

Ultra Mosaic 3.0.1

- Release Date: Aug, 2026.



Important: If you are upgrading from Ultra Mosaic 2.1.0, or lower, you **MUST** upgrade to Ultra 9.2.2 first. After upgrading to 9.2.2 you can then proceed to upgrade to Ultra Mosaic 3.0.0, or higher.



Important: Please review the **End User Software License Agreement** before installing or using this software.

Feature Enhancements

A number of features have been added, or updated, to this version of software. This section provides a brief introduction to these features, and how to use them.

v3.0.1 Features

Key Priority

Key Priority can now be set for keys on MiniME™ and Canvas layers. You can rearrange the key order, reset it to the default order, and store the result in a memory.

v3.0.0 Features

Ross Platform Manager Licensing

RPM licenses are issued by the Ross Activation Server under a Customer Product Key. The Product Key is then added to a Ross Platform Manager that multiple switchers can access to request software licenses. Each switcher must request and release licenses from/to the Ross Platform Manager.

RPM licenses can easily be requested or released from a switcher to a pool of licenses on the Ross Platform Manager. This allows you to move licenses between different studios depending on production needs by releasing licenses from one switcher and requesting them by another.

Multiple systems can be activated or deactivated from the shared license pool. If the licensing

server becomes temporarily unavailable, a grace period allows the switcher to continue operating while the connection is restored.

Note: A network connection to the Ross Platform Manager is required to request or release RPM licenses.

Note: Ross Keys licenses are not impacted by RPM licenses. All licenses are cumulative and can be combined on the same switcher.

Tip: A new switcher set register has been added to store RPM license requests.

Custom Control Logic

Custom controls now support basic logic so that a single custom control can branch on the state of the switcher. A new Logic event category adds **IF**, **ELSE IF**, **ELSE**, and **END** events that can be inserted into the custom control timeline, along with up to 1000 user-defined CC variables that can be set, defaulted, deleted, or modified with simple math operations.

Conditional events can test bus sources, aux follows, key types, on-air and transition state, media contents and play status, transition inclusions and rates, on-air status of MiniME™, and aux buses, and the value of any CC variable. Events between an **IF** and its **END** run only when the condition is true, allowing a single custom control to behave differently depending on what is currently happening on the switcher.

Frame Redundancy

Two switchers can now be set up in a Sender and Listener pair. The Sender is the primary switcher for your production and the Listener is the redundant or backup switcher. Both the Sender and Listener should be configured similarly with the same media assets. When an action is performed on the primary switcher, it sends that command to the redundant switcher. If the primary switcher goes down, the redundant switcher can be used to continue the production.

Note: The primary and redundant switchers do not have to match exactly. Different switchers can be paired together, but you must remain aware of the resource limitation that this can expose. If the redundant switcher does not have the

resources to duplicate the primary switcher, the redundant switcher will use the resources it has.

Expanded TouchDrive Panel Support

Support has been added for the TD3, TDx3, TD4, and TDx4 panels.

Panel Attachments

You can now attach a custom control, or any other user select function, to any physical button on the TouchDrive control panel. When the button is pressed, the attached function runs in addition to, or instead of, the button's normal behavior. Attachments are organized into maps, and each map can be assigned to a layer, so the same button can perform a different action depending on which layer the row is controlling.

Each attachment can be set to **Pre** (run before the button's normal function), **Post** (run after), or **Replace** (run instead of the normal function). Attachments are part of the switcher personality and can be enabled or disabled per connection with a user select. A frame-based delay can be added between the attached function and the button's normal function.

Memory Effects Dissolve Motion Control

Effects dissolve recalls now support four motion control options that shape how each attribute interpolates from its starting value to the value stored in the memory:

- **Smooth** (default) — starts slow, accelerates through the middle, and decelerates into the final position.
- **Linear** — interpolates at a constant speed for the entire effect.
- **Ease-In** — starts fastest and decelerates continuously into the final position.
- **Ease-Out** — starts slowest and accelerates continuously into the final position.

Motion control is stored with each memory and can be overridden on recall just like effects duration. The setting can be selected from the Memory Store and Memory Recall pages in DashBoard, and from the panel by holding **EFF DISS** in either store or recall mode.

Any Row, Any Bus

Key, Aux, background, and preset buses can now be assigned to supported panel rows. Row assignments can also be locked to prevent accidental changes during operation.

3D LUT Support for Media-Store

You can now assign Adobe® .cube 1D and 3D LUT files to Media-Store items. The Color LUT file is assigned to the media item in the database and is used whenever that media item is loaded. Each Color LUT file can be used in the Type I or III workflow, depending on your operational needs.

