![grass valley logo]

GV ORBIT

VERSION 1.7.0

Release Notes

13-03082-010 AJ

2020-12-23

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Part Number	13-03082-010 AJ
Revision	2020-12-23, 15:28

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GV Orbit Release Notes

The *GV Orbit Release Notes* includes lists of new features and enhancements, bug fixes, as well as known issues and limitations associated with the latest version of the GV Orbit software.

Overview

GV Orbit version 1.7.0 is a major release that adds many new features to GV Orbit. This release also contains new bug fixes (see New Features, Enhancements, and Bug Fixes, on page 6). See also Known Issues and Limitations, on page 40.

Before Upgrading GV Orbit

Backup the GV Orbit configuration to your local PC before you perform a GV Orbit software upgrade so that you can return to the previous GV Orbit software version if necessary. See **Global Backup** in the *GV Orbit Admin Guide*. See Related Documentation, on page 57.

Certain installation requirements must be met before upgrading; see Installation and Network Requirements, on page 57.

Service Software Versions Included in GV Orbit Version 1.7.0

GV Orbit Services described in this document are components of the GV Orbit software suite. GV Orbit Services are described in the GV Orbit Admin Guide. See Related Documentation, on page 57.

Service	Version
Alarm API Service	4.7.0
Automatic Network Configurator Service	1.1.0
Densité Manager Service	1.2.2
Densité GVOC Service	1.3.1
Elastic search Service	1.0.1
Email Service	4.7.0
Event Logging Service	4.7.0
GV Orbit Client Service	4.7.0
GV Orbit Control Client Service	2.9.0
IP Friendly Name Service	2.1.0
IP Proxy Service	4.7.0

Service	Version
Kibana Service	1.0.1
Log Server Service	4.7.0
MV Cluster Manager Service	4.7.0
Map View Service	4.7.0
Masking Service	4.7.0
Monitoring Service	4.7.0
NMOS Registry Service	2.0.0
Relay Service	4.7.0
Repository Manager Service	4.7.0
Routing Service	4.7.0
SNMP Service	4.7.0
Server Health Service	1.2.1
Web Renderer Service	4.7.0

New Features, Enhancements, and Bug Fixes

The following is a list of GV Orbit features and enhancements. The most recent items are marked with a star (★) symbol.

GV Orbit Version 1.7.0

As shown in each application's *About* screen, GV Orbit version 1.7.0 is composed of:

- GV Orbit Client version 4.7.0.
- GV Orbit Control Client version 2.9.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

- GV Orbit Client v1.7.0 New Features and Enhancements, on page 6
- GV Orbit Control Client v1.7.0 New Features and Enhancements, on page 8
- GV Orbit Client v1.7.0 Bug Fixes, on page 9
- GV Orbit Control Client v1.7.0 Bug Fixes, on page 10

See also Known Issues and Limitations, on page 40.

GV Orbit Client v1.7.0 New Features and Enhancements

★ [Ref. #UCCM-2536] **Alarm API Service:** new service that provides an API to enable third parties to access alarms from a GV Orbit system. The Alarm API service contains links to the API.

★ [Ref. #UCCM-2371] **Multiviewer XY Routing Keyboard Shortcuts:** support for keyboard entry of source names in the Multiviewer Room XY routing mode has been added to help speed up assignment of sources to multiviewer destinations. Select a tile on a Monitor using the mouse. Navigate between tiles on a Monitor using the left and right cursor keys. Start typing a source name to bring up a filtered list of source, press <enter> to take.

★ [Ref. #UCCM-2360] **Improve Handling of Layouts in the MV Room Editor:** improved support for layout changes when operating in the Multiviewer Room mode. External layout changes, for example, layout changes that occur by changing a layout directly through an MV-8x series Multiviewer are highlighted to the user by creating an 'Untitled*' Room Layout. The user has the option to save or discard the newly created Room Layout.

★ [Ref. #UCCM-2171] **MV Cluster Manager service:** The MV Cluster Manager service can now be configured in the GV Orbit Web Admin page.

★ [Ref. #UCCM-2165] **MV Cluster dynamic router destination assignment:** the MV Cluster Mode has been enhanced to support dynamic allocation of Multiviewer destinations. In Dynamic Destination Allocation mode, the user does not need to statically associate a Multiviewer Destination with a Tile, and they will default to the Dynamic Destination Allocation mode. Tiles can be statically assigned a destination in the Destination Assignment mode of the Room Editor. Statically assigned destinations are automatically removed from the destinations available for dynamic assignment. If a layout contains more tiles than a Multiviewer can support, the unallocated destinations are highlighted in the UI.

★ [Ref. #UCCM-2066] **Room Editor Monitor Configuration Dialog Improvements:** the Monitor Configuration dialog box in the Output Assignment mode of the Room Editor has been improved. The assignment of outputs to drive the quadrants of a 4K UHD monitor is now done by dragging the outputs to the correct quadrant. Icons are now used to select between different modes.

★ [Ref. #UCCM-2062] **Added Filtering to Room Editor Output Assignment Mode:** the Output Assignment mode of the Room Editor for the MV Cluster has been enhanced with the ability to filter multiviewers or outputs based on their name.

GV Orbit Control Client v1.7.0 New Features and Enhancements

★ [Ref. #PEG-11201] **Lock/Protect support for various users in GV control systems:** Improvements were added to GV control systems northbound interface to handle lock/protect operations for various users.

Prior to those improvements, all operations were performed as the "admin" user, as the user ID was not considered while processing those northbound commands. With these improvements, GV Orbit systems added the ability to prevent users to unlock destinations previously locked by other users.

In GV Orbit systems, under *User Management*, an extra field called "External ID" was added and an "Unsigned Integer" value can be used for this new field.

When a command is received from the northbound interface, the control system tries to match the ID received within the command with the external ID of an existing user, such that the command is carried out as by that user. If no user is found or no user ID is supported by the northbound protocol, the command is executed as the "admin" user, the same way it was done before those improvements, in order to prevent breaking existing systems.

NP0016 and NP0017 protocols provide the user ID for various operations. The user ID is defined as an unsigned integer value from 0 to 4294967295 but it's recommended to NOT use values beyond 2147483647 to avoid any conversion or any special handling of users ID in GV Orbit control systems. If the recommendation cannot be applied, please contact Grass Valley support for further details on how to configure those values in GV Orbit control systems.

Other improvements were made in the control system audit logging where operation details are now displayed in the logs to indicate the user name and its external ID, the northbound interface (for example, NP0017), type of commands (Device-based, Port-based, etc.) and if the command was received from a panel.

★ [Ref. #PEG-11364] **Pathfinding improvements to support different IP configurations with single (A or B) and dual (A and B) source/destination devices:** Improvements were added to GV Orbit Control control systems in order to handle new combinations of different IP configurations where the source/destination devices are connected to either A network, B network, or both A and B networks for redundancy. Those improvements apply to devices using both GVOP and NMOS drivers, in the case of single hop pathfinding, where the source and the destination devices are directly connected to the network switches with no processing in the middle.

Also, *Purple Networks* where routes are made using sources **from** a device connected only to the **A** network **to** destinations of a device that is connected only on the **B** network, and vice-versa, are not supported yet.

Prior to this effort, GV Orbit Control systems were always using the streams on the A network (main), as part of the pathfinding algorithm, to start looking for the appropriate path. So, takes were failing if the source device was only connected to the B network.

As part of those new improvements, the following combinations are now supported:

- Single A source to Single A destination (this was already supported).
- Single A source to Dual A/B destination (Improvements were made to properly handle the destination tally).
- Single B source to Single B destination (now supported).
- Single B source to Dual A/B destination (Improvements were made to properly handle the destination tally).
- Dual A/B source to Single A destination.
- Dual A/B source to Single B destination.
- Dual A/B source to Dual A/B destination (this was already supported).

Those combinations are also supported if using sources with different flow types (2022-6, 2110-20, 2110-30, 2110-40) with all level takes or breakaway/shuffle operations.

★ [Ref. #PEG-11417] **HTTP redirections support in GV Orbit Control systems while fetching NMOS senders SDP file:** Improvements were made in GV Orbit Control systems to properly handle HTTP redirections while fetching an NMOS senders SDP file.

★ [Ref. #PEG-11422] **Pathfinding improvements while using AES-67 level:** When using a source or a destination that is assigned one of the AES-67 logical levels directly with no channels configured, routing using such a source or destination will join the audio directly from source to destination without utilizing the Audio Live.

GV Orbit Client v1.7.0 Bug Fixes

★ [Ref. #UCCM-2593] **Corrected Operation of Lock and Release on XY Soft Panel:** corrected operation of lock and release buttons on the XY Soft Panels.

★ [Ref. #UCCM-2497] **Spigots display improvements in the Path Manager:** with the new workflows where GVOP devices don't use the Camera /Monitor bubbles, the corresponding spigot's information were missing in the Path Manager.

This issue is no longer happening and the spigots are properly displayed for both the source and destination devices.

★ [Ref. #UCCM-2411] **Network Interfaces Setting goes Blank on Save:** fixed an issue where the Network interface(s) section of GV Orbit Services turns blank when prompted to save changes.

★ [Ref. #UCCM-2370] **Chronological order for GV Orbit global and applications backup:** GV Orbit provides the ability to trigger global backups for all applications at once or individual backups for each application. The latter ones show under the applications themselves where the first ones show under the *Global Backup* section, at the top of the page.

Both backups lists are now chronologically ordered, where the most recent backup shows at the top of the list.

For each GV Orbit application, under the backup list, you can find backups triggered as part of the global backup and those triggered from the application itself. The list of global ones are shown at the top followed by the list of the application ones, both chronologically ordered.

★ [Ref. #UCCM-2181] **Sometimes GV Orbit is unable to lock to a NTP server:** in previous GV Orbit versions, there was an issue where, sometimes, GV Orbit was failing to lock to a NTP server, so the workaround was to set the Date/Time manually in the NTP configuration via the web admin page.

This issue is fixed with this release and this workaround is no longer needed.

★ [Ref. #UCCM-2124] **GV Orbit DHCP configuration improvements:** in previous GV Orbit versions, only IP addresses within the DHCP range, for a specific network interface, were used for the gateway. This was affecting GV Fabric configuration, where users were not able to access devices or use FTP from outside the GV Fabric network. The workaround was to add the gateway IP address manually in GV Fabric configuration.

This issue is fixed with this release and this workaround is no longer needed as any IP address outside the DHCP range can now be used.

★ [Ref. #UCCM-1930] **Add sorting ability to the Routing Level select dialog:** the Routing Level select dialog was ordered alphabetically and the indexing produced was the alphabetically index and not the actual index of the levels. This has now been fixed, along with the improved ability to sort alphabetically or by level index.

★ [Ref. #UCCM-1929] **Destination behavior level editor filter not working:** Fixed filter field to correctly filter entries

GV Orbit Control Client v1.7.0 Bug Fixes

★ [Ref. #PEG-10501] **Take fails if topology interconnections do not match the spigot configuration:** there was a limitation in GV Orbit Control control systems related to spigot configuration where either no path was found, no receiver configured, or no receiver cleared, if the source or destination spigot was configured in A or in B mode. This issue is fixed now and this no longer happens.

★ [Ref. #PEG-11337] **NVision Panel control memory leak fixed:** an issue was resolved that was causing NVision hardware or software panels to slowly leak memory on the control system server side. After weeks of operation, this could cause the control system to run out of memory and trigger an automatic failover condition.

★ [Ref. #PEG-11413] **Physical Connections Table in Topology Configurator now always shows ports correctly:** there have been some instances where the Physical Connections Table UI in the Topology Configurator would no longer be able to display available ports for IP connections. This issue has been fixed.

GV Orbit Version 1.6.0

As shown in each application's *About* screen, GV Orbit version 1.6.0 is composed of:

• GV Orbit Client version 4.6.0.
• GV Orbit Control Client version 2.8.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

• GV Orbit Client v1.6.0 New Features and Enhancements, on page 11
• GV Orbit Control Client v1.6.0 New Features and Enhancements, on page 12
• GV Orbit Client v1.6.0 Bug Fixes, on page 15
• GV Orbit Control Client v1.6.0 Bug Fixes, on page 16

See also Known Issues and Limitations, on page 40.

GV Orbit Client v1.6.0 New Features and Enhancements

• [Ref. #UCCM-2390] **Panel errors when launched from two versions of GV Orbit:** When trying to open a Densité card panel from two different versions of GV Orbit client running at the same time, this will generate an error and the panel will not open.

Running two different versions of GV Orbit client at the same time is not supported and it is advised to only have one instance running in order to properly access the Densité card panels.

• [Ref. #UCCM-2321] **Allow IQUCP Devices to Load Different Personalities:** Support has been added to enable IQUCP devices to be upgraded with different personalities. Previously this was an operation that needed to be done in Factory Mode.

• [Ref. #UCCM-2267] **Add Override for Duplicate Mnemonics:** A property, *Allow Duplicate Names* has been added to allow duplicate mnemonics in spreadsheet import. With this property enabled you should take care to check duplicate entries will not negatively impact your system.

• [Ref. #UCCM-2201] **Updated select all functionality in MV Cluster projects:** In an MV Cluster project, in the Layouts or Destinations modes, you can now select all tiles within a given output monitor using the Select All button on the toolbar or CTRL+A.

• [Ref. #UCCM-2197] **Updated run mode in MV Cluster projects:** In the MV Cluster projects, updated the availability of Run Mode as follows:

  • In Outputs and Destinations mode, removed Run mode since it is not applicable.
  • Routing Mode now only runs in Run Mode.

- [Ref. #UCCM-2173] **Added Duplicate Check on Manual Text Entry:** Added duplicate value checking when directly entering data through the GV Orbit IP Configuration screen. The user is warned if a duplicate entry is found for the following:
  - Device Name
  - Device Short Name
  - Device Host Name
  - Spigot Name
  - Spigot Short Name
  - Spigot Port ID
- [Ref. #UCCM-2063] **Services updated to use global domain configuration:** GV Orbit services have now been updated to inherit the GVOP domain information that is globally configured under the *IP Configuration > GVOP Domains* page.

  Each service also has the ability to be overridden in its global domain settings by disabling the *Use Global Domain* option, which then allows you to define the domains locally.

  The following services have been updated:
  - Densité
  - Email
  - Event Logging
  - IP Proxy
  - Log Server
  - Map View
  - Masking
  - Monitoring
  - Relay
  - Repository Manager
  - Routing
  - Web Renderer

GV Orbit Control Client v1.6.0 New Features and Enhancements

- [Ref. #UCCM-2447] **The *Gateways* configuration parameter has been updated to *DHCP client gateways*:** In GV Orbit web admin page, under *IP Configuration*, then *Interface Configuration*, the label for the *Gateways* configuration parameter has been updated to *DHCP client gateways* to avoid any confusion with the *Default gateway* configuration parameter.
- [Ref. #UCCM-1445] **Automatic configuration of GVOP devices:** As part of Grass Valley's IP Simplified with the purpose of providing more automatic workflows, GV Orbit introduces a new service called *IP Friendly Name* service. This service runs as a standalone application and is responsible for persisting the data coming from GV Orbit Configuration. Afterward, this data is shared and used by GV Orbit Control.

  In this new workflow, there is a single entry point for configuration which is GV Orbit Configuration.

For this release, device configuration covers only devices which support GVOP (GV Orchestration Protocol). In future releases, this support will be expanded to NMOS devices. For now, you maintain the ability to customize your NMOS devices within GV Orbit Control.

An indication was added to GV Orbit Control, for devices using GVOP, under the Property Editor, to indicate that those devices are only editable from GV Orbit Configuration.

The Spreadsheet Import functionality in GV Orbit Configuration was improved to cover more properties such as Device [Name, Short name, Network Host Name, Description] and Spigot [Name / Port Name, Short Name, ID / Port number].

As part of the Spreadsheet Import process, GV Orbit Configuration processes the data and flags any duplicate data to the user. However, a property called *Allow Duplicate Names* was added to allow duplicate mnemonics (Port name) during the spreadsheet import. With this property enabled, you should make sure duplicate entries will not impact your system.

With these new added properties, you can use the spreadsheet to build the device list as well as the spigot list with their properties.

Those Device and Spigot properties will be shared with GV Orbit Control and will be used to build the topology devices. Changes from GV Orbit Configuration are automatically and dynamically reflected in GV Orbit Control.

Logical sources/destinations related to those GVOP devices will be automatically created using the spigot name (Port Name), once the configured device is added to the topology, even before making the appropriate connections. Those logical sources/destinations are created using the appropriate streams. For gateway devices, the SDI streams will be used and for IP devices, the IP streams will be used.

Logical sources/destinations are only created when the topology is activated and the device is online.

With this new workflow, there is no need to use camera/monitor devices to create the logical sources/destinations and they are not created anymore using the Quick Connect tool.

Logical sources/destinations are dynamically created/deleted/updated as the configuration of the device changes, and are not editable anymore from GV Orbit Control through the Logical Device Table or the Alias Editor. All configuration is done through GV Orbit Configuration.

This new workflow does not remove the ability for users to manually create custom logical sources/destinations using the streams of their choice. Other improvements were added to help with the manual creation of custom logical sources/destinations, including an improved naming convention for the IP and SDI streams as well as some new filtering and display capabilities.

