



Cue Site Manager

Programmer's Manual

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Introduction

Overview

Cue Site Manager (CSM) is a software solution for IT staff and asset management allowing to remotely monitor and control boardrooms, offices, auditoriums, classrooms, private homes, flats, etc. and their associated controlled devices. Each site can be identified by name, group and location.

Monitor

The system monitors any system attribute – lights, room temperature, volume, projector lamp life and power, etc. For each attribute the threshold value and condition can be defined and if this condition is reached one of the following actions will be triggered

- Help request informs administrator that someone on site needs a help. Typically this action can be triggered using Help button on the touch panel.
- Maintenance request informs administrator that some site needs a maintenance. For example projector air filter needs to be cleaned.
- Service request informs administrator that some service is required. For example projector lamp needs to be replaced.
- Security alert informs administrator about some security issue. For example projector lost network connectivity. It can indicate, that projector has been stolen.

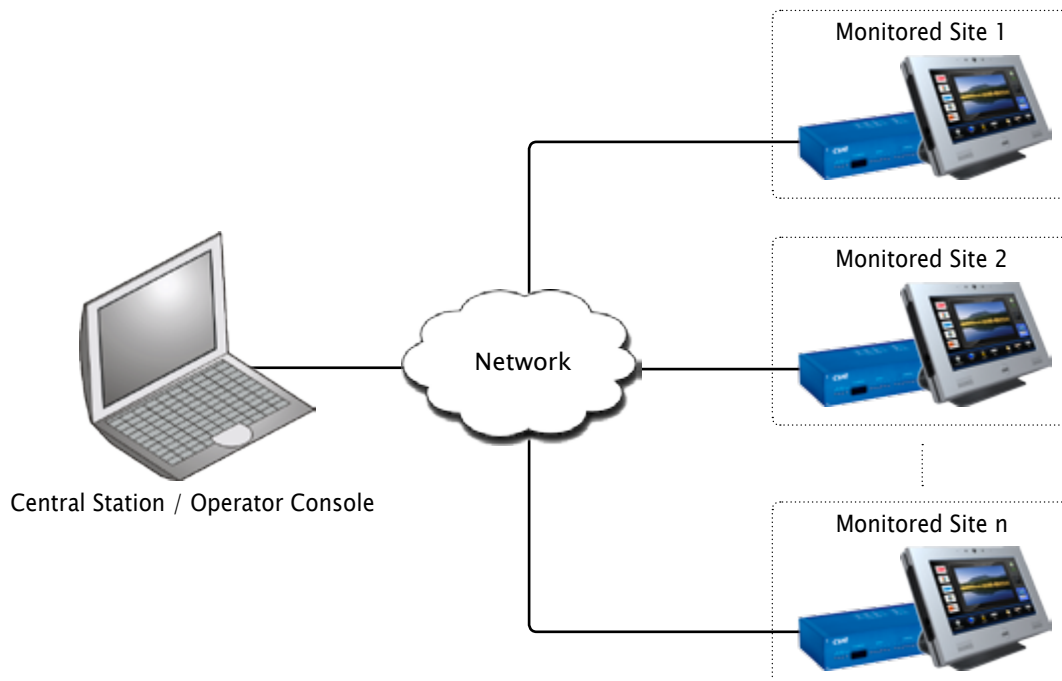
All actions described above can be customized to perform the following tasks

- Display on administrator application
- Send information to predefined e-mail addresses
- Write to log file

Control

Each site has set of predefined commands which can be executed by administrator. For example administrator can switch on / off the projector, set room preset or light scene, etc.

Application Diagram



Features

- Communication is secured by password and unique transaction ID to avoid unauthorised access.
- Each site offers additional information for administrator – owner, phone number, prestige, equipment list, number of seats, etc.
- Administrator can sort site view according site name, group, location, identification, connection, power and actions.
- Each Monitored Site can be independent CVC project.

Parts

Part	Product Code	Description
CSM Base	CS0424	Administrator (operator) application running on appropriate CUEunit – see section Hardware Compatibility of Software Components. It includes all necessary software blocks for CSM incl. application template and required number of CSM Data Provider Site Licenses.
CSM Data Provider Site License	CS0425	License for each site beeing monitored by CSM Base.

Order and Registration

One CSM Base is necessary for administrator application and number of CSM Data Provider Site Licenses depends on number of monitored sites. All necessary hardware (touch panels, controllers) and / or runtimes (pcCUE, iCUE, aCUE) have to be ordered separately.

The following steps are necessary to order and register.

Step 1

Send the order for Cue Site Manager with the desired number of CSM Data Provider Site License to your sales partner. Use the appropriate product code CS0424 for CSM Base and CS0425 for CSM Data Provider Site License.

Step 2

You will receive delivery note with serial numbers for CSM Base (CS0424) and all CSM Data Provider Site Licenses (CS0425). Send serial number of your hardware product (Central Station where CS0424 CSM Base is connected) and all serial numbers (for CS0424 and CS0425, from delivery note) to register@cuesystem.com.

Step 3

You will receive a license key file `CueSiteManager_CS0424.LicenseKey` which includes desired number of site licences.

Copy this file to filestorage area of your CUEunit (touch panel, controller, pcCUE, ...) which is used as Central Station. Use Admin Web for controllers and touch panels or Configuration window, section Folders for pcCUE.

You can check the number of registered room licenses in hardware debug mode of Central Station CUEunit in debug messages immediately after the start of debug mode. The following message will be displayed: "CSM license is valid for total number of X site(s)". If license file is missing or corrupted, message "CSM license is not valid" will be displayed.

Step 4

If you need to increase the number of site licenses, contact your sales partner.

