



## Firmware Revision Information

**Product Code(s):** *DCX3000, DCX3000-DVR, DCX3000-DPT, DCX3000-DVT*

**Product Name(s):** *DCX3000*

**Date Modified:** *November 9<sup>th</sup>, 2016*

### Version 3.0 (11-9-2016)

#### **NEW: Introduction of the 10-port version**

Component	Version
Switch	3.00.0272
Receiver	3.00.4488
Transmitter	3.00.4488

#### **New Features and Enhancements:**

- OSD Resolution: A new setting in configure/OSD settings/EDID allows the EDID to be selected that is used in order to bring up the OSD. This is a global setting and is applied to all monitors in the system. Before changing this, confirm that all of the monitors in the setup can support the resolution you select, otherwise it will not be possible to bring up the OSD.
- Bonjour network device discovery has been added. It is now possible to use Bonjour for Mac and Linux in order to discover the IP address of the DCX switch.

#### **Fixes since Previous Version:**

- Link Local IP address changed on reboot. When the switch now reboots after an upgrade or a change in configuration has been applied it will now come back on the same link-local IP address if that Link-Local address is still available.
- Web UI Dashboard / Computers: Sorting the computer list by status is now correctly implemented.
- Rest API Non Admin Access to Rest API endpoints. The API has some resolved security vulnerabilities.
- It was not possible to login using the Safari web browser. This is now supported
- Liyama T1732MSC-B1X Touch screen now supported
- Backup and Restore configuration file compatibility. The downloading of an incorrect backup configuration file has been prevented. It is not possible to download a DCX3000 configuration file to a DCX1000.

#### **Known Issues:**

- Drop down lists in Web UI are sometimes not loaded. With Chrome version 53 it has been seen that occasionally the drop down lists in the web UI for EDIDs, OSD brightness, Time Zone, and Port items are not populated. The work around is to uncheck use hardware acceleration when available. Found in Chrome settings/advanced settings/System
- DisplayPort Dongle does not work well with HDMI monitors and ATI FirePro 2260 graphics adapter. When using in this combination, the video is displayed with a black border. The video resolution is correct but the video content is scaled down so that it leaves a border on the monitor. The work around is to use a DVI connection rather than HDMI when using the ATI GFX adapter.

- DHCP NTP Option 004 is not supported. The central switch network page has an option to display NTP servers IP address if the switch is using DHCP. If DHCP option 004 is used no value will be displayed here. It is necessary to use option 042 instead. The work around is to use DHCP option 042 in order to display the IP address of the NTP server on the central switch network page.

## Version 2.0 (8-26-2016)

**IF YOU ARE UPGRADING THE UNIT FROM ANY VERSION BESIDES 1.03:**

**1. UPLOAD THE “DCX\_V1.03\_RECOVERY.bin” FIRST VIA THE WEB INTERFACE USING THE FIRMWARE UPGRADE FEATURE.**

**2. ONCE YOU UPLOAD THE RECOVERY FILE IN STEP 1, UPGRADE A SECOND TIME USING THE “DCX\_V2.00.bin” FIRMWARE FILE.**

Component	Version
Switch	1.03.xxxx
Receiver	1.03.xxxx
Transmitter	1.03.xxxx

### New Features and Enhancements:

- Added API support. The API is served in a YAML format which can be found at [http\(s\)://<ip-address>/reset-api](http(s)://<ip-address>/reset-api). The DDX switch adheres to RESTful and CORS standards.
- New OSD layout functionality. There is a new option Use Full Grid which is available if you have auto layout turned on. When you have 4, 9 or 16 computers these are arranged in a square grid. The system info is now displayed on the top right. This system info is limited to the IP Address but will display an alert icon next to the ip address if the web UI needs consulting. For all other configurations of computer counts other than 4/9/16, normal layouts will be used at the bottom left.

### Fixes since Previous Version:

- Invalid certificate expiry date. It was possible that the HTTPS certificates were generated with a 1970s time. This meant that the certificate would have expired. All certificates are now generated using the build time with 50 years of validity. In order to resolve this, both the Main image and the recovery image need to be applied. After applying the recovery image the switch must be factory reset.