For gateway devices, the Stream Configurator provides the ability to expose the IP streams, so you can decide to expose the streams of your choice. In this case, the logical sources/destinations created using the SDI streams from the same spigot as the exposed IP streams, won't be reachable anymore by the pathfinding, since the new exposed IP streams become the edge.

You also have the ability to disable the automatic creation of the logical sources/destinations. For this purpose, a property called *Automatic Sources and Destinations* is available on the device to enable/disable all logical sources/destinations for all available spigots and this is also available on the device spigots to enable/disable the logical source/destination for a specific spigot.

If the *Automatic Sources and Destinations* option is unchecked, the IP or SDI streams will be disabled. So, if you are willing to create custom logical sources/destinations, the desired streams should be exposed first, using are the Stream Configurator.

For topologies created prior to GV Orbit 1.6.0 and upgraded to 1.6.0, the *Automatic Sources and Destinations* option will be unchecked. So, the automatic logical sources/destinations won't be automatically created for devices already on the topology.

Those automatic workflows, including the automatic device configuration, rely on having the *IP Friendly Name* service up and running as the configuration data is stored within the service. So, if a new topology is started with no *IP Friendly Name* service running, GV Orbit Control will use its default values for the Device, Spigot and Logical Source/Destination labels. GV Orbit Control will start using the values from GV Orbit Configuration once the *IP Friendly Name* service is back online.

If the topology was already built with existing devices, and the *IP Friendly Name* service stopped running, GV Orbit Control will keep using the last known values.

If GV Orbit Control is offline when all Device values (Name, Short-Name, Hostname and Description) of a given device or all Spigot values (Name, Short-Name, Port Number) of a given spigot are deleted from GV Obit Client, GV Orbit Control won't receive the corresponding "delete" notifications. So, when it comes back, it may still be showing the previous values. So, we recommend to make sure GVO Control is online while removing Device and Spigots values from GV Orbit Configuration. If this not done, the workaround is to simply modify the value again in GV Orbit Configuration.

- [Ref. #PEG-11338] **GV control systems northbound GVG Native Protocol implementation improvement:** The control system northbound GVG Native Protocol implementation no longer returns empty names if there is a gap in the logical sources or destinations' external IDs.

  Based on the amount and length of names configured in the control system, in some cases a source or destination name could be missing in the returned response to a 'QN' command.

- [Ref. #PEG-11333] **GV control systems northbound GVG Native Protocol subscriptions support:** Support for the subscribe *SB* and unsubscrive *UB* commands of the northbound GVG Native Protocol has been added. The only supported subscription type is *DS* (subscription for destination status change by name). This allows a GVG NP client to subscribe to asynchronous crosspoint changes of all or specific destinations. Asynchronous notifications are sent in the form of an *NY* command from the control system to the GVG NP client. Please refer to the *Grass Valley Protocols Manual, Section 3, Series 7000 Native Protocol* documentation for further details.

- [Ref. #PEG-11332] **GV control systems response pacing configuration for the northbound GVG Native Protocol BK command:** A new parameter has been added to the northbound GVG Native Protocol *BK* command. The new *m* parameter can be followed by no value or a value ranging from 0 to 999 and allows a GVG NP client to configure the control system response pacing to its needs. Providing a value of 0 to 999 delays response messages by that amount of time in milliseconds. No value means use the system default, which is currently 150 milliseconds. Please refer to the 'Grass Valley Protocols Manual, Section 3, Series 7000 Native Protocol' documentation for further details.

- [Ref. #PEG-11232] **Ability to display 24 characters for streams in the Stream Browser and in the Multilevel Table:** GV Control systems added the ability to display 24 characters for streams, in the *Stream Browser* and in the *Multilevel Table*. The IP/SDI icon was removed in order to gain more space.

  Unlike the *Stream Browser* cells, the ones from *Multilevel Table* are adjustable by resizing the column, and can be adjusted to display more characters.

- [Ref. #PEG-11226] **Ability to display streams full or short name in the Logical Device Table (Stream Browser and Multilevel Table):** A new ⓐ option was added to the *Logical Device Table*, in GV Control systems, to show either the full or short name/label, for both Streams and Devices.

  The ⓐ option was added to the *Stream Browser* and the *Multilevel Table* as well, to toggle between full and short name/label. When the new button/option is selected/unselected, both Stream and Device labels are updated to either show short or long name/label.

  Also, when filtering by stream or device name/label, the filter will be applied on the labels that are currently displayed; either long or short labels. If a filter is applied and the ⓐ button is selected/unselected, the filter will be re-applied based on the new values displayed.

- [Ref. #PEG-11224] **Ability to show streams full and short name in the Stream Browser info ⓘ button/option:** The ⓘ button/option from the *Stream Browser,* in GV control systems, now shows the streams full name as well as the streams short name.

GV Orbit Client v1.6.0 Bug Fixes

- [Ref. #UCCM-2151] **Unable to open the control screen of Densité cards in GV Orbit client:** The `/etc/hosts` file is not supposed to be edited by the user, because unexpected contents may cause the application to fail. The Densité application is now more resilient against various unexpected configurations and automatically adapts to the file's contents in order to make it compliant.

- [Ref. #UCCM-2131] **Corrected Issue where the IQ Frame Controller is left in an Unprogrammed State after Upgrading:** Corrected an issue in the GV Orbit IP Proxy service where the connection to an IQ Frame Controller was terminated during upgrade leaving the unit in an unprogrammed state.

- [Ref. #UCCM-2262] **Increase Timeout for RollCall Upgrade Process:** Not all IQ devices define a wait time between a unit completing upgrade and returning back on line. In some cases, this was causing upgrades of devices to fail. The upgrade process default timeout has been increased to handle the case where a device does not define its own default timeout.

- [Ref. #UCCM-2222] **Correct Issue with Control Option Missing on RollCall Devices in Network Tree:** Corrected an issue where the Control option on the Network Tree was missing after the GV Orbit Client had been minimized.
- [Ref. #UCCM-2361] **On cold boot, a GVO server clustered pair may launch as active-active:** When powering up a pair of GVO servers, there is a low random chance that both servers would come up as active. This has been fixed.

GV Orbit Control Client v1.6.0 Bug Fixes

- [Ref. #PEG-11397] **Logical Device creation is now possible for K-Frame streams:** A K-Frame driver issue was preventing manual creation of logical devices in the Logical Device Table. This issue has been resolved.
- [Ref. #PEG-11356] **NV hardware panels can sometimes connect to the stand-by server:** An issue causing hardware NV panels to sometimes connect to the stand-by server and not obtaining its configuration has been resolved. Only the active server will be capable of receiving connections from these panels.
- [Ref. #UCCM-1647] **Routing issues using IQUCP with version 15.5.97 firmware:** Routing issues in the control system may occur while using an IQUCP with version15.5.97 firmware. When upgrading from an IQUCP card version with 4 spigot streams to the version 15.5.97 (with 3 spigot streams).

  This issue is resolved now and there is no need to reset the card configuration or to reboot the card.

GV Orbit Version 1.5.0

As shown in each application's *About* screen, GV Orbit version 1.5.0 is composed of:
- GV Orbit Client version 4.5.0.
- GV Orbit Control Client version 2.7.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

GV Orbit Client v1.5.0 New Features and Enhancements

- [Ref. #UCCM-2136] **Added Support for Changing UCP-3901 Personalities:** Added support to allow a different personality to be installed on a UCP-3901 card without requiring Factory Mode.

- [Ref. #UCCM-1996] **Quick Assignment of Audio Channels to Audio Widget:** New feature to enable fast assignment of audio channels to the Audio Widget. Right click on the Audio Widget and select "Audio configuration". From the dialog box the number of bars to show in the widget can be set and the audio channel associated with each bar. PCM and DolbyE channels are supported.
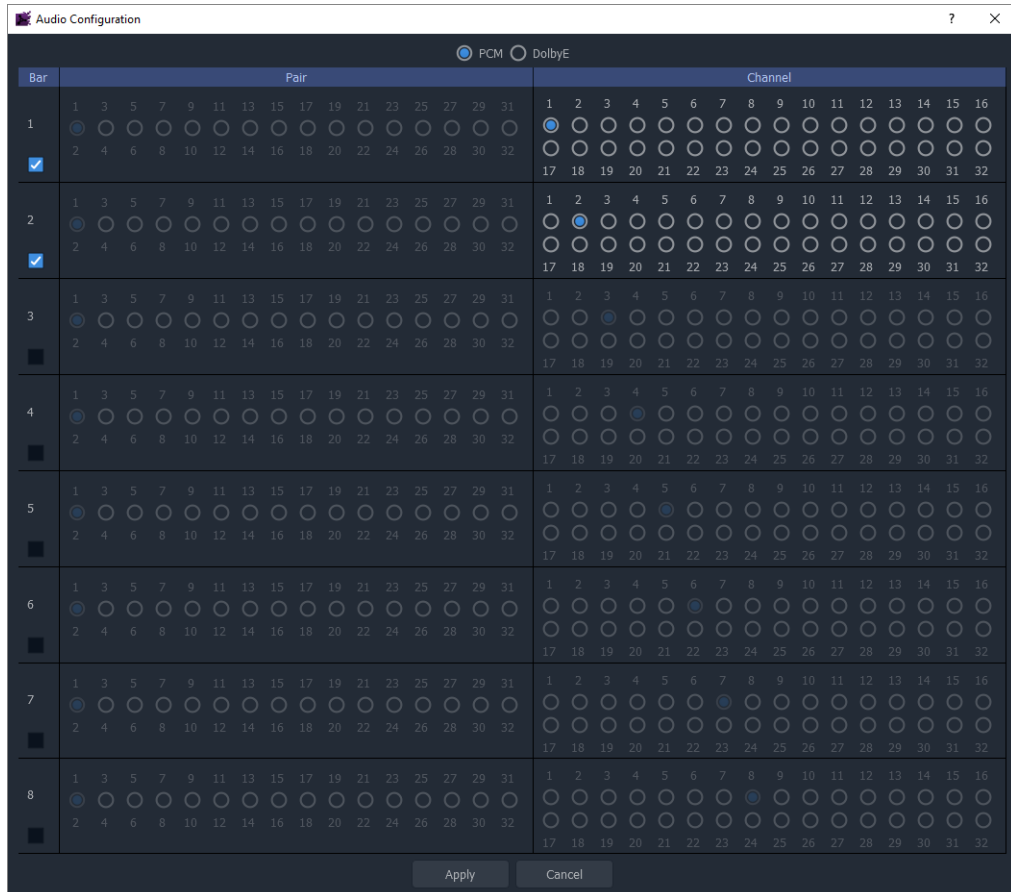
- [Ref. #UCCM-1995] **Added TSL Tally Lamp Configuration to Multiviewer Room Editor:** Added new feature to Multiviewer Room Editor to allow the user to globally configure TSL Mode and colors to use on Tally indicators.
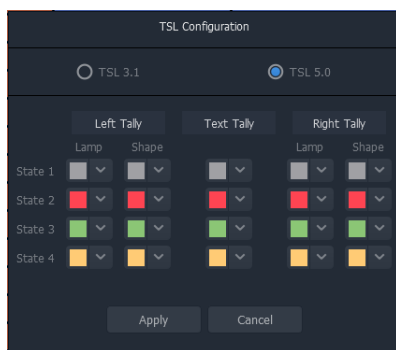
- [Ref. #UCCM-1894] **Ability to Easily Assign TSL Value to Widget:** Added feature to enable the user to quickly assign TSL functionality to Tally Lamp, Label and Shape Widgets. Select the widget, right click and select **TSL configuration**. Select the source of the tally, e.g. left or right tally. Select the TSL address level, e.g. L1, L2 etc. If the user has renamed the levels then their custom labels will be shown.
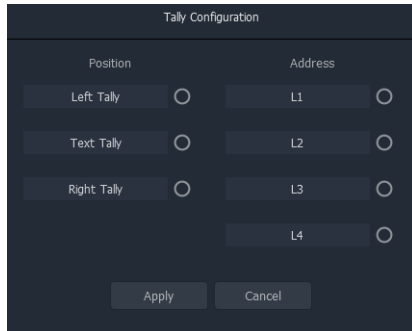
- [Ref. #UCCM-1893] **Global Configuration of TSL Addresses:** Feature added to Multiviewer Room Editor to enable user to configure TSL addresses associated with each Multiviewer destination. The user can assign up to four TSL addresses per destination. The default address level names, L1, L2, L3 and L4 can be modified by the user.

- [Ref. #UCCM-1520] **Added Support for Clustered Multiviewer Configuration:** Added a new feature to enable a cluster of MV-8x series Multiviewers to be configured together. Using the new Clustered Multiviewer Project the user can create a Room that enables monitors driven from multiple multiviewers to be represented as a pseudo representation of the physical monitor stack. The user configures all multiviewers through a single project. Requires the MV Cluster Manager Service running on the GV Orbit server.

- [Ref. #UCCM-1504] **MV Cluster Manager source to monitor wall destination assignment:** The MV Cluster Routing mode features a new routing panel in which the MV router inputs are visually represented as router destinations on the cluster monitor wall. The operator first selects the desired monitor wall tile destination, then selects the desired source from the source selection portion of the panel to make the cross point. The panel supports standard bulk routing features such as multiple destination routing and source filtering.
- [Ref. #UCCM-1501] **MV Cluster Manager room layout configuration:** The Cluster Manager room layout configurator allows for the creation of layouts which can be grouped together in one large room layout. This layout configurator allows for quick and simple editing of tile arrangement and grid assignment. It also allows assignment of destinations to monitor tiles to support the ability to route sources directly to monitor wall tiles.
- [Ref. #UCCM-1500] **MV Cluster Manager room designer:** GV Orbit now supports the ability to cluster multiple MV multi-viewers into a single monitor wall. The first part of this feature allows the creation of rooms with multiple physical displays and assigning those displays to output heads on different multi-viewers.

GV Orbit Control Client v1.5.0 New Features and Enhancements

- [Ref. #PEG-11323] **Support of NV9680 virtual/software panel:** GV Control Systems added the support for the new NV9680 panel (hardware and software), which has 4 rows of 20 relegendable buttons, with 2 RU.

  As part of this integration, a new layout for Panel Configurator was added.
- [Ref. #PEG-11300] **Ability to generate audio logical devices with selectable amount of channels per device:** GV Control Systems added the ability to specify the desired number of audio channels while creating audio logical sources/destinations, from AES-67 streams, from the *Channel Browser*.
- [Ref. #PEG-11220] **Video/Audio/Metadata IP flow bandwidth report in GV control systems for GVOP devices:** GV control systems now dynamically reports the video, audio and metadata IP flow bandwidth of transmitters and receivers, for devices using GVOP, based on the flow presence and the standard reported by the cards.
- [Ref. #PEG-11166] **Support of NV8500 hybrid router connected to a gateway:** Improvements were made to support a mix of (de)embedder and SDI cards in the NV8500 hybrid router by selecting ports which are connected or not to a (de)embedder. For example, path finding will use a disembedder if an audio breakaway is requested and will use a SDI port if a SDI take is requested. This was conditioned on the fact that the hybrid router is connected to another SDI router or to source/destination devices.

  Now, this is also supported if the hybrid router is connected to a gateway which sends/receives in TR-04 or 2110 format.

- [Ref. #PEG-11119] **Automatic detection of the router type and cards in slots for NV8500 hybrid routers:** The control system added the ability to detect automatically the router type once the router control ports are properly set.

  Once the router type is detected, the internal wiring is built and the input/output slots are automatically and properly configured, including the slots number as well as the slots card type and the description.

  No manual configuration is required anymore by the operator.

  In case of card type change, the control system provides the ability to update the new card via an option on the control port called **Update Slotted cards**, that way the internal wiring is rebuilt to take into account the new updates for all slots cards. The update could be triggered from either the main or redundant control port and the user will be prompted to confirm the update.

GV Orbit Client v1.5.0 Bug Fixes

- [Ref. #UCCM-2094] **Fixed a Crash when Opening IQ Device Control Panel:** Corrected a crash that occurred when modifying a parameter on an IQ device control panel.
- [Ref. #UCCM-2040] **GV Fabric hostname should not be editable in SNMP application:** Fixed issue where changing the friendly name of a GV Fabric device in the SNMP application page would change the hostname of the actual GV Fabric unit. *Workaround:* The hostname for GV Fabric should only be set directly on the switch via its web administration page.

GV Orbit Control Client v1.5.0 Bug Fixes

- [Ref. #PEG-11313] **Take to a destination may affect another destination not part of the take:** A bug fix was done for an issue where takes to a specific destination may affect other destinations not part of the take.
- [Ref. #PEG-11229] **NMOS Senders/Receivers with no interface_bindings (empty) won't be mapped anymore to existing ports/interfaces:** In the early NMOS days, GV control systems were mapping NMOS senders/receivers with no *interface_bindings (empty),* to the existing ports/interfaces. This was done to accommodate some NMOS devices that were not properly reporting the *interface_bindings.*

  This accommodation no longer makes sense and was removed from GV control systems. Now, any NMOS senders/receivers that are missing *interface_bindings* won't be listed under the existing ports/interfaces.
- [Ref. #PEG-10959] **Latest Mac OS-X version support with NV Virtual Router Panels:** The latest Mac OS-X version is now supported with NV Virtual Router Panels. Note that the Gatekeeper must be disabled for NV virtual panels to run on MAC OS.