How CSM Works

Block Diagram

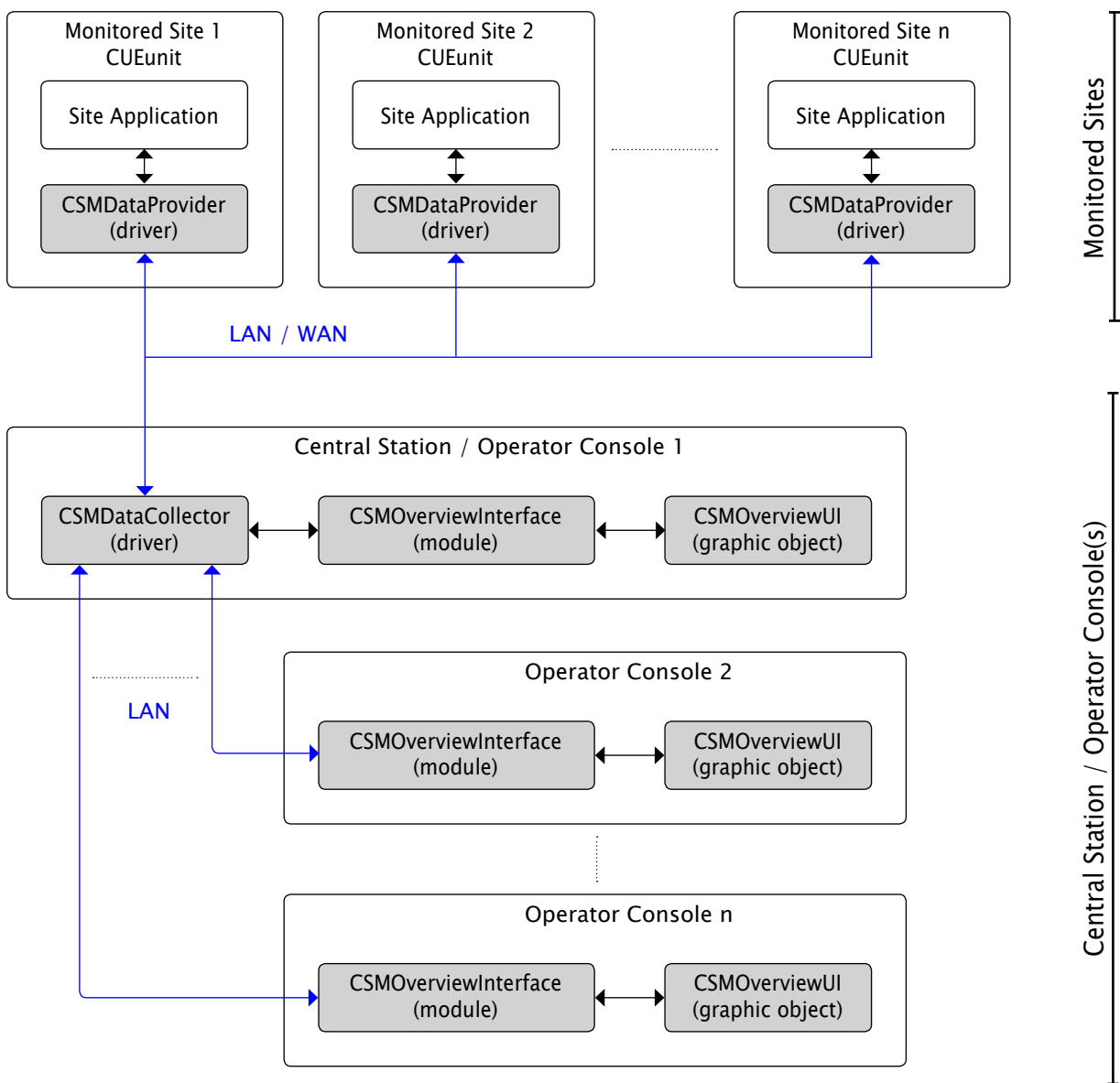
CSM consists of the following software components as described below.

CSMDataProvider driver is used in monitored site project and it serves for bi-directional communication between site application and Central Station.

CSMDataCollector is used in Central Station and it communicates with all monitored sites. Central Station can be standalone unit or it can be combined with Operator Console, which is provided by CSMSOverviewUI graphic object. More Operator Consoles can be used with one Central Station.

Important note

- Each Monitored Site can be independent CVC project.
- Central Station / Operator Console must be included in one CVC project. This project can be independent on Monitored Site projects.



Software Components

Monitored Site

CSMDataProvider (driver)

This driver provides communication between site application and CSM. It is used in site project and it allows to collect monitored parameters and to start operator commands.

Central Station / Operator Console

CSMDataCollector (driver)

This driver is the core of CSM – it communicates with all monitored sites using LAN/WAN connection and provides data to all operator user interfaces CSMSOverviewUI. It also automatically sends e-mail notifications and writes data to log files.

The instance of this driver is typically created in Central Station and it needs six TCP Client channels.

CSMSOverviewUI (graphic object)

This graphic window type object is used to display the data of all monitored sites, for example parameter values, online/offline states, security alerts, service requests etc. It also allows to send commands to sites and configure all necessary parameters.

The instance of this graphic object has to be created in Operator Console. CSMSOverviewUI can run on touchpanel or other CUE units with graphic output minimum resolution 768 x 480 pixels. Recommended resolution is 1280 x 800 pixels or higher.

This graphic object requires the CSMSOverviewInterface module.

The number of displayed monitored sites depends on monitor resolution. If it is not possible to show all site lines on the screen, site lines can be scrolled.

CSMSOverviewInterface (module)

CSMSOverviewInterface joins the functions of graphic object and driver CSMDataCollector.

Hardware Compatibility of Software Components

Minimum required resolution for CSMSOverviewUI is 768 x 480 pixels, recommended resolution is 1280 x 800 pixels or higher.

Device Type	Software Component		
	CSMDataProvider (driver)	CSMDataCollector (driver)	CSMSOverviewUI (graphic object) CSMSOverviewInterface (module)
Wired Touch Panels	Note 3	Yes	Yes
Wireless Touch Panels	Note 4	Note 1	Yes
Touch Panel Controllers	Yes	Yes	Yes
ipCUE-omega	Yes	Yes	Yes
controlCUE Controllers	Yes	Yes	No
Other ipCUE Controllers	Yes	Note 2	No
pcCUE-standard	No	No	Yes
pcCUE-professional	Note 4	Yes	Yes
aCUE-standard	No	No	Yes
aCUE-professional	Note 4	Note 1	Yes
iCUE-standard	No	No	Yes
iCUE-professional	Note 4	Note 1	Yes

Yes – this module can run with full functionality.