Mac Keyboard and mouse. The Mac keyboard and mouse are now supported by the

## Version 1.03 (3-16-2016)

**IF YOU ARE UPGRADING THE UNIT FROM VERSION 1.02 to 1.03, FOLLOW THESE STEPS:**

**1. UPLOAD THE “DCX\_V1.03\_RECOVERY.bin” FIRST VIA THE WEB INTERFACE USING THE FIRMWARE UPGRADE FEATURE.**

**2. ONCE YOU UPLOAD THE RECOVERY FILE IN STEP 1, UPGRADE A SECOND TIME USING THE “DCX\_V1.03.bin” FIRMWARE FILE.**

Component	Version
Switch	1.03.xxxx
Receiver	1.03.xxxx

Transmitter

1.03.xxxx

**New Features and Enhancements:**

- Added API support. The API is served in a YAML format which can be found at [http\(s\)://<ip-address>/reset-api](http(s)://<ip-address>/reset-api). The DDX switch adheres to RESTful and CORS standards.
- New OSD layout functionality. There is a new option Use Full Grid which is available if you have auto layout turned on. When you have 4, 9 or 16 computers these are arranged in a square grid. The system info is now displayed on the top right. This system info is limited to the IP Address but will display an alert icon next to the ip address if the web UI needs consulting. For all other configurations of computer counts other than 4/9/16, normal layouts will be used at the bottom left.

**Fixes since Previous Version:**

- Invalid certificate expiry date. It was possible that the HTTPS certificates were generated with a 1970s time. This meant that the certificate would have expired. All certificates are now generated using the build time with 50 years of validity. In order to resolve this, both the Main image and the recovery image need to be applied. After applying the recovery image the switch must be factory reset.
- Mac Keyboard and mouse. The Mac keyboard and mouse are now supported by the DCX3000 combined keyboard and mouse device. Previously they were emulated by the USB True Emulation and if the limit of 5 devices was reached they would not be supported.
- Web Server Login. The keyboard cursor is now focused on the user name when you first connect to the webserver login.
- The API could return an incorrect value when reporting the uptime from receivers and transmitters
- Support for a Dell s2240 touch screen added
- When the switch was configured with a static IP address removing the network cable meant that the switch failed to recover the network link
- It was possible that self-powered USB devices could be incorrectly reported as a bus powered device
- If the switch was reset immediately after cloning an EDID then the cloned EDID would not be saved
- It was possible that a thumbnail would not clear on the OSD following a transmitter unplug.

**Known Issues:**

- DisplayPort Dongle does not work well with HDMI monitors and ATI FirePro 2260 graphics. When used in this combo, the video is displayed with a black border. The video resolution is correct but the video content is scaled down so that it leaves a border on the monitor. In order to work around this issue, you can use a DVI connection rather than HDMI when using the ATI GFX adapter.
- If the transmitter is not receiving microphone audio from a receiver it should output silence. The transmitter will currently send a zero length packet if there is no isochronous IN data available. While this is correct according to the USB specification, if a user is recording from a microphone and switches away for a number of seconds, the recording is paused and the only resumed on reconnection (instead of recording silence during the switch away period).
- Heavy Noise on audio output after repeated switching. After repeated fast switching between two channels for >10s, the speaker output can become distorted. The audio itself can still be heard but is heavily distorted with noise. It is necessary to reset the receiver unit to remove the noise. Since the issue has only been reported as a result of rapid switching of channels, it is recommend to avoid such operations until this problem can be resolved.

- Connecting two audio enabled transmitters to the same Linux PC causes USB lock-up. This issue has only been seen on some Linux PCs and appears to be a problem with the EHCI driver in the kernel whereby corrupted isochronous packets are generated when switching between the two audio devices. When this occurs, any attached keyboard and mouse devices also fail. The problem can be avoided by one of two options. (1) Connect the audio devices to the Linux PC via a USB hub or (2) Connect the audio devices to the Linux PC on a separate USB bus.
- Sometimes get headphone audio disrupted due to PC temporarily stopping the isochronous out data. Occasional audio glitches have been observed on a small sample of Windows based PC's that appears to be caused by the PC stopping isochronous output data for 10-50ms. Audio recovers once the PC resumes sending the data.
- USB Compatibility with the Freedom. The maximum number of emulated USB devices that can be connected to the transmitter module is 5. When the Freedom is placed onto the front of a receiver station, each receiver station reports an extra mouse when Freedom is used. This means that if you have four receivers connected to Freedoms you will have four mice reported by the transmitter module and there is only room for one more device. By only connecting one or two receivers to the Freedom you will free up extra USB ports on the SAM which will allow you to connect additional USB devices.
- No video being displayed. With an Acer Veriton L410 PC the thumbnails on the OSD would display video, however once a connection has been made, no video can be seen. No current work arounds yet.
- Web UI / Dashboard computers. Sorting the computer list by status actually sorts the computer list by port number.
- Reboot System. Occasionally it has been observed that performing a Reboot system from the maintenance / system operations page will reboot the transmitters and receivers but the central switch will not reboot and an error is returned. Repeat the operation, performing the reboot a second time has always worked.
- Mac mouse does not support the OSD mouse launch. If this functionality is needed, then an alternate mouse should be used.