GV Orbit Version 1.4.0

As shown in each application's *About* screen, GV Orbit version 1.4.0 is composed of:

- GV Orbit Client version 4.4.0.
- GV Orbit Control Client version 2.6.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

See also

GV Orbit Client v1.4.0 New Features and Enhancements

- [Ref. #UCCM-1891] **Global configuration for client domains:** In the Web Admin's IP Configuration page, there is a new DDS domains tab where the client domain can be set globally for all services and applications, as opposed to setting it individually for each application.

  For version 1.4.0, this setting only applies to the Server Health service. Future versions will apply this to other GV Orbit applications.

- [Ref. #UCCM-1815] **Added Support for Licensing Options for the UCP-3901:** Added support to apply license files to the UCP-3901 Densité card.

- [Ref. #UCCM-1659] **Enhanced drag and drop into GV Orbit client custom screens from Alarm List:** Improves the drag and drop support when creating GV Orbit custom screens from alarm data by:

  - Enabling drag and drop from the alarm list window.
  - Enhancing the existing drag and drop from the network tree to allow aggregate states to be built.

- [Ref. #UCCM-1512] **GV Fabric Auto Discovery in GV Orbit:** As part of GV Fabric discovery the following capabilities have been added:

  - GV Fabric auto discovery in the GV Orbit Client Network View. Right click on the device opens a context menu from which the Control item will open the configuration web page for the device.
  - GV Fabric alarms monitoring through the SNMP service.The SNMP service is automatically configured when a new GV Fabric is detected on the network. No manual configuration is needed.
  - GV Fabric auto discovery in GV Orbit Control under the *Discovered Devices* list.

- [Ref. #UCCM-1099] **Alarms for monitoring the GV Orbit server's health status:** In the GV Orbit client, it is now possible to monitor and view alarms for the GV Orbit server's health status in the Network view using the new Server Health application.

  The available alarms include:

  - Power supply status
  - Fan status
  - Server redundancy status
  - Temperature
  - Server resource usage
  - Application status (including resource usage per application)

- [Ref. #UCCM-1017] **Bulk Routing List View:** Extended the Bulk Routing user interface to include a List View which is focused on level shuffling and breakaway. Access the List View from the Bulk Routing UI using the List View icon, .

GV Orbit Control Client v1.4.0 New Features and Enhancements

- [Ref. #PEG-11225] **Quick Connect now remembers last selection of IP/SDI network choices:** In the Topology Configurator, the Quick Connect option will now remember the IP connection, SDI device generation, and the choice of main and backup network settings.

  Note that this is saved on a per user basis in Windows. It is not system-wide to GV Orbit Control.

- [Ref. #PEG-11190] **DCNM v11.4(1) support:** The control system now supports Cisco DCNM v11.4(1).

- [Ref. #UCCM-1164] **GV Fabric Initial Configuration (Day zero):** *GV Fabric Initial Configuration* is one of Grass Valley **IP Simplified** initiatives, with the idea to provide automatic workflows and reduce user/manual interventions. The goal of this initial configuration (day zero) is to start with GV Fabric switches out-of the box and to be able to simply connect the switch to the GV Orbit Control's management network, without any need to make a serial connection to the switch. Then GV Orbit Control automatically configures any GV Fabric switch to get it up and running. Once the configuration is complete, the GV Fabric switch appears in GV Orbit Control Client in the Discovered devices list and it is ready to be used in your control system topology.

GV Orbit Client v1.4.0 Bug Fixes

- [Ref. #UCCM-1838] **Correct Issue where IP Configuration Screen could Lose Styling:** Corrected an issue where the styling of the IP Configuration screen could display some areas with a bright theme after the application was left minimized.

- [Ref. #UCCM-1836] **Correct Rendering Issue on some PCs:** A rendering issue was corrected on some PC's with corruption shown in the scroll bars, or multiviewer project landing pages after closing a Multiviewer Wall or Tile editor.

- [Ref. #UCCM-1804] **Correct Issue where Bulk Routing Screen could Lose Styling:** Corrected an issue where the filter boxes on the Bulk Routing screen could lose their styling and appear with a bright theme.

- [Ref. #UCCM-1724] **Source Select Popup on Bulk Routing Screen is Sometimes Case Sensitive:** The Source Select popup that is accessed from the Bulk Routing screen by starting to type a source name while a Destination or Destination Level is selected is sometimes case sensitive.

GV Orbit Control Client v1.4.0 Bug Fixes

- [Ref. #PEG-11236] **Panel not coming online after upgrading to GV Orbit Control version 1.3.0:** If an NVision panel was in a state where a category was being displayed before an upgrade to GV Orbit Control version 1.3.0 was done, the panel would not come online after the update. It would be unaffected by the update if the current panel page had no categories displayed. This issue has been fixed in GV Orbit Control version 1.4.0.

GV Orbit Version 1.3.0

As shown in each application's *About* screen, GV Orbit version 1.3.0 is composed of:

- GV Orbit Client version 4.3.0.

- GV Orbit Control Client version 2.5.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

- GV Orbit Client v1.3.0 New Features and Enhancements, on page 23
- GV Orbit Control Client v1.3.0 New Features and Enhancements, on page 24
- GV Orbit Client v1.3.0 Bug Fixes, on page 25
- GV Orbit Control Client v1.3.0 Bug Fixes, on page 26

GV Orbit Client v1.3.0 New Features and Enhancements

- [Ref. #UCCM-1004] **Bulk Routing Escape and Backspace Key Handling:** The Bulk Routing screen key operation has been updated. The backspace key will clear the filter on the active panel. The escape key usage has been improved so that it no longer clears the active filters.

  When using the filters, the enter key must be pressed to activate the filter, pressing escape will revert to the previous filter.

- [Ref. #UCCM-1357] **Added Support for Larger Buttons on Bulk Routing Screen:** Buttons on the Bulk Routing screen can be increased in size to allow space for long names. The button ⟷ in the tool bar of the source or destination panels toggles between normal and large button mode.
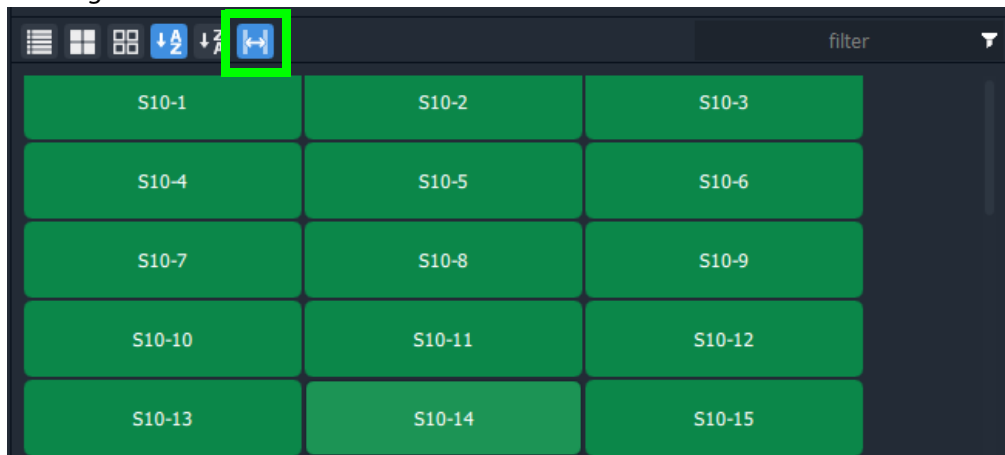
- [Ref. #UCCM-1461] **SNMP monitoring for Cisco 9000 series network switches:** It is now possible to monitor and view alarms for the Cisco 9000 series network switches through SNMP from the Network window in GV Orbit Client. Connections to the switches are configured in the GV Orbit web admin page under the SNMP service. There are 3 available drivers that can be configured:

  - For the 9500 modular series, there are drivers for the:
    - Cisco 9000 Supervisor; and
    - Cisco 9000 Line cards.
  - For fixed switches like the 9300 or 9200 series, there is the Cisco 9000 Single Switch driver.

  Note: These drivers only support SNMP v2c at this time.

- [Ref. #UCCM-1597] **Bulk Routing Styling Change to Better Show Selected Buttons**: The Bulk Routing Panel screen styling has been improved to better show the selected source, destination and level buttons. A grid/panel outline has been added to show the grid/pane that has the current keyboard focus.

- [Ref. #UCCM-1616] **New Method of Routing Levels:** The new Bulk Routing Panel method replaces the old method which was done in two operations. The old method used the Tab key on a destination level button to select a source level and pressing any alphanumeric key to bring up a source selector.
  The new method just requires pressing any alphanumeric key when one or more levels that are selected. This reveals a 'Dial Source-Level' dialog which allows both the source and source level to be selected:
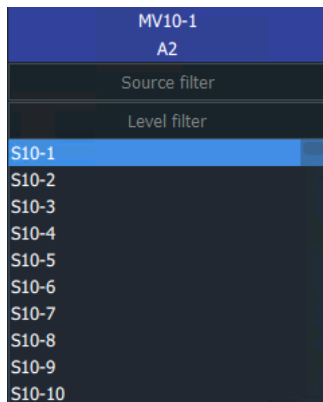
In the 'Dial Source-Level' dialog:

  - The title bar shows the currently-selected destination level(s).

  - The Tab key moves focus between source and level filtering/selection.
    Note: you cannot move focus unless a valid source is selected.

  - The Escape key (ESC) will cancel the operation.

  - The Enter key will, if a valid source and level have been selected, execute the routing. Mouse-clicking on a source or source level will do the same.

- [Ref. #UCCM-1642] **Persist Bulk Routing Display Mode:** The Bulk Routing Panel screen now persists the mode for the following display options:

  - Button Size

  - Hide Sources

  - List View

GV Orbit Control Client v1.3.0 New Features and Enhancements

- [Ref. #UCCM-1464] **The Sony NMOS registry becomes the default NMOS registry in GV Orbit:** GV Orbit has the ability to run a NMOS registry through the *NMOS Registry* application. This application was using the Grass Valley NMOS registry as the default one. The *NMOS Registry* application is now using the Sony NMOS registry in replacement for the Grass Valley NMOS registry.

  In use, this update is transparent and there are no changes in how to use GV Orbit.

- [Ref. #PEG-10915] **K-Frame switcher with 25G connections support in the control system:** K-Frame switcher 25G connections support was added to the control system.

- [Ref. #PEG-11103] **NV Hybrid routers support:** The NV Hybrid routers support has been added to GV Control Systems.

  A new virtual device called "NV Hybrid Router" was added to the list of virtual devices.

  Once added to the topology, the router type can be selected from the available list: NV8140, NV8144, NV8280, NV8576 or NV95576. Plus the relevant control ports.

  Once selected, the number of slots and ports are automatically adjusted based on the router type.

  Then, the card type should be manually selected, for each input slot (Disembedder, MADI, SDI, No card) as well as for each output slot (Embedder, MADI, SDI, No card), as the automatic detection is not supported yet but planned for a later release.

  Based on the card type, the ports are automatically enabled/disabled based on the expected card type configuration.

  For output slots, the Disembedder/Embedder card type, that is used for shuffling on the SDI input, is also not supported yet and planned for a later release.

  Also, MADI sources or destinations need to be directly connected to the same hybrid router.

  The user has the ability to push the Lock/Protect from the Control System to the router for destinations that are directly connected to the router. This requires enabling the "**In router Lock/Protect enabled**" property on the control port.

  Also, the router Lock/Protect status is displayed only for destinations directly connected to the router.

  If a specific router port is locked/protected but not linked to any destination within the Control System, the Lock/Protect status won't be exposed in the Control System and in fact they are not releasable.

  Destinations Lock/Protect is performed via the panel and if a destination is locked by another user, any take to this same destination will fail.

  A panel admin user has the ability to release locks made by another user where non-admin users could only release locks they made.

- [Ref. #PEG-11160] **Panel Exit mode for categories:** A new property named *Exit Page* for the Category button can now be used to indicate which page the panel should navigate to upon selection of a category item. The default return page of the Category button will still be applicable If the *Exit Page* property is not set or if the *Exit Mode* is set to never.

GV Orbit Client v1.3.0 Bug Fixes

- [Ref. #UCCM-1711] **Corrected an Issue where the é in Alarm Addresses was not Processed Correctly:** The MapView Service was not processing the é character in Densité alarms as UTF8 so the alarm was not correctly resolved resulting in link states not being shown correctly.

- [Ref. #UCCM-1714] **Corrected Issue where Control Option was Missing From Network View for RollCall Devices:** Corrected an issue where a RollCall connection was interrupted thus causing the Control option on the Network View to be lost.

- [Ref. #UCCM-1768] **Corrected an issue Where Stale Data was Shown in the GV Orbit Client:** Corrected an issue where the GV Orbit Client did not recognize a restart of the services running on the GV-Orbit Server. This led to incorrect alarm data being shown in the GV Orbit Client Alarm List.

GV Orbit Control Client v1.3.0 Bug Fixes

- [Ref. #UCCM-1101] **Third party devices/controllers cannot subscribe to GV Orbit's NMOS registry websocket notifications as it is using "localhost" as its hostname:** There was an issue where third party devices/controllers that were not able to subscribe to GV Orbit NMOS registry websocket notifications as it uses "localhost" as a hostname.

  In GV Orbit version 1.3.0, the NMOS registry application was updated to use the Sony registry instead of the previous registry. The limitation is no longer an issue with the Sony registry and no workaround is required now.

- [Ref. #PEG-10769] **Unable to do more than one level breakaway to an IQUCP destination:** There was an issue where you were not able to do more than one level breakaway to an IQUCP destination. This issue is now fixed.

- [Ref. #PEG-10872] **K-Frame production switcher now able to fetch labels from GV Orbit Control:** In previous versions of GV Orbit Control, the K-Frame production switcher was unable to properly fetch source and destination labels from GV Orbit Control using the GVG NP protocol. This was because the labels that were returned were too many that were sent too quickly.

  This has now been correctly paced down and the K-Frame can now receive labels properly.

GV Orbit Version 1.2.0

As shown in each application's *About* screen, GV Orbit version 1.2.0 is composed of:

- GV Orbit Client version 4.2.0.
- GV Orbit Control Client version 2.4.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

GV Orbit Client v1.2.0 New Features and Enhancements

- [Ref. #UCCM-1506] **Bulk Routing Lock and Protect Shortcut Keys:** Keyboard shortcuts have been added to support lock, protect and release operations directly from the Bulk Routing screen.
    - Select a destination with space bar
    - Ctrl+P : Protect
    - Ctrl+L : Lock
    - Ctrl+R : Release

- [Ref. #UCCM-1450] **Relay service now supports IP topics:** The relay service can now route IP Routing data between different domains or networks. There are two primary use cases when this would be needed:

    1. To expose IP routing data from the MEDIA network onto the CONTROL or CORPORATE networks, allowing a client to operate on a host without access to the MEDIA network.

    2. To bring all the distributed IP devices together allowing them to be accessed from a single centralized and well known location.

    The Relay Service should be configured on GV-Orbit Server through the setup page, adding a new configuration and selecting the IP routing option from the **Common Configurations** drop down.

- [Ref. #UCCM-1446] **Soft panels now support X/Y routing with fixed sources and destinations:** Prior to this build, soft panels (that is, user laid out panels) could only support a paged list of all sources and destinations in the router. This was fine for engineering purposes, but an operator typically wants a fixed set of sources and destinations on their screens. This feature adds this functionality.

    This change affects the **Source Button and Destination Button** behaviors where there are new properties.

- [Ref. #UCCM-1050] **Show Densité Device Control and Alarms together in Network View:** The Network View has been simplified with Densité devices now showing as a single entry rather that separate Densité devices and iControl alarms. The Network View now shows the aggregate state for a Densité device. Right clicking on the device brings up the context menu that allows the device Control Panel or Upgrade to be carried out.

- [Ref. #UCCM-1426] **Added Support for Alarms with no State:** Alarms from Densité devices that have no state are called Text alarms. Text alarms were being shown as having an Unknown state, which was incorrect. Text alarms now appear in the Alarm List and Alarm History as having a a state of Text.

- [Ref. #UCCM-1416] **Densite Device Context Menu Update:** The following context menu items for Densite devices have been renamed.

Previous name	New name
Display Card Parameters	Card parameters
Open Control Screen	Control
Open Upgrade Screen	Upgrade

- [Ref. #UCCM-1030] **Web Renderer Opens in new Browser Tab:** The Web Renderer Service has been modified so that the Web View opens in a new Web Browser tab.

  Note: if the GV-Orbit Server web page is opened from within the GV Orbit Client, the display of the Web View is not supported. Use a Chrome Browser instead.

GV Orbit Control Client v1.2.0 New Features and Enhancements

- [Ref. #UCCM-1421] **DCNM v11.3(1) support:** The control system now supports Cisco DCNM v11.3(1) and is backward compatible with DCNM v11.2(1).

- [Ref. #UCCM-1376] **IP friendly names persistence support:** GV Orbit has a new service/application called *IP Friendly Name*.

