Multi-Monitor Setup - Freedom VMS

This guide outlines the steps to configure multi-monitors in Freedom VMS. Support for up to 4 monitors was first added in Freedom Client V3.5(64bit).

The 64bit version of Freedom Client supports up to 4 display monitors, displaying up to 68 HD cameras subject to CPU and network resources. Three of the monitors can be used for live display. Each monitor can be configured to display one of the following items:

- A 'Video Group' is a monitor which displays a pre-defined 'Camera Group'
- The 'Master' is the only monitor that contains the bottom right Setup & control buttons.
- eMaps, an eMap is an image that contains hyperlinks that allow you to open and playback cameras by dragging a hyperlink.
- Playback, this is the module that allows you to search, retrieve and export recorded footage and view snapshots

Understanding Resource Limitations

Unlike traditional SD Analogue camera systems, HD systems require a lot more CPU power to decode & display multiple HD video streams as well as requiring higher network bandwidth. The amount of HD cameras that can be displayed at the same time or in a 'camera Group' is limited.

When displaying HD video careful consideration should be given to how many HD cameras can be displayed without exceeding the limitation of the viewing PC CPU or network link. A general rule of thumb is the CPU usage percentage should not exceed 70% consistently. The CPU usage can be viewed in the lower left status window on the Freedom 'Live view' GUI. (pictured right)
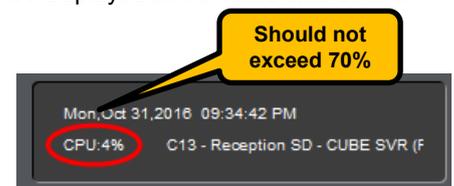
If the CPU limit or network bandwidth is being exceeded there are a few options available.

- Reduce the amount of HD cameras being displayed at any one time.
- Reduce the resolution, bitrate or framerate of the cameras
- Change 'Default Live Video:' option to use the lower quality 'Sub Stream' (pictured right)
- Upgrade the hardware (i.e. larger CPU, faster network)

If you require multiple HD cameras be displayed on a PC with limited CPU or network resources, changing the default 'Live Video' option to sub-stream maybe a solution.

Rules for Freedom Multi-Monitor deployment

There are a few rules that you need to be aware of before using multiple monitors.

- You must use the 64 bit version of Client. V3.5
- You can have up to 68 cameras (36+16+16)   [**subject to CPU and network limitations**]
- The 'Master' monitor can display up to 36 cameras, a 'Video group' can display up to 16 cameras
- You cannot display the same camera on multiple video tiles.
- Only one monitor can be selected to open the Playback module.
- Only one monitor can be selected to open eMaps.
- Only one monitor can be selected to open the 'Master' (Control GUI)
- A maximum of 3 monitors can be used to display cameras live.
- Only 2 dropdown menus can be selected as 'Video Group'   (Note: the 'Master' is also considered a Group monitor)
- Alarm Groups/notifications can only open in the monitor selected for 'Master' module.

Monitor Startup Options

You can either manually open modules on different monitors or configure modules open automatically when the Freedom VMS software first opens.

To open modules manually click the appropriate icon, to manually open a 'Video Group monitor', click the 'Menu' icon, ▤ then click the 'Video Group Monitor' you wish to open.(see image on right)

To have a module or 'Video Group' automatically open on a particular monitor when the software starts, you can tick the 'Startup' check box ☑ startup from the Multi-Monitor setup window.

Multi-Monitor Setup

You must have 'Setup rights' to configure multi monitor.
Multi-Monitor setup allows you to configure what elements or modules open automatically when the software starts and on what monitor they open, additionally for a 'Video Group' whether it opens in 'full screen' or not. A 'Video Group' is simply a '[camera group](#)'
Note: Any 'camera groups' must be created prior to entering 'Multi-Monitor setup'.

