# CRESTRON MODULE 1.04.00 DOCUMENTATION

WolfVision Cynap Pure
Optimized for firmware version V1.44f


Document version 1.3
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WOLFVISION®

# Table of Contents

# 1 INTRODUCTION

## 1.1 Version History and Change Log

| Version | Date (dd/mm/yyyy) | Remarks |
|---|---|---|
| **1.04.00** | **09/12/2020** | **- NEW: Screen Sharing hostname is shown in the window title when mirroring** |
| 1.03.00 | 28/10/2020 | - FIX: Prevent error log flooding caused by calling RemoveByLength() with length=0 |
| 1.02.00 | 18/08/2020 | - NEW: configure secure/unsecure connection mode<br>- NEW: Updating connection cycle |
| 1.01.00 | 26/08/2020 | - NEW: Adding text output for power down mode |
| 1.00.00 | 25/04/2019 | Initial release |
| | | |
| | | |

| Modules, touchscreen and SSLInterface file for this version | Version and remarks |
|---|---|
| **Cynap_Pure_Client_1_04** | **1.04 updated** |
| **Cynap_Pure_ver1_04.vtz** | **1.04 updated** |
| SSLInterface | 1.00 |

## 1.2 Purpose

The purpose of this document is to provide information about the Crestron Cynap Pure module. 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.

The words Pure, Cynap Pure and Cynap have the same meaning in this document and are used synonymously.

## 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 4.4 Software) are needed.

The Cynap Pure may be controlled using the **Cynap_Pure_Client_X_YY.umc** module included, along with the Crestron Simpl+ **Cynap_Pure_Client_X_YY.usp**, and the Simpl# file **SSLInterface.clz**. This module requires a single Ethernet port connection from the Crestron network to the Cynap Pure being controlled. The communication module implements the actual Cynap Pure protocol for communicating to the unit but exposes a more simplified protocol to the programmer.

### 2.1.1 Files

The following files are included in the test environment file:

| File | Description |
|---|---|
| **Main Environment Files** | |
| Cynap_Pure_verX_YY.smw | The SIMPL Windows project file. The main file for the test environment. |
| Cynap_Pure_Client_X_YY.usp | The Cynap client module source file, written in SIMPL+ |
| SSLInterface.clz | SIMPL# library for encrypted communication |
| Cynap_Pure_Module_Help.pdf | This help file for the Cynap client. Can be accessed in Simpl Windows by using F1. |
| **Touchpanel Files** | |
| Cynap_Pure_verX_YY.vtp | The Visiontool Pro-e template file (uncompiled) for the touch panel. |
| Cynap_Pure_verX_YY.vtz | The compiled graphics file for the touch panel which is loaded to the touch panel. |
| Cynap_Pure_verX_YY.sgd_ | Smart Graphics Data file generated by Visiontool Pro-e for Simpl Windows. |

