CRESTRON MODULE 3.04.01 DOCUMENTATION

WolfVision Cynap, Cynap Core, Cynap Pure Pro
Optimized for firmware version V1.42e

Document version 1.3
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WOLFVISION®

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1 INTRODUCTION

1.1 Version History and Change Log

Version	Date (dd/mm/yyyy)	Remarks
3.04.01	**02/11/2020**	**- FIX: Visualizer window not displaying controls when added as a USB input source** **- IMPROVEMENT: Optimized queuing mechanism**
3.04.00	25/09/2020	- NEW: Now up to 20 input streams can be selected - NEW: Support for Office 365 local account - IMPROVEMENT: The character length for the HDMI input names has been increased to 128. This avoids warning messages like "Cannot set permanent string at input 1 from symbol [...]" in the controller. - FIX: The message "Screensaver/Screen Off is active" remains visible on the touch panel although the Cynap is active again.
3.03.00	07/07/2020	Added support for Microsoft Teams window
3.02.02	22/02/2020	Bug fixes for disconnect issues
3.02.01	20/02/2020	Added support for Zoom window
3.01.00	13/05/2020	Updating doc with new info for recommended hardware.
3.00.00	19/07/2019	Splitting of main module into smaller individual modules to lessen system load.

Modules, touchscreen and CynapBase file for this version	**Version and remarks**
Cynap_Audio_Client ver_3_00	3.00
Cynap Browsing Client ver_3_00	3.00
Cynap Cloud Service Client ver_3_01	3.01
Cynap_Freeze_Client ver_3_00	3.00
Cynap Main Client ver_3_03_00	3.03.00
Cynap_Mirroring_Client ver_3_00	3.00
Cynap_Presentation_Client ver_3_01	3.01
Cynap_Recording_Client ver_3_00	3.00
Cynap_RemoteControl ver_3_00	3.00
Cynap Sources Client ver_3_02	3.02
Cynap Streaming Client ver_3_00	3.00
Cynap_vMeeting_Client ver_3_00	3.00
Cynap_Windows_Client ver_3_02_01	**3.02.01 updated**
Cynap ver_3_04.vtz	3.04
CynapBase.clz	**updated**

1.2 Purpose

The purpose of this document is to provide information about the Crestron Cynap modules. This module is for demonstration purposes only (provided as it is) and it is not intended to run in production environments. Please adapt and test this module for your environment.

1.3 Preferred hardware

It is recommended to use at least an MC3 controller and a touch panel.

1.4 Time zone and time server

Configure time zone and time server to allow TLS encrypted web socket communication.
Cynap settings for time server and time zone need to be set on Cynap's general settings.
Legacy TLS 1.0 can be activated in Cynap's security settings.

2 GENERAL DESCRIPTION

2.1 Getting started with the test environment.

In order to utilize the test environment, or any Crestron modules, Crestron's development tools (see 4.5 Software) are needed.

2.1.1 Files

The following files are included in the test environment file (Cynap.zip):

File	Description
Main Environment Files	
Cynap_verX_YY.smw	The SIMPL Windows project file. The main file for the test environment.
Cynap_verX_YY.sig	Crestron Test Manager signal file.
Cynap_verX_YY.lpz	3-series SimplWindows program file. This is uploaded to the processor.
	Module Files For each module file, there is a .usp, .ush, and a .pdf file.
Cynap_ZZZ_Client_ver_X_YY.usp	The Cynap client module, written in SIMPL+
Cynap_ZZZ_Client_ver_X_YY.ush	SIMPL+ compile file generated from Cynap_Client.usp.
Cynap_ZZZ_Module_ver_X_YY.pdf	The help file for the Cynap client. Can be accessed in Simpl Windows by using F1.
Module File List (ZZZ in the above example)	
Cynap_Main_Client	This is the core module which holds the configuration information and main functions. **(Mandatory install)**
Cynap_Audio_Client	This module handles the audio aspect of the Cynap.
Cynap_Browsing_Client	This module handles the file browsing of the Cynap.
Cynap_Cloud_Service_Client	This module handles the Cloud Connection/Disconnection of the Cynap.
Cynap_Freeze_Client	This module handles the Freeze function for the main part of the Cynap.
Cynap_Mirroring_Client	This module handles the Mirroring Connection of the Cynap.
Cynap_Presentation_Client	This module handles the Presentation settings of the Cynap.
Cynap_Recording_Client	This module handles the Recording functions of the Cynap.
Cynap_Remote_Control_Client	This module handles the Remote Control emulation of the Cynap.
Cynap_Sources_Client	This module handles the Source select and management of the Cynap.
Cynap_Streaming_Client	This module handles the Streaming functions of the Cynap.
Cynap_vMeeting_Client	This module handles the vMeeting setup and functions of the Cynap.
Cynap_Windows_Client	This module handles the Windows control and functions of the Cynap.
Touchpanel Files	
Cynap_verX_YY.vtp	The Visiontool Pro-e template file (uncompiled) for the touch panel.
Cynap_verX_YY .vtz	The compiled graphics file for the touch panel which is loaded to the touch panel.
Cynap_verX_YY .sgd	Smart Graphics Data file generated by Visiontool Pro-e for Simpl Windows.
	Simpl# Supplementary Files
CynapBase.clz	SIMPL# library for encrypted communication.