No – this module can't run.

Note 1 – due to wireless communication and battery operation can't be 100% reliable.

Note 2 – driver can run but response will be very slow. It is not recommended.

Note 3 – if touch panel is disconnected, it is not possible to communicate with this site. It is not recommended especially for tabletop touch panels.

Note 4 – it is strictly not recommended due to possibility to battery dischard, potential wireless communication problems, safe modes, etc.

Basic Terminology

Parameters

Description

Parameter can be any site application value important for monitor and display on Operator Console (data type Double). It can be for example room temperature, lamplife of projector, etc.

All parameters are defined by properties of driver CSMDDataProvider (monitored site CVC project) and information about parameters and their values are displayed on Operator Console.

Parameter Properties

Name

This is name of the parameter and it is displayed on Operator Console. For example "Lamplife", "Room Temperature".

Unit

This is name of the parameter unit and it is displayed on Operator Console. For example "hour", "°C".

Threshold Value

The Threshold Value is the value for which this Parameter is considered to trigger Threshold Action. It is used together with Threshold Operator.

Threshold Operator

This is condition for comparison of Parameter And Threshold Value. If this condition is reached, the Threshold Action is triggered.

Following operators are available

- Less Than means if $\text{Parameter} < \text{Threshold Value}$ then Threshold Action is triggered
- Less Than Or Equal To means if $\text{Parameter} \leq \text{Threshold Value}$ then Threshold Action is triggered
- Greater Than means if $\text{Parameter} > \text{Threshold Value}$ then Threshold Action is triggered
- Greater Than Or Equal To means if $\text{Parameter} \geq \text{Threshold Value}$ then Threshold Action is triggered
- Equal To means if $\text{Parameter} = \text{Threshold Value}$ then Threshold Action is triggered
- Not Equal To means if $\text{Parameter} \neq \text{Threshold Value}$ then Threshold Action is triggered

Threshold Action

The Threshold Action is triggered if threshold condition is spent (parameter value is out of range).

Following Threshold Actions displayed on Operator Console are available

- Security Alert indicates that there is some security problem. For example loosing of communication with projector can indicate them.
- Help Request indicates request of site stuff for help. It is typically used for user interaction with operator via Operator Console.
- Service Request indicates needs for service intervention. For example projector lamplife is exceeded.
- Maintenance Request indicates request of site stuff for maintenance. For example too high temperature of projector can indicates need for dust filter cleaning.

All actions described above are also automatically written to log file and every action sends e-mail. For e-mail functions see section Central Station Configuration.

In case of necessity all these actions can be triggered without change of parameter value using driver functions. In that case actions are called User Security Alert, User Help Request, User Service Request and User Maintenance Request.

Following Threshold Actions are not displayed on Operator Console

- Log means that if threshold condition is spent (parameter value is out of range), this information is written to log file.
- None means that Threshold Action is not triggered.

Advice When Return To Normal Range

Following actions can be make when parameter value returns to normal range

- Log means that if parameter returns to normal range, this information is written to log file.
- None means that nothing is done.

Example

This example describes projector lamplife monitoring.

Set of parameter properties

- Parameter Name: "Projector LampLife"
- Parameter Unit: "hours"
- Threshold Value: 2000 (depends of type of projector)
- Threshold Operator: Greater Then Or Equal To
- Threshold Action: Service Request
- Advice When Return To Normal Range: Log

Description

When projector lamplife (read by driver from projector) exceeds 2000 hours, Service Request will appear on Operator Console, e-mail to service e-mail address is sent and information is written to the log file. When lamplife is reseted (after lamp replacement), information is written to the log file using Advice When Return To Normal Range.

CUEunits

CUEunit is any site controller or touch panel beeing monitored. CSM monitores if the CUEunit is offline or online. Name for every CUEunit can be defined by property CUEunitXXName.

CSMDataProvider Host Unit

This is the CUEunit where CSMDataProvider driver is connected.

Site Description

Description

Each monitored site has set of values (properties) for easy identification and navigation in Operator Console.

Properties

Name

This property defines name of the site displayed on Operator Console where all monitored sites can be sorted using this value.

Location

This property defines location of the site displayed on Operator Console where all monitored sites can be sorted using this value. For example town, country, etc.

Group

This property defines group of the site displayed on Operator Console where all monitored sites can be sorted using this value. For example faculty, companies, private houses, etc.

Owner

This property defines name of the site owner (responsible person, user, etc.). This information is displayed on Operator Console.

Phone Number

This property defines phone number of the site. This information is displayed on Operator Console and it can be used by operator for contact with the site.

Prestige

This property defines prestige level of the site. This value can help operator to sort priorities of monitored site requests.

Number of Seats

This property describes number of seats in the site.

Web Control Address

This property defines address of site web control pages if web control is applied (for example WebGUI application).

Commands

Description

Every monitored site can be controlled from Operator Console using commands. There are two types of commands

- Predefined Commands are fix commands implemented by CSM.
- User Commands can be customized for each site. That means the programmer can define functionality of each command using standard XPL2 programming tools.

Predefined Commands

Send Message

This command allows to send message from operator to monitored site. Message content is entered by operator using onscreen keyboard.

Power On

This command starts process defined by monitored site program. It is dedicated for system power on. For example it can be sequence of commands for projector on, screen down, audio system on, etc.

Power Off

This command starts process defined by monitored site program. It is dedicated for system power off. For example it can be sequence of commands for projector off, screen up, audio system off, lights off, aircondition off, etc.

Clear User Security Alert

Clear User Help Request

Clear User Service Request

Clear User Maintenance Request

These commands clear user requests / alerts from Operator Console. It can be used in case that operator solves situation caused request / alert.

User Programmed Commands

Every User Programmed Command have following properties.