# 3 GRAPHICS TEMPLATE

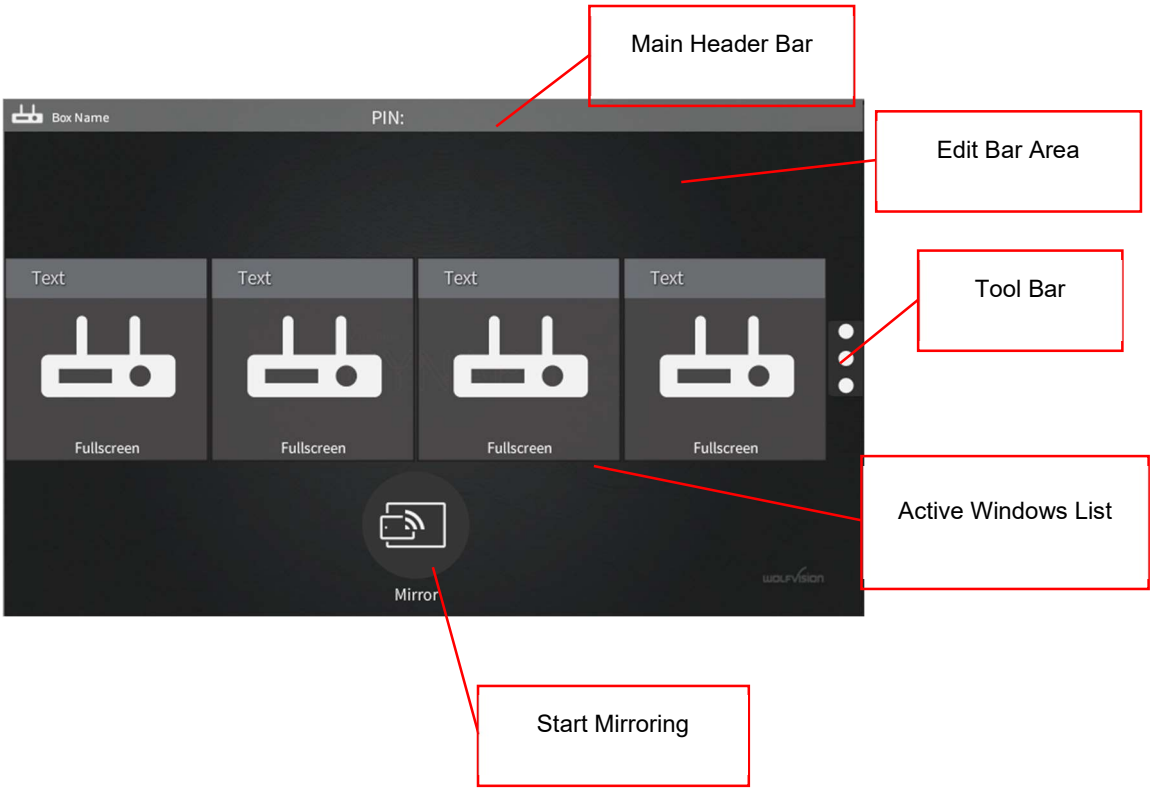
## 3.1 Overview

The touch panel template file 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




- **Main Header Bar**
  This area shows the name assigned to the Cynap, “Pin Code” popup area, if a pin code is needed.

- **Start Mirroring**
  When Protected Mode is configured on the Cynap (Settings / Mirror / Presentation Mode), this icon appears on the touch panel. This tells the Cynap to allow incoming mirroring connections.

- **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 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**

  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.

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

2) **Volume**
Press to change the main volume

3) **Close Windows**
This will close all open windows.

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

5) **Standby**
Toggles the power on or off.

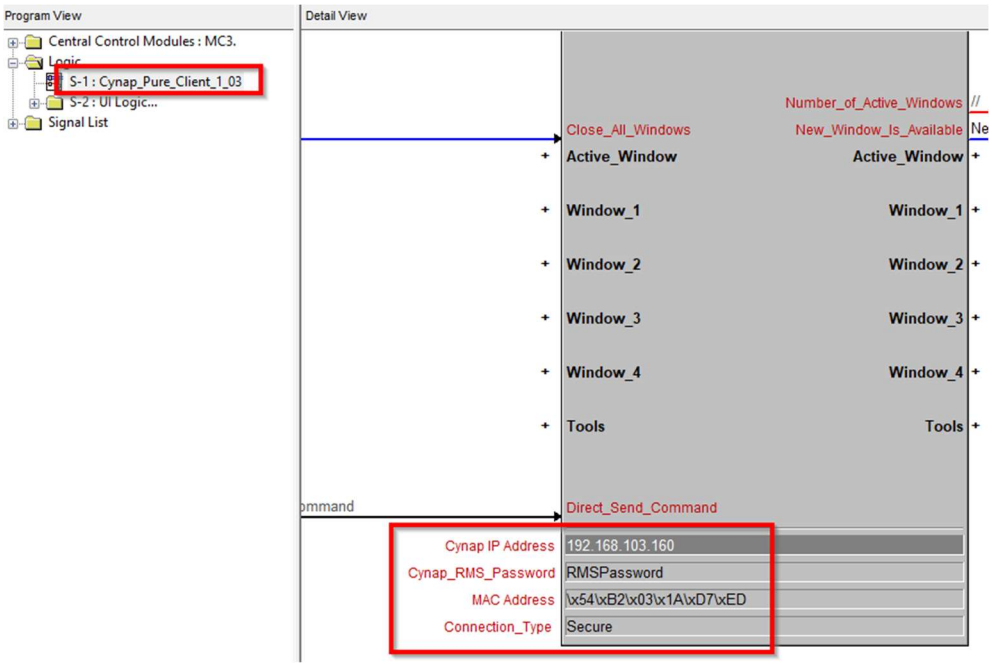
# 4 COMPILATION & TEST

## 4.1 Configuration and Compilation Process

### 4.1.1 Software

To connect to your Cynap, you need to adjust the connection settings in the “Cynap_Pure_Client_X_YY” as follows:

| | |
|---|---|
| Cynap IP Address | IP address under which your controller reaches your Cynap Pure. |
| Cynap_RMS_Password | Enter the login password which is configured on your Cynap (see Settings/Login/Room Management System RMS) which will grant User level access. |
| MAC Address | The MAC address of your specific Cynap networking interface (e.g. LAN1).<br>Mandatory for Wake-on-Lan (WOL) and Standby modes: STANDBY or SHUTDOWN.<br>See Cynap help for more information on WOL and Standby modes. |
| Connection_Type | Use **Secure** for encrypted communication with Cynap (see Settings/Security/Secure Connection)<br>Secure connections require the configuration of time zone and timeserver on Crestron and Cynap.<br>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 touch panel file is opened using Crestron's VisionTools Pro-e software. Once opened, press the F12 key to initiate the compile procedure.

When the compilation process has completed (without failures) a new file will have been generated (e.g. Cynap_Pure_ver1_03.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_Pure_verX_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_Pure_verX_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.

### 4.2.3 Connect the Touch 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.

## 4.3 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 | 1.44f |

## 4.4 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 | 200.15.001 |
| Crestron Database | 202.00.001.00 |
| Core 3 UI Controls/Smart Graphics | 2.15.04.00 |
| Toolbox | 3.04.168.00 |

### 4.5 List of Inputs and Outputs

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|---|---|
| Inputs | ***Power_On, digital***<br>*Pulse to power on the device.*<br><br>***Power_Off, digital***<br>*Pulse to power off the device.*<br><br>***Power_Toggle, digital***<br>*Pulse to toggle the power of the device.*<br><br>***Presentation_Mode_Open, digital***<br>*Pulse to put the device into Mirror Mode Open.*<br><br>***Presentation_Mode_Protected, digital***<br>*Pulse to put the device into Mirror Mode Protected.*<br><br>***Presentation_Mode_Toggle, digital***<br>*Pulse to toggle the device between modes.*<br><br>***Presentation_New, digital***<br>*Pulse to start a new presentation.*<br><br>***Presentation_End, digital***<br>*Pulse to end presentation, and power off the device.*<br><br>***Presentation_Standby_Text, serial***<br>*Text to reflect the power down mode of the Cynap Pure.*<br><br>***Source_Mirror, digital***<br>*Pulse to create a new window with content from any mobile mirrored device connected.*<br><br>***Close_Mirroring, digital***<br>*Pulse to close the mirroring connecting popup.*<br><br>***Browse_Close_Windows, digital***<br>*Pulse to close windows associated with browsing.*<br><br>***Active_Window_Close, digital***<br>*Pulse to close the active window.* |

| | |
|---|---|
| | ***Active_Window_Mode_Fullscreen, digital***<br>*Pulse to set the active window mode to full screen.*<br><br>***Active_Window_Mode_Normal, digital***<br>*Pulse to set the active window mode to normal.*<br><br>***Active_Window_Mode_Toggle, digital***<br>*Pulse to toggle the active window mode between full screen and normal.*<br><br>***Active_Window_Volume_Button, digital***<br>*Pulse to activate the window volume control page.*<br><br>***Active_Window_Volume_In, analog***<br>*Change level to change the volume level of the active window.*<br><br>***Active_Window_Mute_On, digital***<br>*Pulse to set the active window mute status to On.*<br><br>***Active_Window_Mute_Off, digital***<br>*Pulse to set the active window mute status to Off.*<br><br>***Active_Window_Mute_Toggle, digital***<br>*Pulse to toggle the active window mute status between On and Off.*<br><br>***Window_x_Close, digital***<br>*Pulse to close x window*<br><br>***Window_x_Mode_Fullscreen, digital***<br>*Pulse to set the window mode to full screen*<br><br>***Window_x_Mode_Normal, digital***<br>*Pulse to set the window mode to normal*<br><br>***Window_x_Mode_Toggle, digital***<br>*Pulse to toggle the window mode between full screen and normal*<br><br>***Window_x_Volume_In, analog***<br>*Change level to change the volume level of the window.*<br><br>***Window_x_Mute_On, digital***<br>*Pulse to set the mute status to On*<br><br>***Window_x_Mute_Off, digital***<br>*Pulse to set the mute status to Off*<br><br>***Window_x_Mute_Toggle, digital***<br>*Pulse to toggle the window mute status between On and Off.*<br><br>*Tools*<br>***Master_Volume_level_In, analog***<br><br>*Change level to change the volume level of the system.*<br>***Master_Volume_Mute_On, digital***<br><br>*Pulse to set the system mute status to On* |