2.1.2 Modules

The Cynap_Main_Client_verX_YY and the IBM keyboard module are the only modules needed to interact with the Cynap.

The Cynap_Main_Client facilitates the control and communication of/with the Cynap. The IBM keyboard module allows for the user to enter URLs used for the browser function.

2.1.3 Simpl Windows Folder Structure

The test environment is organized into separate sections.

The folder, (Subsystem), S-1: Keyboard contains the symbols needed for the keyboard functionality, which are a Crestron IBM Keyboard module, a termination buffer and delay symbol used to clear entries once “enter” is pressed. Separate subfolders are used to pass data between the needed functions for Cloud Services and Bookmarks.

The next folder S-2: UI Logic, holds the symbols needed to allow the provided touch panel graphics to function. The graphics combined with these symbols allows the test environment to mimic the web interface provided by the Cynap. As such, this folder is not necessary to use the Cynap module in a new project.

The remaining modules are exposed without needing to be placed in folders. This is to easily connect and use the modules.

3 GRAPHICS TEMPLATE

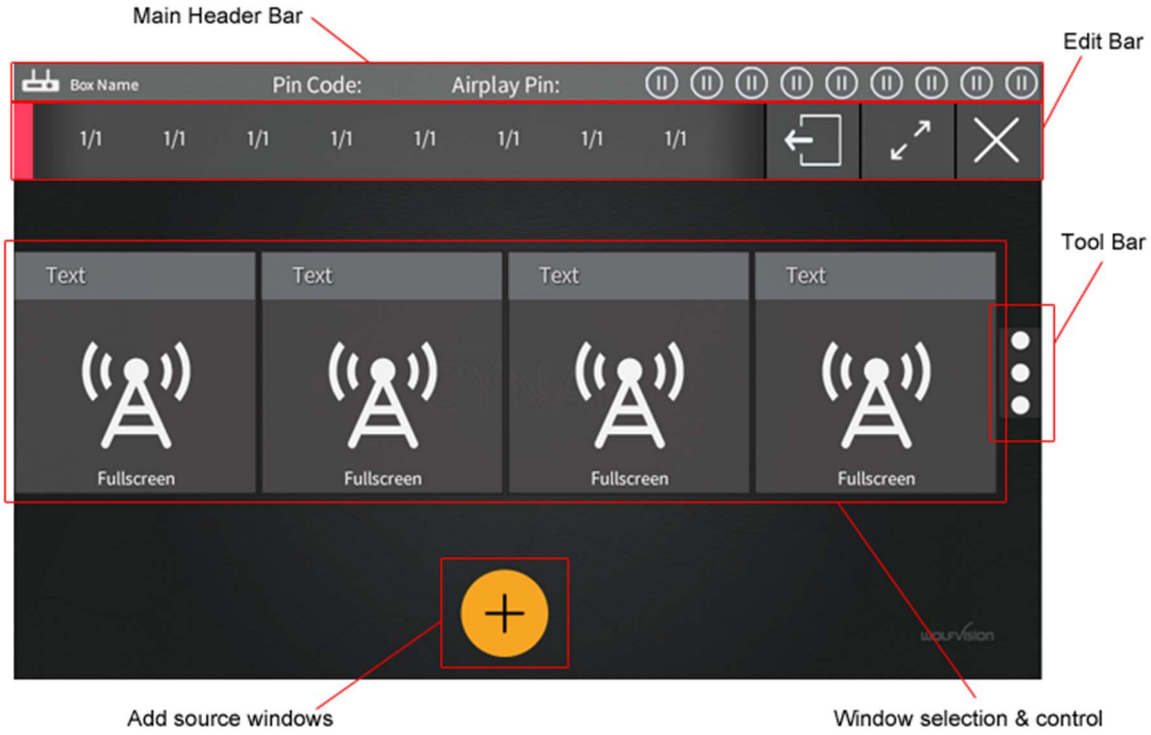
3.1 Overview

The touch panel template file (Cynap_verX_YY.vtp), which is used for the test environment, contains all graphical components and elements needed to use the Cynap client on a Crestron touch panel.

3.2 Graphics Theme

The theme is graphically driven, meaning we do not use any theme, but each button/element has a graphic for its states. This allows for easier copying and pasting into existing project files without the need of a Crestron Theme to be present or matched.

3.3 Graphics Structure



3.3.1 Main

The main page has 5 elements.

- **Main Header Bar**
  This area shows the name assigned to the Cynap for easy connection, an icon indicating that the module is connected, “Pin Code” popup area if a pin code is needed, “Airplay Pin” popup and icon that reflect the state of the Cynap.

- **Source Selection**
  The “Add source windows” button on the bottom of the page will display a popup window with available sources to choose from.
  Adding a source will bring up a new window in the Active Window List.

- **Active Windows List**
  The center of the panel is for showing what the active sources are on each window. The windows are color coded to match the Cynap WebUI display with the color appearing in the top left of each window.