## Version 1.02 (11-19-2015)

Component	Version
Switch	1.02.4091
Receiver	1.02.4075
Transmitter	1.02.4075
Switch>>Video FPGA	0.10 (unchanged since 1.01)
Switch>>Data FPGA	0.11 (unchanged since 1.01)
Receiver FPGA	0.17 (unchanged since 1.01)
Transmitter FPGA	0.13 (unchanged since 1.01)

### New Features and Enhancements:

- Factory Image Field Upgrade: With this release, it is now possible to perform a field upgrade of the central switch factory (recovery) image. The new factory image is provided as a "special" upgrade image by Adder. The upgrade of the factory image is only recommended in a controlled environment since failure to upgrade may result in a RMA.

### Changes since Previous Version:

- Review Web backend callback object when err returned
- Naming fixed on receivers and transmitters
- USB lockup issue fixed for compatibility with Freedom II

- Fix cppcheck warnings
- @ Unspecified unclear on dashboard
- Video blanks on all connected channels (dongle blanking)
- Dashboard page formatting can be incorrect if web browser screen size is changed
- Manually editin the URL to a port that doesn't exist causes the Web app to crash
- Video blanks on individual head (receiving blank)
- Add DCL connection uptime to web diagnostics
- Fixed mix up between transmitters and receivers in the web interface

#### **Known Issues:**

- DisplayPort Dongle does not work well with HDMI monitors and ATI FirePro 2260 graphics cards
- If the transmitter is not receiving microphone audio from a receiver it should output silence
- Heavy noise on audio output after repeated switching
- Connecting two audio enabled transmitters to the same Linux PC causes USB lock-up
- Web Interface driven switching doesn't work if the user station has the OSD up
- Sometimes get headphone audio disrupted due to PC temporarily stopping the isochronous out data
- Both heads do not always return when system wakes up from sleep

#### **Version 1.01 (10-20-2015) DO NOT USE**

<b>Component</b>	<b>Version</b>
Switch	1.00.4025
Receiver	1.01.4024
Transmitter	1.01.4024
Switch>>Video FPGA	0.10
Switch>>Data FPGA	0.11
Receiver FPGA	0.17
Transmitter FPGA	0.13

#### **New Features and Enhancements:**

- Backup cloned EDIDs when backing up and restoring configuration
- Improved Dashboard Feedback
- Audio Support
- DHCP implementation for startup
- Show which transmitters are using which EDID on the Manage EDIDs page
- Mouse launch of OSD
- Diagnostic to show the Central Switch factory version
- Improved factory reset process
- User configuration setting to allow users to enter the OSD using the mouse
- Central Switch ability to route audio packets over the DCL

#### **Changes since Previous Version:**

- Video FPGA reporting voffset +1 and total lines -1
- Blue vertical bar showing on OSD thumbnail with 1600x1200@60Hz pattern 3: Gradually

- Changing switch IP address page does not refresh to new IP
- Thumbnails of 1920x1200 video sources are stretched horizontally
- Very occasionally communications with dongle not restored after reboot / reprogram
- Web dashboard, occasionally the computer “badge” will flash to show its got a video feed when nothing is connected.
- On the Configure > Central switch page, the system EDID is often not displayed
- The primary and connected console information on the dashboard screen only works for video-only links
- No error feedback / text shown to the user if the backup configuration file cannot be downloaded
- Monitor can blank at high video resolutions when signal integrity is poor and dependent on active video content.
- Receiver unit overlay positioning on the computer selection screen is not stable when video signal integrity is poor
- Receiver unit interprets HDMI video guard band as active video
- Receiver unit sync regeneration code doesn't operate on first 3 pixels of video blanking
- Receiver unit video timing generator asserts ade\_out during active video
- Receiver unit and central switch can indicate HDMI video guard band when video guard band when video is DVI
- No login page when using Firefox 39.0
- Options related to thumbnails are not synchronized
- Boot code only loads kernels up to 4Mb
- HTTP500 server error on every page after deleting the logged in user
- Cannot order RX details by Unique ID, monitor number or monitor model
- Cannot reorder TX details by Unique ID
- The version of ‘node’ build packages needs to be fixed
- The firmware mismatch feature as currently implemented will cause RMAs
- FPGA SerDes uses the switched clock instead of the synthesized clock for its receive reference clock
- Disconnect logo on the last OSD entry (number 19) is bright when it should be dimmed
- Loss of end of blanking is not reliably detected by the FPGA
- Password shown as plain-text in user create
- Audio packets do not appear to be transmitted correctly
- The FPGA USB code returns valid handshakes for invalid endpoints
- The transmitter FPGA fails to send handshake packets
- The receiver audio output channels are reversed
- Poor audio quality
- Hashed password and salt fields are being sent to browser
- Detection of HDMI video guard band is unreliable when the video source transmits CTL3, CTL2, CTL1, CTL0 = 0001 for video blanking
- Cannot set static IP address
- Changing the description of a unit is not being reflected in windows-Network device name
- Web responsiveness slows over time
- With HTTP server enabled, always redirects to HTTPS
- Manage EDIDs page is showing the incorrect test for Active Transmitter Port
- System version is not shown correctly on Maintenance page
- Individual Console page, Receivers table has additional ordering buttons
- Consoles/ Console X page – connected computer details are missing
- Receiver unit doesn't recognize underscore character during upgrade via memory stick
- Reprogramming a transmitter from the receiver's recovery mode may not always work
- Recovery mode banner is not updating
- Microphone volume control should be applied to left and right channel decimators
- Required dongle version is not reported via Web UI
- Can't upgrade a dongle from 0.01 to 0.05

