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Technical Bulletin

Document #: ETB0048

Revision: 1.00

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Models: CV2500, CV4250, CV8125

Applicable Serial #: ALL

Status: INFORMATIVE

Recipients: ALL

CV SERIES FIRMWARE UPDATE V1.11

Models affected: CV2500, CV4250, CV8125

Explanation: New firmware update v1.11

Build history:

V1.11

Added support for the CDI-CV2 and CDI-CV4 Dante option cards.

Renamed default labels for the option card inputs and routing choice.

Made AES67 toggle control read-only, as enabling AES67 support, is better accomplished through Dante Controller, as part of a broader set of installation concerns.

V1.10

Added support for the CDI-CV8 Dante option card.

V1.9

Fixed an issue relating to the command parser when a static IP address was used. This prevented the firmware update utility from working correctly.

V1.8

Fixed the issue whereby when the amplifier settings were exported and re-imported into a different amplifier, the MAC address was inadvertently cloned to the other amplifier.

Also force the Ethernet driver to always load the factory-programmed MAC address at startup.

V1.7

Fixed an issue whereby the WebSockets TCP port was still not following the HTTP port, under certain circumstances, when the HTTP port was changed from the default setting of 80.

V1.6

Fixed issue caused by an iOS WebKit bug which sometimes caused the web interface toggle switches to become visually corrupted when the web UI was scrolled.

Fixed issue whereby the "user" mode control web pages for individual channels / DSP blocks, did not correctly observe the access rights for the current user, for level and source.

Fixed issue whereby the internally-managed WebSockets port number, did not follow the user-managed HTTP port number by 1, meaning that WebSockets port was always fixed at 81.

V1.5

Added "user-mode" control of level and source, to the web pages.

Added an "Overview" page as the standard landing page for the Installer, and also as an option for normal users.

V1.4

Fix an issue whereby heavy multicast network traffic, could result in a DoS of the web server and discovery tool.

Fix an issue whereby a stalled TCP connection to the WebSockets server, could block system tasks indefinitely.

Fix an issue whereby Microsoft Edge browser, did not correctly render the Event Log columns.

Enable the asynchronous sample rate converters for the auxiliary digital interface port, and make the auxiliary digital interface port be SAI master for its DSP interface.

V1.3

Fix issue with RTCC corrupting certain calendar dates when the date was set, due to an underlying silicon bug in the RTCC chip.

Also fix an issue whereby leap year dates were not displayed correctly on the clock web page.

V1.2

Fix issue with Labels not being editable from Safari browser on macOS or iOS

Reduce APD wake time.

V1.1

Fixed rear-panel trim pot issue after factory reset

V1.0

Initial production release

Procedure:

To Update the CV Series amplifier models:

1. Download the firmware update utility for the desired firmware version, from the CV Series product page on the Cloud Electronics website. The CV2500, CV4250 and CV8125 all use the same firmware updater, and have a common firmware build.
2. The CV Series amplifier should be connected to an Ethernet TCP/IP network, such that it is accessible from a Windows laptop or PC.

New amplifiers, in factory state, or amplifiers which are still set to use DHCP-assigned IP addresses, can be connected directly to the Ethernet port of a laptop / PC, and will use Link-local addressing, as long as the laptop or PC has been set to use DHCP. They may also be connected to an existing network with DHCP support, where they will automatically be assigned a suitable address.

Amplifiers which have a STATIC IP, will require the IP address and Subnet mask of the laptop/PC to be setup manually, to reflect a different address on the same subnet, so that network communication can take place between the amplifier and the laptop/PC.

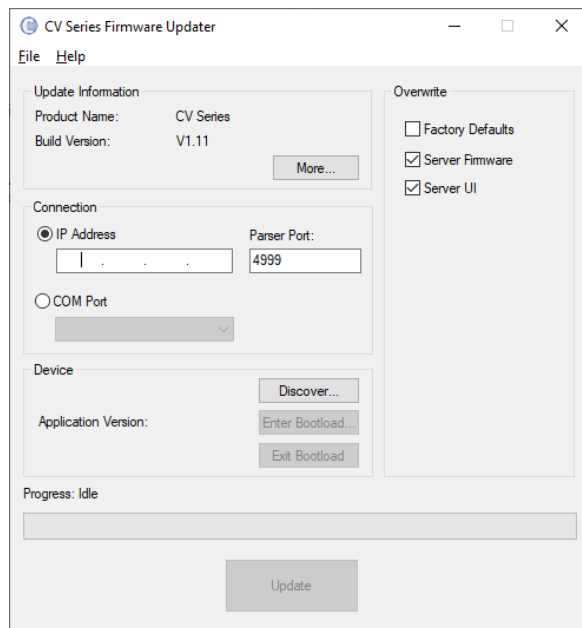
It is recommended that firmware update is always performed on a lightly-loaded network, for the best

performance.

NOTE: The CV Series amplifier, can also be upgraded via its RS232 serial port, using the same Firmware Updater Utility described in this document. Please see the section at the end of this document, for more details.