  By selecting an active window, the color code will disappear, and be replaced by a full color boarder around the window. This will also activate the “Edit Bar” window.

- **Edit Bar**

The Edit Bar window will always display 2 icons on the right, with a 3rd icon sometimes being displayed.

1) **Fullscreen/Normal**
   This button will make the currently selected window either full screen, or return it to normal size.
   If a window is in full screen mode, it will also appear on the window in the Active Window List.

2) **Close Window**
   This button will close the currently selected window and removes it from the Active Window List.

3) **Dual Screen**
   This button is for using the "Dual Screen" feature. Please refer to Cynap help on HDMI Output feature.

Sources are based on content and may show additional functions.

- **Tool Bar**
  The Tool bar will display several functions depending on the Cynap model and its configuration.

1) Downloads (if available)
   Press to bring up a browse window with all downloaded files.

2) Uploads (if available)
   Press to bring up a browse window with all uploaded files.

3) Snapshots
   Press to take a snapshot.

4) Recording (if available)
   Press to Start/Pause/Stop recording.

5) Streaming (if available)
   Press to toggle the streaming on/off.

6) Link to Stream (if streaming is available and active).
   Press to display or hide a QR code on the screen.

7) App Recording (if streaming is available and active).
   Press to enable or disable app recording.

8) Mute
   Press to mute or unmute the main volume.

9) Volume
   Press to change the main volume

10) Freeze
    Press to freeze or unfreeze the current Cynap screen. Some features are locked during freeze.

11) Close Windows
    This will close all open windows.

12) End Presentation
    Pressing this will prompt to end the presentation with or without saving snapshots and recordings.

13) Standby
    Toggles the power on or off.

3.3.2 Smart Objects

Crestron uses smart objects to simplify its programming. This test environment uses some of these elements as well.

- **Subpage Reference List (SRL)**
  The Subpage Reference List is a SmartGraphics control that allows a designer to create a scrollable list, but reference an actual subpage as the list item. What this means is that the programming can be made for a subpage and repeated with unique data in each element.