  The service runs as Active/Active. It's recommended to use the service in a redundant system.

  This new service has the ability to map Device UUID's with Device Names.

  Using GV Orbit Configuration (GV Orbit Client), you have the ability to assign a friendly name to a specific device. This friendly name will be mapped with the device UUID and it's persisted. Then, the new friendly name will be displayed in GV Orbit Control in the device under the *Discovered Devices List* and in the *Topology Configurator*, under the device *Name, Short Name*, and the *Network Hostname,* as well as the *Device Group Name*. All those names are updated if the device friendly name is updated, using GV Orbit Configuration.

- [Ref. #UCCM-1308] **GV Orbit to support DHCP for panels:** GV Orbit introduces the support of DHCP for NV series panels, on available and enabled network interfaces.

  When a NV panel is connected to the network switch, GV Orbit issues an IP address to the panel.

  In the GV Orbit web admin page, there is a new page called **DHCP** where the DHCP status is displayed and where some configuration actions can be performed. The DHCP status depends on whether or not DHCP is enabled on any of the interfaces.

  DHCP leases can be issued by either Active or Standby server.

  If using DHCP, it is recommended to either use a NTP server or manually synchronize both server clocks before establishing the server cluster.

- [Ref. #PEG-11104] **Categories that hold only one type of logical device now has a more specific icon:** When a category holds only sources, its icon now shows an embedded source graphic.

  When a category holds only destinations, its icon now shows an embedded destination graphic.

  The icon will change dynamically as sources and destinations are removed or added to a category. If a category is empty or contains both sources and destinations, the current icon with no extra graphic is displayed.

  The new graphics are available in the Category Configurator and Panel Configurator.

  The main use for this is to have two categories in the same name, one with sources only and the other with destinations only and still be able to differentiate between the two within the GUI.

- [Ref. #PEG-11100] **Sender/Receiver ports for NMOS devices with no streams attached are disabled by the control system:** The control system creates sender and receiver ports for NMOS devices based on the node interface property. If no senders/receivers are publishing the same interface in their *interface_bindings* property, the port is disabled by the control system.

- [Ref. #PEG-11042] **The property editor shows physical ports that are disabled:** The control system added the ability to display, in the property editor, physical input/output ports that are disabled.

  Disabled streams and gateways (for IPG devices) remain hidden in the property editor.

- [Ref. #PEG-11108] **Category items now display in the order in which they are sorted:** In the Category Configurator, items can be manually set in a specific order which is appropriate for a specific workflow.

  Prior to this version, when calling up a Category on a panel, the items of the Category would always be displayed in alphabetical order. Starting with this release, the order in which these items are displayed will now follow the same order in which they are displayed in the Category Configurator.

  Category panel button assignments now have a new property called "Sort Mode" which can change this behavior to sort alphabetically again if required. Three options are available: "Manual" which is the default and uses the order from the Category or "A-Z" or "Z-A" for alphabetical sort ascending or descending.

  The Category setting copy functionality was also enhanced so that a single setting can be applied to multiple Category button, this can be used to set the Sort Mode across multiple button assignments in bulk for a single panel behavior.

GV Orbit Client v1.2.0 Bug Fixes

- [Ref. #UCCM-1578] **Fixed Crash when Renaming a Layout in an Multiviewer Project:** Fixed issue where renaming a Layout caused the GV Orbit client to crash.

- [Ref. #UCCM-1507] **Correct Loss of Focus on Bulk Routing Panel:** You are prevented from moving focus using <ctrl>+right arrow from the Destination Panel if no salvos have been created.

- [Ref. #UCCM-1297] **Show/Hide Property Grid:** A new button, , has been added to the toolbar. The button is used to show/hide the Property Grid when it edit mode. When the Property Grid is visible the button is shown in the toggled state, .

- [Ref. #UCCM-1122] **Added Parameter Check to Address Setting on User Folder:** Added RollCall address validation to sub folders of the User folder in the Network View.
- [Ref. #UCCM-881] **Open Alarm History in new Tab:** The Event Logging Service has been modified so that the Event Log Viewer opens in a new Web Browser tab.

  Note. if the GV-Orbit Server web page is opened from within the GV Orbit Client the display of the Event Log Viewer is not supported.

  Use instead the Alarm History button on the tool bar.
- [Ref. #UCCM-1361] **Corrected Issue with Workflow Screen not Visible after Undocking Bulk Routing Screen:** Corrected an issue that was preventing the toolbar button to display the workflow button after the Bulk Routing screen had been undocked.

GV Orbit Control Client v1.2.0 Bug Fixes

- [Ref. #UCCM-1356] **Audio logical levels set on IQAMD or Audio Live are no longer reset when reconnecting:** If an AES-67 level on a stream is manually changed with an equivalent AES-67 level with a different amount of audio channels, the new level will no longer be overwritten when the control system reconnects to the device.

  For example, if a stream with level AES-67-64 ch is manually changed to AES-67-16 ch on an a Audio Live stream, the new level (16 ch) will stay the same regardless of the actual channel count on the device.
- [Ref. #PEG-11074] **Device control port's status may stay at *Unknown* if the topology has a DCNM control port:** An issue was encountered when the topology has network switches with DCNM control port. Other control ports could be affected and could stay at *Unknown* status if you deactivate and re-activate the topology within a few seconds. The issue does not happen if there is no DCNM control port.

  The workaround was to Deactivate the topology, wait until the DCNM control port goes offline and then activate the topology.

  This issue is now fixed and no workaround is needed.
- [Ref. #PEG-10846] **Receiver streams multicast IP address are set to 0.0.0.0 if the control system is not able to get the information:** In previous versions of the control system, when a new generic IP device was created with ports and their related streams, the multicast IP address of the sender and receiver streams were set using a specific pattern (224.x.x.x).

  Setting the multicast IP address, for receiver streams, using default values, could lead you to think that the receiver is actually joining a sender with the specified default multicast IP address. This was noticed especially with NMOS receivers where the *sender_id* is set to null.

  In the new control system version, those **receiver** multicast IP addresses are set to 0.0.0.0 if the control system is not able to get them through the driver. This is applicable only for receiver streams.
- [Ref. #PEG-10791] **IPVU receivers video format automatically updated by the control system:** The control system now supports the control of the IPVU (joining streams) and also support the control of the IPVU parameters.

GV Orbit Version 1.1.0

As shown in each application's *About* screen, GV Orbit version 1.1.0 is composed of:

- GV Orbit Client version 4.1.0.
- GV Orbit Control Client version 2.3.0.

This release adds the following enhancement(s) and corrects the following issue(s) that are separated out as follows.

- GV Orbit Client v1.1.0 New Features and Enhancements, on page 31
- GV Orbit Control Client v1.1.0 New Features and Enhancements, on page 35
- GV Orbit Client v1.1.0 Bug Fixes, on page 37
- GV Orbit Control Client v1.1.0 Bug Fixes, on page 38

GV Orbit Client v1.1.0 New Features and Enhancements

- [Ref. #UCCM-258] **GV Fabric control port and dynamic interface changes:** GV Orbit has now a new control port for GV Fabric switches.

  You will need to add the control port on a network switch, and enter the IP address of the switch with the appropriate credentials.

  Once the control port is started and the connection established, GV Orbit will display the status of the network switch as Online and will update the name and the description of the generic network switch with the GV Fabric ones.

  With some compatible devices such as the XIP that provides proper LLDP data, GV Orbit is able to show the name of the network interface where the device is connected. This information is displayed in the link between the device and the GV Fabric as well as in the GV Fabric input/output ports, both from the Topology Configurator. Path Manager also publishes the appropriate GV Fabric interface.

  If the same device is plugged to a different GV Fabric network interface, GV Orbit automatically updates this information in the Topology Configurator and in the Path Manager.

- [Ref. #UCCM-1174] **Bulk Routing Panel Restyle:** The Bulk Routing panel has been restyled with a different layout, a single splitter is now used to alter the division between source/destination buttons and source/destination levels. The button and level buttons have been restyled with a rounded style and altered colors.
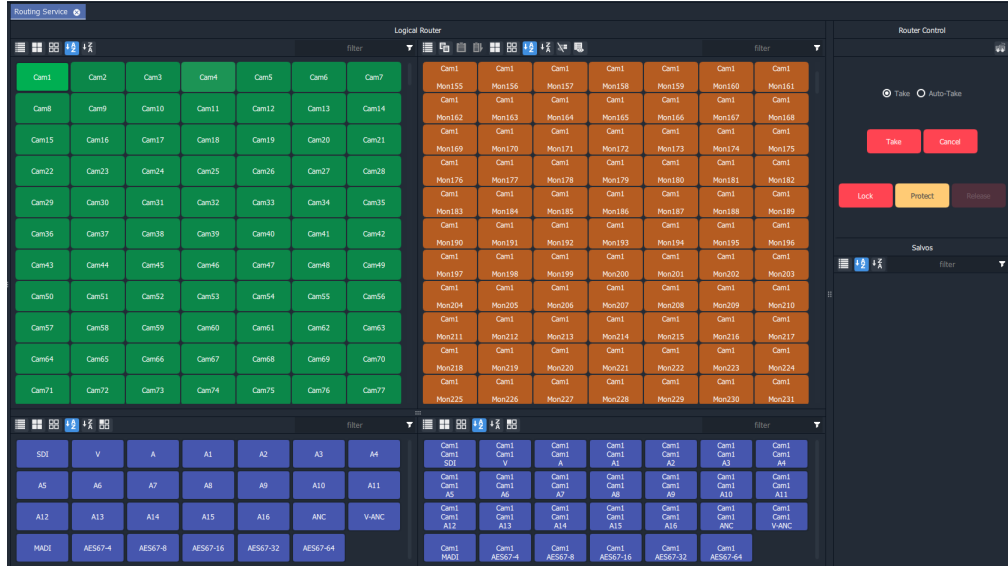
- [Ref. #UCCM-1118] **Lock and Protect destinations support in the Bulk Routing:** Added support to Lock and Protect destinations. *Lock* and *Protect* applies to all levels associated with the destination. Protected destinations and their levels are indicated in yellow. Locked destination and their levels are indicated in red.

  The *Release* button un-locks/un-protects a locked or protected destination.
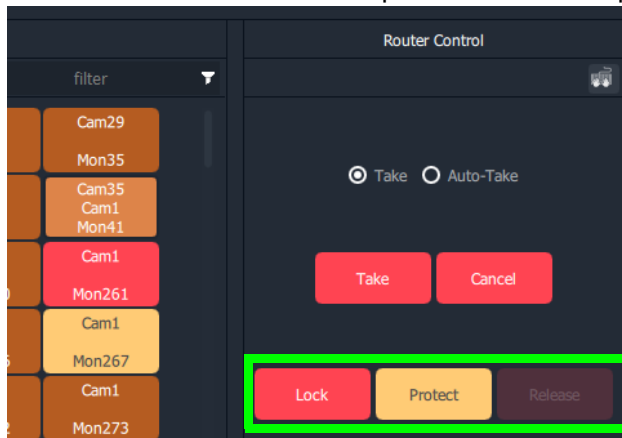
- [Ref. #UCCM-1041] **The source filter popup window now moves so it does not obscure the selected destination:** The source filter popup window now moves so it does not obscure the selected destination. It is now displayed (if it fits) directly below the selected destination as shown below:
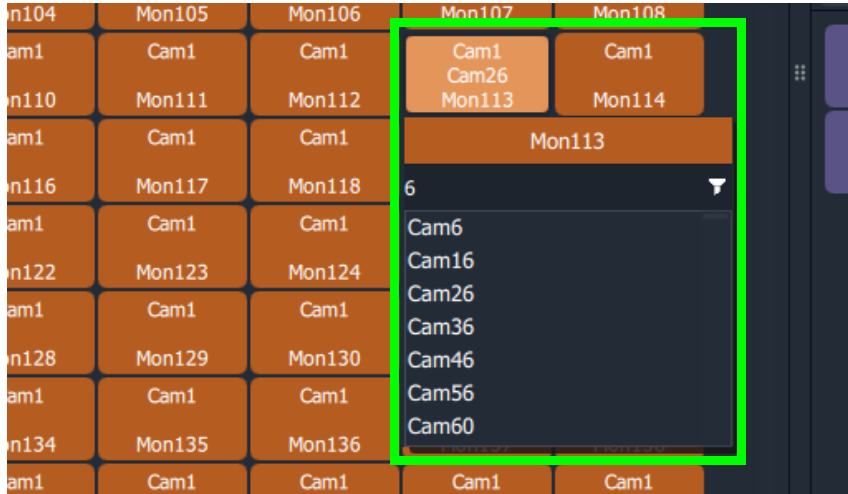
- [Ref. #UCCM-1019] **Updates to the bulk routing context menu:** There have been some minor changes to the context menu and tool bar buttons displayed when the bulk routing panel is open.

The toolbar now displays the *lock*, *undock* and *full screen* icons together:

The context menu options now have slightly different text and the *Show Sources* option has been moved to the toolbar as *Hide Sources*.

- [Ref. #UCCM-1275, Ref. #UCCM-1016, & Ref. #UCCM-1042] **Bulk Routing Keyboard Shortcut Keys Help:** Display Bulk Routing help using the keyboard help icon , the help menu shows an explanation of the shortcut keys that can be used to operate the Bulk Routing screen.

Shortcut key	Description
Cursor keys	Navigate between source/destinations/levels of the the active panel
Ctrl + cursor keys	Navigate between source, destination, level and salvo panels
Space bar	Select
Enter	Take
Shift + cursor keys	From a previously selected source/destination/level seleact a series of sources/destinations/levels
Ctrl + space bar	Select multiple distinct sources/destinations/levels
Escape	Cancel, deselects all sources/destinations/levels
Tab	On a destination level shows a source level selector, arrow up/down to select, enter to take
Text input	On a destination shows a source selector, arrow up/down to select, enter to take
Home	Select first source/destination/level on the active panel
End	Select last source/destination/level on the active panel
Page up	Scroll up sources/destinations/levels on the active panel
Page down	Scroll down sources/destinations/levels on the active panel
Ctrl + A	Select all sources/destinations/levels on the active panel
Ctrl + D	De-select all soruces/destinations/levels on the active panel
Ctrl + C	Copy the routed srouce for the selected destination
Ctrl + V	Paste the copied source to the selected destination(s)
Shift + V	Paste a series of sources incrementing from the copied source to the selected destinations
Ctrl + F	Go to the filter box of the active panel

- [Ref. #UCCM-1261] **The slider widget has been updated with additional styling properties:** The slider widget has been updated with various new properties to allow much greater flexibility when styling a widget.

- [Ref. #UCCM-1264] **Changes to the network view toolbar:** The toolbar now contains the following new items:
  - List view: This provides a flat view of all the leaf nodes in the network tree.
  - Filter string:
    - Enabled when in list view mode.
    - Shows only those items that contain the filter text string.
  - Filter menu:
    - Enabled when in list view mode.
    - Provides filtering by item type and by item state.

- [Ref. #UCCM-1112] **State *No State* changed to *Unknown*:** The state shown as *No State* has been changed to *Unknown*.

- [Ref. #UCCM-1096] **Tally Property Shape Changed to Represent State:** The Tally Widget property Shape has been changed to State. In additional to the two tally lamp modes, circle and rectangle that show state by changing the color of the widget, additional state modes have been added that match the alarm shapes.

- [Ref. #UCCM-1076] **Reworked the GV Orbit masking menus:** The GV Orbit masking options have been slightly re-worked to make names and such more consistent across ranges of products. Unit mask has been changed to device mask, timed mask to snooze mask, until green has been changed to until normal.

  Additionally the alarm list details box now allows filtering on multiple states and latched states rather than on a single option.

- [Ref. #UCCM-1072] **Alarm Masking Menu Changes:**
  - The terminology has been updated for alarm masking menus.
  - Snooze and Tag alarms are selected from the context menu instead of a popup window.

- [Ref. #UCCM-1062] **New List View Filtering:** The Network View supports filtering when in List View. The list of devices can be filtered by the following options.
  - RollCall/Densite Devices
  - Alarm State
  - Text entry for Device Name

GV Orbit Control Client v1.1.0 New Features and Enhancements

- [Ref. #PEG-11008] **Support of disconnecting NMOS flows through an IS-05 command:** The IS-05 connection management request sent by the control system will set the *master_enable* flag to false if the source IP address is 0.0.0.0.

- [Ref. #PEG-11007] **Display the status of NMOS devices that are not available for control through IS-05:** A new property has been added to NMOS control ports called *IS-05 Controllable*. This field indicates whether the corresponding node in the NMOS registry has devices that support being controlled through IS-05.

- [Ref. #PEG-10993] **DNS-SD NMOS registry redundancy support:** GV Orbit Control now supports NMOS registries redundancy with DNS-SD. If GV Orbit Control discovered a registry through DNS-SD, and that registry becomes unavailable, GV Orbit Control will automatically fail over to the next available registry listed in the DNS.

- [Ref. #PEG-10971] **Tielines refresh through the control system client:** You now have the ability to refresh tielines through the Path Manager using the *Refresh Tielines* button available on the upper banner.

  This functionality allows you to recompute the tielines usage given the crosspoints in each device, in case the tieline status in the control system has become out-of-sync with what's actually routed.

