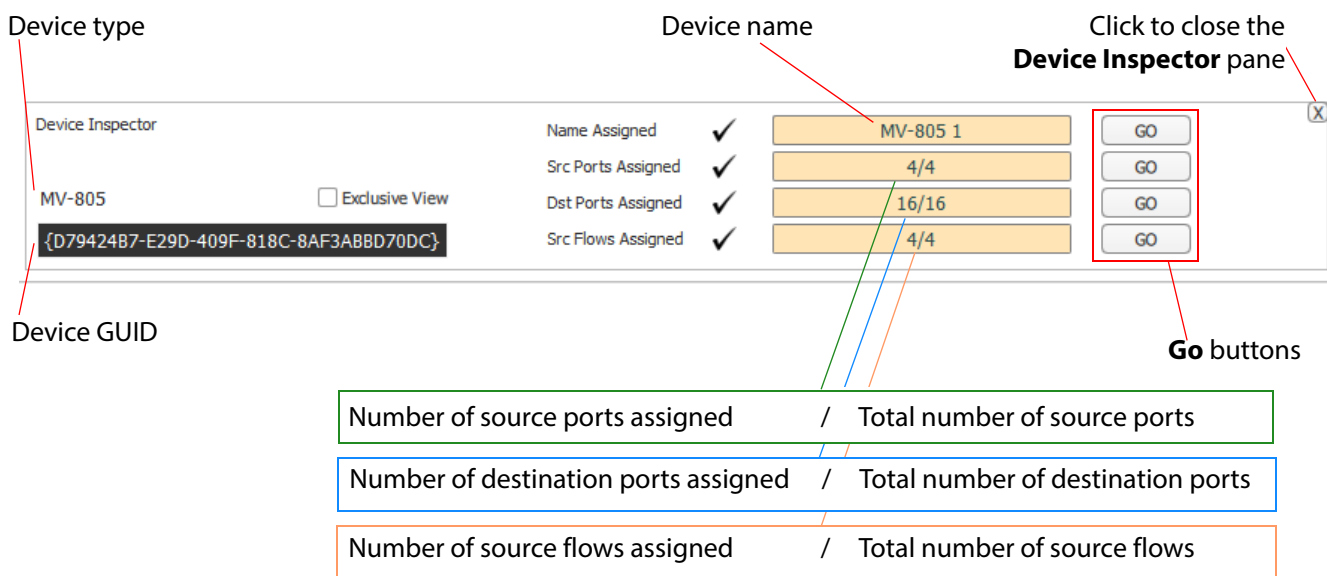


Figure 209 Device Inspector Pane

Use the **Device Inspector** pane to go to other tabs for **Device**, **Source Ports**, **Destinations Ports** and **Source Flows** information. In the pane:

1. Click a **Go** button to go to an Orbit tab.

To see just information about the **Device Inspector** subject device:

2. Tick the **Exclusive View** check box.
3. Untick to see information about all devices in the tab.

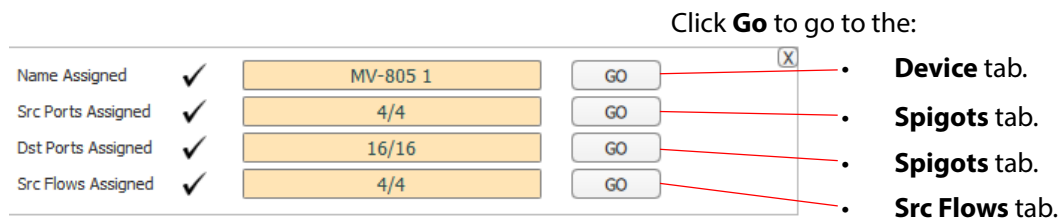


Figure 210 Device Inspector Pane - Go Button

18

18 Getting Started

Getting Started	
18.1 Introduction	256
18.2 Assumptions before Getting Started	257
18.2.1 Network	257
18.2.2 Orbit	257
18.2.3 Network Devices	257
18.2.4 Routing System Control	257
18.3 Create an Orbit IP Routing Project	258
18.3.1 Create the Project	258
18.3.2 Define User Access to the Orbit Project	259
18.4 Create New Orbit Network(s)	260
18.5 Configure 'Comms Setup' for the Orbit Project	262
18.6 Set Other Orbit Project Properties	263
18.7 Device Configuration - Introduction	264
18.8 Device Configuration - Spreadsheet Import Method	265
18.8.1 Export a Spreadsheet	265
18.8.2 Edit Spreadsheet	266
18.8.3 Import Spreadsheet	271
18.9 Device Configuration - Orbit User Interface Method	275
18.9.1 Set Device Names	275
18.9.2 Assign 'Traditional Router Style' Ports	275
18.9.3 Set Up Source Signals	277
18.10 Making a Route	281
18.10.1 How Do I See the Router Tab?	281
18.10.2 Make a Route with Router Tab	282

18.1 Introduction

This section concerns getting started with Orbit for IP Routing. It outlines the steps required to get started with Orbit for IP Routing. It is assumed that a basic IP network exists and the Orbit tool is installed; this is all listed in the first sub-section.

18.2 Assumptions before Getting Started

Orbit will assign traditional router port names and numbers to device spigots, and it will assign all multicast settings to all flows. It communicates with devices in a 'network-configured' system. Following configuration by Orbit, the network system can be used as an IP routing system.

The following assumptions are made before 'Getting Started' with Orbit can begin:

18.2.1 Network

- There is a fully 'network-configured' IP network system, including:
 - Media and, optionally, control, networks.
 - Switch configuration, including: IGMPv3 settings, PTP timing.

18.2.2 Orbit

- Orbit is installed on a host Windows® PC.
- Orbit is licensed for IP Routing (Grass Valley 'IPNETMGR' Orbit license).
- Orbit has a connection to the license server.
- Orbit host PC has access to the IP network system's media network(s) and/or control network(s) - depending on whether devices are to be configured in-band or out-of-band.

18.2.3 Network Devices

- All devices are correctly installed on the IP network system (valid IP addresses and sub-nets etc.) and are on-line.
- All devices have been set up with consistent RollCall+ domain IDs (one ID per IP routing system being set up).
- Other device aspects are set up, including:
 - How many inputs and outputs (destinations and sources) are configured.
 - PTP configuration.
 - 4K link settings on spigots.
 - Any test pattern generation on/off.

18.2.4 Routing System Control

One (two for network redundancy) routing system controller device(s) are part of the system. Either:

- Grass Valley IP routing system controller(s), IP-RSC server(s), used for medium to large scale deployments; or
- a third-party control system is used through a Grass Valley IQTIC module present in the system.

18.3 Create an Orbit IP Routing Project

18.3.1 Create the Project

1. Run Orbit and select 'New Project'.
A 'New Project' dialog window is shown.
2. Select the 'IP Routing Project' icon and enter a name for the project, and enter a folder location in which to save the project, or browse into a folder and click 'Choose' to select the location.

See Figure 211.

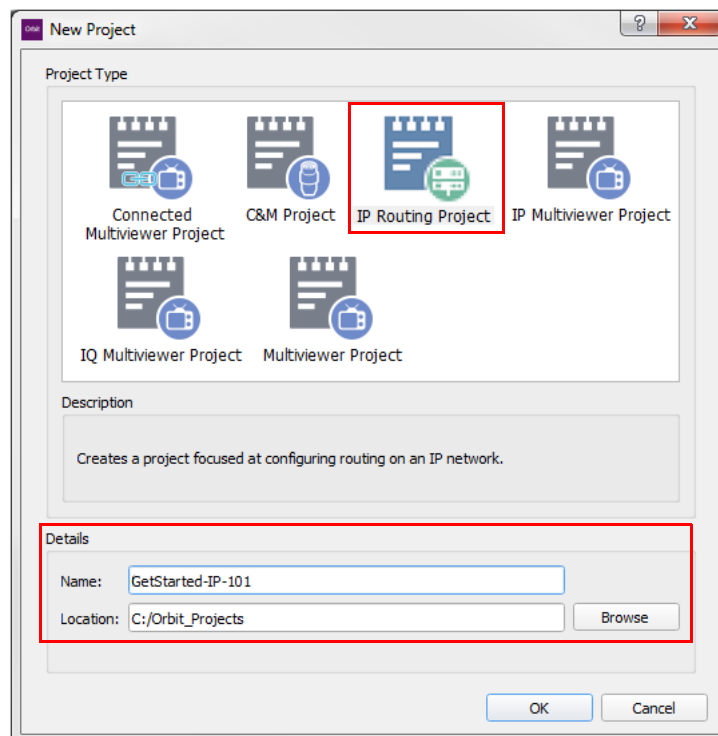


Figure 211 New Project

3. Click OK.
A new Orbit project is created and opened in Orbit; the project home screen is shown.

18.3.2 Define User Access to the Orbit Project

The project home screen shows icons for user management ('Manage Users') and for creating/editing an Orbit network ('Networks'). See Figure 212.

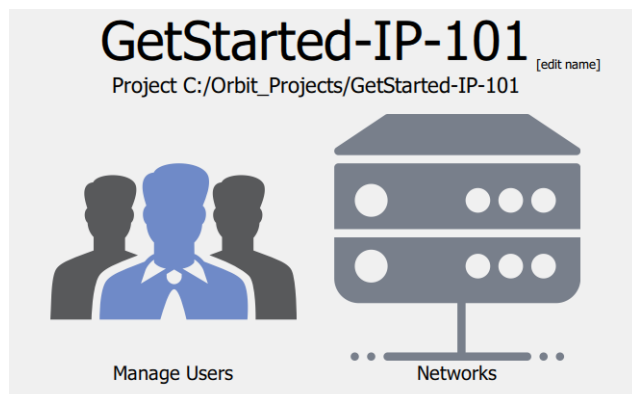


Figure 212 New Project Home Screen Icons

By default, a new project is set up with a single user:

- Username is set to 'admin'.
- Password is set to 'admin'.
- This user has administrator level permissions.
- This user can fully edit the Orbit project.

If this default user is sufficient for your needs, move on to the next sub-section to get started. But if there is concern over who should be able to edit IP routing settings of a network configuration, then create specific users:

1. Click the 'Manage Users' icon.
There are already some roles set up with certain permissions.
Use the user management tools to:
2. Create new roles with specific permissions, if needed.
3. Create new users and assign users to roles.

18.4 Create New Orbit Network(s)

Note: If more than one IP routing system is required, for example 'News' and 'Playout', then two separate Orbit IP routing networks are required.

Create one Orbit IP routing network per routing system.

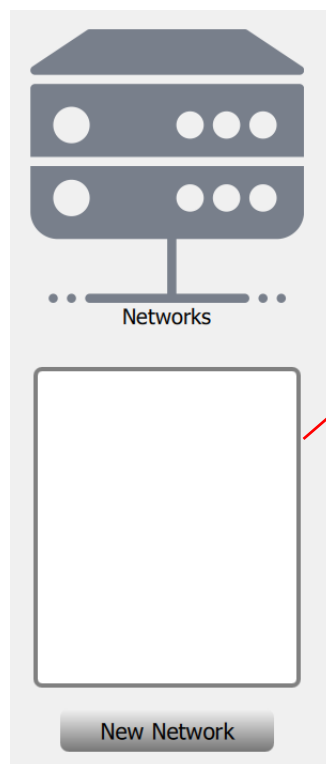
Each Orbit IP routing network must use a unique RollCall+ domain. Devices in a Orbit IP routing network should have the same RollCall+ domain ID.

A network is associated with a RollCall+ domain. If there is more than one domain, then create an Orbit network for each.

To create an Orbit network:

1. Click the 'Networks' icon.

For a new project, an empty list of existing Orbit networks is shown with a 'New Network' button.



Note: For an existing project, all networks created under the project are listed in this text box. For a new project, the list is empty.

2. Click the 'New Network' button.
3. Enter a name for the new Orbit network.

A new Orbit network is created and the 'Devices' tab of the 'Network Configuration Editor' screen is shown. See Figure 213.

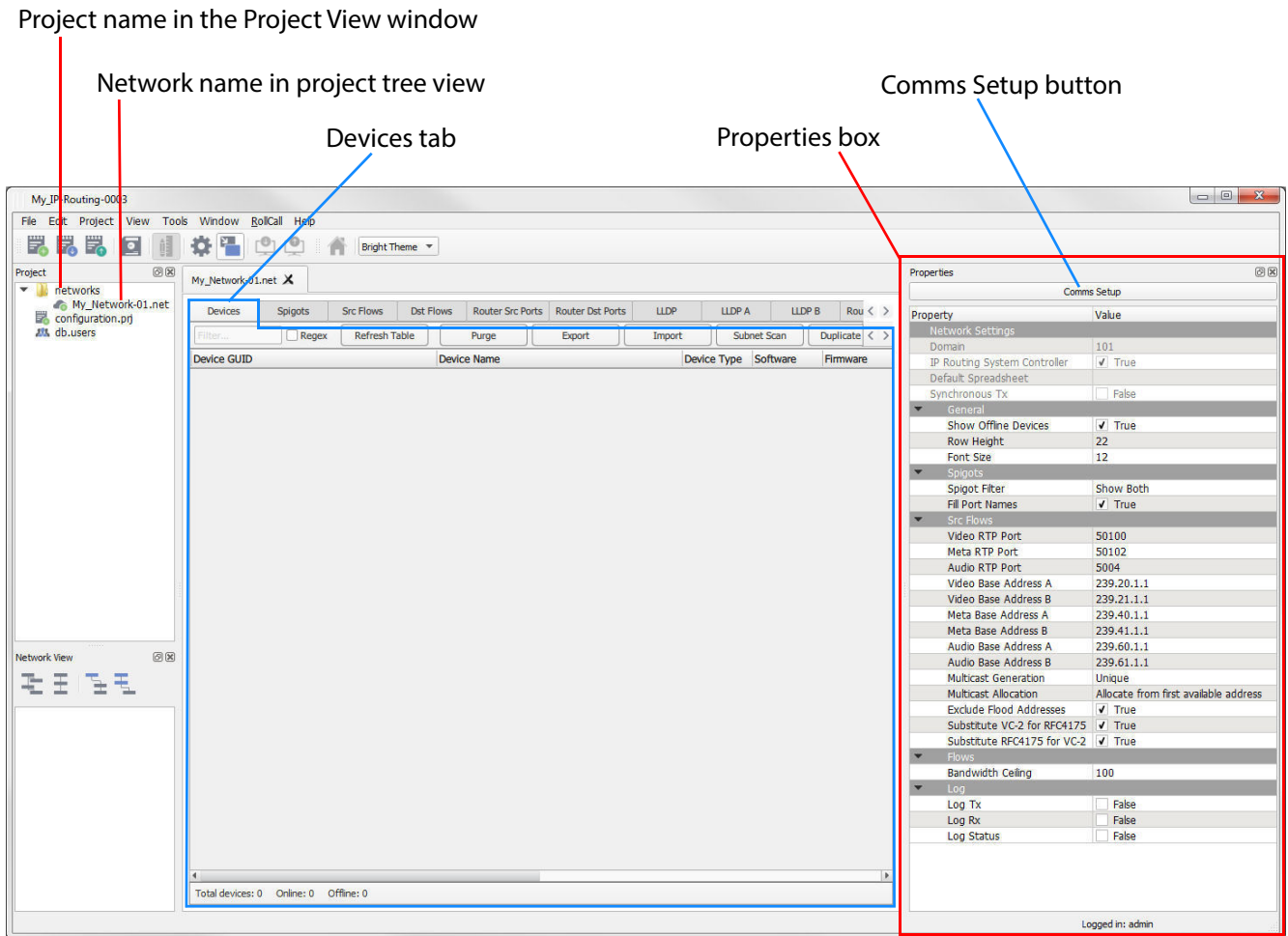


Figure 213 Network Configuration Editor Screen showing the Devices Tab

Note: The default RollCall+ domain ID number is 101.