Name

This is the name of command displayed on Operator Console command button.

Description

This property describes detailed behavior of the command. It is displayed on Operator Console.

Project Configuration

Overview

Each monitored site can have independent CVC project.

Central Station and all Operator Consoles must be in one CVC project.

Monitored Site

Step 1

Create a new Cue Visual Composer project or open your existing project, where you want to implement CSM data provider. You must have CVC version 1.54 or later.

Step 2

Insert one CUEunit to your project. For recommended CUEunits see section How CSM Works / Hardware Compatibility of Software Components.

Name of this unit is Controller1 in the following examples.

Step 3

Set unique IP addresses for all CUEunits.

Step 4

Add the following software components to the project resources

- CSMDataProvider (file CUE_CSMDDataProvider_CSMDDataProvider_Tcp_Server_x.xx.cvcd)

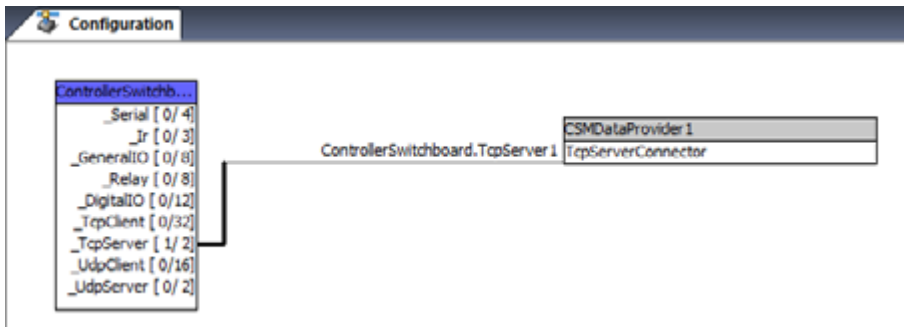
All these components you can find in ZIP file downloaded from

http://www.cuesystem.com/software_application_resources.aspx. You need a login.

Step 5

Create an instance of CSMDataProvider (drag this driver from resources area to configuration tab). Set instance name to CSMDataProvider1.

The CSMDataProvider1 driver connector must be connected to free TcpServer channel on CUEunit used as CSMDataProvider Host Unit.



Step 6

Set the properties of driver CSMDataProvider1. Properties are described in the chapter CSMDataProvider (driver) / Properties.

Step 7

Use functions and events of CSMDataProvider1 as described in chapters CSMDataProvider (driver) / Functions and CSMDataProvider (driver) / Events.

Step 8

In case the Central Station is connected to different network than monitored site CSMDataProvider Host Unit it is necessary to set port forwarding rule on the router. See chapter Network Configuration for details.

Central Station / Operator Console

Step 1

Create a new Cue Visual Composer project or open your existing project, where you want to implement CSM data collector. You must have CVC version 1.54 or later.

Step 2

Insert one CUEunit to your project. For recommended CUEunits see section How CSM Works / Hardware Compatibility of Software Components. Name of this unit is Controller1 in the following examples.

Step 3

In case Central Station isn't also used as Operator Console, insert appropriate CUEunits for console(s).

Step 4

Set unique IP addresses for all CUEunits.

Step 5

Add the following software components to the project resources:

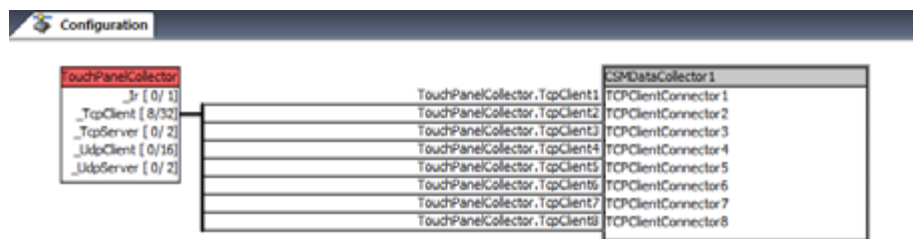
1. File CUE_CSMDDeclarations_x.xx.cvcI to Applets
2. File CUE_CSMDDataCollector_CSMDDataCollector_Tcp_Client_x.xx.cvcD to CUEunits and Devices
3. File CSMSOverviewUI_x.xx.cvcg to Graphic Collections
4. Check if BasicKeyboards_x.xx.cvcg and GenericObjects_x.xx.cvcg are placed in Graphic Collections

All these components you can find in ZIP file downloaded from http://www.cuesystem.com/software_application_resources.aspx. You need a login.

Step 5

Create an instance of CSMDDataCollector (drag this driver from resources area to configuration tab). Set instance name to CSMDDataCollector1.

All CSMDDataCollector1 driver connectors must be connected to free TcpClient channels on CUEunit used as Central Station. Only one instance of CSMDDataCollector can be used in one CUEunit.



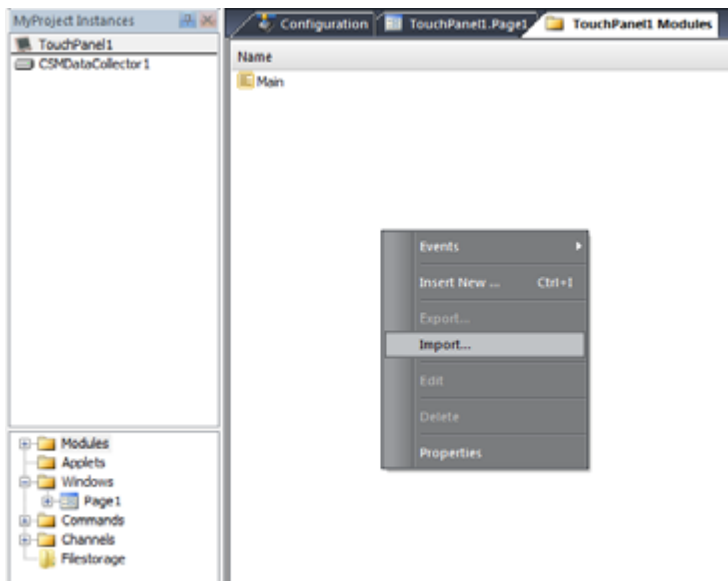
Step 6

Create an instance of CSMSOverviewUI object in all CUEunits which serves as Operator Console (drag and drop CSMSOverviewUI from graphic resources to section windows) and keep name CSMSOverviewUI1.