  SRL Windows (SO ID-1)
  This SRL has 2 Digital Joins. 1 for Fullscreen On/Off, and 1 for the Press.
  This SRL has 3 Analog Joins. 1 for Border Color, 1 for Passive Color, and 1 for the Current Source.
  This SRL has 1 Serial Join, used for the Current Source Name Text.
  It also uses the Visibility Join numbers

  SRL Sources. (SO ID-3)
  This SRL has 1 Digital Joins. 1 for the Press.
  This SRL has 1 Analog Join, used for the image of the Source Type.
  This SRL has 1 Serial Join, used for the Source Name Text.
  It also uses the Visibility Join and Enable Join numbers.

  SRL Edit Bar. (SO ID-4)
  This SRL has 1 Digital Join. 1 for the Press/Feedback.
  This SRL has 1 Analog Join, used for the image icon.
  It also uses the Visibility Join numbers.

  SRL Edit Bar. (SO ID-5)
  This SRL has 1 Analog Join, used for the image icon.
  It also uses the Visibility Join and Enable Join numbers.

  SRL Icon List. (SO ID-6)
  This SRL has 1 Analog Join, used for the image icon.
  It also uses the Visibility Join numbers.

  SRL for Cloud Drives. (SO ID-8)
  This SRL has 1 Digital Joins. 1 for the Press.
  This SRL has 2 Analog Join, 1 used for the Icon, and 1 used for the Status.
  This SRL has 1 Serial Join, 1 used for the Drive Name Text.
  It also uses the Visibility Join numbers.

  SRL for vMeeting Meetings. (SO ID-12)
  This SRL has 1 Digital Joins. 1 for the Press.
  This SRL has 4 Serial Joins, 1 Oranizer Text, 1 for the Subject Text, 1 for the Start Time Text and 1 for the End Time Text.
  It also uses the Visibility Join numbers.

- **Dynamic Button List (DBL)**
  The Dynamic Button List is a SmartGraphics control that allows a designer to create a scrollable list of buttons, and show or hide each button in code.

  DBL Drives. (SO ID-2).
  This DBL has 1 Digital Join. 1 for the Press/Feedback.
  It also uses the Visibility Join numbers.

  DBL Upload Drives. (SO ID-7).
  This DBL has 1 Digital Join. 1 for the Press/Feedback.
  It also uses the Visibility Join and Enable Join numbers.

DBL WebRTC Streams. (SO ID-13).
This DBL has 1 Digital Join. 1 for the Press/Feedback.
This DBL has 1 Serial Join, 1 used for the WebRTC Name Text.
It also uses the Visibility Join numbers.

- **Spinner List (Spinner)**
  The Spinner List is a SmartGraphics control that allows a designer to create a scrollable list of items to be selected.

  Spinner Hours. (SO ID-10).
  This Spinner object is for selecting hours when setting times.

  Spinner Minutes. (SO ID-11).
  This Spinner object is for selecting minutes when setting times.