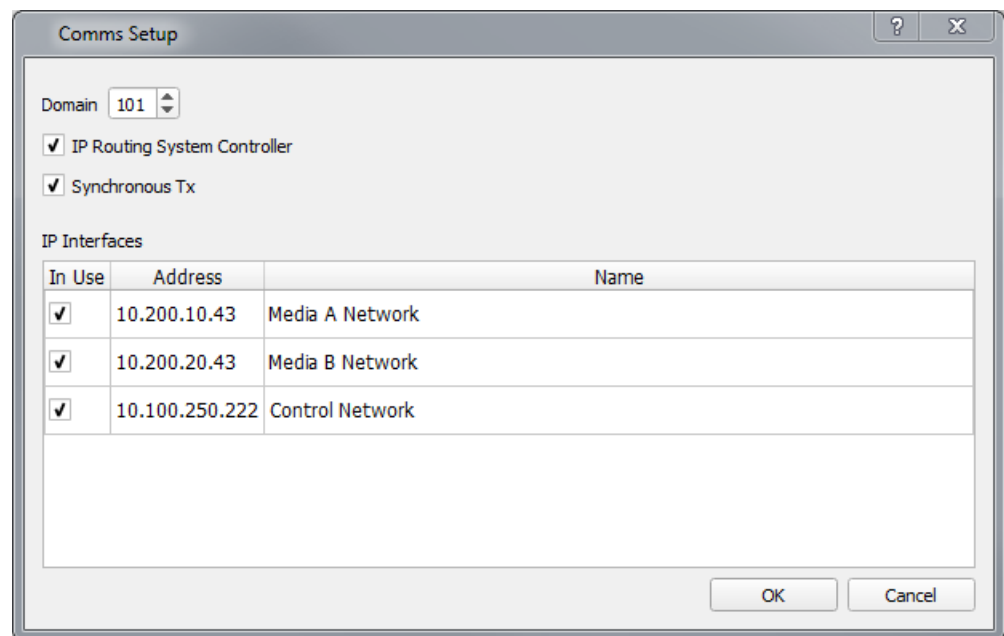
For a newly-created network, if there are any devices present on the default domain, then they will be shown in the 'Devices' tab.

18.5 Configure 'Comms Setup' for the Orbit Project

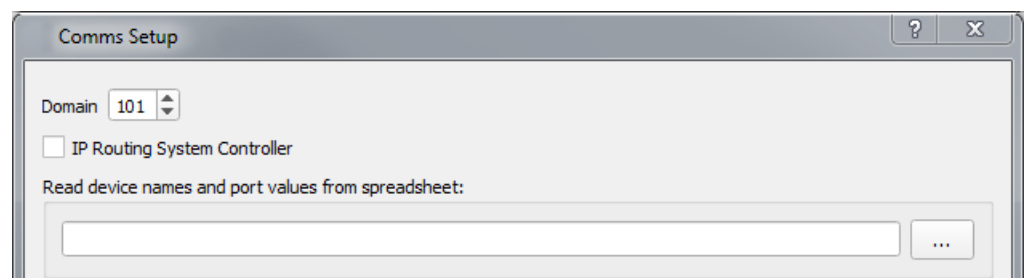
The 'Comms Setup' button is available in the 'Properties' part of the 'Network Configuration Editor' screen. (If the 'Properties' box is not visible, go to 'View > Windows' in the main menu bar and ensure 'Properties Window' is selected.)

To configure the RollCall+ domain and the PC network interfaces that Orbit should use to communicate with network devices:

1. Click the "Comms Setup" button.
A 'Comms Setup' window is shown. See Figure 214.



a) 'IP Routing System Controller' option selected



b) Extra spreadsheet text box when 'IP Routing System Controller' is not selected

Figure 214 Comms Setup Window:

a) IP-RSC option selected.

b) Extra Spreadsheet text box when IP-RSC option not selected.

2. Set **Domain** to match the domain used on the network devices of the IP routing network. (All devices, including any IP-RSC and/or IQTIC devices.)
3. If an IP-RSC server is in the system,
then select the 'IP Routing System Controller' check box.
If no IP-RSC is present, then deselect this option.

Note: If no IP-RSC is present and this option is selected, then certain operations in Orbit will fail.

4. For IP-RSC, enable 'Synchronous Tx'.

Note:

Typically, 'Synchronous Tx' is enabled. This ensures each Orbit operation is completed before the next operation is started.

If this option is not enabled, it could lead to misconfiguration under poor network conditions.

5. For no IP-RSC, enter the name of the spreadsheet file to use to read device IP routing setting information from.

In the 'IP Interfaces' section of the dialog:

6. Enable the PC network interfaces for Orbit to use to communicate with network devices.

For in-band configuration, enable the media interface(s).

For out-of-band configuration, enable the media and control network interfaces.

For cases where both in-band and out-of-band configuration is supported, enable media and control network interfaces.

Important

Do not enable more than four network interfaces.

7. Click OK to close the 'Comms Setup' window.

The system is now ready.

8. Verify that all devices are shown in the Devices tab. (This does not include any IP-RSC or IQTIC.)

The system is now ready for configuration.

18.6 Set Other Orbit Project Properties

The list of properties in the Properties box allows other parameters associated with device configuration to be configured. See Section 3.4 "Properties List" on page 27 for more information.

18.7 Device Configuration - Introduction

Devices can now be configured by Orbit.

For each device, this involves:

- Setting a friendly name. This is useful for commissioning and support engineers.
- Assigning spigots to traditional-style router port numbers. This effectively maps the spigots to the source and destination ports of a traditional-style router.
- Assign names to the traditional-style router ports.
- Configure IP flows for each spigot (source flows or destination flows). This assigns the multicast address parameters and enables each flow.

Device configuration can be done by one of the following methods:

- **Spreadsheet Import** - On a spreadsheet and imported into Orbit.
See Section 18.8 "Device Configuration - Spreadsheet Import Method" on page 265.
- Orbit **User Interface** - Automatically fill out device settings via the Orbit user interface.
See Section 18.9 "Device Configuration - Orbit User Interface Method" on page 275.

18.8 Device Configuration - Spreadsheet Import Method

The spreadsheet can be created off-line from scratch. However, it is often easier to first export a spreadsheet from Orbit which contains all of the discovered devices, then edit and re-import the spreadsheet into Orbit.

- Section 18.8.1 "Export a Spreadsheet" on page 265.
- Section 18.8.2 "Edit Spreadsheet" on page 266.
- Section 18.8.3 "Import Spreadsheet" on page 271.

18.8.1 Export a Spreadsheet

To first export a spreadsheet which contains all discovered devices, in the **Devices** tab:

1. Ensure that the filter text field is empty (see Figure 215) and check that all devices are listed in the tab.

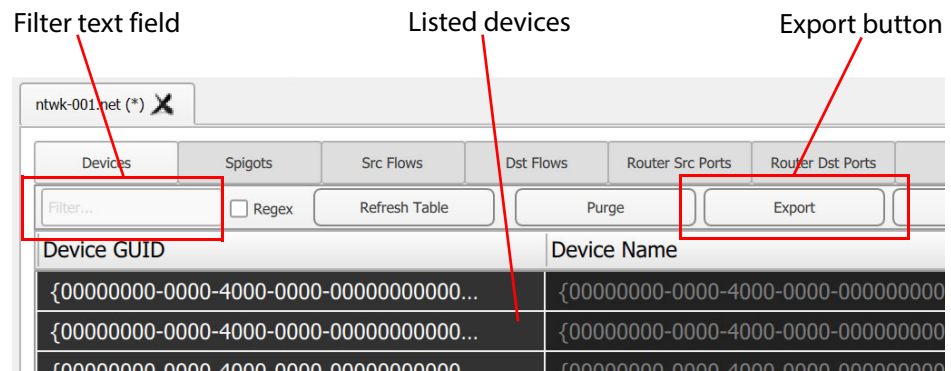
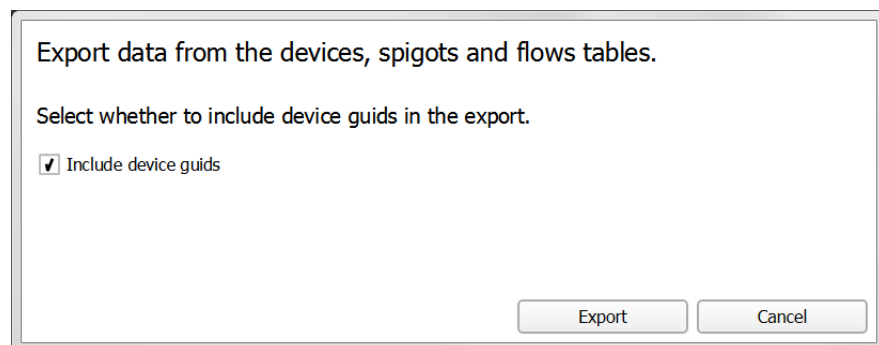


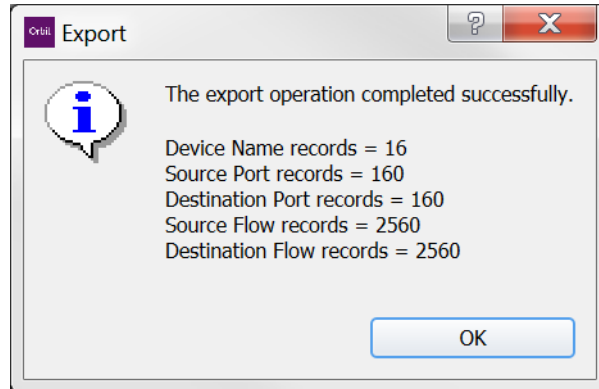
Figure 215 Devices Tab

2. Click the 'Export' button.
A small dialog window appears:



3. Select 'Include device guides'.
4. Click 'Export'.
5. Select a filename and location to save the spreadsheet in, and click 'Save'.

An exported spreadsheet is created and a confirmation dialog is shown which lists how many records have been saved:



6. Click OK.

The blank settings of the new project have been exported to a spreadsheet file (extension .xlsx).

18.8.2 Edit Spreadsheet

Section 15.3 "Exported Spreadsheet File" on page 236 describes the spreadsheet worksheets in detail. The worksheets in the spreadsheet file comprise:

- Device Names
- Source Ports
- Destination Ports
- Source Flows
- Destination Flows

Instructions on editing this spreadsheet to set up initial device information follow. Each worksheet must be edited to:

- set up friendly device names;
- set up user-defined traditional router port numbers and names;
- set up all possible potential source flows; and
- clear any existing routes.

To set initial device information:

Device Names:

1. On the 'Device Names' worksheet, enter a name for each device in the 'Device Name' column. (Enter a 'friendly' name for each device.)

	A	B	C
1	GUID	IP Address	Device Name
2	{00000000-0000-4000-0000-000000000000}		Device 1
3	{00000000-0000-4000-0000-000000000001}		Device 2
4	{00000000-0000-4000-0000-000000000002}		Device 3
5			
6			
7			
8			
9			
10			

Navigation: Device Names | Source Ports | Destination Ports | Source Flows | Destination Flows

'Traditional Router Style' Source Ports:

2. On the 'Source Ports' worksheet, enter the traditional router port number and names in the 'Port Number', 'Port Name', and 'Short Name' columns.

	A	B	C	D	E	F	G
1	GUID	IP Address	Device Name	Spigot Index	Port Number	Port Name	Short Name
2	{00000000-0000-4000-0000-000000000000}			1	1	Source 1	S1
3	{00000000-0000-4000-0000-000000000000}			2	2	Source 2	S2
4	{00000000-0000-4000-0000-000000000000}			3	3	Source 3	S3
5	{00000000-0000-4000-0000-000000000000}			4	4	Source 4	S4
6	{00000000-0000-4000-0000-000000000000}			5	5	Source 5	S5
7	{00000000-0000-4000-0000-000000000000}			6	6	Source 6	S6
8	{00000000-0000-4000-0000-000000000000}			7	7	Source 7	S7
9	{00000000-0000-4000-0000-000000000000}			8	8	Source 8	S8
10	{00000000-0000-4000-0000-000000000001}			1	9	Source 9	S9
11	{00000000-0000-4000-0000-000000000001}			2	10	Source 10	S10
12	{00000000-0000-4000-0000-000000000001}			3	11	Source 11	S11
13	{00000000-0000-4000-0000-000000000001}			4	12	Source 12	S12
14	{00000000-0000-4000-0000-000000000001}			5	13	Source 13	S13
15	{00000000-0000-4000-0000-000000000001}			6	14	Source 14	S14
16	{00000000-0000-4000-0000-000000000001}			7	15	Source 15	S15
17	{00000000-0000-4000-0000-000000000001}			8	16	Source 16	S16
18	{00000000-0000-4000-0000-000000000002}			1	17	Source 17	S17
19	{00000000-0000-4000-0000-000000000002}			2	18	Source 18	S18
20	{00000000-0000-4000-0000-000000000002}			3	19	Source 19	S19
21	{00000000-0000-4000-0000-000000000002}			4	20	Source 20	S20
22	{00000000-0000-4000-0000-000000000002}			5	21	Source 21	S21
23	{00000000-0000-4000-0000-000000000002}			6	22	Source 22	S22
24	{00000000-0000-4000-0000-000000000002}			7	23	Source 23	S23
25	{00000000-0000-4000-0000-000000000002}			8	24	Source 24	S24
26							

Navigation: Device Names | Source Ports | Destination Ports | Source Flows | Destination Flows

'Traditional Router Style' Destination Ports:

- On the 'Destination Ports' worksheet, enter the traditional router port number and names in the 'Port Number', 'Port Name', and 'Short Name' columns.

	A	B	C	D	E	F	G
	GUID	IP Address	Device Name	Spigot Index	Port Number	Port Name	Short Name
2	{00000000-0000-4000-0000-000000000000}			9	1	Destination 1	D1
3	{00000000-0000-4000-0000-000000000000}			10	2	Destination 2	D2
4	{00000000-0000-4000-0000-000000000000}			11	3	Destination 3	D3
5	{00000000-0000-4000-0000-000000000000}			12	4	Destination 4	D4
6	{00000000-0000-4000-0000-000000000000}			13	5	Destination 5	D5
7	{00000000-0000-4000-0000-000000000000}			14	6	Destination 6	D6
8	{00000000-0000-4000-0000-000000000000}			15	7	Destination 7	D7
9	{00000000-0000-4000-0000-000000000000}			16	8	Destination 8	D8
10	{00000000-0000-4000-0000-000000000001}			9	9	Destination 9	D9
11	{00000000-0000-4000-0000-000000000001}			10	10	Destination 10	D10
12	{00000000-0000-4000-0000-000000000001}			11	11	Destination 11	D11
13	{00000000-0000-4000-0000-000000000001}			12	12	Destination 12	D12
14	{00000000-0000-4000-0000-000000000001}			13	13	Destination 13	D13
15	{00000000-0000-4000-0000-000000000001}			14	14	Destination 14	D14
16	{00000000-0000-4000-0000-000000000001}			15	15	Destination 15	D15
17	{00000000-0000-4000-0000-000000000001}			16	16	Destination 16	D16
18	{00000000-0000-4000-0000-000000000002}			9	17	Destination 17	D17
19	{00000000-0000-4000-0000-000000000002}			10	18	Destination 18	D18
20	{00000000-0000-4000-0000-000000000002}			11	19	Destination 19	D19
21	{00000000-0000-4000-0000-000000000002}			12	20	Destination 20	D20
22	{00000000-0000-4000-0000-000000000002}			13	21	Destination 21	D21
23	{00000000-0000-4000-0000-000000000002}			14	22	Destination 22	D22
24	{00000000-0000-4000-0000-000000000002}			15	23	Destination 23	D23
25	{00000000-0000-4000-0000-000000000002}			16	24	Destination 24	D24
26							

Navigation: Device Names | Source Ports | **Destination Ports** | Source Flows | Destination Flows | (+)

Source Signals:

4. On the 'Source Flows' worksheet, configure each source flow by editing the following columns:
 - **Flow Enabled:** Enter 'Y' in the to the source flow.
 - **Multicast Address:** Enter a multicast group IP address.
 - **Dst RTP Port:** Enter an IP port number.
(To define which IP port a source flow should use at a *destination* spigot.)
 - **Src RTP Port:** Enter an IP port number.
(To define which IP port a source flow should use at its *source* spigot.)