Don't forget to display window CSMSOverviewUI1 using command ShowObject in Autoexec or choose another way of showing this window (for example by navigation bar).

Step 7

Import module CSMSOverviewInterface_x.xx.cvcm to Operator Console CUEunit, section Modules.



Step 8

Set the properties of window CSMSOverviewUI1. Properties are described in the chapter CSMSOverviewUI (window) / Properties.

Step 9

If you want to use more Operator Consoles, insert appropriate CUEunits to your project and repeat steps 4 to 6 for each Operator Console.

Step 10

Upload your project to all units using Final button.

Step 11

Run Central Station and minimum one Operator Console application in real CUEunit and provide Central Station Configuration described in following section.

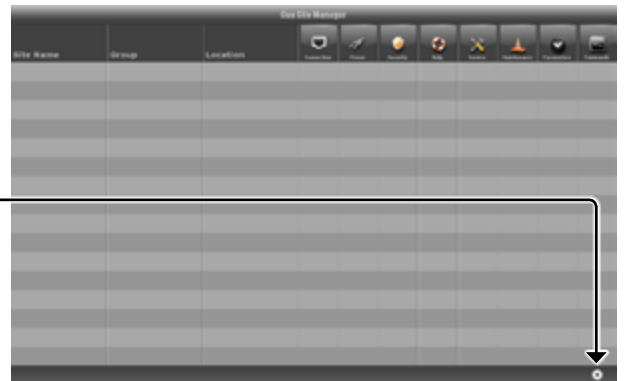
Central Station Configuration

Step 1

Run Central Station and minimum one Operator Console.

Step 2

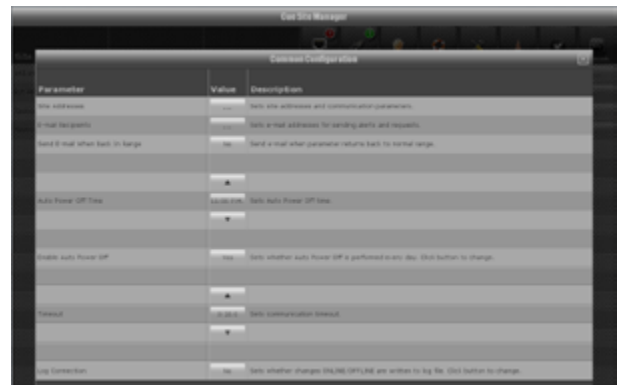
Click settings button in right bottom corner.



Step 3

Use Common Configuration window for configuration.

Parameter configuration windows are activated by appropriate button in column Value.



Step 4 - Site Addresses

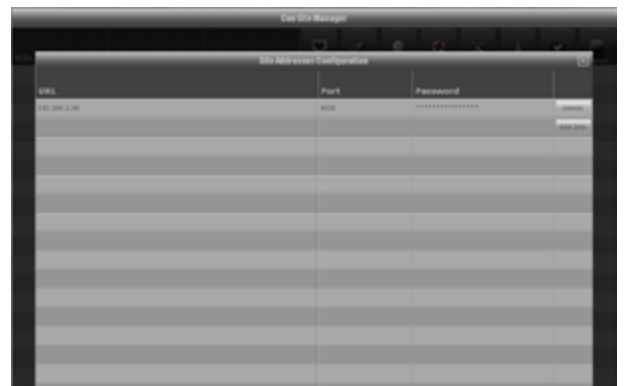
Click button Add Site.

Onscreen keyboard is displayed and you can type site URL address. Press Enter button on the keyboard to confirm.

Another onscreen keyboard is displayed and you can type site port. Press Enter button on the keyboard to confirm. Default port is 8020 and it is used in case you did type nothing. For more details see chapter Network Configuration.

If password is applied for communication with the site, touch the password cell and edit it.

Repeat these steps for each monitored site.



Notes

- All filled cells can be edited by touching the cell.
- Button Delete can be used to delete site.

Step 5 - E-mail Recipients

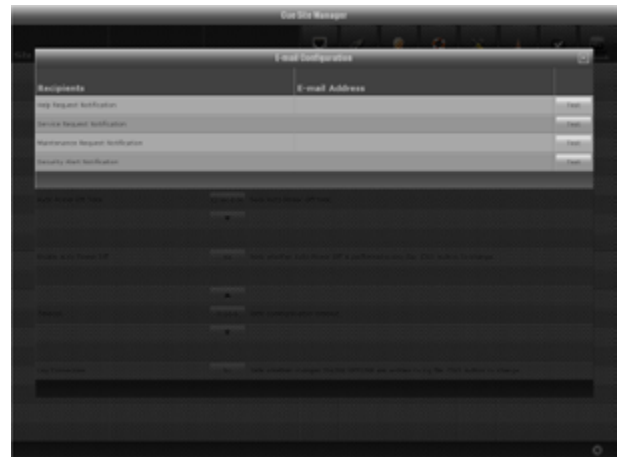
Click cell in column E-mail Addresses to edit appropriate e-mail recipient for each type of request / alert.

More e-mail addresses can be used for each type of request / alert. These addresses must be separated by semicolon.

You can test validity of e-mail address and settings by sending test e-mail message using Test button.

Note

Be sure that SMTP server and other e-mail settings are correctly set for Central Unit. This settings is provided in Admin Web (controllers, touch panels) or in Configuration section (pcCUE).



Step 6 - Send E-mail When Back In Range

Set Yes if you want to send e-mail notification when any Parameter value returns to normal range.

Click button to toggle this parameter.



Step 7 - Auto Power Off

This function allows to Power Off all monitored sites automatically.

Parameter Auto Power Off Time defines time for Auto Power Off with period one day (24 hours). Time can be increased / decreased by arrow buttons or you can edit it by touching the value cell.