Multiple Frames - Single Panel

A single TouchDrive panel can now control up to 4 switchers at the same time. Each row of the panel can be assigned to any of the connected switchers, making it easy to run distributed systems or keep a backup ready on one row while the main production runs on the others.

When more than one switcher is connected, the row control menu on each row allows you to select the switcher. Each row inherits the color scheme, personality, bus maps, user select assignments, and feature set of the switcher it is assigned to, so a row behaves as if the panel were directly connected to that frame.

Expanded Custom Control Capabilities

Key Priority can now be controlled from a Custom Control. You can select an ordered set of keys and store the priority for MiniME™ layers in a memory.

Additional Custom Control events have been added for Flex Control assignments, bus-map assignments, memory recall behavior, effects timing, motion control, Media-Store attributes, masks, Ultrix™ source assignments, and enabling or disabling devices.

Custom Controls can also be made self-cancelling so that they stop automatically after the workflow is complete.

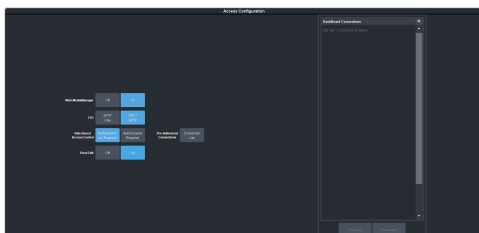
RossTalk and GPI Updates

RossTalk has been expanded with status queries, NTP configuration, GPI high and low control, and additional set-export options.

GPI inputs can now have separate actions for their low and high states. GPI and GPO status information is also available for use in custom DashBoard panels.

RossTalk Disable

You can now disable RossTalk connections to the switcher. The switcher refuses connections on port 7788.



TouchDrive Panel Lock

You can now lock the entire TouchDrive panel, or individual buttons on the panel, to prevent accidental presses on rows that are not being used. Holding any **Touch Lock** button and pressing **Menu Lock** engages Total Panel Lock, which disables every module except **Touch Lock** and **Menu Lock**. Repeating the same action releases the lock.

To lock a single button, hold **Touch Lock** and press the button you want to lock. Locked buttons have their backlight turned off and ignore all presses. Holding **Touch Lock** displays an **Unlock All Buttons on This Row** option for that row, and pressing a locked button while the panel is in normal operation flashes **Touch Lock** pink to confirm that the press was intentionally blocked.

Menu Lock and fader locking are also available on supported panels.

Note: Total Panel Lock and related panel-management features require TouchDrive v4.0. Positioner locking is not available at this time.

Store Memories From Panel Without Memory Area

Some of the TouchDrive control panels do not have a dedicated Memory area. You can now store and recall memories, on all panel sizes, using the source button on the panel row. When you assign the key bus on a row to a memory bank, the last five source buttons, on the right of the key bus, change to represent memory functions. These buttons allow you to set whether you are storing or recalling a memory, setting the memory inclusions, and setting the memory recall mode.

EFF Rte:30	MEM AI	PGM	INCLU SIONS	STORE

Panel and Memory Enhancements

- Media-Store X and Y position can now be stored in and recalled from memories.
- Memory inclusions can be configured per panel, and memory controls include additional MiniME™ and Canvas layers.
- Input banks, configurable Shift levels, and automatic skipping of empty bus maps have been added.
- Source names are shown on supported panel vertical displays, and Custom Control names are improved in User Select menus.
- Additional panel options are available for memory buttons, memory undo behavior, aux delegation, Flex Control brightness, and MiniME™ color schemes.

Individual Bus Maps

Bus maps can now be assigned to individual buses separately. This allows you to assign a different map to a keyer bus than the background/preset bus.

Looping Shift

Multiple shift buttons can now be replaced with a single shift button that loops through all the shifted buses. Press the looping shift button

repeatedly to go to the next shift bus until coming back to the main bus. The loop progresses through the shift buses in one direction only.

Bus Substitution

The substitution tables have been expanded to include MiniME™ as well as specific buses on the MiniME™, and Aux buses.

Key Auto Drop

The Key Auto Cut, or DSK Auto Drop, feature sets whether or not the keys are cut off-air when a source is selected directly on the background bus of the control panel.

Key Auto Drop automatically cuts the selected keys off-air when a source is selected directly on the Background bus (hot punched) of the ME or MiniME™ on the control panel.