	A	B	C	D	E	F	G	H	I	J	K	L
	GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface	Flow Type	Flow Enabled	Multicast Address	Source Address	Dst RTP Port	Src RTP Port
1	{00000000-}			1	1	A	2022-6	Y	239.20.1.1		50100	50100
2	{00000000-}			1	1	B	2022-6	Y	239.21.1.1		50100	50100
3	{00000000-}			1	2	A	2022-6	Y	239.20.1.2		50100	50100
4	{00000000-}			1	2	B	2022-6	Y	239.21.1.2		50100	50100
5	{00000000-}			1	3	A	2022-6	Y	239.20.1.3		50100	50100
6	{00000000-}			1	3	B	2022-6	Y	239.21.1.3		50100	50100
7	{00000000-}			2	1	A	2022-6	Y	239.20.1.4		50100	50100
8	{00000000-}			2	1	B	2022-6	Y	239.21.1.4		50100	50100
9	{00000000-}			2	2	A	2022-6	Y	239.20.1.5		50100	50100
10	{00000000-}			2	2	B	2022-6	Y	239.21.1.5		50100	50100
11	{00000000-}			2	3	A	2022-6	Y	239.20.1.6		50100	50100
12	{00000000-}			2	3	B	2022-6	Y	239.21.1.6		50100	50100
13	{00000000-}			3	1	A	2022-6	Y	239.20.1.7		50100	50100
14	{00000000-}			3	1	B	2022-6	Y	239.21.1.7		50100	50100
15	{00000000-}			3	2	A	2022-6	Y	239.20.1.8		50100	50100
16	{00000000-}			3	2	B	2022-6	Y	239.21.1.8		50100	50100
17	{00000000-}			3	3	A	2022-6	Y	239.20.1.9		50100	50100
18	{00000000-}			3	3	B	2022-6	Y	239.21.1.9		50100	50100
19	{00000000-}			4	1	A	2022-6	Y	239.20.1.10		50100	50100
20	{00000000-}			4	1	B	2022-6	Y	239.21.1.10		50100	50100
21	{00000000-}			4	2	A	2022-6	Y	239.20.1.11		50100	50100
22	{00000000-}			4	2	B	2022-6	Y	239.21.1.11		50100	50100
23	{00000000-}			4	3	A	2022-6	Y	239.20.1.12		50100	50100
24	{00000000-}			4	3	B	2022-6	Y	239.21.1.12		50100	50100
25	{00000000-}			5	1	A	2022-6	Y	239.20.1.13		50100	50100
26	{00000000-}											

Destination Signals:

5. On the 'Destination Flows' worksheet, configure each destination flow:
 - In the 'Flow Type' column, enter "None".
 - Delete all entries in 'Flow Enabled', 'Multicast Address', 'Source Address', 'Dst RTP Port' and 'Src RTP Port' columns.

See Figure 216.

This will stop flows to all destinations, i.e. clearing all routes.

	A	B	C	D	E	F	G	H	I	J	K	L
	GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface	Flow Type	Flow Enabled	Multicast Address	Source Address	Dst RTP Port	Src RTP Port
2	{00000000-0			9	1	A	PCM	Y	239.20.1.228	172.19.20.192	3362	25288
3	{00000000-0			9	1	B	RFC4175	Y	239.20.1.232	172.19.20.135	16369	28941
4	{00000000-0			9	2	A	Meta	Y	239.20.1.113	172.19.20.220	1259	4986
5	{00000000-0			9	2	B	RFC4175	Y	239.20.1.224	172.19.20.145	14044	26259
6	{00000000-0			9	3	A	2022-6	Y	239.20.1.156	172.19.20.161	22822	22666
7	{00000000-0			9	3	B	2022-6	Y	239.20.1.193	172.19.20.167	3669	14940
8	{00000000-0			10	1	A	RFC4175	Y	239.20.1.143	172.19.20.177	24637	31346
9	{00000000-0			10	1	B	PCM	Y	239.20.1.110	172.19.20.152	1052	32058
10	{00000000-0			10	2	A	2022-6	Y	239.20.1.195	172.19.20.54	25255	8867
11	{00000000-0			10	2	B	PCM	Y	239.20.1.36	172.19.20.67	4630	14777
12	{00000000-0			10	3	A	Meta	Y	239.20.1.167	172.19.20.159	4242	13269
13	{00000000-0			10	3	B	VC-2	Y	239.20.1.120	172.19.20.108	5449	17833
14	{00000000-0			11	1	A	2022-6	Y	239.20.1.150	172.19.20.204	22058	1714
15	{00000000-0			11	1	B	2022-6	Y	239.20.1.5	172.19.20.108	22036	19890
16	{00000000-0			11	2	A	VC-2	Y	239.20.1.158	172.19.20.234	32767	17665
17	{00000000-0			11	2	B	Meta	Y	239.20.1.150	172.19.20.217	22484	19906
18	{00000000-0			11	3	A	RFC4175	Y	239.20.1.139	172.19.20.164	29481	13788
19	{00000000-0			11	3	B	2022-6	Y	239.20.1.186	172.19.20.208	2844	4800
20	{00000000-0			12	1	A	VC-2	Y	239.20.1.89	172.19.20.20	15185	20994
21	{00000000-0			12	1	B	Meta	Y	239.20.1.63	172.19.20.127	32091	21796
22	{00000000-0			12	2	A	RFC4175	Y	239.20.1.125	172.19.20.135	6454	4596
23	{00000000-0			12	2	B	PCM	Y	239.20.1.119	172.19.20.62	4547	28498
24	{00000000-0			12	3	A	2022-6	Y	239.20.1.247	172.19.20.217	30945	27503
25	{00000000-0			12	3	B	Meta	Y	239.20.1.8	172.19.20.221	21972	26042
26	{00000000-0			13	1	A	2022-6	Y	239.20.1.77	172.19.20.103	26757	16022

a) Destination Flows worksheet BEFORE editing

	A	B	C	D	E	F	G	H	I	J	K	L
	GUID	IP Address	Device Name	Spigot Index	Flow Index	Interface	Flow Type	Flow Enabled	Multicast Address	Source Address	Dst RTP Port	Src RTP Port
2	{00000000-0			9	1	A	None					
3	{00000000-0			9	1	B	None					
4	{00000000-0			9	2	A	None					
5	{00000000-0			9	2	B	None					
6	{00000000-0			9	3	A	None					
7	{00000000-0			9	3	B	None					
8	{00000000-0			10	1	A	None					
9	{00000000-0			10	1	B	None					
10	{00000000-0			10	2	A	None					
11	{00000000-0			10	2	B	None					
12	{00000000-0			10	3	A	None					
13	{00000000-0			10	3	B	None					
14	{00000000-0			11	1	A	None					
15	{00000000-0			11	1	B	None					
16	{00000000-0			11	2	A	None					
17	{00000000-0			11	2	B	None					
18	{00000000-0			11	3	A	None					
19	{00000000-0			11	3	B	None					
20	{00000000-0			12	1	A	None					
21	{00000000-0			12	1	B	None					
22	{00000000-0			12	2	A	None					
23	{00000000-0			12	2	B	None					
24	{00000000-0			12	3	A	None					
25	{00000000-0			12	3	B	None					
26	{00000000-0			13	1	A	None					

b) Destination Flows worksheet AFTER editing

Figure 216 Destination Flows Worksheet: a) BEFORE editing, b) AFTER editing.

Spreadsheet editing is now finished.

6. Save the spreadsheet file.

18.8.3 Import Spreadsheet

The spreadsheet contains an Orbit configuration. After the spreadsheet is imported into Orbit, the settings in the spreadsheet will be used by Orbit:

- Devices will have the newly-set device names.
- Device ports will be mapped to the newly-defined router port numbers, with new port names.
- All device source spigots will be able to send out flows.
- All device destination spigots will be ready to receive flows.
- No flows will be routed.

Important

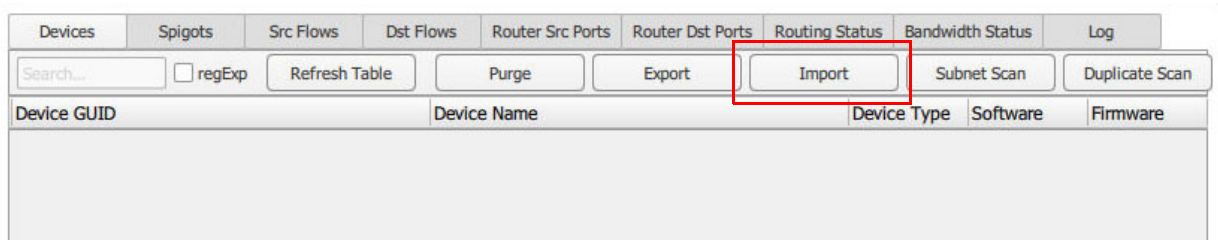
Importing a spreadsheet into Orbit is a potentially disruptive operation.

This is because it may affect all existing devices and routes.

To try and prevent unintentional importing and disruption, Orbit alerts the user to the risk of the operation and presents an authorization step to go through.

To import the spreadsheet into Orbit:

1. On the Devices tab in the Orbit Network Configuration Editor screen, click the 'Import' button.



2. Select the required spreadsheet file and click 'Open'.

An 'Import' dialog is shown. See Figure 217.

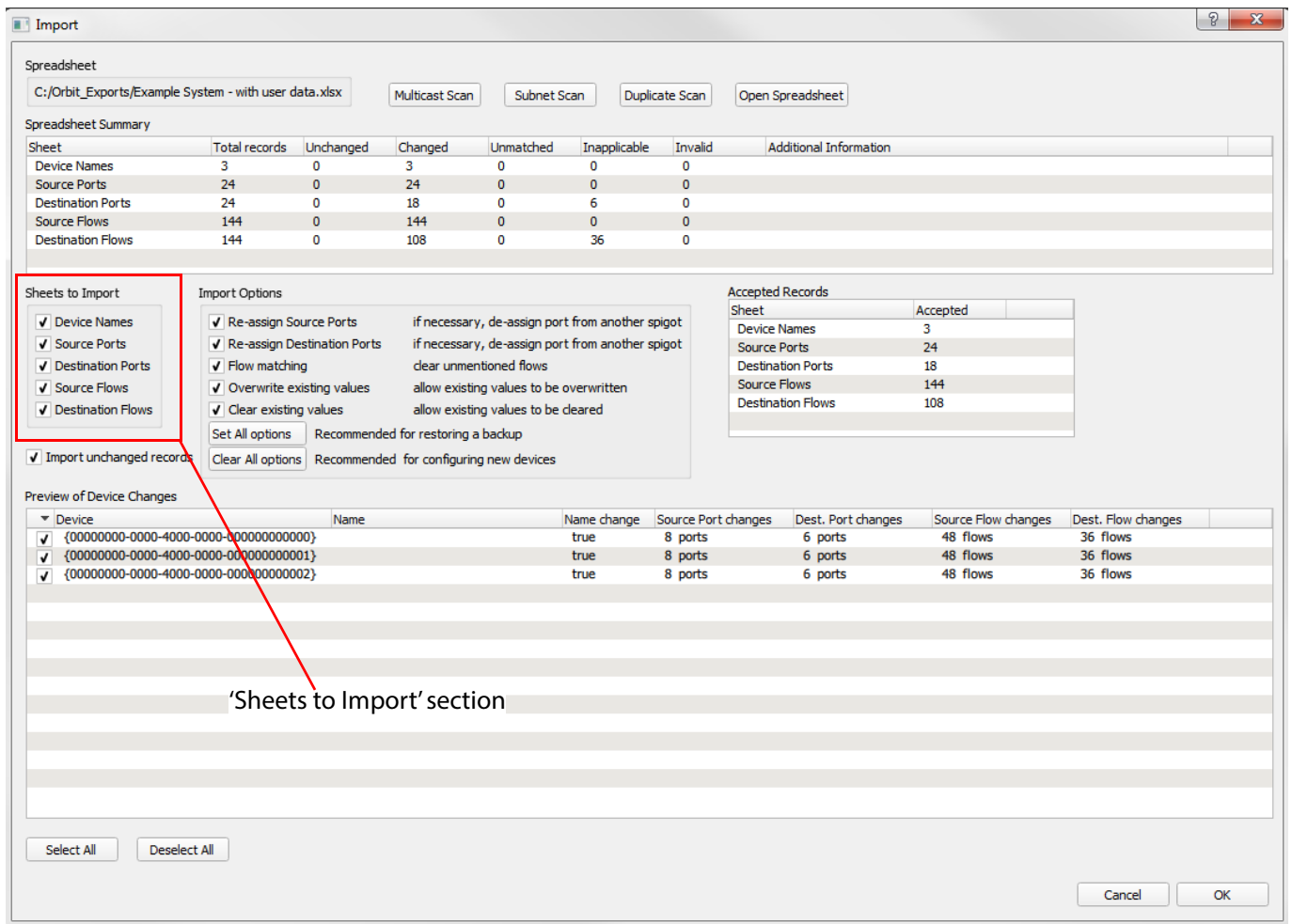


Figure 217 Import Dialog

3. In the 'Sheets to Import' section of the 'Import' dialog, enable all options.
4. Click 'OK'.

The importing of the spreadsheet and use by Orbit of the new configuration information it contains begins.

Note: This is potentially a disruptive operation to any current IP routing. For this 'getting started' procedure, it is alright to continue.

5. A High Risk alert dialog is shown by Orbit when importing a spreadsheet. Follow the on-screen instructions to authorize the importing. See Figure 218a, b and c.

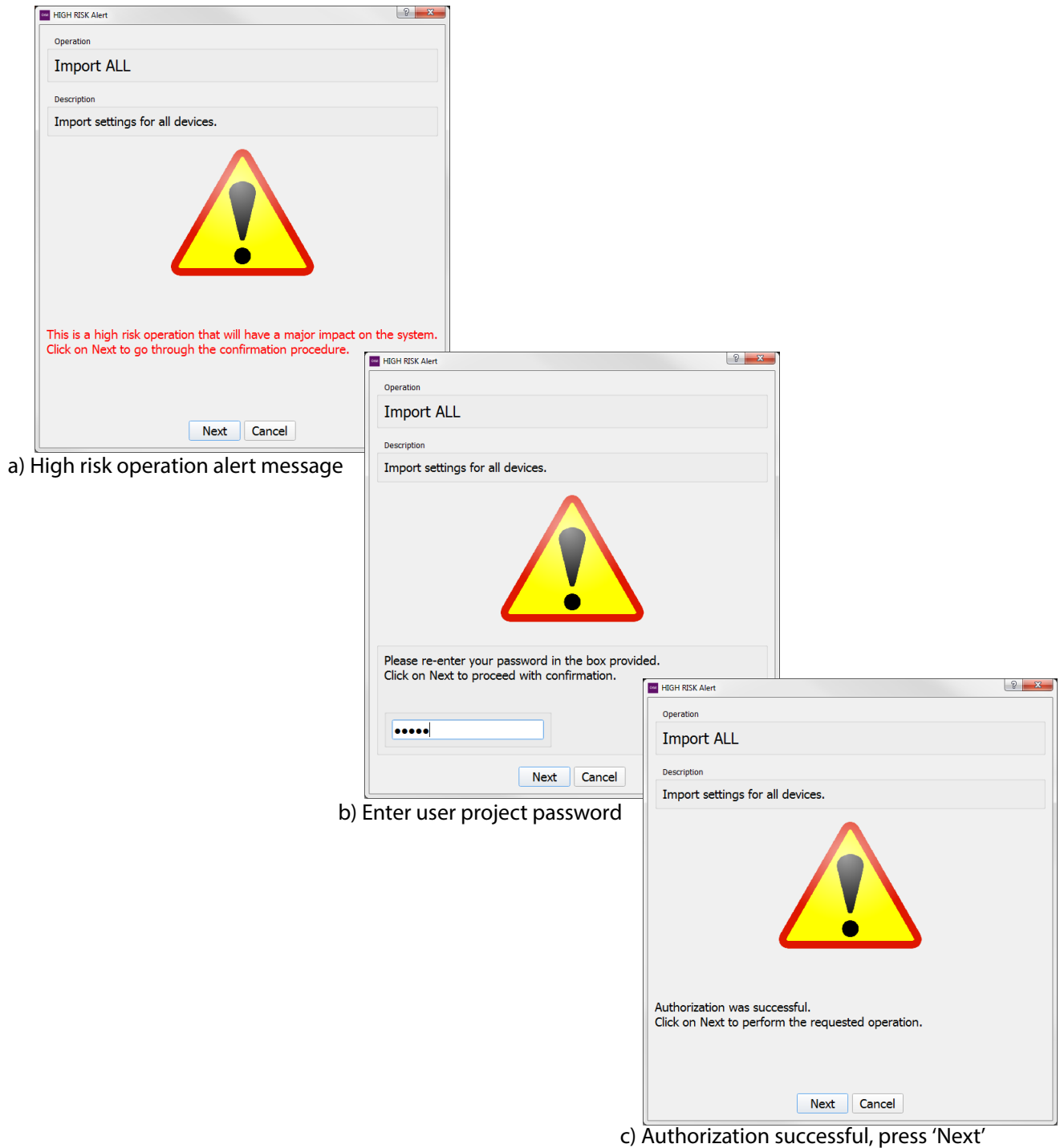
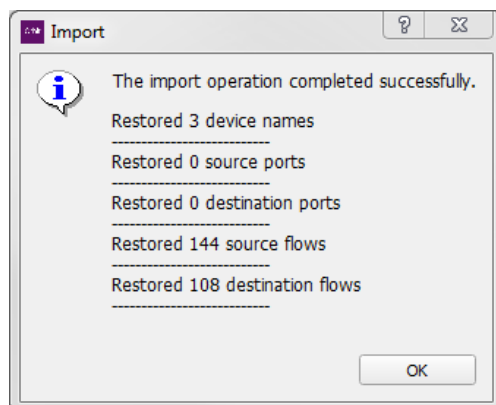


Figure 218 HIGH RISK Alert and Authorization:

- a) HIGH RISK Alert.
- b) Enter User Password.
- c) Authorization Successful.