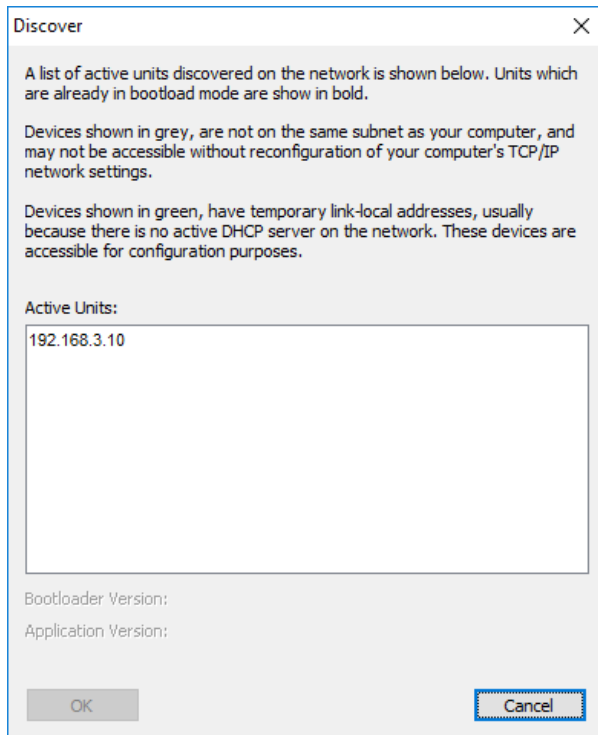
3. The CV Series amplifier, should be switched on, and be running normally, either in or out of APD state.
4. Run the Firmware Updater Utility .EXE file.

After the splash screen has disappeared, the main firmware update screen will be shown. Version information for the updater will be shown at the top-left of the main window, and details for the firmware build, can be found by clicking the “More...” button:



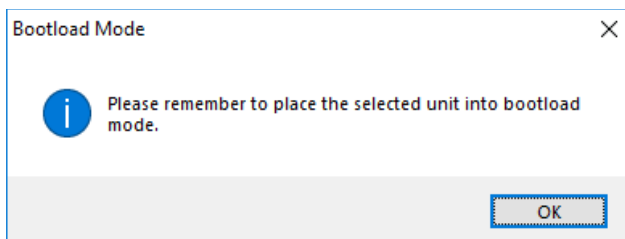
5. Click the “Discover...” button to locate the amplifier you wish to upgrade.

The discovery dialog will appear, and will list the amplifiers found on the network:



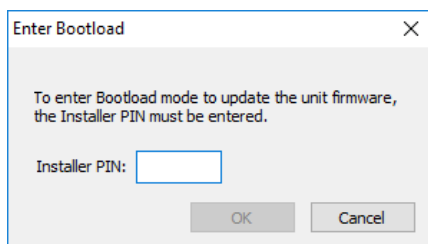
6. If there are multiple entries in the list, identify the unit you wish to update, by double-clicking on it (or selecting it, and pressing the "OK" button)

A dialog box will appear, with a reminder that the unit will need to be put into bootloader mode, before the actual firmware update can take place:

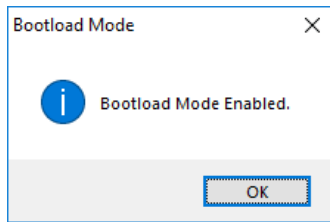


On return to the main application window, the "IP Address" field will be populated with the IP address chosen from the Discover dialog, and the "Enter Bootload..." button should now be enabled.

7. Click on the "Enter Bootload" button, and a dialog box will appear, prompting for the Installer PIN, to unlock the bootloader.



Enter the Installer PIN, and click the "OK" button. After a brief wait, a message should appear, indicating that the amplifier has entered Bootload mode:



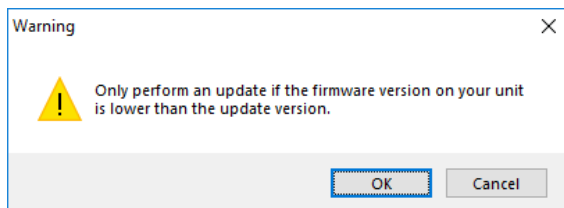
Click on "OK" to dismiss the message. After a further wait, the Enter Bootload dialog box will close, and you will be returned to the main application window. The "Enter Bootload..." button will now be disabled, and the "Exit Bootload" and "Update" buttons should be enabled.

8. During the firmware update procedure, there is the option to return the unit to factory default settings. This can be achieved by checking the "Factory Defaults" checkbox, at the top-right of the main application window.

The "Server Firmware" and "Server UI" checkboxes, should always remain checked.

9. To start the update procedure, click the "Update" button.

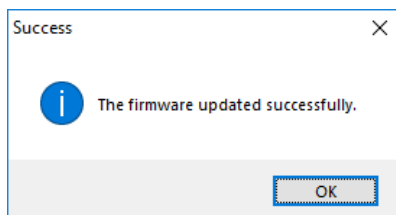
A warning message will appear:



This is the last opportunity to cancel the update. Clicking on the "OK" button, will start the update process.