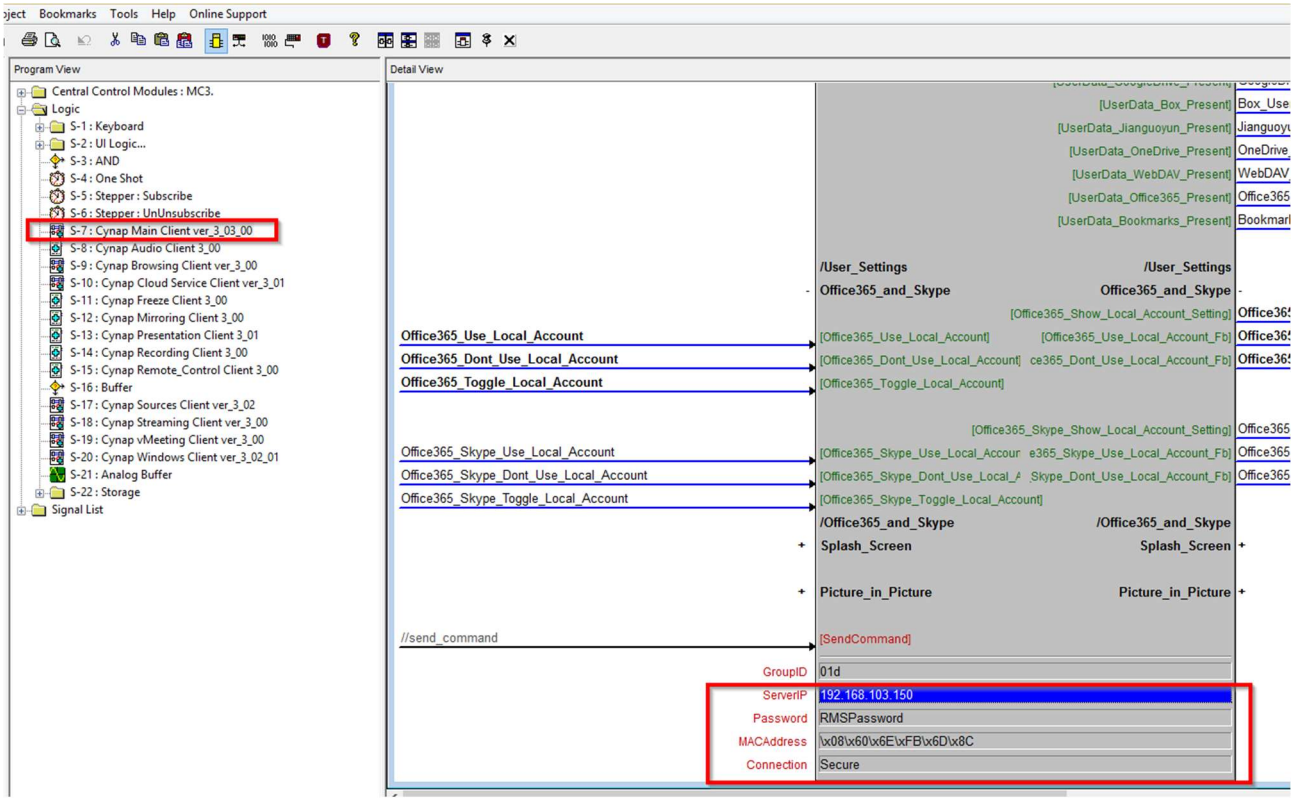
4 COMPILATION & TEST

4.1 Configuration and Compilation Process

4.1.1 Software

The test environment consists of multiple files, where ”Cynap_x_yy.smw” is the main project file. Open it in Crestron’s SIMPL Windows. In order to connect to your Cynap, you need to adjust the connection settings in the “Cynap Main Client” as follows:

ServerIP	Cynap IP address under which your controller reaches your Cynap.
Password	Enter the login password which is configured on your Cynap (see Settings/Login/Room Management System RMS) which will grant User level access.
MACAddress	The MAC address of your specific Cynap networking interface (e.g. LAN1). Mandatory for Wake-on-Lan (WOL) and Standby modes: STANDBY or SHUTDOWN. See Cynap help for more information on WOL and Standby modes.
Connection	Use **Secure** for encrypted communication with Cynap (see Settings/Security/Secure Connection) Secure connections require the configuration of time zone and timeserver on Crestron and Cynap. Use **Unsecure** in an environment where TLS is not supported.



Once loaded, press the F12 (Convert/Compile) button to convert the project into a compiled file.

Once the project has been compiled the file will have to be uploaded to the Crestron processor. Depending on your default settings in SIMPL Windows, you might be asked to upload directly from within the application. It is, however, recommended that this process is performed using Crestron's Toolbox application.

4.1.2 Graphics

The Cynap_x_yy.vtp file is opened using Crestron's VisionTools Pro-e software. Once opened, press the F12 key in order to initiate the compile procedure.

When the compilation process has completed (without failures) a new file will have been generated called Cynap.vtz.

This is the graphics file that will have to be uploaded to the touch panel.

4.2 Installation/Upload Process

4.2.1 Software

When Crestron's Toolbox is open, select the "I" icon from the icons list. Alternatively, this function can also be selected from Tools->System Info.

This will open a new dialog window. Depending on your settings, the window might attempt to connect to a previously used connection. Use the "Pencil" icon at the bottom of the window to enter the IP address of the processor.

Select Functions->SIMPL Program->SIMPL Program (Program 01) from the tool bar.

Press "Browse", locate the Cynap_x_yy.lpz file and select "Open".