- When the importing is complete, an 'Import' dialog shows a summary of what configuration settings have been restored.



The configuration in the spreadsheet has been imported into Orbit. All devices are now ready to be routed and the IP routing system is now ready to make routes.

Note: The 'Export' and 'Import' facility can be used to take a snapshot of settings and restore settings.

18.9 Device Configuration - Orbit User Interface Method

An alternative to using the spreadsheet method is to use the Orbit user interface: The same settings may be entered at the Orbit user interface via the various tabs of the Network Configuration Editor screen. The user can automatically generate the information that was manually entered into the spreadsheet.

Instructions on using the Orbit user interface to set up initial device information follow. The following will be set up:

- set up friendly device names;
- set up user-defined traditional router port numbers and names;
- set up all possible potential source flows; and
- clear any existing routes.

To set initial device information via the Orbit user interface, go to the Network Configuration Editor screen in Orbit:

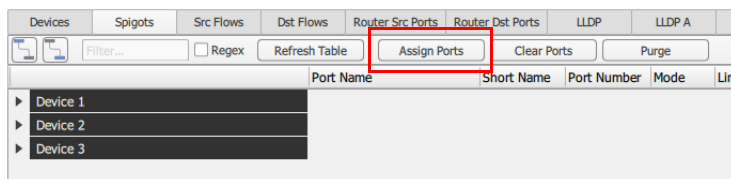
18.9.1 Set Device Names

1. On the Orbit 'Devices' tab, enter a friendly name for each device.

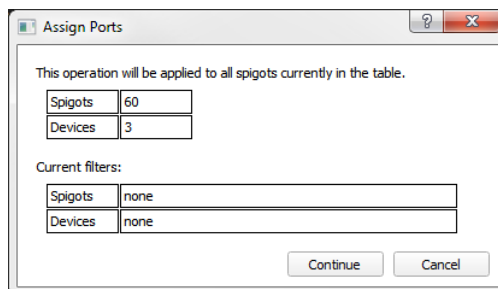
Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP B	Routing Status	Bandwidth Status
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDEVICE	49	8						
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	39	5						
{00000000-0000-4000-0000-000000000002}	{00000000-0000-4000-0000-000000000002}	TESTDEVICE	62	65						

18.9.2 Assign 'Traditional Router Style' Ports

2. On the 'Spigots' tab, click the 'Assign Ports' button to assign traditional router port numbers to device spigots.



The 'Assign Ports' dialog is shown.



3. Click 'Continue'.

This assignment operation is potentially disruptive to the IP routing system operation and a 'HIGH RISK Alert' message is shown (similar to that shown in Figure 218 on page 273), which requires the user to enter the user password to authorize the action.

4. Authorize the action and finally click 'Next' on the 'Authorization was successful' dialog. The 'Assign Port Mappings' dialog is shown.

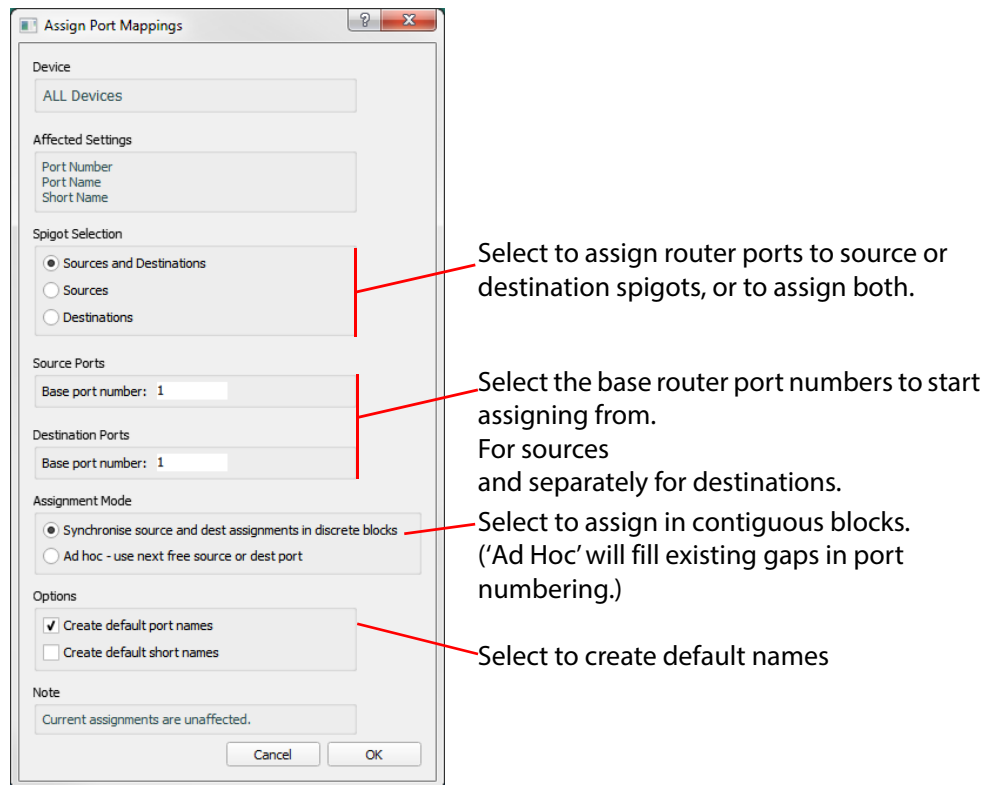


Figure 219 Assign Port Mappings Dialog

5. In the 'Assign Port Mappings' dialog (see Figure 219), select:
 - a To assign both Sources and Destinations.
 - b Which base port numbers to start numbering from.
 - c To assign ports contiguous blocks.
 - d To create default port names.

Click 'OK'.

Traditional router style port numbers have been assigned. See Figure 220 for an example.

Assigned Port names, automatically generated.

Assigned Port numbers.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A
Filter...		<input type="checkbox"/> Regex	Refresh Table	Assign Ports	Clear Ports	Purge	
	Port Name	Short Name	Port Number	Mode	Lin		
▼ Device 1							
Spigot 1	Device 1 S1		1	Src			
Spigot 2	Device 1 S2		2	Src			
Spigot 3	Device 1 S3		3	Src			
Spigot 4	Device 1 S4		4	Src			
Spigot 5	Device 1 S5		5	Src			
Spigot 6	Device 1 S6		6	Src			
Spigot 7	Device 1 S7		7	Src			
Spigot 8	Device 1 S8		8	Src			
Spigot 9	Device 1 D1		1	Dst			
Spigot 10	Device 1 D2		2	Dst			
Spigot 11	Device 1 D3		3	Dst			
Spigot 12	Device 1 D4		4	Dst			
Spigot 13	Device 1 D5		5	Dst			
Spigot 14	Device 1 D6		6	Dst			
Spigot 15	Device 1 D7		7	Dst			
Spigot 16	Device 1 D8		8	Dst			
Spigot 17	Device 1 D9		9	Dst			
Spigot 18	Device 1 D10		10	Dst			
Spigot 19	Device 1 D11		11	Dst			
Spigot 20	Device 1 D12		12	Dst			

Figure 220 Spigots Tab with Assigned Port Numbers and Names

18.9.3 Set Up Source Signals

The multicast parameters for source flows can be automatically created from certain base parameters which are set in the 'Properties' box, under the 'Src Flows' section. See Figure 221.

Property	Value
Comms Setup	
Network Settings	
Domain	101
IP Routing System Controller	<input type="checkbox"/> False
Default Spreadsheet	
Synchronous Tx	<input checked="" type="checkbox"/> True
General	
Show Offline Devices	<input checked="" type="checkbox"/> True
Row Height	22
Font Size	12
Devices	
Connection Scan	Manual Scan
Auto Interval	5
Manual Expiry	5
Spigots	
Spigot Filter	Show Both
Show Device Proxy	<input type="checkbox"/> False
Flows	
Spigot Filter	Show Assigned Only
Src Flows	
Video RTP Port	50100
Meta RTP Port	50102
Audio RTP Port	5004
Video Base Address A	239.20.1.1
Video Base Address B	239.21.1.1
Meta Base Address A	239.40.1.1
Meta Base Address B	239.41.1.1
Audio Base Address A	239.60.1.1
Audio Base Address B	239.61.1.1
Multicast Generation	Unique
Multicast Allocation	Allocate from first available address
Exclude Flood Addresses	<input checked="" type="checkbox"/> True
Bandwidth Ceiling	100
Bandwidth Checking	<input type="checkbox"/> False
Log	
Log Tx	<input type="checkbox"/> False
Log Rx	<input type="checkbox"/> False
Log Status	<input type="checkbox"/> False

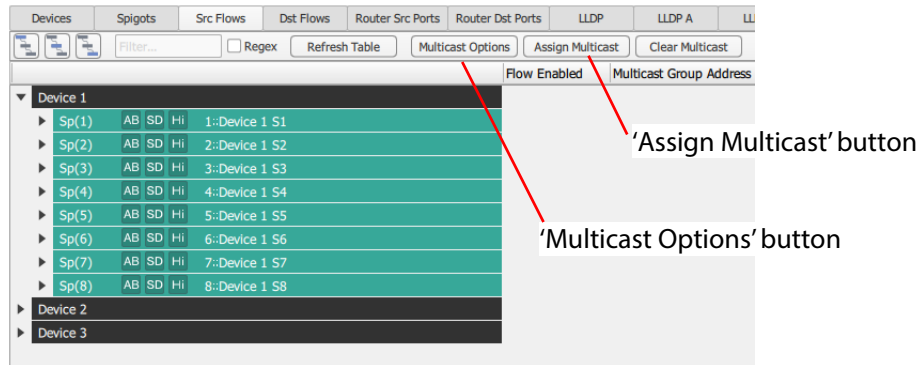
Figure 221 Properties Box - Src Flows Parameters

- 6. Set up the 'Src Flow' parameters in the 'Properties' box. These will be used to automatically generate the multicast group IP addresses etc for source flows.

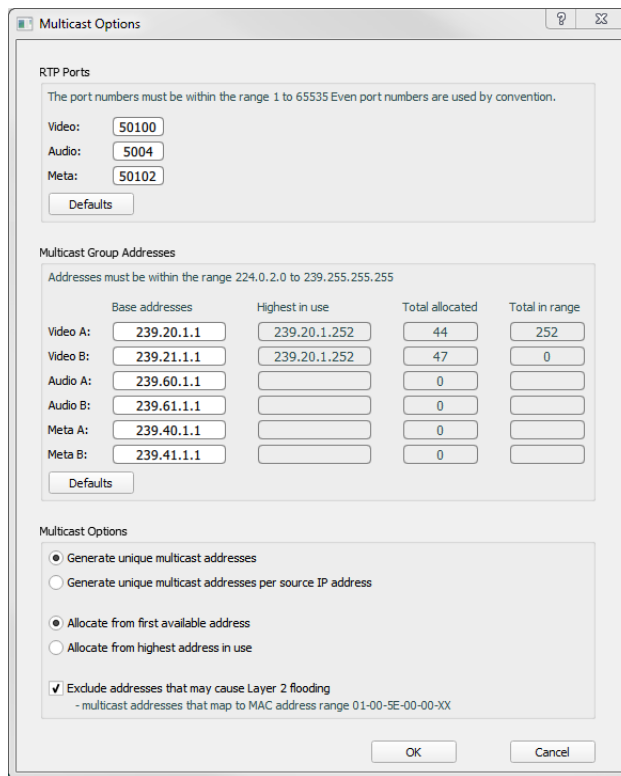
(See Section 3.4 "Properties List" on page 27 (Table 4 on page 28) for a description of each parameter and see Section 6.2.1 "Multicast Options" on page 92 for a description of each resulting parameter in the 'Multicast Options' dialog.)

After these parameters are set up in the 'Properties' box:

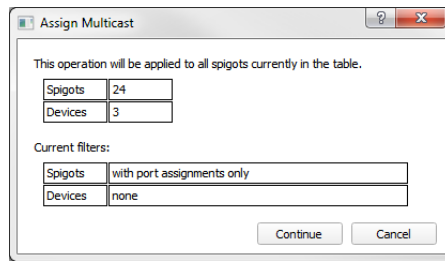
- 7. In the 'Src Flows' tab, click the 'Multicast Options' button.



The 'Multicast Options' dialog is shown. The parameters shown are derived from the 'Properties' box.



- 8. Confirm the base IP addresses and IP port numbers are as desired. And click 'OK'.
- 9. In the 'Src Flows' tab, click the 'Assign Multicast' button to assign multicast parameters to the source flows. The 'Assign Multicast' dialog is shown.

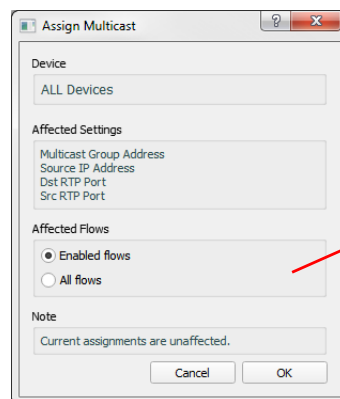


Click 'Continue'.

This assignment operation is potentially disruptive to the IP routing system operation and a 'HIGH RISK Alert' message is shown (similar to that shown in Figure 218 on page 273), which requires the user to enter the user password to authorize the action.

10. Authorize the action and finally click 'Next' on the 'Authorization was successful' dialog.

The 'Assign Multicast' dialog is shown.



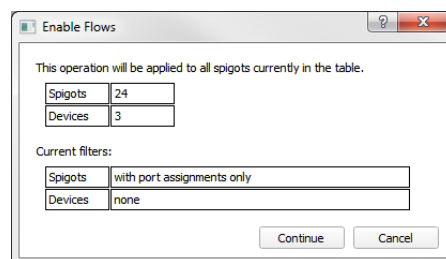
Select to assign multicast settings either just to enabled flows, or to all flows.

11. In the 'Assign Multicast' dialog, select to assign to all flows.

Click 'OK'.

12. In the 'Src Flows' tab, click the 'Enable Flows' button to enable flows from a source.

The 'Enable Flows' dialog is shown.