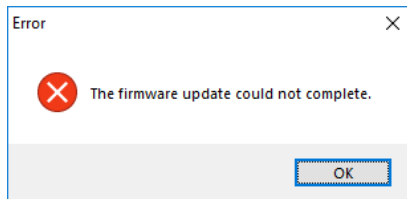
10. The update consists of 3 stages: Server Application, Server UI, and Factory Defaults. A Progress bar will be updated, to indicate progress through the update.

At the end of a successful update operation, the amplifier should reboot into application mode, and run normally. Additionally, a message will appear in the updater application:



Clicking "OK" will return to the main application window, from where the process can be repeated, if required, for another unit.

If the firmware update fails for any reason, the following message will be displayed:



At this point, the amplifier will remain in bootloader mode.

If the update process failed right at the beginning, before any actual changes were made, then it should be possible to return the amplifier to normal operation, by clicking the “Exit Bootload” button on the main application window.

If any changes were made to the amplifier by the firmware update process, then the amplifier will not allow a return to normal operation, and will remain in bootloader mode, until a successful firmware update is complete. The firmware update process, as described in this document, should be repeated.

If the network to which the amplifier is connected, is carrying a lot of network traffic, then this may impair the ability to carry out a firmware update. If the firmware update process seems unnecessarily slow, or prone to repeated failure, it is recommended that the amplifier is removed from the main network, and placed on an isolated network, to minimise unnecessary traffic.

Using an RS232 serial connection to upgrade the firmware

If a network connection is not available, or cannot be configured correctly, then an RS232 serial connection may be used to upgrade the firmware, via a COM port on the laptop/PC. This method will require a USB serial port adaptor, as most modern computers no-longer feature a hardware COM port. It will also require an RS232 cable compatible with the 3-pin connector on the rear panel of the CV Series amplifier, which has a pinout as follows:

| PIN | LABEL | FUNCTION |
|-----|-------|---------------------------|
| 1 | 0V | Ground |
| 2 | RX | Data from CV to laptop/PC |
| 3 | TX | Data from laptop/PC to CV |

Note: The CV Series amplifier is a DCE (Data Communications Equipment) device, and as such, the RS232 connector pins are labelled from the perspective of the connected laptop/PC. Hence, “RX” is data to be received by the laptop/PC, and “TX” is data transmitted from the laptop/PC.

Once the USB serial port adaptor is connected to, and recognised by, the laptop/PC, and the cable is correctly connected to the CV Series amplifier, the Firmware Updater Utility .EXE can be run.

After the splash screen has disappeared, and the main application window appears, the connection method should be changed from “IP Address” to “COM Port”, via the radio group, located at the centre-left of the window, as shown:

The screenshot shows the 'CV Series Firmware Updater' application window. It has a menu bar with 'File' and 'Help'. The main area is divided into several sections:

- Update Information:** Displays 'Product Name: CV Series' and 'Build Version: V1.11'. There is a 'More...' button.
- Connection:** Contains two radio buttons: 'IP Address' (unselected) and 'COM Port' (selected). Next to 'IP Address' is a 'Parser Port' field with the value '4999'. Below 'COM Port' is a dropdown menu.
- Device:** Includes a 'Discover...' button, an 'Application Version:' label, and 'Enter Bootload...' and 'Exit Bootload' buttons.
- Overwrite:** A section with three checkboxes: 'Factory Defaults' (unchecked), 'Server Firmware' (checked), and 'Server UI' (checked).
- Progress:** A section labeled 'Progress: Idle' with a progress bar and an 'Update' button at the bottom.

The process for upgrading the firmware, given above, can now be followed from Step 5 onwards. Upon clicking the “Discover...” button, instead of IP addresses being shown, a list of COM ports, on which Cloud CV Series amplifiers have been detected, will be shown, after a few seconds. If there are a lot of COM ports on the laptop/PC, then this process may take a while to scan them:

The screenshot shows a 'Discover' dialog box. It contains the following text:

A list of active units discovered on the network is shown below. Units which are already in bootloader mode are show in bold.

Devices shown in grey, are not on the same subnet as your computer, and may not be accessible without reconfiguration of your computer's TCP/IP network settings.

Devices shown in green, have temporary link-local addresses, usually because there is no active DHCP server on the network. These devices are accessible for configuration purposes.

Active Units:

Below this heading is a list box containing the text **COM4**.

At the bottom, there are labels for 'Bootloader Version:' and 'Application Version:', and two buttons: 'OK' and 'Cancel'.

Alternatively, if the COM port to be used is known in advance, the drop-down list next to the COM Port radio button, can be used to pre-select the desired port, and the “Discover...” button need not be clicked.

Note that the bootloader firmware installed on the CV Series amplifier will give priority to whichever transport, Ethernet or RS232, that provides data first, and ignoring all communications on the other transport. For this reason, the CV Series amplifier, should not be connected to Ethernet during an attempt to update the firmware via RS232 – the Ethernet cable should be temporarily unplugged.