Once selected press "Send" in order to start the transfer.

When the send procedure is complete the processor will reboot and execute the project.

4.2.2 Graphics

Although the upload can be done directly in VisionTools Pro-e, it is recommended to use Crestron's Toolbox for this purpose.

When Crestron's Toolbox is open, select the "I" icon from the icons list. Alternatively, this function can also be selected from Tools->System Info.

This will open a new dialog window. Depending on your settings, the window might attempt to connect to a previously used connection. Use the "Pencil" icon at the bottom of the window to enter the IP address of the Touch Panel.

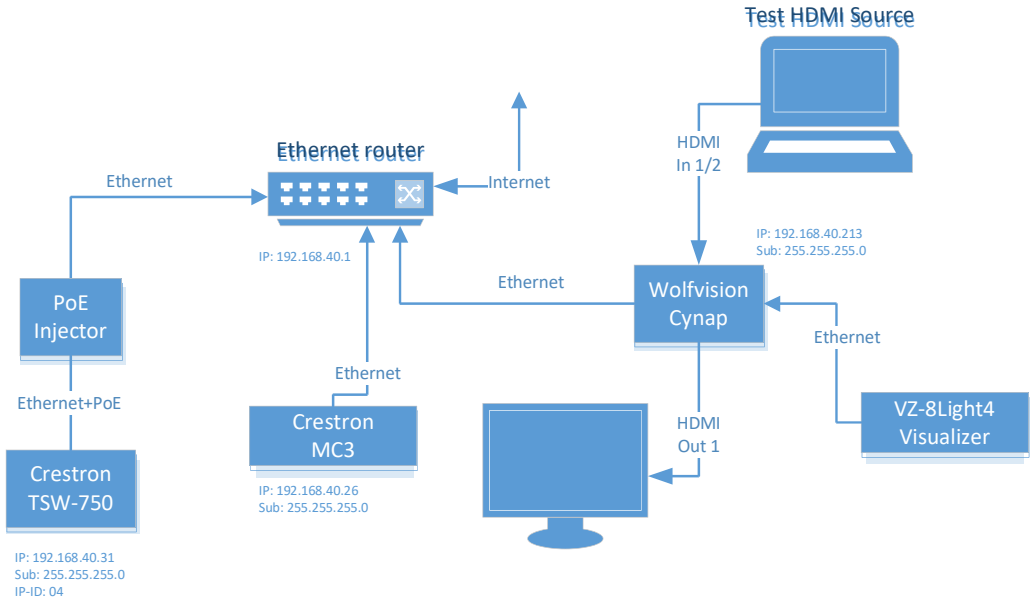
Select Functions->Project from the tool bar.

Press "Browse", locate the Cynap_x_yy.vtz file and select "Open".

Once selected press "Send" to start the transfer of the graphics.

When the send procedure is complete the panel will reboot and load the new graphics.

4.3 Common customer setup



4.3.1 Crestron TSW-750 Panel

Ensure that the panel is setup to connect to the Crestron MC3 processor using IP-ID 03.

This can be done on the panel's setup menu (refer to the Crestron manual about entering setup menu).

In the setup menu, press "IP Table Setup" and "Add/Edit" the first entry. Use the default port of 41794.

Once the IP Table (IP-ID) settings have been entered (and the program has been loaded to the processor) the "Online" light will turn on.

4.4 Firmware

The Cynap Client has been tested with the following firmware.

Device	Firmware
Crestron MC3 processor	1.502.3151.19579 (mc3_1.502.0047.puf)
Crestron TSW-750	1.501.0013 (tsx_1.501.0013.004.puf)

Device	Firmware
WolfVision Cynap	1.42e (Build 20200919045208)

4.5 Software

The following software tools have been used during the development and test process:

Crestron

Software	Version
Simpl Windows	4.11.06.00
Simpl Windows library	508
Simpl+ Cross compiler	1.3
VisionTools Pro-e	6.2.00.00
Device Database	111.00.001.00
Device Database* new DB	200.15.001
Crestron Database	85.00.001.00
Crestron Database *new DB	202.00.001.00
Core 3 UI Controls/Smart Graphics	2.15.04.00
Toolbox	3.04.168.00