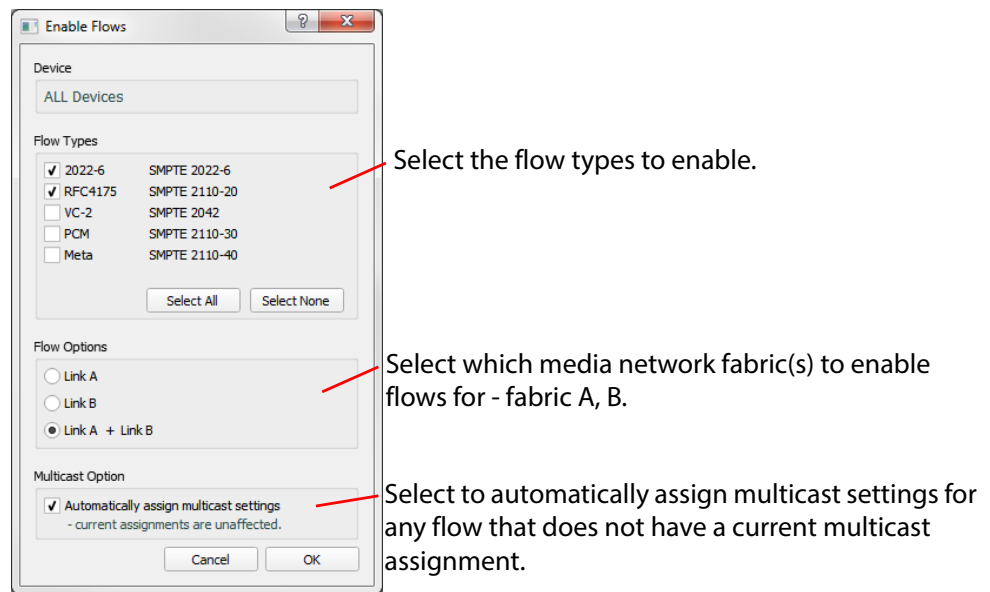


Click 'Continue'.

This assignment operation is potentially disruptive to the IP routing system operation and a 'HIGH RISK Alert' message is shown (similar to that shown in Figure 218 on page 273), which requires the user to enter the user password to authorize the action.

13. Authorize the action and finally click 'Next' on the 'Authorization was successful' dialog.

The 'Enable Flows' dialog is shown.



14. In the 'Enable Flows' dialog:

- Select flow type to enable.
- Select which fabric to enable flows for.
- Select to automatically assign multicast settings for any flow that does not have a current multicast assignment.

Click 'OK'.

15. When the 'Enable Flows' action is complete, a summary dialog is shown.

Source Device	Flow Type	Link	Compatible flows	Flows Set	Failed Bandwidth	Failed Error (see Log)
Device 1	2022-6;RFC4175	A + B	0	0		
Device 2	2022-6;RFC4175	A + B	0	0		
Device 3	2022-6;RFC4175	A + B	0	0		

Configuration has been done via the Orbit user interface. All devices are now ready to be routed and the IP routing system is now ready to make routes.

18.10 Making a Route

With the IP routing configured, sources (device source spigots) are assigned to be source ports of a traditional router and destinations (device destination spigots) are assigned to be destination ports of a traditional router. Thus, a signal route can be made using traditional router port numbers, i.e. source port M can be routed to destination port N. Operational routing is typically done via the system’s routing controller. However, this will not be described here; instead, some basic routing is described using Orbit’s ‘Router’ tab.

Note: The **Router** tab is designed to be an engineering tab for managing routes and can be used to make some initial routes on a system. It also provides a way of making routes in a small-scale system where there is *no* Grass Valley IP routing system controller (IP-RSC server).

18.10.1 How Do I See the Router Tab?

The Router tab is not shown on the Orbit Network Configuration Editor screen when there is an IP-RSC server present.

To show the Router tab, press ‘Control-R’

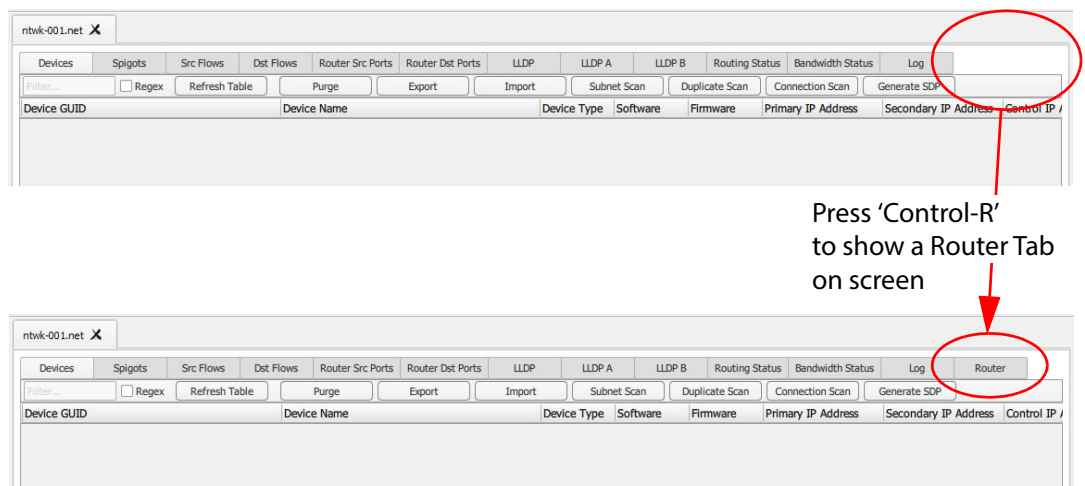


Figure 222 Router Tab ‘Control-R’

18.10.2 Make a Route with Router Tab

Click on the Router tab to display the Router tab screen. See Figure 223.

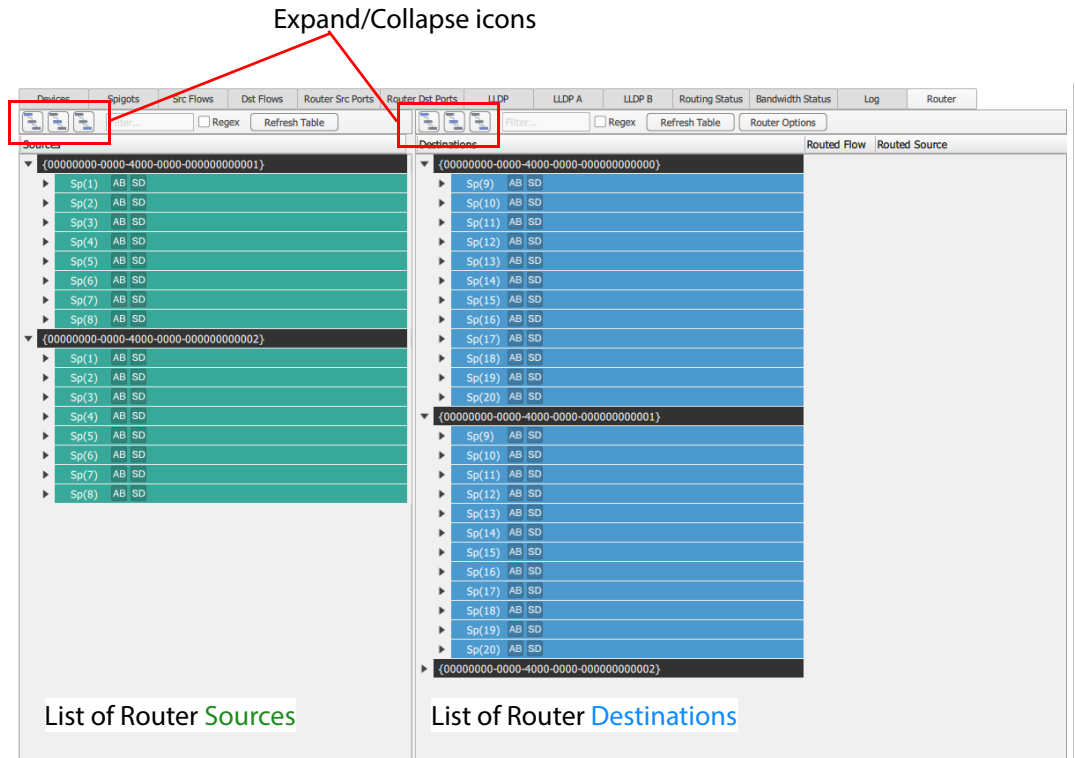


Figure 223 Router Tab Screen

1. Click on the Expand/Collapse icons to expand the list of sources and list of destinations by one level (i.e. down to spigots, not flows).

To make a route:

2. Click on a **destination** spigot to select it.
3. Click on a **source** spigot to pre-select it.

A 'Take' button appears on the screen. See Figure 224.

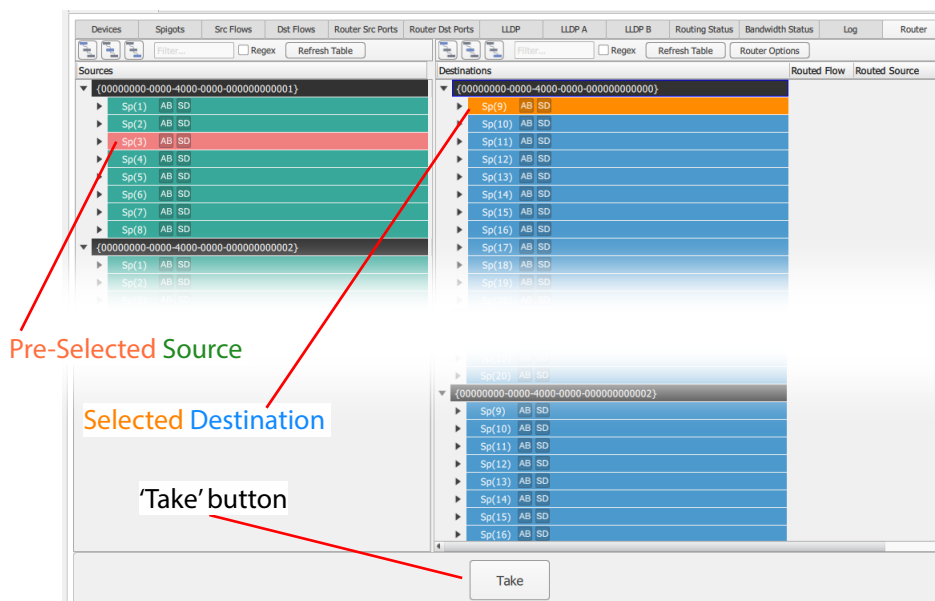


Figure 224 Selected Destination and Pre-Selected Source, 'Take' Button Shown

4. Click 'Take' to make the route.

The route is made and the 'Take' button disappears. See Figure 225.

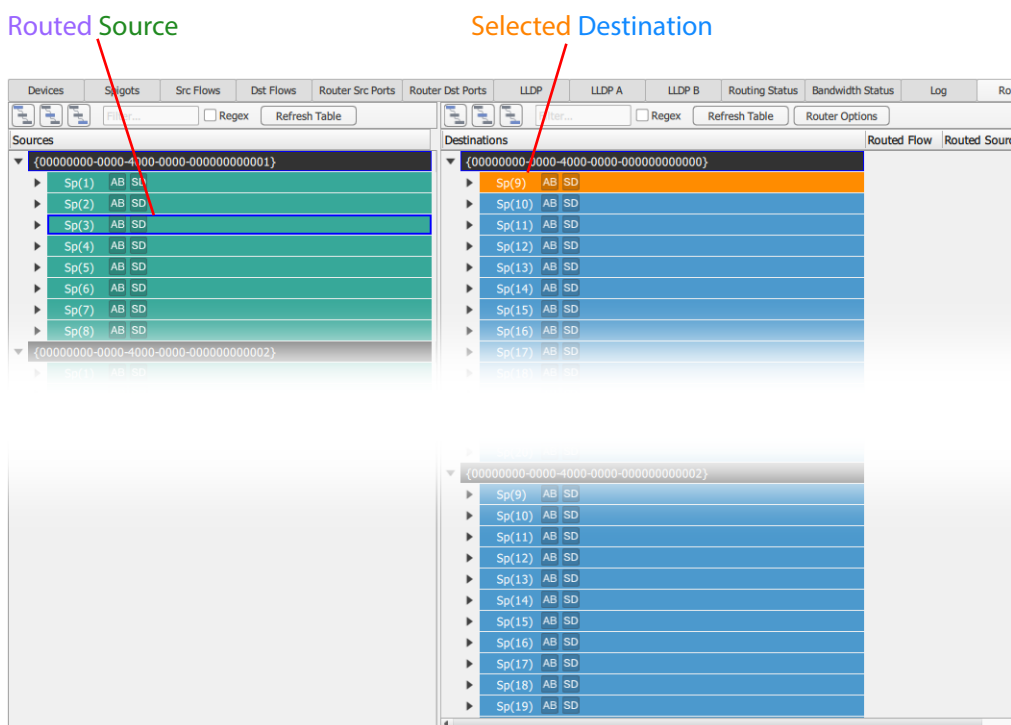


Figure 225 Route Made

19

19 How To's

This section contains some "How To's" for using Orbit for IP Routing.

How To's

19.1 How to Remove Off-line Devices from the 'Devices' Tab	285
19.1.1 Purge a Device	285
19.1.2 Purge Multiple Devices	286
19.2 How to Check if all Devices are in an IP Subnet	288
19.3 How to Check if any Devices have Duplicate Configurations	290
19.4 How to Check if a Device is Connected to the Media Networks	292
19.5 How to Show Flow Information in the 'Src Flows' or 'Dst Flows' Tabs	294
19.6 How to Show Information in the Orbit LLDP Tabs	296
19.7 How to See the 'Find Text' Tool on Orbit Tabs	296
19.8 How to Filter What is Shown on an Orbit Tab	296
19.9 How to See the Router Tab	296
19.10 How to See Devices in the 'Devices' Tab	297
19.11 How to See all Devices in the 'Devices' Tab	298
19.12 How to See all Spigots on the 'Spigots' Tab	298

19.1 How to Remove Off-line Devices from the 'Devices' Tab

Off-line devices are shown in red in the 'Devices' tab (see Figure 226). These can occur when contact with a device is lost.

Loss of contact could be as a result of a device/module/card fault or a network fault; under such fault conditions, a device should typically stay 'off-line' until the fault is resolved and it does not need to be removed.

However, if a device is no longer required and has been physically removed, then it can be purged from Orbit.

Device GUID	Device Name	Device Type	Software	Firmware	Primary IP A
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDEVICE	72	22	
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	87	72	
{00000000-0000-4000-0000-000000000002}	Device 3	TESTDEVICE	48	36	

Figure 226 Devices Tab Showing an Off-line Device

19.1.1 Purge a Device

In the 'Devices' tab:

1. Right click on the device GUID and click 'Purge'.

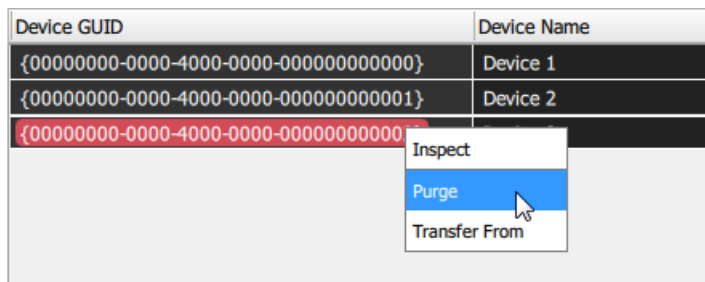
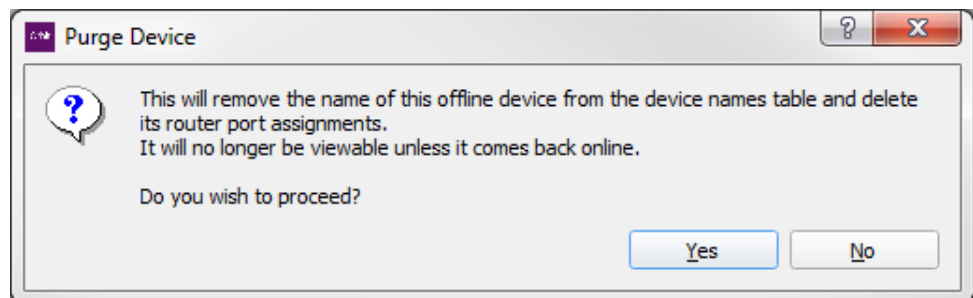


Figure 227 Purge a Single Device

A 'Purge Device' dialog is shown.