- [Ref. #PEG-10946] **Exposed streams setting management in the Stream Configurator:** This allows you, through the Stream Configurator, to filter displayed streams by *exposed stream* property and also the ability to expose or unexpose streams through selection.

  This is useful when you would like to expose only certain streams in a system (for instance, only the Audio streams of a specific device).

- [Ref. #PEG-10906] **GV Orbit Control System Status Page now displays Densité Manager memory usage:** In the GV Orbit Control Client application, the System Status Page now displays the memory usage of the local Densité Manager. The percentage reflects the memory used out of its allocated heap size of 8GB.

- [Ref. #PEG-10899] **New option for wide widgets in Router Control UI:** The Router Control UI has a new option for making the source and destination double their width to accommodate longer labels.

  The option is available independently for sources and destinations and is persisted for the currently logged in user, meaning that re-launching the Router Control UI or GV Orbit Control Client will remember the previously set value.

  Note that this preference is also saved on a per user basis in Windows, meaning the setting has to be set on every PC and user where the GV Orbit Control Client runs.

- [Ref. #PEG-10806] **NDAC NP0017: Lock and Protect destinations support:** The control system now provides support for *Lock* and *Protect* destinations.

  You have the ability to lock/unlock and protect destinations through the *Router Control* using the *Lock*, *Release* and *Protect* available options.

  The control system stores the locks in its database and they are preserved after a restart/reboot. Destinations will remain locked/protected.

  In practice, the control system does not read a lock from a router and does not control it.

  If a configured panel in the control system is used, a user must be assigned and that prevents other users from removing the protect. An admin user can override other users.

  In the NP0017 protocol, Lock/Protect commands require a user ID. Currently, the control system northbound implementation does not take into account the user ID and simply considers all commands executed as the admin user. Lock for various users is not supported yet.

  Lock and protect currently affects all levels of the destination and does not consider individual levels. Locking one level locks all destination levels and the control system does not yet support specific lock levels.

- [Ref. #PEG-10733] **Warn user when GV Orbit Control client version and the connected server version do not match:** A warning is displayed to you if the GV Orbit Control client version is different from the version of the connected server. If both versions are matching, no warning will be displayed.

  A confirmation is prompted. If you select *OK*, the client will continue to load as per normal. If *Cancel* is selected, the application will go back to the login screen.

- [Ref. #PEG-10588] **Unique custom level names on a panel:** On a panel, we are limited to 8 characters for a Tally: 3 lines of 8 characters.

  In the Logical Level Editor, a short name must have 8 characters or less. A custom level is built (by duplicating the factory ones) with the first 3 letters of the resulting short label and ".." and the last 3 letters from the resulting short label.

  The resulting short label is the concatenation of the a prefix provided by you, the short label of the copied logical level and a suffix provided by you (prefix and suffix can be empty).

  For example,

  if the Short Label Prefix is **Test** and the Factory level is **AES67-64**, the short name will be **Tes..-64**

  if the Short Label Suffix is **Test** and the Factory level is **AES67-64**, the short name will be **AES..est**

- [Ref. #PEG-10342] **DNS-SD Support for the NMOS registry discovery:** GV Orbit Control can now automatically discover an NMOS registry through DNS-SD given the DNS server and search domain. The DNS server and search domain are automatically retrieved through the OS (if available), but can be overridden by you in the Area Configurator. If the DNS information is changed in the OS, GV Orbit Control must be restarted to retrieve the new values from the OS. As before, you still have the option to set a static NMOS registry URL if desired.

- [Ref. #PEG-10150] **Control port added to a device by importing a spreadsheet:** The feature Spread Sheet Import/Export now supports ControlPorts in a specific sheet.

GV Orbit Client v1.1.0 Bug Fixes

- [Ref. #UCCM-1283] **Improved the combo box and the list box widgets so that they can better configure the value they return:** The Combo Box and List Box widgets were limited in the value that they could change, making custom screens complex to configure. These have been fixed so there are a few new ways they can be used.

  - The Data property can now be set to a string which contains specific values for each option using the following syntax: [3]Channel 1;[4]Channel 2. In this example the List/Combo boxes would display Channel 1/Channel 2 as options, but when adjusted its value would change between 3 and 4. This makes it fair bit easier to bind this to a remote value such as RollCall or Densite.

  - There is a further option *Use label/value* which when selected makes the List/Combo boxes use the [value] or label if no value defined as the value of the List/Combo box. When this us unchecked, it will use the zero based index of the items in the Data property as its value.

- [Ref. #UCCM-1282] **Corrected Issues with GV Live Workers not Available in Network View:** An issue with GV Live and Audio Live workers not being visible in the Network View of GV Orbit Client has been resolved. The Network View can now be expanded to browse to and open the Worker control screens. Providing the Workers have been added to the Log Server polling list, the Worker alarm state is also visible in the Network View.

- [Ref. #UCCM-1253] **Web Renderer Project wasn't Reloading Project:** A correction made to the Web Renderer so all elements of a project are reloaded when a new project is selected.

- [Ref. #UCCM-1125] **Cannot see take buttons when bulk routing is opened:** When the bulk routing tool was opened and a pane (network or project) is open at the left (default opening of the tool), the router control area was not visible.

- [Ref. #UCCM-1098] **Updates to how GV Orbit opens screens in different tabs:** Prior to this fix, GV Orbit would open some screens in existing tabs when in run mode. For example opening a component would replace an existing screen tab. This occurred until you had opened a completely different type, for example a network screen, in which can a new tab would then be created. So it was all a bit random.

  GV Orbit now only opens screens in an existing tab when in run mode. All other files will be opened in their own tabs. The application now is automatically put into edit mode when opening a component, or creating a new screen to allow immediate editing.

GV Orbit Control Client v1.1.0 Bug Fixes

- [Ref. #PEG-11010] **Random issue with GV Orbit Control failover mechanism:** An issue related to the failover mechanism was noticed where you could end-up with an active server or loss of the topology. This issue is fixed.

- [Ref. #PEG-10945] **Unable to reuse a discovered device if it was deleted from a device group instead of deleting the entire device group:** If there are multiple discovered devices in a single device group, and any individual device is deleted from the group, the discovered device does not become available in the discovered device library to be dropped on the topology again. This issue is now fixed.

- [Ref. #PEG-10927] **IS-05 bulk stage requests to NMOS receivers don't include transport_params anymore:** IS-05 sent by the control system won't include *transport_params* anymore, as allowed by NMOS specs to accommodate receivers that don't support *transport_params* with an empty list.

- [Ref. #PEG-10890] **DCNM control port can be disabled on an active topology:** We added a feature to allow you to disable/enable the DCNM driver on an active topology. This feature is a tool to help support teams to solve potential configuration issues on a live system without impacting the routing functionality or other control port devices. Some other useful troubleshooting data is also added to system snapshots.

- [Ref. #PEG-10851] **Additional port/interface created for new added NMOS device to a device Group if all devices already connected:** If a device group does exist in GV Orbit Control topology, with few NMOS devices AND those devices are connected to/from network switch, then you decide to add a new NMOS device to this existing device group, GV Orbit Control will add the new device but this device will have an extra port/interface (factory generated). This issue is now fixed.

- [Ref. #PEG-10618] **Sometimes Audit logs viewed from the web admin page in GV Orbit Control will not load and reports errors:** The web browser was unable to display the audit.log file if its size is too big. Now, you have the option to download the audit.log file if its size is bigger than 10MB, otherwise the content will be shown in the web browser.

- [Ref. #PEG-10617] **All level takes failing from an IQMV (V, A) source to an IQUCP (V, A, ANC) destination:** If a take was requested from an IQMV output which has only Video and Audio (No ancillary) to an IQUCP destination which has Video, Audio and Ancillary, GV Orbit Control was failing the take with an error mentioning that the ancillary level is missing.

  With this new fix, GV Orbit Control will succeed the take with a warning message mentioning that only Video and Audio were taken.

  As long as Video (the highest ranking level) is carried successfully, the take will succeed.

  If not all levels are carried, GV Orbit Control will display a warning that not all levels were taken.

- [Ref. #PEG-10344] **Cannot select some MADI streams in the Logical Device Table:** The issue where we were not able to select / drag some streams of the Stream Browser of the Logical Device Table in a logical source level column, is now fixed.

GV Orbit Version 1.0.1

This release adds the following enhancement(s) and corrects the following issue(s).

New Features and Enhancements

- [Ref. #PEG-11008] **Support of disconnecting NMOS flows through an IS-05 command:** The IS-05 connection management request sent by the control system will set the *master_enable* flag to false if the source IP address is *0.0.0.0*.

- [Ref. #PEG-11007] **Display the status of NMOS devices that are not available for control through IS-05:** A new property has been added to NMOS control ports called *IS-05 Controllable*. This field indicates whether the corresponding node in the NMOS registry has devices that support being controlled through IS-05.

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- [Ref. #PEG-10993] **DNS-SD NMOS registry redundancy support:** GV Orbit now supports NMOS registries redundancy with DNS-SD. If GV Orbit discovers a registry through DNS-SD, and that registry becomes unavailable, GV Orbit will automatically fail over to the next available registry listed in the DNS.

Bug Fixes

- [Ref. #PEG-10927] **IS-05 requests do not include transport_params anymore:** IS-05 sent by the control system will not include *transport_params* anymore, as allowed by NMOS specifications to accommodate receivers that do not support *transport_params* with an empty list.

GV Orbit Version 1.0.0

This is the first release.

Known Issues and Limitations

The following is a list of known issues and limitations associated with GV Orbit. The star (★) symbol indicates a new issue in GV Orbit version 1.7.0.

GV Orbit Client Known Issues and Limitations

- [Ref. #UCCM-758] **The GVNodeManager panels are not available from the GV Orbit client:** Even though the panel launcher can open the GV Node manager panel using the `http://{IP}:{PORT}/panel-launcher-service/api/v1/services/gvnodemangers` supplied list, the GV Orbit client does not support the listing and the opening of the GV Node manager panels.

- [Ref. #UCCM-930] **Elastic persisted data size is too large to be downloaded:** Elastic data can take a significant amount of disk space preventing the download of the compressed archive due to its size. The splitting of the archive in small chunks suitable for download would require manual operations that are not available to the end user although it could still be possible for an authorized engineer to do this and recover the data.

- [Ref. #UCCM-980] **Densité does not report cards for which their services are not started:** Cards for which the service bundles are not present or the card's service is not started properly are not listed in the Densité web page or the cards list in the GV Orbit Client.

  Traditionally, in iNavigator, the list of all the cards in a Densité frame were displayed and the cards for which the service was not started was displayed using a grayed out font. At the moment, there is no way to report the physical cards found through the Densité REST API.
  Workaround: Open the upgrade manager panel from the GV Orbit client (in the Densité cards list in the GV Orbit Client, right-click the frame's controller card and select *Open Upgrade Screen*) and install the service bundles for any unresolved cards.

- [Ref. #UCCM-981] **Opened Densité card Control Panels become unresponsive with remote lookup disconnection:** When a Densité frame is set to standby or a fail-over happens while the card's Control Panel is opened, there is no mechanism though which the Control Panel knows that the back-end service has disconnected. Therefore, any operation executed on the opened Control Panel will not work until the Control Panel is closed and re-opened again.
  Workaround: Close the card's Control Panel GV Orbit Client and reopen it if it is available in the GV Orbit Client. If this still does not work, restart the GV Orbit Client.

- [Ref. #UCCM-982] **Upgrade manager cannot be opened if no services are started for a Densité frame:** The Densité frame's service must be started before the upgrade manager panel can be opened. If at least one service is started for a Densité frame (this is normally the controller card), then the Densité REST API reports the frame and it is added to the GV Orbit client list of detected Densité frames. At this point, you can open an upgrade manager panel.

  However, if the controller service is not started, then the frame is not reported by the Densité REST API and it is not displayed by the GV Orbit client.
  Workaround: Install a service bundle so that the Densité frame reports at least one card through the REST API.

- [Ref. #UCCM-1352] **Child Nodes not Supported in IP Proxy in the Same way as RollCall IP Proxy:** Currently child nodes are not supported in IP Proxy in the same way as it was in the old RollCall IP Proxy. In RollCall IP Proxy child nodes could be defines as follows.

  MV main board = 2200:01:00

  MV IP card 1 = 2210:30:00

  MV IP card 2 = 2220:30:00

  MV IP card 3 = 2230:30:00

  MV IP card 4 = 2240:30:00

In this case the devices will not show correctly in the Network View in GV Orbit. Instead the devices need to be declared with Node values as follows in IP Proxy:

MV Parent = 2220 (Device set to false)

MV Main Board = 2221

MV IP Card 1 = 2222

MV IP Card 2 = 2223

MV IP Card 3 = 2224

MV IP Card 4 = 2225

The Network View will show the devices as:

  MV Parent = 2200:02:00

  MV Main Board = 2220:01:00

  MV IP card 1 = 2220:02:00

  MV IP card 2 = 2220:03:00

  MV IP card 3 = 2220:04:00

  MV IP card 4 = 2220:05:00

★ [Ref. #UCCM-1735] **Issues when modifying IP of existing SNMP device:** In the SNMP application page, it is not recommended to change the IP address for an SNMP device that has already been added as this can cause issues with the SNMP service, potentially causing it to crash.
Workaround: The recommended procedure is to remove the existing device and add a new device using the new IP address.

- [Ref. #UCCM-1816] **Removed SNMP devices do not get removed from GV Orbit client network view:** When an SNMP device is added to the system through the Web Admin SNMP page, then either removed or have its Rollcall address changed, the GV Orbit client will still display the device in its original network tree location.
Workaround: To remove, restart the SNMP service in the Web Admin Applications page. Then go to the Web Admin Monitoring page and click "Purge stale data" near the bottom of the page.

- [Ref. #UCCM-2093] **Densité Panel Launcher: Copy Configuration to Another Card does not work:** The Densité Panel Launcher has a feature to propagate the user default configurations from one card to other similar cards. There is a known issue with this feature: the list of available cards to copy to is always empty. The Workaround is to manually set the default configurations of all cards.

- [Ref. #UCCM-2278] **Unable to Route Source to Virtual Crosspoint Destination using Bulk Routing until Routing Service has been Restarted:** After creating a Virtual Crosspoint in the GV-Orbit Control client, the Virtual Crosspoint can immediately be used for routing using hardware panels and the GV Orbit Control Client.

  However, the same Virtual Crosspoint shown in GV Orbit Client Bulk Routing screen does not tally the correct source on any level after creation. For the Virtual Crosspoint to show the correct tally status, restart the Routing Service on the GV Orbit Server after creating Virtual Crosspoints.

- [Ref. #UCCM-2314] **Not able to log Kahuna messages through GV Orbit server's 1G connection:** The Kahuna IP fin when configured to use the GV Orbit server log server over the 1G network connection does not work.
Workaround: Use the server's 10G connection.

- [Ref. #UCCM-2411] **Network Interfaces Setting Blanks-out on Save:** The Network interface(s) section of GV Orbit services becomes blank when you are prompted to save changes. If a specific interface class has been selected, the setting is saved and is applied, but the user interface will not show the selected interface.

GV Orbit Control Known Issues and Limitations

- [Ref. #UCCM-952] **Containers are not notified if: IP addresses, the group they belong to, or the hostname has changed:** Containers are given the configured IP addresses and the group they belong to (for example, MANAGEMENT, MEDIA, and CORPORATE) and their hostname on startup. If you change the IP address configuration, the group they belong to, or the hostname, containers are not notified of this change. Containers use the new values only when they are restarted or when the host is rebooted.

- [Ref. #UCCM-1124] **A backup's friendly name is renamed to its original name once imported:** If a user decides to export a backup, then re-names it, and tries to import it again, the backup may be flagged as already existing on the GV-Orbit Server, as GV Orbit uses a metadata file to distinguish between backup files.

  When a backup file is imported, the name assigned to it is generated based on information contained in the metadata file, including the date and time when the backup was originally created.

- [Ref. #UCCM-1146] **Setting an interface, already configured, to *Not Configured* will not disable it:** If you set an interface, under *Interfaces Configuration*, that is already been configured, to *not configured*, save and restart, it will not disable the interface. The *Expert Mode* will no longer show the interface but the interface status and ifconfig will show the newly disabled interface as always *Up* when it's supposed to be *Down*. *Workaround:* Reboot the server.

- [Ref. #UCCM-1465] **The control system client may show empty tabs after a failover:** After multiple cluster failovers, the control system client may show empty tabs. *Workaround:* Close the client and re-open it again.

- [Ref. #UCCM-1473] **Interface status does not display the right IP Address after an update:** Changing the interface IP address does not update the interface status. *Workaround:* GV-Orbit Server should be rebooted.

- [Ref. #UCCM-1474] **Browser cache should be cleared after GVOS upgrade with CSS changes:** If there was a change in the CSS, as part of the GVOS upgrade, the browser cache should be cleared.

- [Ref. #UCCM-2150] **An ngnix error occurs while trying to export a global backup through the web admin page:** The ngnix error is due to the global zip file generation.

  When a global backup is made, individual backups of all applications are made.

  When an export is requested, all individual backups are all copied to generate a zip file. During this process, a timeout happens and no zip file is generated.