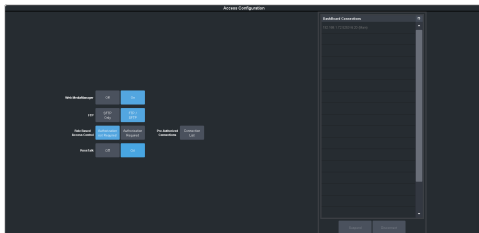
Note: This feature only applies when a source is selected directly on the control panel.

TSL 5 over UDP

TSL 5 tally information can now be received over UDP in addition to the existing TCP connection.

Access Configuration Menu

Configuration items that control how the switcher is accessed remotely, or through user profiles, have been moved to a separate menu.



System Administration Updates

- NTP, date, time, and time-zone settings can now be configured from DashBoard.
- Connection management now shows connection details and provides options to force a connection when the system limit is

reached, suspend or disconnect a connection, and clean up inactive switcher entries.

- Applicable licenses can be shared between Mosaic and Ultrix Carbonite operating modes.

Note: Cleaning up inactive switcher entries requires TouchDrive v4.0.

Workflow and Interface Updates

- Custom Controls are available in Live Assist, allowing you to run them without dedicating a Custom View.
- Input and Custom Control names support longer labels and multi-line mnemonics.

New Devices Supported

No new device support or commands were added to this version of software.

New Devices

No new devices were added or updated for this version of software.

New/Updated Commands

Known Issues and Limitations

Keep these notes in mind when upgrading your system to this version of software. Contact Ross Video Technical Support if you have any questions about performing a software upgrade.

Operational Notes

The following issues have been identified when working with the switcher:

- **Reboot After Diagnostics** — The switcher must be rebooted after performing any diagnostic test.
- **Corrupt USB** — If you remove the USB drive while the switcher is writing to it, the USB could become corrupted and will need to be re-formatted.
- **External Re-Entry Video Errors** — A video timing error can occur when a video output of the switcher is routed back into the

switcher using an input BNC. If video timing errors do occur, assigning a frame synchronizer to the input BNC will remove the timing errors.

- **GPI and Tally Diagnostics** — If you run the GPI or Tally diagnostic tests, you may have to reboot the switcher to end the test.
- **Stills with same Name** — You cannot have two or more Media-Store files with the same name but different file extensions in the same folder. The switcher treats capital and lowercase letters as the same.
- **Transitions with Show Alpha** — If the show alpha feature is on, only cut transition are possible on the ME. The switcher will perform a cut at the end of the transition duration instead of the selected transition type.
- **Reboot after Upgrade, Switcher Mode Change, or Option Installation** — You must power cycle the switcher after performing an upgrade, changing the **Switcher Mode** between SD, HD, and UHDTV1, or installing a software option. Refer to the relevant sections in your Manual for more information on performing the power cycle.
- **Long CC Pause Delays** — If you created a Pause for a custom control in version 3.0 or earlier and the switcher is operating in an interlaced video format, the pause duration was shown in fields but calculated in frames. This lead to durations being half as long as expected. This has been corrected, but any existing CC pause events, in interlaced, will now be twice as long as previously calculated. You must edit the event to reduce the duration by half to get the same result.
- **720p in BT.2020 SDR** — The combination of 720p and the BT.2020 color gamut in SDR is not documented in the applicable standards and may not be supported by other downstream devices.
- **Sets Not Backwards Compatible** — If you save a set in one version, you may not be able to load the set in an older version of switcher software.

- **Incorrect Dynamic Range and Color Gamut PID in UHDTV1** — In UHDTV1, only the first link in the output carries the correct Dynamic Range and Color Gamut information. The other three links will continue to carry the SDR BT.709 PID.
- **Decimal Accuracy** — DashBoard and the 3-knob menu show numerical values slightly differently. DashBoard shows values accurate to 2 decimal places and the 3-knob menu shows values rounded to 1 decimal place.
- **Jumbo Frames Not Supported** — Ethernet frames with more than 1,500 bytes of payload (Jumbo Frames) are not supported at this time. If your device has an option to send jumbo frames, it must be turned off to properly communicate with the switcher.
- **Spaces in Media-Store Folder Names** — Spaces in Media-Store folders is not supported at this time. If there is a space in the name of the folder, the contents of that folder are not loaded into the database automatically. You must manually refresh the media item list to update the database.
- **Recalling a Memory can Change the Store Inclusions for Other Layers** — Recalling a memory on one ME or MiniME™ can cause all the inclusions for the other layers to be turned on for the Memory Store menu. Confirm the status of the inclusions before storing a memory.

Security & Network Vulnerabilities

The following exploits have been identified:

- **CVE-2024-6387: Remote Unauthenticated Code Execution Vulnerability in OpenSSH server** — At this time this exploit is only theoretical for 64-bit operating systems such as that used in Ultra Mosaic.