2. Click 'Yes' to proceed to purge the device.

The device disappears from the 'Devices' tab and has been purged from Orbit for IP Routing.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLD
Filter...	<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	S	
Device GUID	Device Name	Device T					
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDE					
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDE					

Figure 228 Device Purged

19.1.2 Purge Multiple Devices

To purge more than one device at a time, on the 'Devices' tab:

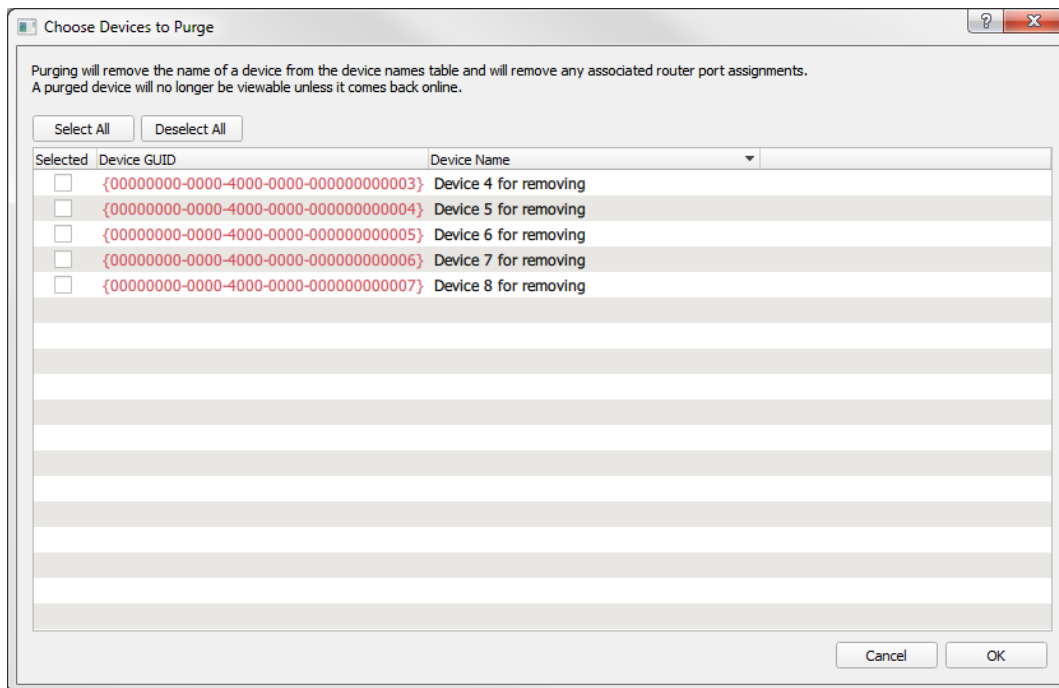
1. Click the 'Purge' button.

Purge button

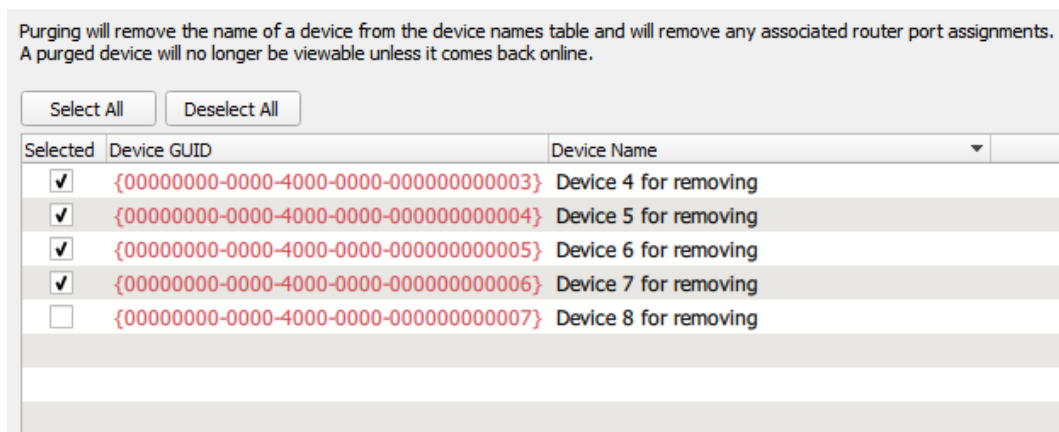
Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP
Filter...	<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	Subnet Scan		
Device GUID	Device Name	Device Type	Soft					
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDEVICE	43					
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	36					
{00000000-0000-4000-0000-000000000002}	Device 3	TESTDEVICE	21					
{00000000-0000-4000-0000-000000000003}	Device 4 for removing	TESTDEVICE	31					
{00000000-0000-4000-0000-000000000004}	Device 5 for removing	TESTDEVICE	10					
{00000000-0000-4000-0000-000000000005}	Device 6 for removing	TESTDEVICE	83					
{00000000-0000-4000-0000-000000000006}	Device 7 for removing	TESTDEVICE	71					
{00000000-0000-4000-0000-000000000007}	Device 8 for removing	TESTDEVICE	77					

Figure 229 Purge Button

The 'Choose Devices to Purge' dialog is shown.



2. Select devices in the list to purge.



3. Click 'OK' to purge selected devices. The selected devices are purged from the Orbit for IP Routing project. Any remaining off-line devices are still shown in the 'Devices' tab.

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP B
Filter...	<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	Subnet Scan		
Device GUID	Device Name	Device Type	Softw					
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDEVICE	43					
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	36					
{00000000-0000-4000-0000-000000000002}	Device 3	TESTDEVICE	21					
{00000000-0000-4000-0000-000000000007}	Device 8 for removing	TESTDEVICE	77					

For further information, see Section 4.1.1 "Purge Devices" on page 47.

19.2 How to Check if all Devices are in an IP Subnet

Device IP addresses etc. are set up as part of the configuration of each device. Each IP interface will have had its IP addresses etc. set up for the fabric A and B media networks. Orbit can check if the IP settings have been defined to fall within a (desired) subnet range.

This is explained with an example:

Example:

A media network's IP address range is defined to start from IP Address 172.19.164.0 and subnet mask 255.255.255.0 is used.

On the 'Devices' tab:

1. Click the "Subnet Scan" button.

'Subnet Scan' button

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP B	Routing Status
Filter...	<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	Subnet Scan	Duplicate Scan	Con	
Device GUID	Device Name	Device Type	Software	Firmware					
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDEVICE	43	62					
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	36	83					
{00000000-0000-4000-0000-000000000002}	Device 3	TESTDEVICE	21	77					

A 'Subnet Scan' dialog is shown.

Subnet Scan

Primary

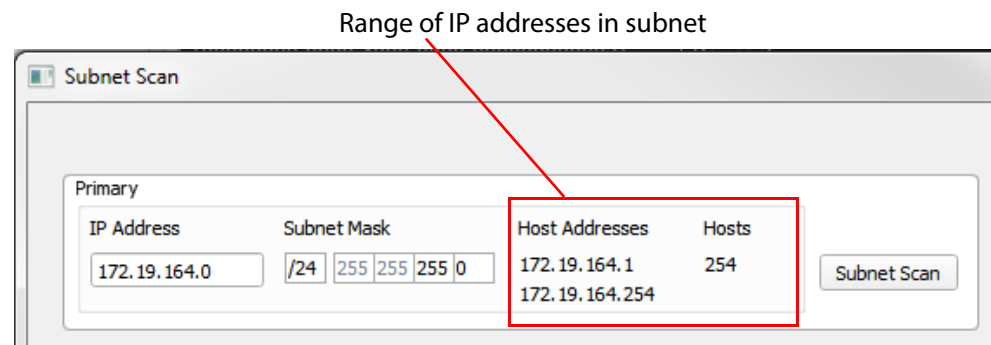
IP Address: Subnet Mask: Host Addresses: Hosts:

Secondary

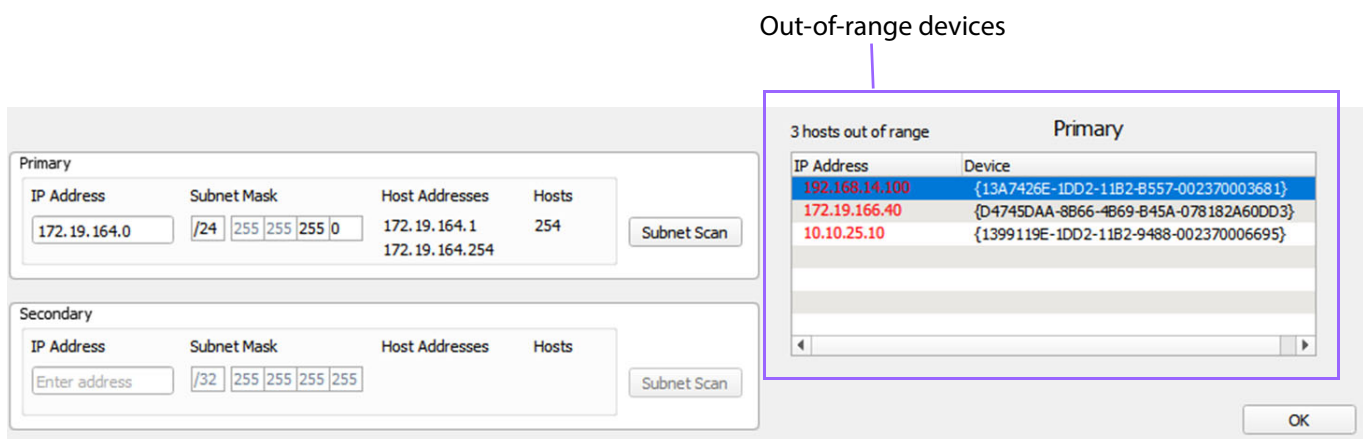
IP Address: Subnet Mask: Host Addresses: Hosts:

2. Enter:
 - a IP Address - base IP address required.
 - b Subnet Mask - the subnet mask to be used.

Orbit shows the resulting range of IP addresses in the subnet and the maximum number of possible hosts.



- Click the 'Subnet Scan' button in the dialog to check for IP addresses outside the range. Orbit lists out-of-range devices.



This identifies devices that are outside a subnet.

For further information, see Section 4.1.2 "Subnet Scan" on page 49.

19.3 How to Check if any Devices have Duplicate Configurations

Device IP addresses etc. are set up as part of the configuration of each device. This sets up each device IP interface with IP addresses etc. for the fabric A and B media networks. Orbit can check if any assigned IP address, device name etc. has been duplicated across all devices.

To check for any duplications, on the 'Devices' tab:

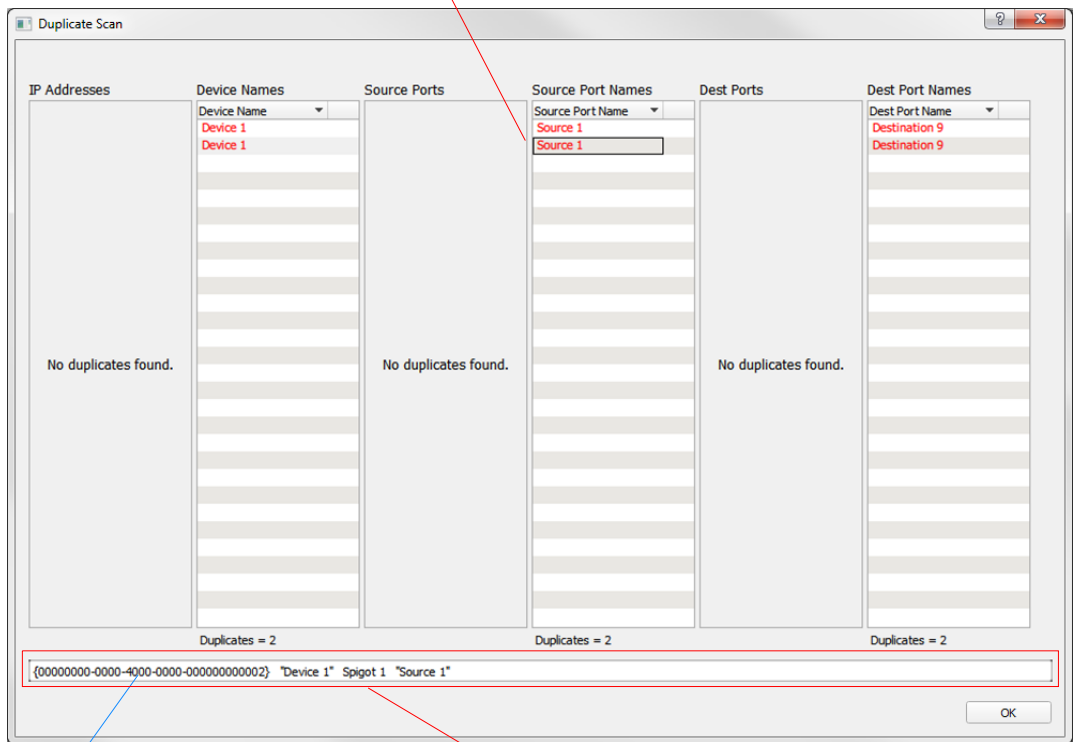
1. Click the 'Duplicate Scan' button.

'Duplicate Scan' button

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	LLDP	LLDP A	LLDP B	Routing Status
Filter...	<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	Subnet Scan	Duplicate Scan	Con	
Device GUID	Device Name	Device Type	Software	Firmware					
{00000000-0000-4000-0000-000000000000}	Device 1	TESTDEVICE	43	62					
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	36	83					
{00000000-0000-4000-0000-000000000002}	Device 3	TESTDEVICE	71	77					

The 'Duplicate Scan' dialog appears which shows any: duplicate IP address; device name; source port number and name; and destination port number and name. See the example of Figure 230.

Select item



Device GUID

Device information about selected item

Figure 230 Duplicate Scan Dialog

2. Click on an item to select it.

More information appears about the device in the lower text box, including the device GUID.

For further information, see Section 4.1.3 "Duplicate Scan" on page 52.

To investigate the duplicates further, search for devices by GUID in the relevant Orbit tab and resolve any duplicate. To see just one device in a tab:

- Copy-paste a device GUID from the 'Duplicate Scan' dialog into the filter box on an Orbit tab to show just that device.

Device GUID pasted into filter box

Device GUID	Device Name	Device Type	Software
{00000000-0000-4000-0000-000000000000}	Device A	TESTDEVICE	7

Figure 231 Device GUID Filtering in Devices Tab

For more information, see

To find duplicate items on a tab. In the tab:

- Press 'Control-F' to show the 'Find Text' tool, then select 'Mark All', and enter the text to find.

'Find Text' tool

'Text to find' entered

Select 'Mark All'

Device GUID	Device Name	Device Type	Software	Firmware	Primary IP Address
{00000000-0000-4000-0000-000000000001}	Device 2	TESTDEVICE	67	76	
{00000000-0000-4000-0000-000000000000}	Device A	TESTDEVICE	7	99	
{00000000-0000-4000-0000-000000000002}	Device A	TESTDEVICE	7	99	

All occurrences of the find text are highlighted

All occurrences of the 'find text' are highlighted.

Note: 'Control-F' toggles showing the 'Find Text' tool on the tab.

For more information, see Section 3.7 "Find Text" on page 39.

19.4 How to Check if a Device is Connected to the Media Networks

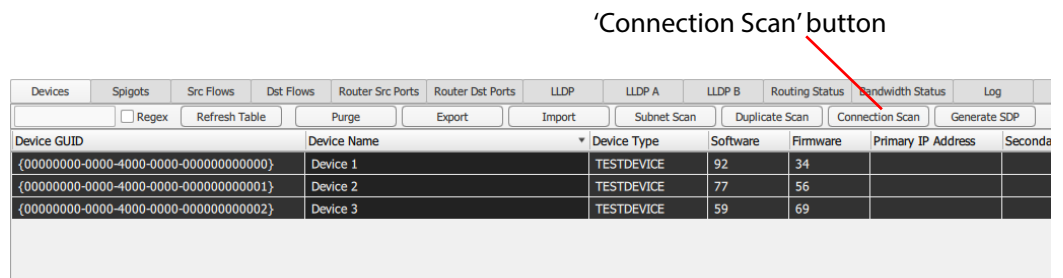
Devices have one or more media network connections and a control network connection. Devices are highlighted in red in Orbit if the control connection to them is down.

Devices may be controlled either in-band or out-of-band: In-band means control is done over the media network(s); out-of-band means there is a separate control network. Thus, it is possible for a device to be controllable but to have no connection to media network(s).