  Until the issue is fixed, the workaround is to make a global backup and export individual application backups through the web admin page.

- [Ref. #UCCM-2283] **Configuration changes may not be possible when stand-by server is coming up:** In a GV Orbit Control cluster, when the stand-by system is coming online, it may not be possible to make certain topology or panel configuration changes until the stand-by system completes replication, which can take from 15 seconds to a minute depending on your current configuration size.

★ [Ref. #UCCM-2471] **Bulk routing panel blocked when no custom filter available:** If no custom filter is created and you select the Delete filter or Edit filter options, the bulk routing panel will get blocked with an empty pop-up in the middle of the screen. *Workaround:* Close and re-open the panel.

- [Ref. #UCCM-2370] **GV Orbit applications backup list is not sorted properly:** There is an issue where the GVO applications backup list is not sorted in the proper order, that is by the date of creation.

- [Ref. #UCCM-2374] **MADI takes can be slow:** When using IQAMD audio channels as shuffled destinations, routing automatically through Audio Live can be markedly slow.

- [Ref. #PEG-3498] **A refresh of the Router UI may be needed to reflect changes in the Alias table:** For GV Orbit Control, if you update the Aliases while the Router Control UI stage is open in the GV Orbit Control Client, you may need to reopen the Router Control UI to reflect those changes.

- [Ref. #PEG-4269] **Adding logical devices while GV Orbit Control Panel Configurator is open may not display the devices sorted correctly:** For GV Orbit Control, when adding sources and destinations in a Topology while the Panel Configurator is open and the Sources or Destinations view is exposed, the created sources or destinations adds them into an unsorted order in the Panel Configurator view. Also applies to salvos and other items.
Workaround: Closing and reopening the stage in GV Orbit Control will address the sorting issue.

- [Ref. #PEG-6457] **"ERROR - GUI panel not found" is displayed when launching client:** For GV Orbit Control, if this message is displayed, close and reopen the GV Orbit Control client.

- [Ref. #PEG-6646] **No keystroke duplicate warning is displayed when setting the same keystroke more than once:** For GV Orbit Control, within the Category Configurator Stage, if you set the keystrokes of more than one device to the same keystroke assignment, they can create an issue where the desired device may not be selected from a panel whilst using the keystroke selection option from a category button.
Workaround: Take care to provide unique keystroke selection for each device.

- [Ref. #PEG-6749] **GV Orbit Control Client does not automatically reconnect when changing the management IP address.**
Workaround: If this occurs, close and relaunch the client. Then, log in with the new IP address.

- [Ref. #PEG-6958] **Physical Connections Builder may not reflect disconnected ports:** In GV Orbit Control Client, if you disconnect physical connections for the Connected tab in the physical connections editor, on the topology configurator stage, the now disconnected ports, may not display in the builder section. If this occurs, you may need to click off the physical connection and then back onto it to see the ports available for connection.

- [Ref. #PEG-7159] **Phantom buttons on hardware panels can be cleared by changing pages:** For GV Orbit Control, changing the location of a level button on an active panel can create a button with text, but no color. The label of the old button may remain. Changing the page, or opening a list page, to re-legend this button will refresh the button. This only affects the panels with the LED buttons.

- [Ref. #PEG-7283] **The keystroke does not work when the suffix is composed of both a letter and a number.** For GV Orbit Control.
Workaround: If this occurs, either use only numbers or use only a single letter for the suffix/keystroke to select devices within a category.

- [Ref. #PEG-7815] *Takes* **may fail on redundant IP sources with inverted connections:** For GV Orbit Control, when using a redundant (2022-7) network, if you connect the first output port to the B network and the redundant port to the A network (invert the connection), you might see a take failure if the connection on the other side of the network fabric is not inverted.

  Similarly, having a non redundant IP device connected only to A network will allow us to do a take, but having it connected only to B network will not.

  Connect first port to the A network and redundant port to B network to resolve this.

- [Ref. #PEG-7830] **Black screen appears when you open the Panel Configurator stage.** For GV Orbit Control.
  Workaround: if you receive the black screen when opening or selecting the Topology Configurator stage, close and reopen the stage.

- [Ref. #PEG-7922] **Software panel configuration may not reflect panel behavior change when the topology is not active:** If the GV Orbit Control topology is not active, and you switch the panel behavior to a different panel, and then activate it, the changes will not be reflected on soft panels.

  However, if the topology is active, you can switch the panel behavior and it will do the switch on the fly as expected.

- [Ref. #PEG-8009] **Tie lines view is not updated dynamically when a short name is changed:** For GV Orbit Control, when you change the short name of a device, the Path Management (Tie lines view) is not dynamically updated.
  Workaround: Click the Refresh button.

- [Ref. #PEG-8018] **Ports appearing in "Other" physical connections table are not updated dynamically after changes are made to the device:** For GV Orbit Control, when changing the device short name or device count for the corresponding ports appearing in the *Other* table, the table is not dynamically updated.
  Workaround: If this occurs, deselect/select the link.

- [Ref. #PEG-8096] **Category Configurator is very slow to assign and delete large numbers of sources and destinations:** For GV Orbit Control, if you are experiencing a delay, then as soon as you see the sources are deleted from the screen, close GV Orbit Control Client and reopen it. This way you skip the unnecessary delays.

  As for the creation of the category, you can do the same thing. Close GV Orbit Control Client after a while and reopen it.

- [Ref. #PEG-8097] **Logs fill with stack traces when an external controller is configured with an incorrect matrix ID.** For GV Orbit Control.
  Workaround: if this occurs, fix the matrix ID or stop the external control system from accessing NDAC, or change log level for this module. This may well hide other important errors in this same module.

- [Ref. #PEG-8235] **Deleting devices by decreasing the device count is faster when all other** GV Orbit Control **Client stage tasks are closed**: For GV Orbit Control, if the device count is changed when only the Topology Configurator stage task is open, the deletion is much faster. As soon as you open the Router Control or Path Manager stage task, it starts to slow down.

- [Ref. #PEG-8251] **Issues using Microsoft Internet Explorer 11 with GV Orbit Control Admin Web Stage:** For GV Orbit Control, issues have been found with Internet Explorer 11 and the upgrade feature from the GV Orbit Control Admin page. We recommend using the Google Chrome web browser as a workaround.

- [Ref. #PEG-8255] **System Status page displaying routers that have been deleted:** For GV Orbit Control, after deleting dummy routers on the loaded topology, the System Status UI was still showing the statuses of the deleted routers without their labels.
  Workaround: Close/reopen the System Status UI.

- [Ref. #PEG-8284] **The Alias Editor are not updated dynamically when physical connections are deleted in the topology:** For GV Orbit Control, if the Alias Editor stage task is open and you sever physical connections in the Topology Configurator task, switching back to the Alias Editor may not reflect the deletion.
Workaround: If this occurs, click on the refresh button on the Alias Editor.

- [Ref. #PEG-8317] **The GV Orbit Control Admin Backup and Restore does not display the correct host name when the host name has a hyphen in it:** For GV Orbit, it is not recommended to use a hyphen in the host name.

- [Ref. #PEG-8328] **Take should fail with an incorrect physical level configured on a router:** For GV Orbit Control, if you have configured a router, but has the incorrect physical level value, GV Orbit Control attempts to perform the take. If the physical level does not exist on the router, no actual XPTs are switched.

- [Ref. #PEG-8332] **Router Control UI not updated after multi-select take on NV9654 hardware panel.** This relates to GV Orbit Control.
Workaround: If this occurs, then close and reopen the GV Orbit Control Client.

- [Ref. #PEG-8449] **Changing the standby server IP without breaking the cluster is not possible.**
Workaround: If you have to change the IP address of the standby server in a redundant cluster, then it is necessary to break the cluster. To do so, in GV Orbit Control, set the number of controllers in the Area Configurator to 1 and press enter. Then, change the number of controllers back to 2 and enter a new IP address for Controller 2 in the Properties Editor.

- [Ref. #PEG-8469] **The virtual IP address cannot be the same as the IP address of either the active or standby controller:** For GV Orbit Control, also, you cannot use the same IP for both the active and standby controllers. If this is the case, then you will need to edit one, or both controller IP addresses in the area configurator.
Workaround: If the virtual IP address is the same as the IP address of a controller, or if the both controllers have the same IP address, open the GV Orbit Control > Area Configurator > Property Editor and edit the IP address of one controller or both controllers.

- [Ref. #PEG-8520] **Hosts/flow policies are not being re-created in DCNM after a DCNM HA failover**. For GV Orbit Control, if the active DCNM in a HA availability DCNM configuration goes offline, DCNM will fail over to the standby DCNM, but it will not have the hosts/flow policies that were currently available on the previously active DCNM. To fix this issue we have to deactivate and activate the topology one more time.

- [Ref. # PEG-8542] **A Bad Device Graph Is Loaded After A Switch Of Area:** For GV Orbit Control, the original area may be displayed when you create a new topology, make it active, and then create a new area. If this occurs, then click on the new area to display it.

- [Ref. #PEG-8585] **Ethernet NIC ports on GV Orbit Admin > Network Settings are listed in reverse order:** currently, only the em1 interface is enabled on startup of GV Orbit Control Client. When you edit the configuration of the interfaces in the web stage, it is important to note that, from the rear, the right most network port actually relates to p6p1. These interfaces also need to be manually enabled using the command, *ifconfig [interface] up* (for example, *ifconfig em2 up*) through SSH to GV Orbit Control, or on the Linux command line interface.

- [Ref. #PEG-8602] **The last take operation added to a salvo can appear incorrectly at the beginning:** For GV Orbit Control, when you add take operations to a salvo, the last take operation added should appear at the bottom of the list. However, it appears at the beginning of the list. If this occurs, then delete the unsorted operation and add it again.

- [Ref. #PEG-8708] **Underscores are ignored in topology naming:** For GV Orbit Control, it is recommended that you replace underscores with another character when naming the GV Orbit Control topology.

- [Ref. # PEG-8782] **Refresh issue in the logical device table while exposing stream:** For GV Orbit Control, while exposing streams and having the logical device table opened, the logical device table can become out of sync when you navigate between the Source and Destination tab of the table. Sometimes the stream will not appear immediately, or sometimes they will not update after changes in the topology. *Workaround:* Refreshing, or reopening the table, can fix this issue.

- [Ref. #PEG-8820] **The Web stage login button is not enabled when using remembered login and password:** the web-stage login button is not enabled when you select the remembered user and password.
Workaround: If this occurs, press the enter key in one of the two fields, or press the tab key in the user field.

- [Ref. #PEG-8834] **Checking Automatic Sources on Outputs does not assign the streams on some Logical Sources:** For GV Orbit Control, if the logical device table is open when editing the device properties on the topology, and you choose to automatically create sources on Outputs, then you may need to press the refresh (recycle) icon to refresh the devices.

- [Ref. #PEG-8840] **Logical Device Table streams are still shown after deleting a physical connection link:** deleting a physical connection link on the active topology should remove the logical devices that may have been created for a device. However, if the devices are still seen on the logical device table, then pressing the refresh (recycle) icon on the logical device table, will refresh the table.

- [Ref. #PEG-8859] **Redundant port device property displayed with improper format:** For GV Orbit Control, after editing the device property # Output connectors to 2 and setting the Redundant port on Out 1, the redundant port was shown as follows. The workaround is to deselect/re-select the Out 1 port tab.
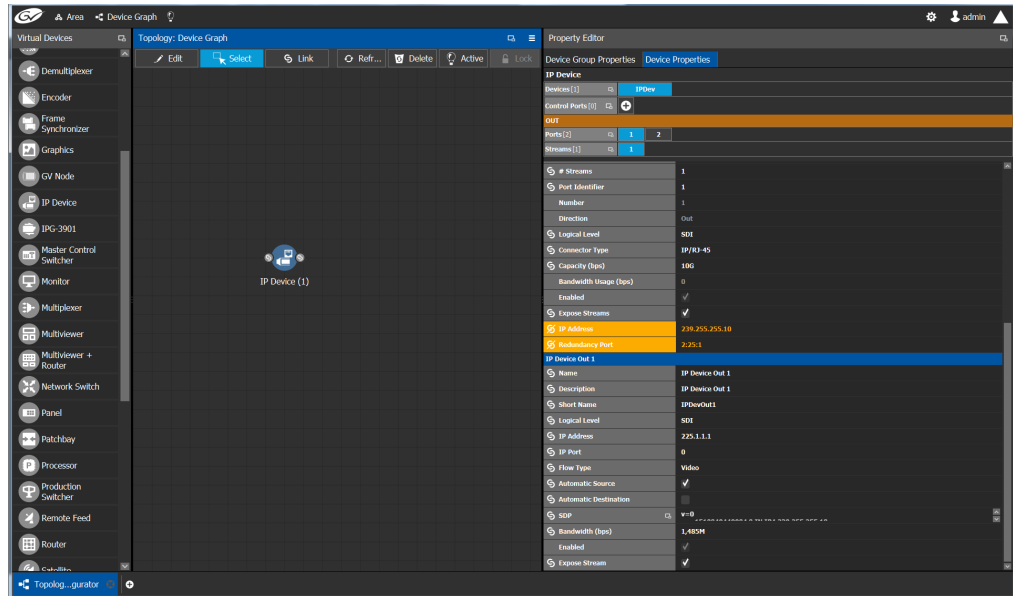
- [Ref. #PEG-8860] **Takes to an exposed destination will fail due to missing logical level assignment:** For GV Orbit Control, if you expose streams at a port of a router, but that port does not have a defined logical level, then placing that stream in a logical device and performing a take on/to that device will fail. You must manually configure the logical level on the device properties in the topology.

- [Ref. #PEG-8871] **Using Exposed Streams May Create Inaccuracies in Path Manager:** For GV Orbit Control, utilizing the exposed streams functionality in the GV Orbit Control topology, may create instances where the path manager will not show complete status.

- [Ref. #PEG-8882] **Multicast IP group address changes made to XCU are not applied to GV Orbit Control:** For GV Orbit Control, in the case that you edit the multicast group IP address in the XCU for GV Cameras, there is a chance that these changes will not propagate to the GV Orbit Control Topology. The workaround is to deactivate and reactivate the GV Orbit Control Topology.

- [Ref. #PEG-8962] **External ID's less than 1 will not return status to northbound controller:** For GV Orbit Control, when the assigns a duplicate external ID in the Alias Editor, the other device with the duplicate external ID, will receive an external ID of -1 to identify an issue. External ID's less than the value of 1 or greater than the total number of names on the sources or destinations, will not report status to the northbound controller.

- [Ref. #PEG-9163] For GV Orbit Control, entering characters in all caps into the Alias editor requires a workaround:
  1 Click on a cell
  2 Press *Enter* first
  3 Start entering the characters in all caps

- [Ref. #PEG-9174] **Topology name limited to 256 characters:** For GV Orbit Control, creating a topology in GV Orbit Control with a name longer than 256 characters causes UI issues.
  Workaround: You must limit the name to less than 256 characters.

- [Ref. #PEG-9176] **Clicking on another Physical Connections link while making connections on another link will interrupt process:** For GV Orbit Control, while in the process of connecting the physical connections of a link within the topology, if you click on another link, all of the connections may not be processed for the former link. You will need to click on the former link and process the remaining connections.

- [Ref. #PEG-9180] **Keystroke Creator option from separator does not work properly in the Category Configuration Stage:** if the suffixes of your logical device names have less than 2 characters (1, 2, ...), then the automatic keystroke editor may not automatically assign the correct keystroke when using the "From Separator" option.

- [Ref. #PEG-9373] **Router Control UI may not update if one of shared control servers is rebooted during takes:** For GV Orbit Control, when 2 servers are controlling the same router and one of the servers is rebooted while takes are being performed on the client connected to the other server, the Router Control UI of the clients connected to the rebooted server may not refresh Router Control UI when the server comes back.
  Workaround: reopen another Router Control UI task.

- [Ref. #PEG-9389] **Deleting an NMOS device may leave a ghost device in System Status stage:** For GV Orbit Control, when we add an NMOS device to an active topology we show the status of that device in the system status page. When we delete the device the system status page does not refresh properly and we end up with an empty slot showing "Unknown".
  Workaround: Closing and reopening the System Status stage will address this issue.

- [Ref. #PEG-9435] **Discovered Devices control ports may stay on-line when you deactivate a topology:** For GV Orbit Control, if a discovered device is added to an active topology, its control port will come on-line. If you deactivate the topology then the control port remains on-line when it should go off-line. Reactivating and deactivating the topology again gets the control port to go off-line.

- [Ref. #PEG-9439] **You may not be notified when timeout has been reached is a large configuration:** For GV Orbit Control, currently, with the default timeout and polling method for the restoration of the database through the Web Interface, larger configurations may not completely be restored and may revert to their previous database without notifying you.