This function can be enabled or disabled by parameter Enable Auto Power Off. Click button to toggle this parameter.



Step 8 - Timeout

By this value you can set timeout of IP communications with monitored site. If Monitored Site doesn't answer up to this time, site is displayed as Offline.

Recommended value is between 5 to 20 seconds and it depends on network infrastructure.

Step 9 - Log Connection

This parameter sets whether changes Online / Offline are written to log file or not. Click button to toggle this parameter.

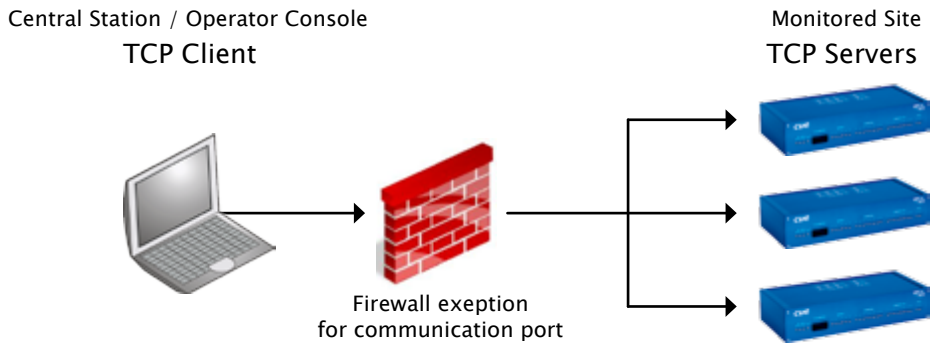
Network Configuration

Overview

The Cue Site Manager is a traditional client-server application. The monitored site units are servers and Central Station is client that accesses monitored site servers. The Monitored Site server never attempts to connect to a Central Station client.

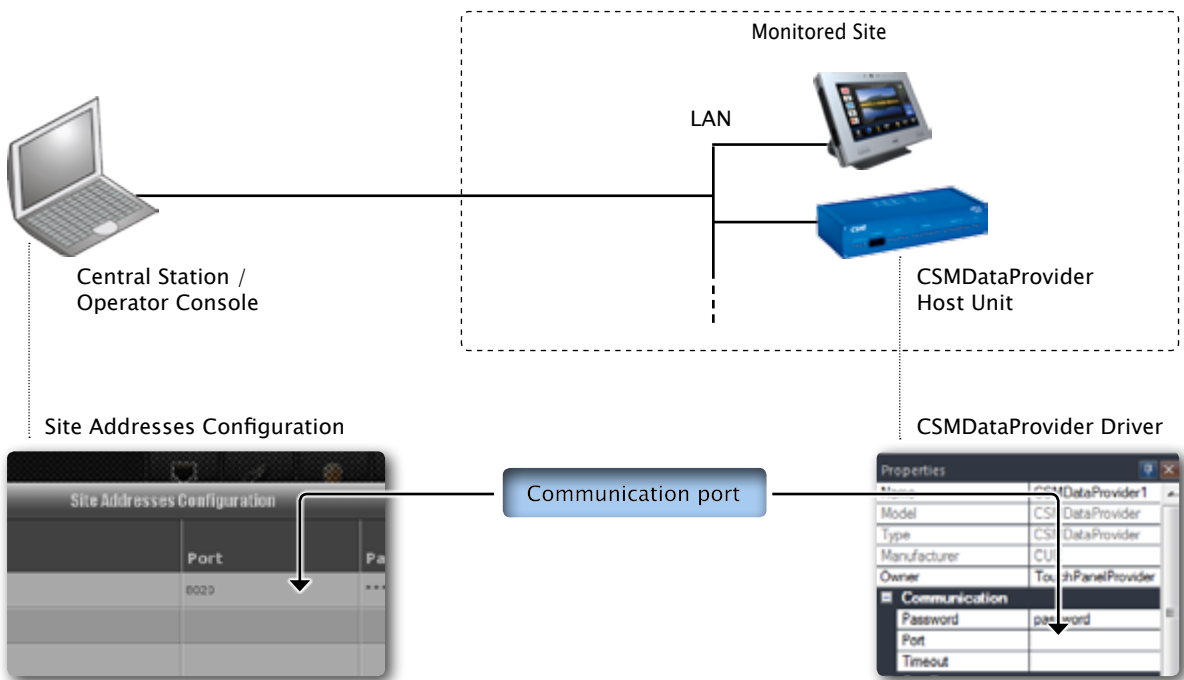
If a firewall exists between the Monitored Site servers and the Central Station, then an exception (Pinhole) must be created to allow the Central Station client to communicate on communication port to the servers.

Default value of communication port is 8020 and it can be changed.



LAN

In case the Central Station and CSMDDataProvider Host Unit are connected to the same network (LAN), the same port must be set for Site Addresses Configuration and for CSMDDataProvider Driver.