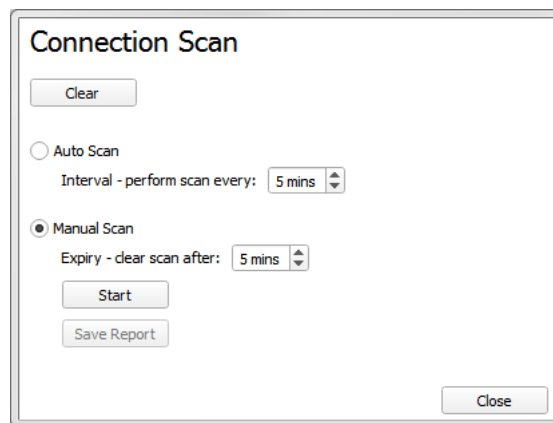
Orbit can perform a network scan. This is a 'ping' of device IP interfaces to test for network connectivity.

On the 'Devices' tab:

1. Click the "Connection Scan" button.



2. A 'Connection Scan' dialog is shown.



3. Click 'Start'.

A connection scan is carried out and the results are displayed on the 'Devices' tab in IP address columns. See Figure 232. Interfaces that can be pinged have a green tick against them.

'Connection Scan' results shown as icons

(All possible icons are shown in Figure 42 on page 53 in Section 4.1.4 Connection Scan)

Devices	Spigots	Src Flows	Dst Flows	Router Src Ports	Router Dst Ports	Routing Status	Bandwidth Status	Log
<input type="checkbox"/> Regex	Refresh Table	Purge	Export	Import	Subnet Scan	Duplicate Scan	Connection Scan	Generate S
Device GUID	Device Name	Device Type	Software	Firmware	Primary IP Address	Secondary IP Address	Control IP Address	
{13A19D1E-1DD2-11B2-A229-002370003249}	IQEDGE40	IQEDGE40_8	8.82.38	E1A3563A	✓ 10.200.10.2	✓ 10.200.20.2		
{1A6A8520-1DD2-11B2-8E80-002370002562}	KudosProIP 1	IQMIX00	10.61.53	D5230DC9	✓ 10.200.10.11	✓ 10.200.20.11		
{1A6A8520-1DD2-11B2-83DA-002370002559}	KudosProIP 2	IQMIX00	10.61.53	D5230DC9	✓ 10.200.10.21	✓ 10.200.20.21		
{1A6A0FF0-1DD2-11B2-9229-002370002561}	MIX10 1	IQMIX00	10.61.53	D5230DC9	✓ 10.200.10.38	✓ 10.200.20.38		
{1A6A5E10-1DD2-11B2-9CCF-002370002566}	MIX10 2	IQMIX00	10.61.53	D5230DC9	✓ 10.200.10.37	✓ 10.200.20.37		
{13A323BE-1DD2-11B2-A0D6-00237000480F}	MIX40 1	IQMIX4000	10.61.53	D5234098	✓ 10.200.10.4	✓ 10.200.20.4		
{13A67F1E-1DD2-11B2-858A-0023700047F8}	MIX40 2	IQMIX4000	10.61.53	D5234098	✓ 10.200.10.5	✓ 10.200.20.5		
{13AAEBEE-1DD2-11B2-8D81-0023700048A1}	MIX40 3	IQMIX4000	10.61.53	D5234098	✓ 10.200.10.6	✓ 10.200.20.6		
{139E8FDE-1DD2-11B2-80AC-0023700048B2}	MIX40 4	IQMIX4000	10.61.53	D5234098	✓ 10.200.10.8	✓ 10.200.20.8		
{13A6580E-1DD2-11B2-B91E-002370003266}	MIX40 5	IQMIX4000	10.61.53	D5234098	✓ 10.200.10.9	✓ 10.200.20.9		
{13A67F1E-1DD2-11B2-858A-002370003235}	MIX40 6	IQMIX4000	10.61.53	D5234098	✓ 10.200.10.10	✓ 10.200.20.10		
{13962B6E-1DD2-11B2-8B3E-00237000494F}	Mixer Input A	KahunaIPI10	7.9.R6	0	✓ 10.200.10.13	✓ 10.200.20.13		
{13A2877E-1DD2-11B2-9814-002370004957}	Mixer Input B	KahunaIPI10	7.9.R6	0	✓ 10.200.10.14	✓ 10.200.20.14		
{1396798E-1DD2-11B2-A08A-00237000231B}	Mixer Output B	KahunaIPO10	7.9.R6	0	✓ 10.200.10.16	✓ 10.200.20.16		
{D79424B7-E29D-409F-818C-8AF3ABBD70DC}	MV-805 1	MV-805	1.2.12	n/a	✓ 10.200.10.12	✓ 10.200.20.12	10.100.250.205	
{9298476C-A3B7-499C-A0DC-87D66380A815}	MV-805 2	MV-805	1.2.12	n/a	✓ 10.200.10.31	✓ 10.200.20.31	10.100.250.215	

Figure 232 Connection Scan Results

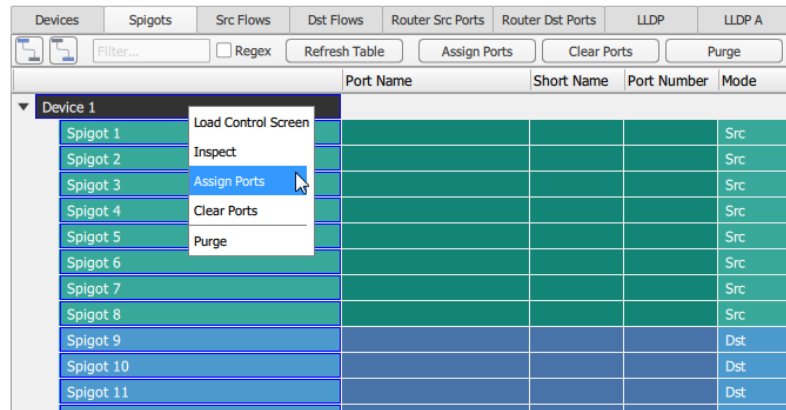
For further information, see Section 4.1.4 "Connection Scan" on page 53.

19.5 How to Show Flow Information in the 'Src Flows' or 'Dst Flows' Tabs

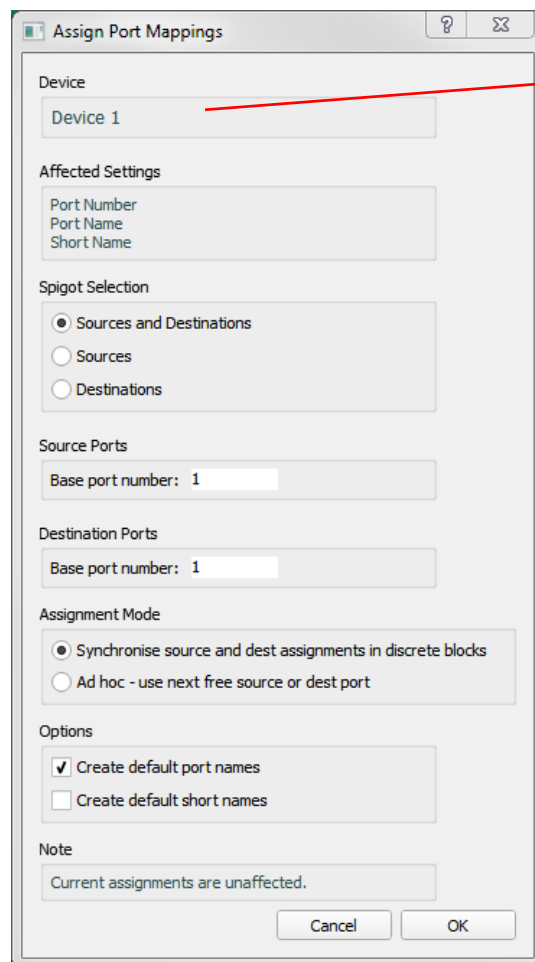
A device may be visible in the 'Devices' tab and its spigots may be visible in the 'Spigots' tab, but it is possible that no flow information is shown in the 'Src Flows' or 'Dst Flows' tabs. For a source spigot to generate a flow or a destination spigot to receive a flow, the spigot must be 'routable'; i.e. the spigot must be assigned a router port number. This is done via 'Assign Ports'.

In the 'Spigots' tab:

1. Right click on a device name and select 'Assign Ports'.



The 'Assign Port Mappings' dialog is shown.



Device(s) to be assigned port numbers

Figure 233 Assign Port Mappings Dialog

2. Configure the following options in the dialog:

- a Spigot selection: Sources, destinations or both.
 - b The base number from where port numbering should start.
 - c Whether port assignment should be in contiguous blocks or fill the gaps by using the next free number.
 - d Create default port names.
3. Click 'OK' to assign router ports to the spigots.

After route port numbers have been assigned:

- the 'Spigots' tab shows the router port numbers and names; and
- the 'Src Flows' and 'Dst Flows' tabs show flow information about the device.

19.6 How to Show Information in the Orbit LLDP Tabs

The "LLDP", "LLDP A" and "LLDP B" tabs do not show Useful Information

LLDP stands for Link Layer Discovery Protocol. LLDP enables a network IP switch and a device to discover information about each other. For this feature to work, the network IP switch must have LLDP enabled. Discuss LLDP configuration of your switch with your switch vendor.

When LLDP is enabled on the network IP switch, the Orbit "LLDP", "LLDP A" and "LLDP B" tabs can show information about the network IP switch to which a device is connected; information includes including the network port on the switch used by the device.

This information is useful to identify various system problems. For example, incorrect cabling where the fabric A network is connected to the fabric B network, or vice versa.

For more information about Orbit and LLDP, see Section 10 "Tabs - LLDP Tabs" on page 160.

19.7 How to See the 'Find Text' Tool on Orbit Tabs

Press 'Control-F' to show the 'Find Text' tool.

For more information, see Section 3.7 "Find Text" on page 39.

19.8 How to Filter What is Shown on an Orbit Tab

Use the 'Filter' tool. For more information, see Section 3.6 "Filter Tools" on page 35.

Remember to clear the filter text after use.

19.9 How to See the Router Tab

The 'Router' tab is normally shown on the Orbit Network Configuration Editor screen when there is no Grass Valley IP routing system controller (IP-RSC server) present in the system.

The 'Router' tab is *not* normally shown when there *is* a Grass Valley IP routing system controller (IP-RSC server) present in the system. In this case, to show the 'Router' tab, press 'Control-R'.

19.10 How to See Devices in the 'Devices' Tab

Orbit auto-discovers devices. To do this, Orbit must be:

- connected to the correct network; and
- be configured to use the same RollCall+ Domain as all the network devices.

Network devices can operate either in-band or out-of-band mode. In-band means device control is done via the media network(s). Out-of-band means device control uses a separate, dedicated 'control' network.

To set up Orbit to auto-discover devices:

1. Click the 'Comms Setup' button on the Orbit Network Configuration Editor screen. See Figure 234.

A 'Comms Setup' dialog is shown. See Figure 235.

'Comms Setup' button

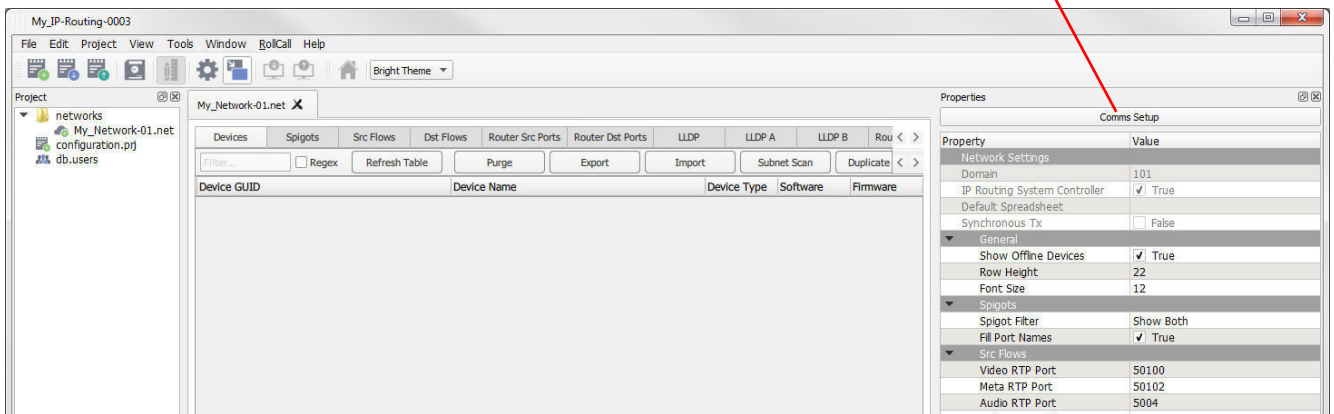


Figure 234 Network Configuration Editor Screen and Comms Setup Button

Note: If the 'Properties' box is not visible, go to 'View > Windows' in the main menu bar and ensure 'Properties Window' is selected.

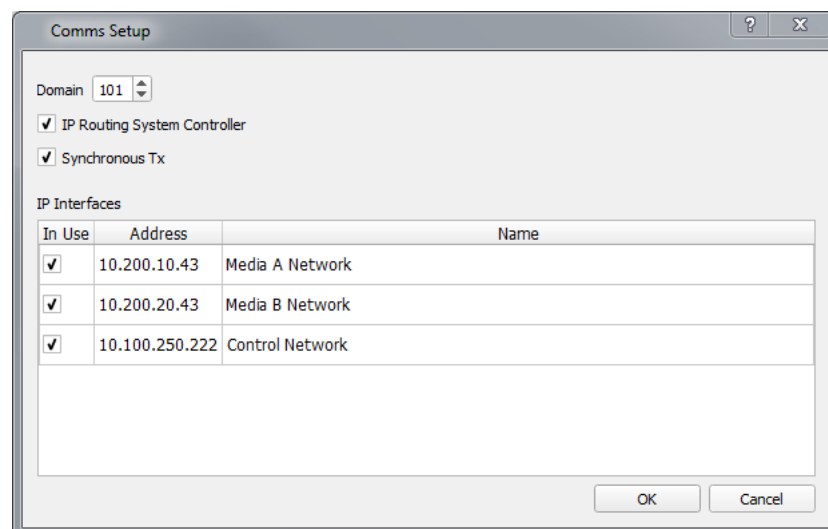


Figure 235 'Comms Setup' Dialog.

To configure the RollCall+ domain:

2. Set 'Domain' to match the domain used on the network devices of the IP routing network. (All devices, including any IP-RSC and/or IQTIC devices.)

To configure PC network interfaces that Orbit should use to communicate with network devices. In the 'IP Interfaces' section of the dialog:

3. Enable the PC network interfaces for Orbit to use to communicate with network devices.

For in-band configuration, enable the media interface(s).

For out-of-band configuration, enable the media and control network interfaces.

For cases where *both* in-band and out-of-band configuration is supported, enable media and control network interfaces.

Important

Do not enable more than four network interfaces.

4. Click OK to close the 'Comms Setup' window.

19.11 How to See all Devices in the 'Devices' Tab

The 'Devices' tab (and the majority of other tabs) have a filter tool in the menu bar. The filtering is applied to all columns on the page. Devices that do not match the filter are not shown on the page. Each tab can have a different filter applied.

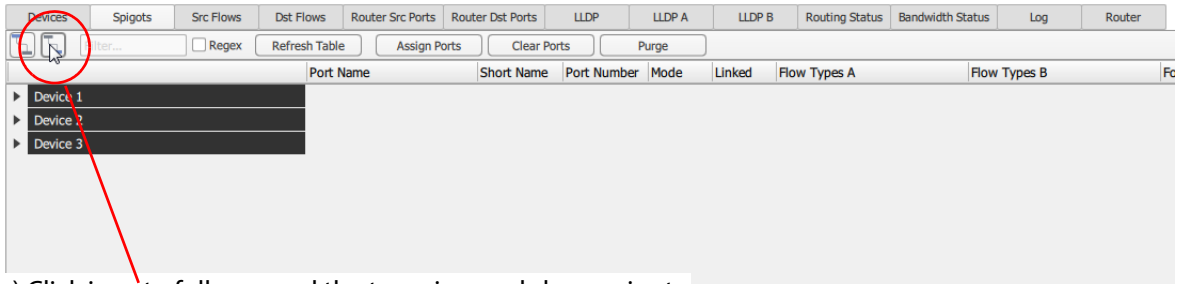
For more information, see Section 3.6 "Filter Tools" on page 35.