The default values must be edited to accommodate larger configurations (>2GB). The current default values from /var/lib/tomcat7/webapps/admin/WEB-INF/classes/admin.properties:

```
#Timeout values for backup and restore.
# serverStatusRetries: Number of retries when checking for server
readiness before giving up.
# serverStatusInterval: Interval in milliseconds between server
readiness check retries.
# Total timeout for service to restart after a backup or restore is
serverStatusRetries * serverStatusInterval
# When restoring a backup from an older version, multiply the timeout
time by the factor migrationMultiplier.
serverStatusRetries=36
```

```
serverStatusInterval=5000
migrationMultiplier=5
```
This currently allows only 3 minutes to restore a configuration, and up to 15 minutes for legacy configurations. Changing the serverStatusRetries to 60 would allow up to 5 minutes and 25 minutes, respectively. The issue is that if there is a problem with the database, GV Orbit Control will wait the total of this timeout prior to giving up and reverting.

- [Ref. #PEG-9456] **Streams may no longer be completely mapped after changing the GV Node Mode:** For GV Orbit Control, when using exposed streams on GV Nodes and changing the card mode from TR03 to TR04 for example, the stream assigned in the ANC cell is not removed. Since TR04 does not have ANC, we should remove the streams in that cell since the stream no longer exists in the system.
Workaround: manually remove the stream.

- [Ref. #PEG-9508] **Do not use loop-back IP in the controller properties:** For GV Orbit Control, using the loop-back IP address for the system controller in the controller properties of the Area Configurator will cause a loop of restarts, as the controller attempts to create a cluster with itself. Utilize the physical IP of the system controllers.

- [Ref. #PEG-9529] **Adding a destination to a virtual XPT when topology is inactive will not route virtual source to the destination:** For GV Orbit Control, part of the GV Orbit Control implementation of Virtual XPTs is the freedom to not require you to manually create a salvo to initialize the virtual source to real destination path. This is accomplished when a real logical destination is added to a virtual XPT. However, when the GV Orbit Control topology is not active, this will not occur. You would then be required to route the virtual source to that real logical destination once the topology is active.
Workaround: only add real logical destinations to the virtual XPT when the topology is active.

- [Ref. #PEG-9583] **Creating a duplicate panel configuration may not display that panel in the configurator:** For GV Orbit Control, when creating a panel configuration by duplicating an existing configuration, then it may be necessary to open the newly created panel, as it may not be displayed upon creation.

- [Ref. #PEG-9587] **Discovered Devices properties may be overwritten on reactivation of GV Orbit Control:** For GV Orbit Control, the unaffected attributes are logical level, # input connectors, # output connectors, # Streams per input, # Streams per output, automatic Destinations on Inputs, Automatic Sources on Inputs. All other fields will be overwritten on reactivation of the GV Orbit Control topology.

- [Ref. #PEG-9762] **Unchecking exposed streams may affect pathfinding:** For GV Orbit Control, when third party changes are processed, GV Orbit Control figures out the list of sources/destinations which go through each tieline that is affected by the change, and then recomputes the tallies. When finding the sources/destinations, we only look at streams which are exposed. Therefore, if a stream has logical sources/destinations assigned to it, but is not exposed, we'll consider there is no source/destination, and free the tielines when they should be busy.

  This situation can happen in the following scenarios:
  - You add an edge device to the topology (for example, a camera or a monitor) and de-select the "Exposed Streams" property.
  - You select the "Automatic Source/Destination" property, without selecting the "Exposed Streams" property.

  Workaround: always leave the "Exposed Streams" check box checked.

- [Ref. #PEG-9763] **Newly created logical device is not highlighted in the Logical Device Table:** For GV Orbit Control, when you manually create a logical source or destination device in the logical device table, it is currently not highlighted and you may be required to scroll to the device.

- [Ref. #PEG-9765] **Severing many links at once can cause the responsiveness of the user interface to slow down:** For GV Orbit Control, in Topology Configurator, when cutting links with many physical connections, the user interface becomes unresponsive while the task is being executed.
  Workaround: cut fewer links at a time.

- [Ref. #PEG-9893] **Changing the mode of a K-Frame from 2022-6 to 2110 may cause extra ports to display in GV Orbit Control Client:** For GV Orbit Control, changing the K-Frame mode of operation in the Switcher Menu application from 2022-6 to 2110 may cause additional ports to display in the GV Orbit Control Client topology, under the device properties for the Production Switcher. This issue occurred 1 out of 3 times during testing.
  Workaround: close and reopen the Topology Manager stage in the GV Orbit Control Client.

- [Ref. #PEG-9935] **Manually assigned keystrokes in the Category editor may not work on a panel:** For GV Orbit Control, once you have manually added keystrokes to the devices within a category (rather than using the automatically add feature), this may cause these devices to not be selected with keystrokes on a panel. Pressing the category jumps to the keystroke page, but the keystrokes do not light up to indicate what keystrokes are available.
  Workaround: use automatically generated keystrokes.

- [Ref. #PEG-9950] **You may be unable to add any destinations to a virtual destination once they have attempted to add incompatible destinations:** For GV Orbit Control, as the virtual XPTs take on the characteristic logical levels of the actual destinations that are associated to the virtual XPT, or the virtual source is routed to; attempting to associate a real destination, that does not have logical levels compatible with the other destinations already associated to a virtual XPT, to said virtual XPT may create a situation where you can no longer associate any compatible logical destinations.
  Workaround: You must delete the virtual XPT and then only associate compatible logical destinations after recreating the virtual XPT.

- [Ref. #PEG-9955] **Deleting a salvo when that salvo is assigned to a panel configuration may cause the panel to freeze:** deleting a salvo when the salvo is on a panel configuration may cause the panel to freeze if you attempt to execute said salvo on the panel.
  Workaround: remove the salvo button on the panel in Panel Configurator, or recreate the salvo button on the panel.

- [Ref. #PEG-9965] **Logical Device Table Filter is missing some values:** For GV Orbit Control, if you open the logical device table and have not scrolled through the devices, and then try to use the filter, some of the devices that should be displayed when using the filter may not be shown. If you encounters this, you need to scroll down through all of the devices prior to using the filter.

- [Ref. #PEG-9971] **Exposing streams on a router may not properly reserve the bandwidth:** For GV Orbit Control, whilst using the exposing streams feature on GV Orbit Control, you are essentially removing the exposed streams from the tieline pool to create a source/destination at the port stream. Typically this would utilize bandwidth and that used bandwidth would be displayed on the Path Manager Stage. When exposing streams of the port streams connecting two routers, the bandwidth usage may not be displayed properly in path manager.
  Workaround: reactivate the topology to properly display the bandwidth.

- [Ref. #PEG-10064] **You must not sever the link between the Area and System Controller in Area Configurator:** For GV Orbit Control, severing the existing link between the System Controller and the Default area may create a situation where the configuration does not become active after a restart. If this occurs, you may need to load a backup configuration to restore activity.

- [Ref. #PEG-10218] **Discovered devices may not display secondary device name:** For GV Orbit Control, if the secondary device name is not displayed in the discovered devices pane, then it may be necessary to reopen the Topology Configurator stage.

- [Ref. #PEG-10251] **An alias may not be applied dynamically to GPIO editor:** For GV Orbit Control, in the GPIO editor, if you select an alias for sources and destinations, you can enter the alias or system defined name for the destination and the editor logic can accommodate this. If you type in the system defined name for the source with the alias selected, the logic does not accommodate this. You will need to take the following steps:
  1. In the GPIO stage task, Select None for the Source Alias.
  2. Delete the GPI configuration.
  3. Select Route a source to a destination.
  4. In the source text field, enter the source name, not the alias.
  5. In the destination text field, enter the destination name, not the alias.
  6. Validate the rule.
  7. In GPIO stage task, Select Alias for Source.
  8. Now you will the see alias name for the source.
  9. Validate the rule.

- [Ref. #PEG-10388] **DDS discovery devices added to the topology while activated do not appear in the System Status task:** For GV Orbit Control, DDS discovery devices added to the topology while activated do not appear in the System Status Page, unless you de-activate and then activate the topology.
Workaround: Close and then re-open the System Status task.

- [Ref. #PEG-10466] **GV Orbit Control Cluster cannot be created if a DNS server is configured but is not reachable:** If a DNS server is configured on a pair of GV Orbit Control servers and the DNS server is not reachable (as they cannot be pinged), GV Orbit Control will be unable to create a cluster when creating the cluster configuration through the Area Configurator. The result is both servers to come back as master and kick each other out of the network in a loop.
Workaround: Remove the bad DNS entries and restart GV Orbit Control on both servers.

- [Ref. #PEG-10492] **Unable to break the link between a router and a monitor:** For GV Orbit Control, sometimes you may encounter an issue where they will not be able to disconnect the link between an SDI router and a monitor, using the cutting tool after disconnecting the physical connection. The link gets stuck.
Workaround: Close and re-open the Topology Configurator stage.

- [Ref. #PEG-10589] **Changing source or destination short name is not reflected in the Category Configurator and Panel Configurator:** For GV Orbit Control, changing source or destination short name is not reflected in Category Configurator and Panel Configurator.
Workaround: Close and then re-open either the Category Configurator or Panel Configurator stages.

- [Ref. #PEG-10590] **Virtual XPTS in Router Control UI is empty when removing a destination from Virtual XPT:** For GV Orbit Control, if you have one Virtual XPT with 4 destinations configured in Logical Device Table, you see 4 destinations in the Virtual XPTS Area in the router control UI. If you remove one of the destinations from the Virtual XPT configured in Logical Device Table, all destinations in the Virtual XPT Area in the router control UI will be removed.
Workaround: Deselect and select again the Virtual XPT destination in Router Control UI.

- [Ref. #PEG-10593] **Third party equipment doesn't handle source/destination with streams that have no logical level:** For GV Orbit Control, when 3rd party equipment updates tielines and tallies, and the streams that are used for the logical source/destination have no logical level, then tallies and tielines will be cleared.
Workaround: Set a logical level on the stream.

- [Ref. #PEG-10622] **Deleting a device removes it from the NMOS registry, however the Logical source for the device's NMOS sender in the Logical Device Table are not being removed:** For GV Orbit Control, logical source for NMOS sender are not being removed when the device is deleted. The device itself is no longer in the NMOS registry.
Workaround: Delete the logical source manually.

- [Ref. #PEG-10624] **Third party notification broken when a GV Orbit Control server controls another GV Orbit Control server using NP17:** Third party notifications may not work when a GV Orbit Control server is controlling another GV Orbit Control server using NP0017.
Workaround: Deactivate and then activate the GV Orbit Control topology.

- [Ref. #PEG-10642] **Changing connector type does not change stream type anymore:** For GV Orbit Control, tThe stream type (e.g. SDI stream, IP stream) created for a device is based on the connector type (for example, SDI, or IP). However, if we change the connector type, the stream type does not change accordingly.
  Workaround: Set the stream count to 0 and back to it's desired value. The will cause streams to be deleted and recreated, now with the correct type.

- [Ref. #PEG-10737] **Virtual XPTS - Destinations selection not sorted properly:** For GV Orbit Control, in the Virtual XPTS tab, the real destinations as part of the virtual destination are not sorted properly.

- [Ref. #PEG-10808] **Audio Live path discrimination does not work if there are factory levels on one or more ports:** For GV Orbit Control, the path finding will not use the specific ports with custom levels to convert the signal and instead will use any port that matches the required channel count.

- [Ref. #PEG-10842] **IQUCP cards connection status off-line if the eth2 configuration is blank:** The IQUCP card's connection status is shown off-line if the eth2's configuration is left blank.
  Workaround: Configure eth2 with a valid IP Address and restart the card.

- [Ref. #PEG-10873] **Missing tables in database when creating a cluster with a clean database:** Creating a cluster from a GV Orbit Control server that has a clean GV Orbit Control database could trigger issues with the control port of the devices added in the topology.
  Workaround: Restart the GV-Orbit Server before building a cluster with another controller OR Failover right after creating the cluster.

- [Ref. #PEG-10874] **GV Orbit Control controllers switched in the System status page (first controller shown on the second column):** For GV Orbit Control, this issue could occur if you decide to restore a backup from Controller-2 to Controller-1.
  Workaround: With both controllers in a standalone mode, check each server's position in the controller columns. Do this by opening a GV Orbit Control Client to each server and re-creating the cluster from the server with the correct ID. See *Cluster Task* in the GV Orbit Admin Guide.

- [Ref. #PEG-10883] **Discovered device stays on-line the first time the topology is disabled:** For GV Orbit Control, a discovered device stays on-line the first time a topology is disabled. The control port status is accurate whether the GV Orbit Control topology is on-line or off-line. This has no effect on the GV Orbit system.

- [Ref. #PEG-10958] **NDAC: NP0017 port-based commands do not work properly if there are gaps in the external IDs:** For GV Orbit Control, if there are gaps in the external IDs of the logical sources or destinations, the NDAC NP0017 port-based commands do not work properly. If the external Ids are sequential, the commands all work properly.

  There are checks made which expect that the provided port IDs to be lower than the amount of sources/destinations. This is not true when there are gaps in the external id assignments.
  Workaround: Use the NP0017 device-based commands, where gaps are supported properly.

- [Ref. #PEG-10976] **GPIO rules are validated and saved without using the check box if you switch to another rule:** GPIO rules are validated and saved without using the check box if you switch to another rule.
  Workaround: Do not change to another rule if the current rule is not already validated.

- [Ref. #PEG-10977] **Adding or updating Aliases is not reflected in an open *Router Control* tab:** Adding or updating Aliases is not reflected in an open *Router Control* tab.
  Workaround: Close and re-open the *Router Control* tab.

- [Ref. #PEG-10981] **GPIO - Takes executed once the GPI rule is activated:** For a new rule, if the rule is not activated and you switch the GPI input from either On-to-Off or Off-to-On, there will be no take executed. However, if you activate the rule, then Takes related to the last transition are executed.

- [Ref. #PEG-10983] **Source/Destination short label updates not reflected in open *Category Configurator* and *Panel Configurator* tabs:** When the short label of a device is changed using the Topology Configurator, the labels are not automatically updated in the *Panel Configurator* or *Category Configurator* tabs, if they are already open.
  Workaround: Close and re-open the respective tab to see updated labels.

- [Ref. #PEG-10984] **GPIO - Rule is not executed when it is created during an activated topology with a new database:** GPIO rules are not executed when starting a new topology with a new database.
  Workaround: To execute those GPIO rules, deactivate the topology and then re-activate it.

- [Ref. #PEG-11182] **NMOS senders/receivers from the same port should all be redundant or all non-redundant:** Sender/Receiver streams from the same port should all be redundant or all non-redundant, otherwise pathfinding issues may occur. For NMOS senders/receivers, the interface_binding property should have the same interfaces for all streams that are part of the same device/node.
  Workaround: Set NMOS streams to be all either redundant or not redundant as a source/destination is either redundant or not but not a mix of both.

★ [Ref. #PEG-11421] **MADI takes can be slow:** When using IQAMD audio channels for shuffled destinations, routing automatically through Audio Live can be very slow.

★ [Ref. #PEG-11424] **Opening and closing GV Orbit client causes increasing memory usage on server:** When using the GV Orbit client for an extended period of time (weeks, months) and especially when closing and re-opening stage tasks, it was observed that memory usage on the server would gradually increase.

In order to free up that increased memory usage, close the client completely and launch it again, this will free up the leaked memory from the previous session.

2

Installation and Network Requirements

This section details the requirements that must be met prior to installing or upgrading a system with the current version of GV Orbit.

GV Orbit has the following product options:

- **GV Orbit Lite** - Basic functionality with a client application only (GV Orbit Client) and available as a free-of-charge download from the Grass Valley website.
- **GV Orbit Professional** and **GV Orbit Enterprise** - A client-server configuration, control, monitoring and signal routing solution. This comprises one or more GV-Orbit Servers (order code GVO-HW) and clients (GV Orbit Client). System functionality is determined by the options you have purchased.

Related Documentation

Use the following related documentation to configure GV Orbit and to better understand the available features. You can obtain the latest product documentation from the Documentation Library section of Grass Valley's website (www.grassvalley.com/docs/gvorbit). For first-time users, GV Orbit documentation should be read according to the Reading Order.

Part Number	Reading Order	Document Title
GVB-2-0860A-EN-DS	1	GV Orbit Datasheet
13-03082-020	2	GV Orbit Welcome
13-03082-010	3	GV Orbit Release Notes (this document)
13-03082-090	4	GV Orbit Admin Guide (this includes GV Orbit Services)
13-03082-030	5	GV Orbit Client Quick Start Guide
13-03082-160	6	GV Orbit Control User Guide
13-03082-130	–	GV Orbit Routing Panel User Guide
Dell 09K9WX	–	Dell EMC PowerEdge XR2 Getting Started Guide
–	–	Dell EMC PowerEdge XR2 Installation and Service Manual
–	–	Dell Integrated Dell Remote Access Controller 9 User's Guide (iDRAC)

For Dell documentation, use your server's service tag to access the documentation on Dell's website.

Hardware Requirements

System Requirements for GV Orbit Client

Lite	Professional	Enterprise
●	●	●

The client PC platform must meet the following PC system specifications for optimal performance:

Operating system	Microsoft Windows 10, Windows 8.1, Windows 8, or Windows 7, 64 bit.
Processor	Intel Core i5, the minimum required by the operating system, or better.
Memory	8 GB RAM minimum, the minimum required by the operating system, or more.
Available Storage	The minimum required by the operating system plus: • ≥ 1 GB of available storage (GV Orbit **Lite**). • ≥ 2 GB of available storage (GV Orbit **Professional** or **Enterprise**).
Supported Web Browser	Google Chrome only (most recent version).

