CARBONITE
CODE

Carbonite Code
Getting Started Guide

v5.0

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Introduction

Thank you for choosing the new software-based Production Switcher by Ross Video, Carbonite Code.

Designed to integrate into the NDI® ecosystem, this powerful tool offers Carbonite functionality, as well as compatibility with TouchDrive control surfaces, providing a feature-rich live video production solution. Available as both a turnkey system and a software-only option, it ensures flexibility to meet the diverse needs of a production environment.

This document provides a brief introduction to the software parts that make up Carbonite Code as well as system requirements, installation instructions for Carbonite Code and DashBoard, and instruction on adding software licenses and connecting DashBoard to Carbonite Code.

Important: *Carbonite Code does not run as an application on your computer. Instead, it runs as a service that DashBoard connects to and presents the user interface for. DashBoard is required to operate the switcher and can be run on the Carbonite Code computer, or from a remote computer.*

Software

Time to download the newest software for your Carbonite Code switcher. Whether you purchased hardware from Ross Video, or are installing Carbonite Code on your own hardware, you can download the latest Ross software from our website.

Carbonite Code

The latest version of the Carbonite Code software is available by navigating to *rossvideo.community*.

- *https://rossvideo.community/software-downloads/carbonite-code-software-downloads*

DashBoard

DashBoard is required to configure and use Carbonite Code. The latest version of DashBoard is available by navigating to *rossvideo.community*.

- *https://rossvideo.community/software-downloads/dashboard-software-downloads*

NDI® Tools

The latest version of NDI® Tools can be found by navigating to *ndi.video*. This suite is free to download and has been designed to introduce anyone, from end users to professional installers to the world of NDI® connectivity. Some NDI® configuration settings are performed using these tools and therefore should be installed on the Carbonite Code system.

NDI® Tools is made up of several useful applications, including the following:

- NDI Studio Monitor — for viewing NDI® video sources on your network.
- NDI Access Manager — for managing visibility and accessibility of sources.
- NDI Test Patterns — for generating reference signals.
- NDI Router — for routing NDI® sources to custom outputs.
- NDI Bridge — for sending and receiving sources beyond your local network.
- NDI VLC Plugin — for generating NDI® sources from the VLC media player.

NDI® SDK (NDI Discovery Server)

The NDI® SDK is available at *ndi.video* and includes a number of useful utilities.

The NDI Discovery Server is designed to allow you to replace the automatic discovery NDI® uses with a server that operates as a centralized registry of NDI® sources.

Using a discovery server is as simple as running the application in `Bin\Utilities\x64\NDI Discovery Service.exe`. This application will then run a server on your local machine that accepts incoming connections with senders, finders, and receivers, and coordinates amongst them all to ensure they are all visible to each other.

Once NDI Discovery is running, configuration of each device on your network is made by checking the Discovery Server box and adding its IP Address within NDI® Access Manager.

Hardware Requirements

If you have not purchased a server to run Carbonite Code from Ross Video, you can source your own hardware.

Carbonite Code has been designed and tested with specific hardware platforms to maximise performance and reliability. These recommendations are provided on a best-efforts basis and cannot guarantee specific hardware performance parameters. Hardware performance and functionality is the responsibility of the hardware vendor. Customers or business partners supplying hardware are responsible for hardware installation, configuration, setup, and support.

Please contact us with questions at *solutions@rossvideo.com*.

The following describes the recommended *minimum* hardware configuration for Carbonite Code for customer or business partner supplied hardware.

Item	Server	Desktop
Processor	Intel® Xeon® Silver 4410T (10 Cores)	Intel® i9-12900 (16 Cores)
	Note: *Carbonite Code is optimised for use with Intel® CPUs.*	
GPU	NVIDIA RTX™ 4000 Ada	NVIDIA® GeForce RTX™ 3080
	Note: *Carbonite Code is optimised for use with NVIDIA® GPUs running version 580 or higher.*	
Memory	32GB DDR5	
Storage	100GB SSD	
USB	3 (1×License Dongle, 1×Keyboard, 1×Mouse)	
Network	10G Ethernet Port	
Power Supplies	Select a power supply based on the power and connection requirements of the system components. It is recommended to operate power supplies at 40-80% of their total capacity for optimal efficiency and overhead. For reference, the hardware supplied by Ross Video makes use of redundant ASUS® 1300W 50.5MM SLIM Platinum power supplies.	
OS	Microsoft® Windows® 11 Pro for Workstations	Microsoft® Windows® 11 Pro
	Note: *Earlier versions of Windows® may function correctly, but some Carbonite Code features and functionality will not be supported.*	

Getting Started

Getting started with Carbonite Code is quick and easy. In your software download is the Carbonite Code and DashBoard installer applications. Once those are installed on your computer you can activate your licences and connect DashBoard to the Carbonite Code core.