Upgrade File Verification

All the upgrade files for this version of Ultra Mosaic can be independently verified using the GNU Privacy Guard application and the signature file provided with the download.

Note: Each file has a corresponding signature file.

You will need to download and install the GNU Privacy Guard (GPG) application for the computer you want to use to verify the download files. Please visit <https://gnupg.org/index.html> to get the latest download and follow the installation instructions.

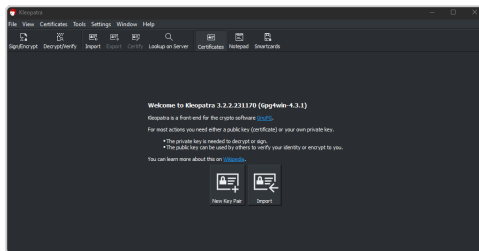
To Verify the Upgrade Files

Each upgrade file is verified independently.

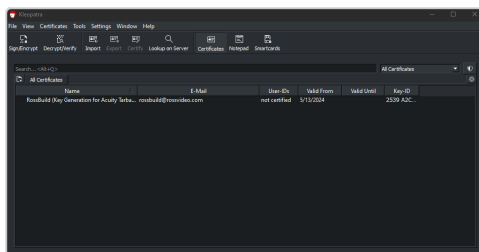
Download and install the GPG verification tool from <https://gnupg.org/index.html>.

Note: The signature files are located on the USB that came with your switcher and in the download package for software upgrades.

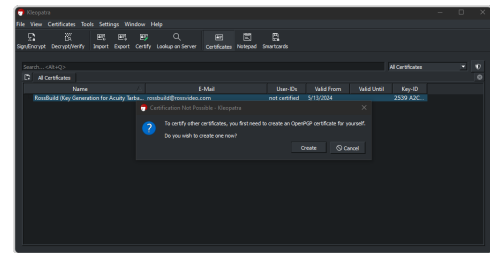
1. Launch the **Kleopatra** application installed by GPG.



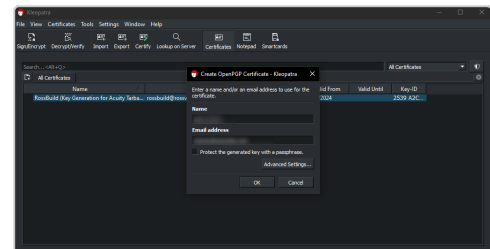
2. Click **Import** and select the `publickey.gpg` file.



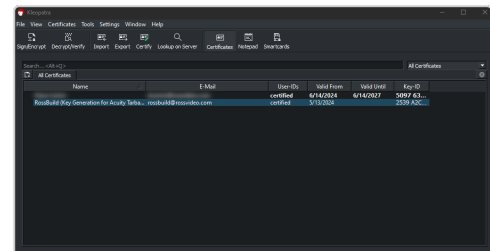
3. Right-click on the new Rossbuild entry and click **Certify**.



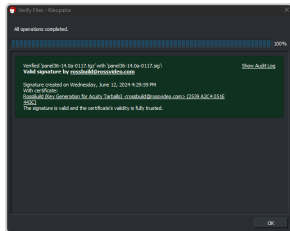
4. Click **Create**.



5. Enter a name and email address in the **Name** and **Email address** fields and click **OK** to create a local certificate with those credentials.



6. Click **Decrypt/Verify** and select the signature file (for example `upgrade_mosaic-####.ultra.sig`) for the upgrade file that you want to verify. It will have the same filename as the upgrade file but with a `.sig` extension.
7. Click **Open**.
8. Select the upgrade file (for example `upgrade_mosaic-####.ultra`) that you want to verify.
9. Click **Open**.
10. The application will check the file against the signature and verify it.



Important: If an upgrade file does not pass verification, do not use the files and contact Ross Video Technical Support.

11. Verify the other upgrade files with their corresponding signature files (.sig).

Software Upgrade

The switcher software is upgraded from DashBoard either by dragging and dropping the software onto the Upgrade page, or by saving the upgrade file to the USB drive inserted in the frame.

Depending on the version of software you are upgrading from, your menus may be arranged or appear differently.

Software Compatibility

Before installing any software, review the following version compatibility information.

Note: Compatibility, unless otherwise indicated, shows the combination of software versions that were tested together. Other combinations may not have all the features introduced with the most recent version of software.