To navigate to Multi-Monitor setup click the 'Setup' button on the bottom right of the Live view interface.
Then under 'System Setup' click on the 'Multi-Monitor' tab located near the bottom of the window. (see below)
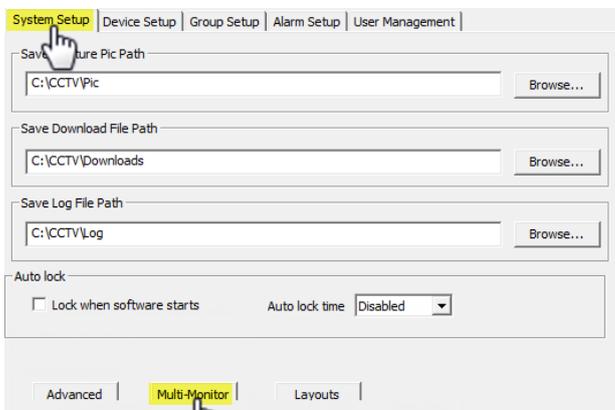
Note: The labels for 'Monitor 1/2/3/4' in Freedom VMS may not always reflect what the Windows™ OS defines as monitor 1,2,3 etc. additionally, if a display monitor loses power or the cable is dis-connected while Freedom VMS is running, the Windows™ operating system may re-assign monitor display/contents to another monitor which in turn may cause Freedom GUI elements move to another monitor. If this occurs, you may need to restart the Freedom VMS software to restore monitor configuration.

This opens the 'Multi-Monitor setup' window as seen below. The available options for the 'Module to open' are;
None, *'Master & Playback'*, *Master*, *'Video Group'*, *eMaps* and *Playback*

In the example below we are using 4 monitors, monitor 1,3,4 are displaying video groups. Monitors 3 and 4 are set to open in full screen for maximum viewing size. The 'Master' monitor (1) is NOT set to 'full screen' mode.
Monitor 2 is configured to display the 'Ground Floor' eMap.
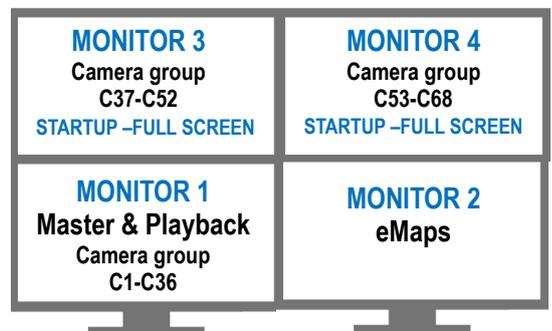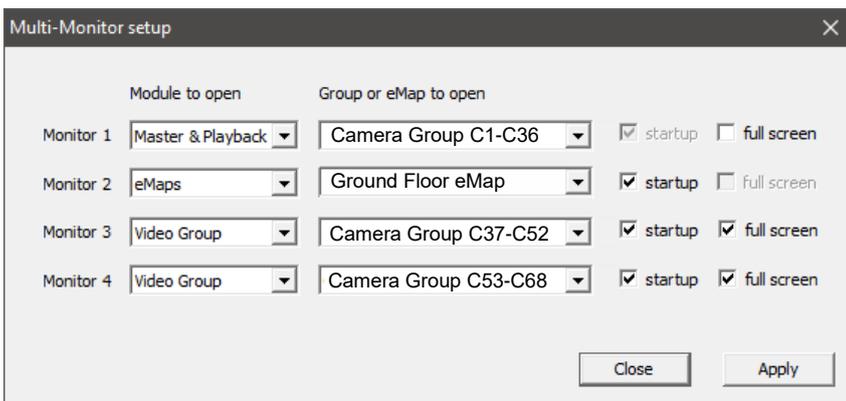
After configuring click '**Apply'** then **restart** the Freedom VMS software.

IMPORTANT!: after restarting the software and waiting for the cameras to appear, look at the CPU monitor in the bottom left of the Live view interface and ensure it is not exceeding 70% continually, if so this indicates your PC CPU is not capable of viewing this many HD cameras in main-stream.
If the CPU is not being exceeded but not all cameras appear, this may indicate your network is not capable of supporting the bandwidth required to display the cameras or you have selected the same camera that is already being displayed on another monitor.