To see all devices:

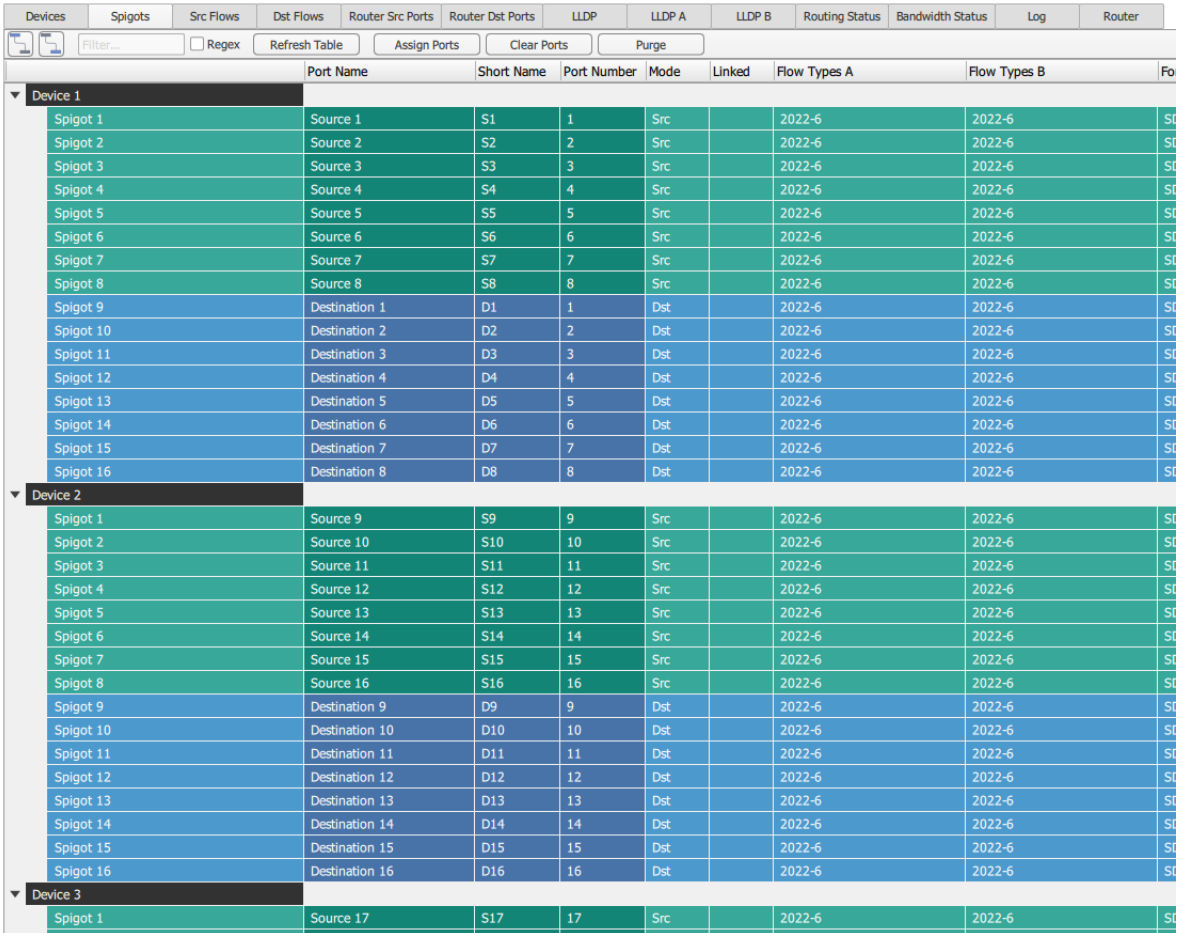
- Check that the filter tool text field is clear.

19.12 How to See all Spigots on the 'Spigots' Tab

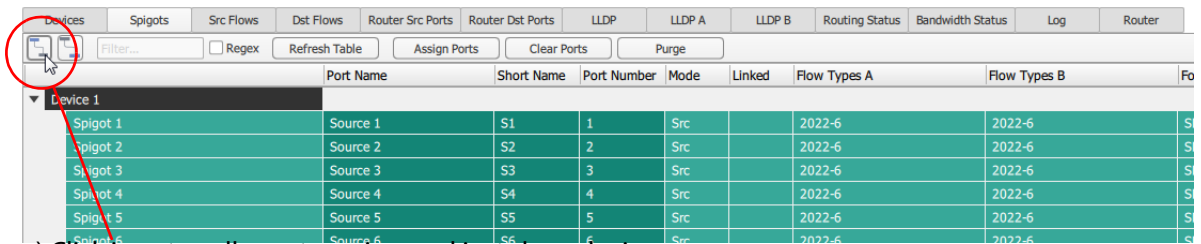
Spigots are shown as a tree view under each device in the 'Spigots' tab. The tree view can be collapsed or expanded to show only the devices, or the device and all its spigots, respectively. See Figure 236, and see Figure 237 for expanding/collapsing a single device tree view.



a) Click icon to fully expand the tree view and show spigots.



b) Fully expanded tree view.



c) Click icon to collapse tree view and just show devices.

Figure 236 Expanding and Collapsing Tree View of All Devices:

a) Click Icon to Expand; b) Fully Expanded Tree View; c) Click Icon to Collapse.

Port Name	Short Name	Port Number	Mode	Linked	Flow Types A	Flow Types B	For
Device 1							
Device 2							
Device 3							

a) Click icon to expand a single device tree view.

Port Name	Short Name	Port Number	Mode	Linked	Flow Types A	Flow Types B	For
Device 1							
Device 2							
Spigot 1	Source 9	S9	9	Src	2022-6	2022-6	ST
Spigot 2	Source 10	S10	10	Src	2022-6	2022-6	ST
Spigot 3	Source 11	S11	11	Src	2022-6	2022-6	ST
Spigot 4	Source 12	S12	12	Src	2022-6	2022-6	ST
Spigot 5	Source 13	S13	13	Src	2022-6	2022-6	ST
Spigot 6	Source 14	S14	14	Src	2022-6	2022-6	ST
Spigot 7	Source 15	S15	15	Src	2022-6	2022-6	ST
Spigot 8	Source 16	S16	16	Src	2022-6	2022-6	ST
Spigot 9	Destination 9	D9	9	Dst	2022-6	2022-6	ST
Spigot 10	Destination 10	D10	10	Dst	2022-6	2022-6	ST
Spigot 11	Destination 11	D11	11	Dst	2022-6	2022-6	ST
Spigot 12	Destination 12	D12	12	Dst	2022-6	2022-6	ST
Spigot 13	Destination 13	D13	13	Dst	2022-6	2022-6	ST
Spigot 14	Destination 14	D14	14	Dst	2022-6	2022-6	ST
Spigot 15	Destination 15	D15	15	Dst	2022-6	2022-6	ST
Spigot 16	Destination 16	D16	16	Dst	2022-6	2022-6	ST
Device 3							

b) Single device expanded tree view.

Port Name	Short Name	Port Number	Mode	Linked	Flow Types A	Flow Types B	For
Device 1							
Device 2							
Device 3							

c) Click icon to collapse single device view.

Figure 237 Expanding and Collapsing Tree View for A Single Device:

a) Click to Expand Single Device.

b) Expanded Single Device View.

c) Click to Collapse.

Appendix A Glossary of IP Routing Terminology



This section describes the terminology used when discussing Grass Valley video IP networks:

Table 60 Glossary of Terms

Break before Make	A media switching mode for switching between two media streams, in which connection to the current stream is dropped before connection to a new stream is made.
Client Control Network	IP network dedicated for video system device control.
COTS	Commercial Off-The-Shelf. Refers to hardware that is not specific to an industry, but is generic and readily available. For example, a high-performance IP Network Switch.
Destination	Receiver of one or more flows.
Device	A data processing or bridging device in an IP routing network. For example, a video processing device with input and output video IP streams.
Downstream, Southbound	Describes Media Network data packet and Edge Device Control Network data packet traffic.
Edge Device	A device that performs a bridging function between conventional video and audio (SDI, MADI) and video/audio over IP.
Essence	A general term used to describe a component of a media signal. Video, Audio and Metadata are all essences.
Fabric	Term for the combination of hardware and software the forms a network.
Fabric A, Fabric B	Fabric "A" and Fabric "B" describes the two identical network systems that form an IP media network with a redundant network topology.
FEC	Forward Error Correction. A technique for controlling errors in data transmission where the sender encodes message in a redundant way by using an error-correcting code. The redundancy allows the receiver to detect and correct errors.
Flow	Another term for an elementary IP stream, usually a sequence of real-time data. For example, TR-03 describes how a media stream (e.g. an original SDI stream) may be sent as three flows: Video, Audio and Ancillary essence data.
GUID	Acronym. Globally Unique Identifier. A unique identifier applied to devices in the Grass Valley IP routing system. (A GUID is a random 128-bit long number, often expressed in 32 hexadecimal digits. Maximum value 2^{128} or 10^{39}) A GUID is used in Grass Valley's RollCall+.

Table 60 Glossary of Terms (Continued)

HBRMT	High Bit-Rate Media Transport, associated with the technique of SMPTE 2022-6.
IEEE 1588	<p>A Precision Time Protocol (PTP) to synchronize distributed clocks to within 1 microsecond via Ethernet networks.</p> <p>PTP runs on IP networks, transferring precision time to slave devices via a 1 GHz virtual clock (time base). It is used to synchronize TR-03 elementary streams.</p>
IGMPv3	<p>Internet Group Management Protocol.</p> <p>Communications protocol used in IP multicasting by client IP devices and an IP router to establish multicast group membership.</p> <p>For example, the routing function of a traditional video router can be replicated with a IP Network Router Controller device and a COTS IP Switch which supports the IGMPv3 protocol.</p>
In-Band Edge Control	<p>Edge device control network topology where control messages are carried in the media IP network.</p> <p>(See "Out-of-Band" Edge Control.)</p>
IP Address	<p>An Internet Protocol (IP) address is a label assigned to a device's connection to an IP network. It serves to identify the network and the device.</p> <p>In this manual 32-bit IPv4 IP addresses are used.</p> <p>For example: 10.200.10.2</p>
IP Router	A device that connects networks together.
IP Switch	A device that connects many network lines together. Many users can communicate and more than one transaction can occur at a time on network.
Level	A set of router sources and destinations, which are normally of one signal type, which can all be routed to each other.
LLDP	<p>Link Layer Discovery Protocol (LLDP).</p> <p>This is an open IP protocol used in IEEE 802.1ab to discover a network device's identity and abilities, and to make physical network topology information available. Information is readable via standard network management protocols, such as SNMP.</p>
MAC Address	<p>Media Access Control (MAC) address is a unique 48-bit identifier assigned to a network interface connection of a network device.</p> <p>For example: 5C-26-0A-39-21-EE.</p>
Make before Break	A media switching mode for switching between two media streams, in which connection to a new stream is made before connection to the current stream is dropped.
Married	<p>'Married', here in the Orbit context, means that every routed flow at a destination spigot is coming from the same source spigot.</p> <p>'Not married' means that a destination spigot has source flows routed to it from more than one source spigot.</p>
Media IP network	A high-capacity network dedicated to carrying high bit rate media.
Multicast IP Stream	A "one to many" IP stream which is used to send an IP flow. It is assigned an IP address (multicast group address) and is also identified by the IP address of the source of the IP flow.
Network	<p>A group of two or more Ethernet-enabled systems linked together via IP.</p> <p>In the case of broadcast video IP network, a local area network optimized for the transfer and broadcast of real-time, high bandwidth video IP streams</p>

Table 60 Glossary of Terms (Continued)

Northbound, Upstream	Describes Client Router Control network data packet traffic. (Compare to Southbound, Downstream.)
Out-of-Band Edge Control	Edge device control network topology where control messages are carried by a separate, dedicated IP network. (See "In-Band Edge" Control.)
PIM	Protocol-Independent Multicast (PIM) is a family of multicast routing protocols for Internet Protocol (IP) networks that provide 'one-to-many' and 'many-to-many' distribution of data. PIM is protocol-independent - it does not include its own topology discovery mechanism, but instead uses routing information supplied by other routing protocols.
PIM-SSM	Protocol Independent Multicast and Source Specific Multicast. A multicast mode for 'one-to-many'.
Primary IP Address	IP Address of network interface to connect to 'Fabric A'. (See Secondary IP Address.)
PTP	See SMPTE 2059.
RFC-4175	TR-03 uses Internet Engineering Task Force's (IETF) RFC-4175 to pack (uncompressed) active video lines into an RTP IP stream.
Router Control Network	IP network dedicated for video or audio router control.
RTP	Real-time Transport Protocol. (RFC 3550) An IP standard which specifies a way to manage the real-time transmission of multimedia data over a network.
SDI	Serial Digital Interface. A method for packing real-time media (uncompressed video, audio and metadata essences) into a digital serial bit stream and sending it over a low-latency, point-to-point electrical link (typically a coaxial cable).
Secondary IP Address	IP Address of network interface to connect to 'Fabric B'. (See Primary IP Address.)
SMPTE 2022-6	A transport protocol standard for the real time transport of high bit-rate video/audio data over IP networks, where the entire payload of the SDI signal is encapsulated as one IP stream. The video, audio and ancillary data signals are wrapped up into a single IP stream. It is a "multiplex" standard. Designed to be applied to television transport for broadcast production and is not intended for emission purposes.
SMPTE 2022-7	A standard for the seamless reconstruction of a stream from the transmission of two streams of identical content over potentially diverse paths. Enables cost-effective redundant network operation. Two networks are used (fabric A and fabric B) and a full stream is sent on each network. A receiving device can switch between two received streams and recover the content of the original full stream.
SMPTE 2059	A time synchronization standard for the distribution of time and a time base to every device in an IP system. Also known as PTP.

Table 60 Glossary of Terms (Continued)

SMPTE 2110	<p>A transport protocol standard for the real time transport of high bit-rate video/audio data over IP networks, where each separate part of the SDI signal payload is sent as a separate stream.</p> <p>I.e. the video, audio and ancillary data signals are sent in separate IP flows and are all separately routable.</p> <p>Designed to be applied to television transport for broadcast production and is not intended for emission purposes.</p>
SSM	<p>Source-specific multicast (SSM) is a method of delivering multicast packets in which the only packets that are delivered to a receiver are those originating from a specific source address requested by the receiver.</p> <p>By so limiting the source, SSM reduces demands on the network and improves security.</p> <p>SSM is supported by IGMPv3.</p>
Southbound, Downstream	<p>Describes Media Network data packet and Edge Device Control Network data packet traffic.</p> <p>(Compare to Northbound, Upstream.)</p>
Stream	<p>Term usually associated with delivery of constant, real-time media (e.g. Audio, Video) over IP networks with a stream of data packets.</p>
Spigot	<p>A generic term for a source or a destination of one or more flows.</p>
Source	<p>Originator of one or more flows.</p>
Subscribe / Unsubscribe	<p>Request to join / leave a multicast IP stream.</p>
TCP	<p>Transmission Control Protocol (TCP) is a connection-based protocol for sending data over a network with guaranteed delivery.</p>
TR-03	<p>A Video Services Forum (VSF) Technical Recommendation concerning the transport of time-related uncompressed media over IP.</p> <p>Carriage of video, audio and ancillary data in separate elementary streams to provide greater flexibility in the production of media.</p>
TR-04	<p>A Video Services Forum (VSF) Technical Recommendation concerning the transport of encapsulated video streams (with embedded audio, metadata and blanking) and additional audio streams over a network.</p>
UDP	<p>User Datagram Protocol (UDP) is a connectionless protocol for sending data over an IP network but does not guarantee delivery.</p>
Upstream, Northbound	<p>Describes Client Router Control network data packet traffic.</p>
VC-2	<p>Also known as Dirac Pro, this is an open source video codec technology developed by the BBC and standardized by SMPTE.</p> <p>An intra-frame compression scheme aimed at professional production and post production. Compression ratios are in the range 2:1 to 16:1. It can provide near lossless compression.</p>

User Notes:

Contact Us

Grass Valley Technical Support

For details of our Regional Customer Support Offices please visit the SAM web site and navigate to Support/Customer Support Contacts.

<https://s-a-m.com/support/247-support/>

Customers with a support contract should call their personalized number, which can be found in their contract, and be ready to provide their contract number and details.

Corporate Head Office

Grass Valley

3499 Douglas-B.-Floreani

St-Laurent, Quebec H4S 2C6

Canada

Telephone:+1 514 333 1772

Fax:+1 514 333 9828

www.grassvalley.com