Table 1: Version Compatibility

Software	Version	To Verify
Ultra Mosaic	3.0.1	The current version is shown on the Status page in DashBoard for the Ultra Mosaic node.
DashBoard	9.16.2	Refer to the documentation what came with DashBoard for information on getting the current version number.
Carbonite Black Panel	1.5.530	A software mismatch message is shown on the control panel if you need to upgrade the software on the control panel.

Software	Version	To Verify
TouchDrive Panel	4.0.0	The current version is shown on the Status page in DashBoard for the TouchDrive node.



Important: Depending on the components that need to be upgraded, not all of the upgrade procedures need to be completed.

To Upgrade the Switcher Software

Use DashBoard to upload the upgrade file to the switcher.

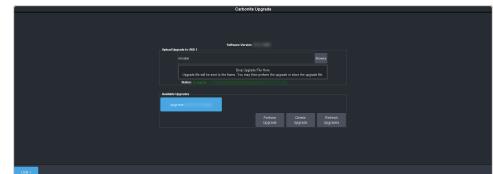
Note: Save your switcher setup information to a set on a separate USB drive before upgrading. This switcher set can be used as a backup in case there is a critical error during the upgrade.

Tip: Switcher sets are not backwards compatible. Keep an archive copy of your sets in case you want to downgrade to the previous software version.



Important: Do NOT turn the switcher power off during the upgrade. Doing so may corrupt the switcher software or damage the switcher components.

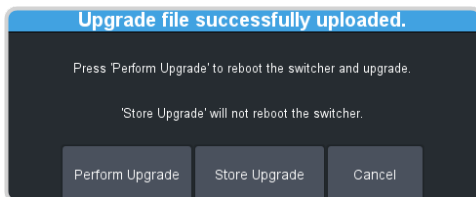
1. Click **Navigation Menu > Configuration > System > Upgrade**.



2. Locate the software upgrade file (upgrade-x.x.x.xxxx.ultra) for the switcher.

Tip: You can store the upgrade file to the USB in the switcher without upgrading. For example, you can upload the regular and Mosaic upgrade files to the USB so that you can quickly switch between them.

3. Drag and drop the upgrade file into the **Drag and Drop Upgrade** area on DashBoard. The file is uploaded and you are asked what you would like to do with the file.



- **Perform Upgrade** — perform the upgrade with the file that was just uploaded.
- **Store Upgrade** — store the file locally in the upgrade folder.
- **Cancel** — cancel the process and delete the upgrade file from the switcher.

Tip: You can also upgrade from the USB. All upgrade files located on the USB are shown listed. Click the file you want to use and click **Perform Upgrade**.

Tip: You can also upgrade by clicking **Browse**, locating the upgrade file, and then clicking **Upload File**.

Tip: You can delete an upgrade file by selecting the file and clicking **Delete Upgrade**.

4. Click **OK** to confirm the upgrade.
5. Wait for the DashBoard pages to come back up. This may take a few minutes.
6. Power cycle the frame by switching the power button **Off** and then **On** again.
The switcher will come up with the new software version.

Upgrade Issues

If there is a problem during the upgrade procedure, an error message is shown on the display of the control panel.

Table 2: Upgrade Error Messages

Error Message	Description
USB not inserted	The USB drive was removed or unmounted during the upgrade. Re-insert the same USB drive back into the frame.
USB < 1G free	The USB drive requires at least 1GB of free space for temporary files during the upgrade. Copy the upgrade file to a larger USB drive and start the upgrade again.

Error Message	Description
USB failure	There has been a critical failure with the USB drive. A forced upgrade must be performed and switcher setting will have to be restored from the saved setup. Contact Ross Technical Support for support with this error.
USB file failure	There has been a critical failure with the files on the USB drive. A forced upgrade must be performed and switcher setting will have to be restored from the saved setup. Contact Ross Technical Support for support with this error.

To Upgrade the Carbonite Black Panel

After the frame has been upgraded and reconnected to the panel, a message may be displayed indicating that a software mismatch. You only need to upgrade the panel or CarboNET if the mismatch message is displayed.

Note: It is important to upgrade all devices connected to a frame to the same version. This includes in a MultiPanel configuration.

1. In DashBoard, double-click on the **CarbonitePanel** node for the Carbonite Black panel or CarboNET that you want to upgrade.
2. Click **Upload > Browse**.
3. Locate the CarbonitePanel-v#_#_###.bin upgrade file and click **Open**.

Tip: If you have multiple devices to upgrade, click **Next** and select all the devices that you want to upgrade.

4. Click **Finish**.
DashBoard uploads the upgrade file to the device and performs the upgrade.
5. Click **Reboot > OK**.