Note: *You must contact Ross Video for your trial or full software licenses.*

Note: *License activation requires a connection to the internet to validate or a USB license dongle.*

To Install Carbonite Code

The installation wizard will help you install the software on your PC.

Note: *If you are using your own hardware, ensure that your USB Licenses Dongle is installed in the PC before installing the software. The switcher software will try to detect the dongle when it starts the application.*

1. Launch the `CarboniteCode-x64` installer on the PC you want to run the switcher and follow the onscreen instructions.

2. Review the **End User Licensing Agreement (EULA)**, select **I accept the agreement** and click **Next**.
3. Enter a **User Name** and **Organization** (optional) and click **Next**.
4. Select where you want the application to be installed and click **Next**.

   You can either accept the default location or click **Browse** and select a new location.
5. Enter a name for the folder on the **Start Menu** that you want to use for the application and click **Next**.
6. Click **Install**.

   Note: *If you have a previous version of Carbonite Code installed, you will be prompted to overwrite it. Click **Yes** to proceed.*
7. Click **Finish** to complete the installation and launch the Carbonite Code Core Service.

   Note: *Clear the **Start Carbonite Code Core Service** checkbox if you do not want to start the service at this time. You can start the service manually.*

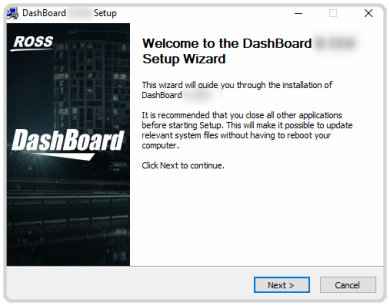
To Install DashBoard

The installation wizard will help you install the software on your PC.

Tip: *DashBoard connects to Carbonite Code over ethernet. If you are not running DashBoard on the same computer as Carbonite Code, both machines must be on the same network.*

Note: *DashBoard will backup and restore your current settings if another version is already installed on the computer.*

1. Launch the `DB#.##.#_setup_64` installer on the PC you want to run the switcher and follow the onscreen instructions.



2. Review the **End User Licensing Agreement (EULA)** and click **I Agree**.
3. Review the **Eclipse Foundation Software User Agreement** and click **I Agree**.
4. Select the components you want to install and click **Next**.

   It is recommended to leave everything selected.

5. Select where you want the application to be installed and click **Next**.

   You can either accept the default location or click **Browse** and select a new location.

6. Enter a name for the folder on the **Start Menu** that you want to use for the application and click **Install**.
7. Click **Finish** to complete the installation.

To Add Software Licenses

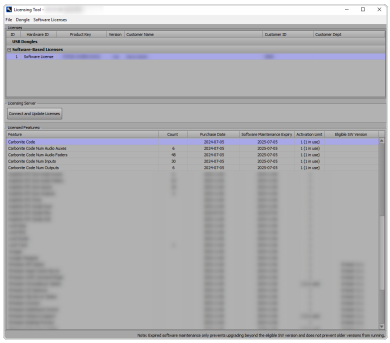
Software licenses are managed and validated by a remote server.

Important: *The Licensing Tool requires an internet connection to validate the software license information.*

Note: *If your software has never been licensed, contact your Ross Video sales representative for information on registering your product and purchasing software licenses.*

Note: *If you purchased Carbonite Code with the hardware server (CCODE-HW-1RU) or with a separate licensing dongle (CCODE-30-USB) the licensing information is stored on the USB licensing dongle.*

1. Launch the `License Tool` application from the **Carbonite Code (64bit)** folder on the Start Menu.

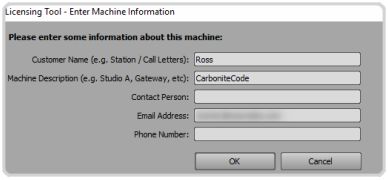


Licenses can come from an external server (**Software-Based Licenses**) or an installed dongle (**USB Dongles**). All of these sources are listed in the **Licenses** section. Refer to your sales material to determine which you have.

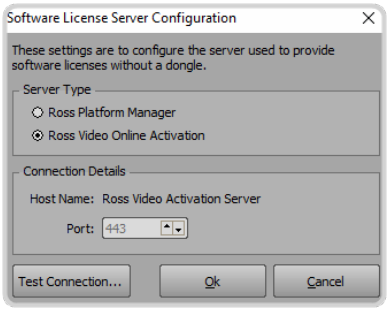
The **Licensed Features** section lists all of the software features that have been installed.