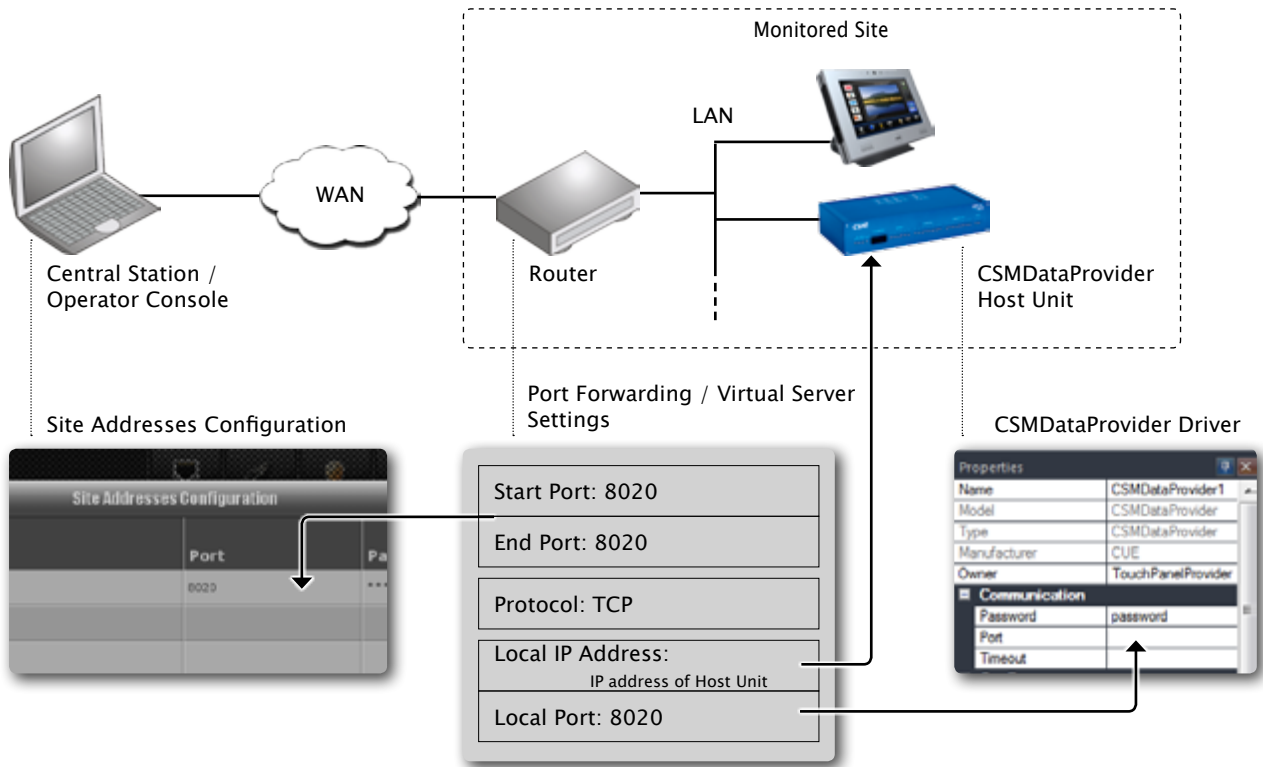


WAN

In case the Central Station is connected to different network than monitored site CSMDDataProvider Host Unit, it is necessary to set port forwarding rule on the Router. Port forwarding allows Central Station to connect to the CSMDDataProvider Host Unit within a Monitored Site LAN through the router. The same Incoming Port number must be used in Central Station, Router and CSMDDataProvider Host Unit.

Provide following steps

1. In the Router set rule to forward Incoming Port to Local IP address of CSMDDataProvider Host Unit. The procedure depends on specific router (Settings / Port Forwarding or Settings / Virtual Server). For details see router manual.
2. Set Incoming Port in Central Station. Use section Site Addresses Configuration.
3. Set Incoming Port in CSMDDataProvider Driver.



CSMDDataProvider (driver)

Description

This driver provides communication between site application and CSM. It is used in site project and it allows to collect monitored parameters and start operator commands.

Requirements

- CUEnet connected to LAN for local monitoring
- CUEnet connected to WAN via router for remote monitoring. Router WAN port must have fixed public IP address or DNS record.
- One unique TCP port dedicated to CSM. Your router must have set routing rule to forward this port to local IP address of CUEunit, where CSMDDataProvider is connected.
- CUEunit used as CSMDDataProvider Host Unit (controller, touch panel) with wired LAN connection. It is not recommend to use wireless connection. There must be one free TCP Server channel on this unit.

Configuration

Insert CSMDDataProvider driver to the resources of your project and create instance of it in configuration tab (drag it from resource window and drop it to the configuration tab). Name instance to CSMDDataProvider1.

The CSMDDataProvider must be connected to the free TcpServer channel on CUEunit (CUE controller or touchpanel). It is recommended to use CUEunit, which is always on and which has permanent internet connection.

Properties

Property Name	Data Type	Allowed Values	Default Value	Description
Communication				
Password	Text	Max length = 50	Empty	Password for secure connection. The same password must be set in CSMDDataCollector for communication with this site.
Port	Long	1 - 65535	8020	TCP Port for CSM communication
Timeout	Time	Any positive	:10.0	Timeout for connection with Cue Site Manager
Description				
Name	Text	Max length = 50, can not be empty	"SiteName"	Name of the site
Location	Text	Max length = 50	Empty	Location of the site
Group	Text	Max length = 50	Empty	Site group
Owner	Text	Max length = 50	Empty	Name of the owner of the room
PhoneNumber	Text	Max length = 50	Empty	Phone number of the site
Prestige	Text	Max length = 50	Empty	Description of the prestige
EquipmentList	Text	Max length = 200	Empty	Description of site equipment list
NumberOfSeats	Long	Any	0	Number of seats in case of meeting room
WebControlAddress	Text	Max length = 50	Empty	Address of site control web pages

Property Name	Data Type	Allowed Values	Default Value	Description
CUEunits				
CueUnit01Name	Text	Max length = 50	Empty	Name of monitored CUEunit 1
...
CueUnit10Name	Text	Max length = 50	Empty	Name of monitored CUEunit 10
Parameter01 - Parameter10				
ParameterXXName	Text	Max length = 50	Empty	Name of monitored parameter
ParameterXXUnit	Text	Max length = 20	Empty	Unit of parameter
ParameterXXThresholdValue	Double	Any	0	Threshold value of parameter
ParameterXXThresholdOperator	Long	LessThen := 1 LessThenOrEqualTo := 2 GreaterThen := 3 GreaterThenOrEqualTo := 4 EqualTo := 5 NotEqualTo := 6	GreaterThen := 3	Threshold operator. Symbolically: If [ParameterValue] Operator [TresholdValue] = True, then Action is performed
ParameterXXThresholdAction	Long	None := 0 HelpRequest := 1 ServiceRequest := 2 MaintenanceRequest := 3 SecurityAlert := 4 Log := 5	None := 0	Action performed when parameter exceeds treshold condition
ParameterXXAdviceWhenReturnToNormalRange	Long	None := 0 HelpRequest := 1 ServiceRequest := 2 MaintenanceRequest := 3 SecurityAlert := 4 Log := 5	None := 0	Action performed when parameter returns to normal range
Command01 - Command10				
CommandXXName	Text	Max length = 50	Empty	Name of command, which can be remotely performed from CSM
CommandXXDescription	Text	Max length = 50	Empty	Description of command

Notes

- Only named Parameters can be monitored by CSM
- Only named Commands can be remotely performed by CSM. See chapter Programming, how to perform this commands.