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|---|---|
| | ***Master_Volume_Mute_Off, digital***<br>*Pulse to set the system mute status to On*<br><br>***Master_Volume_Mute_Toggle, digital***<br>*Pulse to toggle the system mute status between On and Off*<br><br>***Splash_Screen, digital***<br>*Pulse to display the splash screen the main screen.*<br><br>***SendCommand, serial***<br>*A passthrough to send commands directly to the Cynap Pure.* |
| Outputs | ***Link_Established_Fb, digital***<br>*Shows whether an Ethernet link is established to the Cynap Pure or not.*<br><br>***Valid_Login, digital***<br>*Shows whether the admin password is correct or not.*<br><br>***BoxName, serial***<br>*Text used to display the name of the Cynap Pure unit*<br><br>***Power_On_Fb, digital***<br>*Indicates that the power is on.*<br><br>***Power_Off_Fb, digital***<br>*Indicates that the power is off.*<br><br>***Presentation_Mode Open_Fb, digital***<br>*Indicates that the mode is Open.*<br><br>***Presentation_Mode_Protected_Fb, digital***<br>*Indicates that the mode is Protected.*<br><br>***Power_Button_Text, serial***<br>*Text used to display the state of the power mode button.*<br><br>***BYOD_PIN_code_Show, digital***<br>*Drives a popup page when a PIN Code is available.*<br><br>***BYOD_PIN, serial***<br>*Text used to display the PIN code.*<br><br>**Source_Mirror_Visible, digital**<br>This signal will go high when in the Protected Mode<br><br>**Source_Mirror_Waiting, digital**<br>This signal will go high when the mirror stream is open and allows for a mirror connection to be established. |

| | |
|---|---|
| | ***Number_Of_Active_Windows, analog***<br>*Value of the current number of active windows in use*<br><br>***New_Window_Is_Available, digital***<br>*High if there is the ability to add another source window.*<br><br>***Active_Window, analog***<br>*Value of the currently selected active window*<br><br>***Active_Window_Mode_Fullscreen_Fb, digital***<br>*High if active window is full screen*<br><br>***Active_Window_Mode_Normal_Fb, digital***<br>*High if active window is normal*<br><br>***Active_Window_Volume_Subpage, digital***<br>*High if active window volume button was toggled on to display volume subpage*<br><br>***Active_Window_Volume_Out, analog***<br>*Volume level of the current active window*<br><br>***Active_Window_Mute_On_Fb, digital***<br>*High if active window mute is on*<br><br>***Active_Window_Mute_Off_Fb, digital***<br>*High if active window mute is off*<br><br>***Window_x_Selected_Fb, digital***<br>*High is the window x is the currently selected window*<br><br>***Window_x_Visible_Fb, digital***<br>*High if the window has a valid source*<br><br>***Window_x_Source_Text, serial***<br>*Text name of the valid source*<br><br>***Window_x_Source_Type, analog***<br>*Value of the valid source*<br><br>***Window_x_Mode_Fullscreen_Fb, digital***<br>*High if active window is full screen*<br><br>***Window_x_Mode_Normal_Fb, digital***<br>*High if active window is normal*<br><br>***Window_x_Volume_Out, analog***<br>*Volume level of the current active window*<br><br>***Window_x_Mute_On_Fb, digital***<br>*High if active window mute is on*<br><br>***Window_x_Mute_Off_Fb, digital***<br>*High if active window mute is off* |

| | |
|---|---|
| | ***Tools***<br><br>***Master_Volume_Level_Out, analog***<br>*Value of the system volume level*<br><br>***Master_Mute_On_Fb, digital***<br>*High if the system mute is on*<br><br>***Master_Mute_On_Fb, digital***<br>*High if the system mute is off*<br><br>***Splash_Screen_Enabled, digital***<br>*Indicates that the Splash Screen is available to be displayed.* |