Note: *If you get a popup about expiring software licenses, please contact Ross Video for information on extending your license.*

2. Click **File** > **Edit Machine Info** and update the information about your machine.

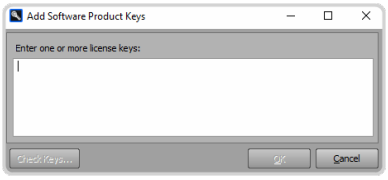


3. Click **Software Licenses** > **License Server Configuration** and select **Ross Video Online Activation** and click **OK**.



4. Click **Software Licenses** > **Add Software License**.

Note: *If you have an installed dongle, refer to the sales information that came with your dongle for information on updating your licenses.*



5. Enter the License Keys you were provided for the options you purchased and click **OK**.

   The system will try to establish an internet connection to the Ross Licensing server and your purchased licenses will be shown in the **Licensed Features** section.

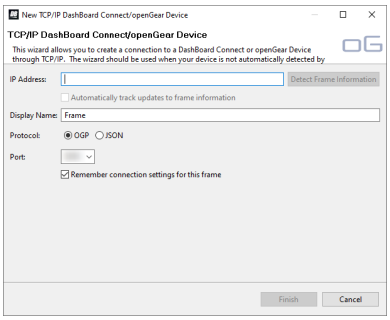
To Connect DashBoard to Carbonite Code

DashBoard connects to Carbonite Code to provide the menu interface. You can connect either from the same computer, or a separate computer on the same network.

If you are connecting to Carbonite Code running on a separate computer, you need the IP address of that computer.

Tip: *If you do not know the IP address of the Carbonite Code computer. On the Carbonite Code computer, right-click on the* ***Start*** *button and click* ***Windows PowerShell****. In the* ***Windows PowerShell*** *window, type* `ipconfig` *and press enter. The system will list the IP address of that computer as* `IPv4`*.*

1. Launch the DashBoard application.
2. Click **File** > **New** > **TCP/IP DashBoard Connect or openGear Device**.



3. In the **IP Address** field, enter the IP address of the Carbonite Code computer.

   Tip: *If you are running DashBoard on the Carbonite Code computer, enter* `localhost` *as the IP address and click* ***Detect Frame Information****. DashBoard will enter the internal IP address of the switcher.*

4. Click **Finish**.
   Carbonite Code appears in the **Tree View**.

Networking

A well-configured network is crucial when using NDI® technology, as it ensures optimal performance and reliability for video and audio over IP. Proper network configuration helps minimize latency, packet loss, and jitter, which are critical factors in maintaining the quality of real-time media streams. By setting up appropriate network profiles, prioritizing NDI® traffic, and utilizing robust hardware like managed switches, users can achieve consistent, high-quality NDI® performance, enabling seamless integration and operation of media workflows. This level of network reliability is essential for professional broadcasting, live streaming, and other applications where uninterrupted, high-fidelity media delivery is paramount.

Recommended Network Switch

As the NDI® ecosystem continues to mature, so does the range of NDI® centric networking products. Ross Video have experienced great success with the M4250 and M4350 AVLine of Managed Switches from NETGEAR® and recommend using them with Carbonite Code. These switches feature NDI® oriented network profiles and a web-based GUI, designed to simplify the deployment and configuration of NDI® network infrastructure.

Networking Support

Additionally, the NETGEAR® Pro AV team have a dedicated pre- and post-sales network design services team. This group offers 24/7 technical support for North America, Europe and Asia Pacific as well as training for installers, integrators and MSPs.

The NETGEAR® Pro AV Engineering Services Team can be reached via *ProAVDesign@netgear.com*

Best Practices

Keep the following best practices in mind when setting up a Carbonite Code switcher.

NDI Discovery Server

We recommend making use of NDI® Discovery Server to simplify the management of your NDI® network and reduce mDNS traffic on your network. You will likely see performance increases using this application.

Managing Compute Resources

Carbonite Code is a software-based product and performance will vary depending on the amount of compute resources available and the actions you are asking the production switcher to perform.

A real-time load (%) performance meter is available in DashBoard Live Assist and the SoftPanel. This provides feedback on system resources in use at any given time. It is recommended you monitor this to ensure a consistent, high-quality NDI® output.

Managing unused resources is important. For instance, disabling NDI® inputs which are not required or turning off unused outputs will increase overall performance of the system. Taking steps to manage unused resources will result in less CPU/GPU usage and lower overall power consumption.