- There is a significant pulsating sound from side-tone when AGC on and / or when Mic / Mixer / Headphone volume is high.
- Microphone mute is ignored when AGC enabled
- Audio clipping with existing audio codec AGC settings
- Audio DPLL pull range is not wide enough
- Codec master volume control doesn't reflect PC settings after Receiver unit is power cycled
- Upgrade of a Dongle sometimes fails in Extender Mode if the Dongle is not power cycled during the upgrade
- If the upgrade of a Dongle fails in Extender Mode, then there is no error message displayed
- The on-screen instructions during an upgrade in Extender Mode are misleading
- Audio clicks from Microphone
- Incorrect logic operate in web/devices.cc:DEVICES\_RebBotBusy()
- Receiver recovery mode sometimes fails to communicate with a connected keyboard
- USB HID reports may not be initialized correctly
- USB HID timeout periods incorrectly set at initialization
- The virtual USB hub within the transmitter must set the self-powered bit even though it is bus powered.

#### **Known Issues:**

- DisplayPort Dongle does not work well with HDMI monitors and ATI FirePro 2260 graphics cards
- If the transmitter is not receiving microphone audio from a receiver it should output silence
- Heavy noise on audio output after repeated switching
- Connecting two audio enabled transmitters to the same Linux PC causes USB lock-up
- Web Interface driven switching doesn't work if the user station has the OSD up
- Sometimes get headphone audio disrupted due to PC temporarily stopping the isochronous out data
- USB lock up on DCX with connection to a Freedom II
- Video blanks on all connected channels

### **Version 0.05 (8-27-2015)**

<b>Component</b>	<b>Version</b>
Switch	0.05.3789
Receiver	0.03.3780
Transmitter	0.03.3780
Switch>>Video FPGA	0.09
Switch>>Data FPGA	0.11
Receiver FPGA	0.12
Transmitter FPGA	0.08

#### **New Features and Enhancements:**

- Support to select the last channel with previous permissions
- Improved renumbering of computer IDs after removing a computer from the system. Renumbering scheme now matches that used by Agility, which preserves the original computer numbers.

- Enhanced “500 Server Error” messages. When errors are returned from the switch, the client will now see contextual information relating to the issue
- Added “Computer Number” field in the computer description. The computer setup screen now has a field entitled “Computer Number” that is used to define the menu position and hotkey associated with that computer.
- “Fault” LED now reflects the real-time status of the debug and factory headers. The LED will be set if the debug or factory headers are detected during startup.
- Selectable ordering of computers and consoles. The dashboard list of computers and consoles can now be ordered by selecting any of the table headings, rather than just the computer or console name.
- “ESC” keyboard key will now remove the OSD. Pressing the “ESC” key without anything selected will now revert back to what was previously selected.
- When adding a computer, it is now possible to allocate access to all consoles. Simplifies the setup in many installations.
- Delete all computers / consoles. It is now possible to bulk delete computers / consoles from their respective configure pages.
- Allocation of ports without needing to delete them first. Adding further transmitters to computers or receivers to consoles when the unit is fully configured can be difficult as it is necessary to delete them first. It is now possible for the “admin” user to allocate an already assigned port and it will be automatically removed from the existing computer.
- The full list of EDIDs that match with the Agility devices has been added to DCX3000 and can be assigned to individual Transmitters, or system wide.
- OSD control using the keyboard with the following keys:
  - \* Arrow Keys – highlight computer
  - \* Enter – Connect in Shared Mode
  - \* Shift + Enter – Connect in View Only Mode
  - \* Ctrl + Enter – Connect in Exclusive Mode
  - \* ALT + Enter – Connect in Private Mode

**Known Issues:**

- DisplayPort Dongle does not work well with HDMI monitors and ATI FirePro 2260 graphics cards
- No login page when using Firefox 39.0
- Multimedia keys don’t work with some keys
- FAE-Mouse pointer moves to the top left corner when idle on Mac using Freedom