System Requirements for GV Orbit Client (Advanced, Live Video Wall)

Lite	Professional	Enterprise
●	●	●

If the client PC is being used to display a live video wall from H.264 streams (for example, from MV-8 Series Multiviewers), the PC platform must meet the following advanced PC system specifications for optimal performance to decode up to 48 × H.264 streams:

Operating system	Microsoft Windows 10, Windows 8.1, Windows 8, or Windows 7, 64 bit.
Processor	Intel Core i7 (6 core with hyperthreading) or better.
GPU (recommended)	Nvidia GeForce GTX 1050 Ti or equivalent.
Memory	8 GB RAM minimum, the minimum required by the operating system, or more.
Available Storage	The minimum required by the operating system plus: ≥ 2 GB.
Supported Web Browser	Google Chrome only (most recent version).

Supported Server

Lite	Professional	Enterprise
-	●	●

GV Orbit version 1.7.0 is supported on the following server only: GVO-HW server. A version of the GV Orbit software is factory installed on every GVO-HW server.

For the latest features, bug fixes, and stability enhancements, make sure this product has the latest software version installed before putting it into active service. See Installing GV Orbit, on page 71.

Network Requirements

Lite	Professional	Enterprise
●	●	●

For GV Orbit Lite users

For GV Orbit **Lite** users, the GV Orbit Client application is installed and run on a client PC.

See the equipment's installation guide for the network requirements. Your client PC must have network connectivity with the equipment you intend to configure and use.

For GV Orbit Professional and Enterprise users

For GV Orbit **Professional** and **Enterprise**, there are one or more GV-Orbit Servers (GVO-HW) and one or more client PCs each running a GV Orbit Client. Users access the GV-Orbit Server administration setup web page from their client PC.

Client PCs must have network connectivity to the GV-Orbit Server(s). GV-Orbit Server(s) must have network connectivity to the production equipment to be used with GV Orbit.

All client PCs and servers must be connected to a network that supports multicast traffic.

For more information about the network material requirements, refer to **Required Materials** in the *GV Orbit Admin Guide*. For more information about the network architecture requirements, refer to **GV-Orbit Server Cabling** in the *GV Orbit Admin Guide*. See Related Documentation, on page 57.

TCP/UDP Port Usage

The various communication protocols used in a GV Orbit system require access to specific IP ports. In networks where a firewall is present between device A and device B, the IP ports used to communicate from device A to device B must be open on the incoming (external) side of the firewall.

GV Orbit Client

Lite	Professional	Enterprise
●	●	●

The following network ports must be open on PCs running GV Orbit Client:

Client PC Open Network Port Requirements

IP Port	Open Inbound	Open Outbound	Used by Application/Protocol
80		●	GV-Orbit Server administration page access. Communication with some devices and services is done via REST (Cisco DCNM, Densité Manager, AMWA NMOS).
2050	●	●	Default RollCall comms port.

Client PC Open Network Port Requirements *(continued)*

IP Port	Open Inbound	Open Outbound	Used by Application/Protocol
5001 to 5010	●	●	GV Orbit Control Client receives updates. GV Orbit Client replication engine. This is needed so that the client can receive updates from the server and other currently open clients connected to the same server.
5951 5953 5955	●	●	Densité REST API
5957	●	●	GSM REST API
9627	●	●	Densité Panel Launcher Application
32768-65535	●		Java RMI Densité Panel Launcher: Dynamic Allocation of ports. Required for communication between client and Application Server. This range can be restricted to match specific security requirements. A minimum of 4000 ports should be allocated. Contact Grass Valley Technical Support, for more information (see Grass Valley Technical Support, on page 74).
49152-65535		●	Java RMI Densité Panel Launcher: Dynamic Allocation of ports. Required for communication between client and Application Server.
Multicast and Unicast	●	●	See Multicast and Unicast Port Usage and Domain ID, on page 61.

Multicast and Unicast Port Usage and Domain ID

The IP ports required for communication between the GV Orbit Client, GV Orbit services running on a GV-Orbit Server, and other Grass Valley devices that make use of a Domain ID, are derived from the value of the Domain ID and the number of participants on the Domain.
For each Domain there is:

- one multicast port required for each participant to a Domain; and
- two unicast ports are required.

Multicast and Unicast Port Formulas

The following formulas are used to calculate the required multicast and unicast port numbers.

Discovery Multicast Port = 7400 + (250 x Domain ID)

Discovery Unicast Port = 7400 + (250 x Domain ID) + (2 x Participant ID) + 10

Data Unicast Port = 7400 + (250 x Domain ID) + (2 x Participant ID) + 11

Note: Participant IDs are zero-based.

Ports and Default Domain IDs

Default Domain IDs are used by the GV Orbit Client and by the GV Orbit services running on a GV-Orbit Server. The IP ports used for default Domain IDs are described below; if using user-defined Domain IDs, use the formulas above to calculate the required IP port numbers.

The following network ports must be open inbound and outbound on PCs running the GV Orbit Client; recalculate if a different Domain ID is used, or if multiple projects that use the same Domain ID are open concurrently:

Client PC Multicast and Unicast Ports Used for Default Domain IDs

GV Orbit Item	Default Domain ID	Multicast IP Port	Unicast IP Port	Comment
-	0	7400	7410 7411	Domain 0 used for multiviewer discovery.
Monitoring	100	32400	32410 32411	Used by a Multiviewer project and a C&M project. (Projects may share the same domain.)
IP Endpoint Routing Project	101	32650	32660 32661	
Routing Topology	105	33650	33660 33661	
Log server	1100			Used by the Log Server service for RollCall-protocol devices.
Note:	These IP ports must be open inbound and outbound on client PCs.			

Note:
When opening multiple projects on the same Domain at the same time, additional IP ports must be opened in accordance with the number of Domain Participants. Whilst the port numbers can be determined from the above formulas, the actual assignment of an IP port number to a Domain Participant is random.
For example,
if a Multiviewer Project and a C&M Project are both open and using Domain ID 100, then the maximum 'Participant ID' becomes 1 (remember, Participant ID is zero-based, i.e. 0,1) because both services have a Domain Participant. The required IP ports would be:

Default Domain ID	Participant ID	Multicast IP Port	Unicast IP Port	Comment
0	0	7400	7410 7411	Domain 0 is a default domain used for multiviewer discovery.

100	1	32400	32410	The assignment of the
			32411	unicast ports to the
			32412	Multiviewer and C&M
			32413	Projects is random.

GV-Orbit Server

	Lite	Professional	Enterprise
		●	●

The following network ports must be open inbound and outbound for GV-Orbit Servers:

GV-Orbit Server Network Port Requirements

Port Number	Application / Protocol
20, 21	RollCall-protocol device upgrade via FTP port.
80	Access the GV-Orbit Server web administration page port.
647	DHCPD service port.
1098	Densité Docker Java Remote Method Invocation (RMI) port.
1220	Densité Docker Darwin Streaming Server admin page port.
2050	Default RollCall IP share (incoming/outgoing) port.
2051	Default RollCall IP share Logserver (incoming/outgoing) port.
2056	Logserver SNMP incoming connections port.
2222	Port used by GV Orbit Repository Manager service for SSH connections to repositories on the GV-Orbit Server.
4041	NMOS registry port.
4160	Densité Docker lookup port.
4444	Ignite DataGrid replication and discovery port for GV Orbit Control.
5100	Port used by Densité Manager to control Densité cards and GV Node.
5601	Kibana port.
5701 to 5710	GV Orbit Control replication engine. GV Orbit Control client can receive updates from the server and other currently-open clients connected to the same server. Usually only 5701 and 5702 are used.
5955	Densité Manager REST API.
5959	GV Orbit Control Densité Manager REST API.
7771	Densité Manager Java Management Extensions (JMX).
7772	GV Orbit Control Densité Manager JMX.
7773	Densité Docker rmid JMX.
7774	Densité Docker lookup JMX.
8070 and 8071	IpFriendlyName service and MBean-client Jmx port.
8072 and 8073	IpFriendlyName service and MBean-client application Eclipse and IntelliJ ports.
8090	GV Orbit Control JMX port.
8091	GV Orbit Control REST API port.
9200	Elastic search REST port.

GV-Orbit Server Network Port Requirements *(continued)*

Port Number	Application / Protocol
9300	Elastic search replication port.
41235	Web Renderer web socket server port.
Mail Server Port	The GV Orbit Email service requires connection to an email server. Refer to documentation for email server for the required connection parameters.
Northbound Communications:	
12345	GVG Native protocol northbound communication port.
5193+Area External ID	NP0016 protocol northbound communication port. The Area External ID can be looked up in the GV Orbit client Area Configurator by selecting the area that needs to be controlled and looking at the External ID property.
9193+Area External ID	NP0017 protocol northbound communication port. The Area External ID can be looked up in the GV Orbit client Area Configurator by selecting the area that needs to be controlled and looking at the External ID property.
Southbound Communications:	
User configurable Default: 5194	NP0016 protocol southbound communication port.
User configurable Default: 9193	NP0017 protocol southbound communication port.
User configurable Default: 14000	SW-P-08 protocol southbound communication port.
User configurable Default: 37800	Sony NS-BUS protocol southbound communication port.

Additionally, the following multicast and unicast network ports must be open inbound and outbound on GV-Orbit Servers running the GV Orbit services. Recalculate these if different Domain IDs are used.

GV-Orbit Server Multicast and Unicast Ports for Default Domain IDs

Domain Description	Default Domain ID	Max Participant ID	Multicast IP Port	Unicast IP Port	Comment
Client Domain	100	4	32400	32410 32411 32412 32413 32414 32415 32416 32417 32418 32419	Ports used by GV Orbit services on the Client Domain: Monitoring, MapView, Routing, Recording, Email
IP Endpoint Routing Domain	101	0	32650	32410 32411	Multiviewer and C&M projects can share a domain
Log Server Domain	110	1	34900	33660 33661	
Note:	These IP ports must be open inbound and outbound on client PCs.				

Default Domain Numbers

Lite	Professional	Enterprise
●	●	●

A GV Orbit system communicates with various parts of its system and employs 'domains' to segregate its communications. Domains are specified with a Domain ID number (1 to 252; 0 is used for discovery). Domain numbers may be configured by the user as required as this may be necessary when you have more than one GV-Orbit Server on the same network.

A new GV Orbit system uses default Domain IDs, described in the table below:

Default GV Orbit System Domain IDs

GV Orbit Domain	Default Domain ID	Comment
System	0	Used for system auto-discovery.
Engineering	1 to 99	Reserved for engineering use.
Monitoring	100	Monitoring traffic, also known as the 'Client Domain'.
IP Endpoint Routing	101	Control of IP Endpoints for signal routing.
Routing Topology	105	For future GV Orbit releases.
Log Server	110	Used by the LogServer service for RollCall-protocol devices.
Biometrics	201	For future GV Orbit releases.

Software Component Compatibility

Lite	Professional	Enterprise
●	●	●

Grass Valley recommends you use the following software components and the stated versions for optimal performance and compatibility with GV Orbit Control version 1.7.0. These devices are supported in the Device Library of GV Orbit Control's Topology Configurator.

GV Orbit Control Inter-Operation System Component Compatibility

Product	Requirement for GV Orbit Control Compatibility
GV Node	Software Versions 1.3.1, 2.2.7, 2.3.0, 3.0.0, 3.1.0
IPG-3901 (Densité 3 Frame IP Gateway)	Software Versions 1.3.4, 2.2.x, v9.0, 2.4.0.BUNDLE-3, 2.5.0
IPG-4901 (GV Node Frame IP Gateway)	Software Versions 1.1.0, 1.2.0
IQMix (IQEDGE Frame)	Software Version 11.30.62
External Control Interface Protocols (Northbound)	NP0016 NP0017 SW-P-08 GVG Native Protocol (names-based for K-frame switcher)
Router protocols (Southbound)	NP0016 Compact Router NP0016 Enterprise Router NS-BUS (Sony LSM) NV9000 TCP/IP Ex-SAM SW-P-08 TCP/IP Subset of CPL to interface with K-Frame Production Switcher running software version 14.3.0 or higher
Panel protocols	NV96XX Panel Control
MV-8 Series Multiviewers	Software version 3.0.14 FPGA V280 **Note:** To support NP0017 Tallies, version 3.1 is required.
Audio Live	Version 1.5.0.14
IQMIX or IQUCP IP Gateways	Version 11.73D
IQAMD	Version 8.60.18
Densité CPU-ETH2	Software versions 2.0.4 or later
EdgeVision	Software versions 1.21 or later
NV9000	Software versions 6.3.0 build 1873 or later

GV Orbit Control Inter-Operation System Component Compatibility *(continued)*

Product	Requirement for GV Orbit Control Compatibility
Cisco DCNM Network Switch	• GV Orbit version 1.0.0 to version 1.1.0: • DCNM build 11.1(1), with switch firmware: NX-OS 9.2(3) • DCNM build 11.2(1), with switch firmware: NX-OS 9.3(2) • GV Orbit version 1.2.0 to version 1.3.X: • DCNM build 11.2(1), with switch firmware: NX-OS 9.3(2) • DCNM build 11.3(1), with switch firmware: NX-OS 9.3(3) • GV Orbit version 1.4.0 or higher: • DCNM build 11.4(1), with switch firmware: NX-OS 9.3(5)
GV Fabric	Firmware versions onyx-X86_64-3.8.2008 or later
IPVU	Software versions 21.86 or later

iControl	GV Orbit Lite:
	    Software Version 7.50 and higher (With Densité and GSM REST API licenses)
	
	GV Orbit Professional and Enterprise:
	    Not applicable. The iControl service is integrated into the GV-Orbit Server.

Equipment Interoperability Incompatibility

While GV Orbit can control a wide range of equipment, this does not guarantee interoperability between controlled equipment. Always consult product datasheets to ensure that common signal types and protocols are supported by both pieces of equipment for interoperability.

Native Densité Card Support

For GV Orbit's Densité Manager Service, GV Orbit Client is integrated with card bundles which allows the GV Orbit Client to automatically recognize the following cards to make Densité card integration easier.

* IPG-3901 v2.5.1
* IPG-3901 v9.0.0
* IPG-4901 v1.2.3
* KMX-3921 v10.2.1
* KMX-4911 v.10.2.2
* UHD-3901 v.1.2.1
* HDA-3961 v.1.0.3
* XIO-4901 v.2.3.0
* XIO-4901 v.3.1.1
* XIP-3901-DC v.1.3.3
* XIP-3901-FS v.1.2.0
* XIP-3901-UC v.1.2.0

- XIP-3901-UDC-S1 v.2.0.2

More recent software packages may be available. GV Orbit fully supports Densité cards that are not listed above. See the card's documentation for how to obtain the card's software package. The card's software package is installed through the Densité Update Manager (DUM). This is accessed through the GV Orbit Client; refer to *Upgrade Densité-protocol Devices* in the **GV Orbit Client Quick Start Guide** for more information. See Related Documentation, on page 57. See also Ref. #UCCM-980 on page 40.

Installing GV Orbit

Installing GV-Orbit Server Software

Lite	Professional	Enterprise
	●	●

IMPORTANT

- Before you install version 1.7.0 onto a GV-Orbit Server that has an older version of GV Orbit, make sure to review the latest hardware requirements (see Hardware Requirements, on page 58).

To upgrade the GV-Orbit Server, refer to Upgrade Stage in the *GV Orbit Admin Guide*. See Related Documentation, on page 57.

For the latest features, bug fixes, and stability enhancements, make sure this product has the latest software version installed before putting it into active service.

REQUIREMENTS

Make sure you meet the following conditions before beginning this procedure:

- This software can only be installed on a GV-Orbit Server, order code GVO-HW.

- When you upgrade a GV-Orbit Server, Grass Valley strongly recommends that you upgrade all other GV-Orbit Servers on your network to the same version, as well.

- You have made a backup of your GV-Orbit Server's configuration data. See **Global Backup** in the *GV Orbit Admin Guide*. See Related Documentation, on page 57.

- You have the GV Orbit software version 1.7.0 upgrade package (see Grass Valley Technical Support, on page 74).

- You are able to log in to the GV-Orbit Server Admin interface as an administrator. See the *GV Orbit Admin Guide*. See Related Documentation, on page 57.

Note: For GV Orbit Professional and Enterprise products, after the GV-Orbit Server has been upgraded, download the GV Orbit Client installers from the GV-Orbit Server onto client PCs for installation. Obtaining the GV Orbit Client installer from the GV-Orbit Server ensures software version compatibility between clients and server.

Installing GV Orbit Client Software

Lite	Professional	Enterprise
●		

The GV Orbit Client can be downloaded as follows:

- From the Grass Valley website. If your installation does not have a GV-Orbit Server, this is the only way to obtain the GV Orbit Client.
- If your installation has a GV-Orbit Server, you should download the GV Orbit Client from the GV-Orbit Server. This ensures that the GV Orbit Client version will be compatible with the current software version installed on the GV-Orbit Server. See **GV Orbit Client Application Downloads** in the *GV Orbit Admin Guide*. See Related Documentation, on page 57.

Contact Us

Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1-530-478-4148.

To obtain a local phone number for the support center nearest you, consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

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