Events

Overview

CSMDDataProvider raises following events, which must be linked to the program

- OnCueUnitsOnlineRequest
- OnParametersRequest
- OnSiteStatusRequest
- OnCommand01 – OnCommand10
- OnPowerOn, OnPowerOff
- OnReceiveMessageFromOperator
- OnUserHelpRequestChange
- OnUserMaintenanceRequestChange
- OnUserSecurityAlertChange
- OnUserServiceRequestChange
- OnAttack

Data provided to CSM are collected in parameters of this events. To link this events right-click on the CSMDDataProvider1 driver instance in configuration tab, click Events in PopUp menu and then click to the name of the required event. Events are automatically created in module DeviceEvents.

OnCueUnitsOnlineRequest

Scope: Public

Function linked to OnCueUnitsOnlineRequest collects information, if monitored CUEunits are online (accessible) or not.

Following feature of CVC projects is used there. If you want to get return value of function or variable, which is placed in another CUEunit and this CUEunit is not accesible (is offline or switched off), you will get zero value of given data type (for example 0 in case of Long or Double, false in case of Boolean. If unit is online, you will get real value (you will get Boolean value True in our example).

You must create global boolean variable in Main module of each monitored CUEunit and set value of this variable to True.

Global Var OnLine As Boolean := True

Example

```
Private Function CSMDDataProvider1_OnCueUnitsOnlineRequest(
  ByRef cueunit01online As Boolean,
  ByRef cueunit02online As Boolean,
  ByRef cueunit03online As Boolean,
  ByRef cueunit04online As Boolean,
  ByRef cueunit05online As Boolean,
  ByRef cueunit06online As Boolean,
  ByRef cueunit07online As Boolean,
  ByRef cueunit08online As Boolean,
  ByRef cueunit09online As Boolean,
  ByRef cueunit10online As Boolean )
  As Boolean Link CSMDDataProvider1.OnGetCueUnitsOnlineRequest

  cueunit01online := MyUnit1.Main.OnLine
  cueunit02online := MyUnit2.Main.OnLine
  cueunit03online := MyUnit3.Main.OnLine
  cueunit04online := MyUnit4.Main.OnLine
  cueunit05online := MyUnit5.Main.OnLine
  //CUEunits 06 - 10 are not used in this example
  Return Value True
End Function
```

OnParametersRequest

Scope: Public

Function linked to OnParametersRequest collects values of system parameters

Example

This example monitors amplifier volume and projector lamp life. Parameters are as follows

- Parameter 01 is volume of amplifier, where driver name is Amplifier1. This driver has function GetVolume().
- Parameter 02 is lamp life of projector, where driver name is Projector1. This driver has function GetLampLife().

```
Private Function CSMDDataProvider1_OnParametersRequest(
  ByRef parameter01value As Double,
  ByRef parameter02value As Double,
  ByRef parameter03value As Double,
  ByRef parameter04value As Double,
  ByRef parameter05value As Double,
  ByRef parameter06value As Double,
  ByRef parameter07value As Double,
  ByRef parameter08value As Double,
  ByRef parameter09value As Double,
  ByRef parameter10value As Double)
```

```
As Boolean Link CSMDDataProvider1.OnParametersRequest
```

```
parameter01value := Amplifier1.GetVolume()
```

```
parameter02value := Projector1.GetLampLife()
```

```
Return Value True
```

```
End Function
```

Note

If you use less than 10 parameters, you can write only lines with used parameters.

OnSiteStatusRequest

Scope: Public

Function linked to OnSiteStatusRequest event collects data if Power is On or Off and description of system status.

Example

```
Private Function CSMDDataProvider1_OnSiteStatusRequest(
  ByRef poweron As Boolean,
  ByRef systemstatusdescription As Text )
```

```
As Boolean Link CSMDDataProvider1.OnSiteStatusRequest
```

```
poweron := // place here variable or function, which returns power status of your system
```

```
systemstatusdescription := "System is OK" // place here text with description of your status
```

```
Return Value True
```

```
End Function
```

OnCommandxx

Scope: Public

Events OnCommand01 – OnCommand10 are raised in case Command01 – Command10 are sent from Central Unit / Operator Console. You have to linked processes to this events to each command defined in CSMDDataProvider Command01 – Command10 Group of Properties.

Example

```
Private Process CSMDDataProvider1_OnCommand03( ) As Boolean Link CSMDDataProvider1.OnCommand03
// Place all commands required for execution of Command03 here
End Process
```

OnPowerOn

Scope: Public

Event OnPowerOn is raised, when remote command PowerOn is sent from CSM. Place commands for PowerOn to process linked to this event.

Example

```
Private Process CSMDDataProvider1_OnPowerOn( ) As Boolean Link CSMDDataProvider1.OnPowerOn
// Place commands for switching on your system here
End Process
```

OnPowerOff

Scope: Public

Event OnPowerOff is raised, when remote command PowerOff is sent from CSM. Place commands for PowerOff to process linked to this event.

Example

```
Private Process CSMDDataProvider1_OnPowerOff( ) As Boolean Link CSMDDataProvider1.OnPowerOff
//Place commands for switching off your system here
End Process
```

OnReceiveMessageFromOperator As Process (message As Text, receivelocaltime As Time)

Scope: Global

This event is raised, if operator sends a message to the site user. parameter message contain text of the message, in parameter receivelocaltime is local time, when message was received. You can use process linked to this event for displaying messages to the touchpanel.

Example

```
Private Process CSMDDataProvider1_OnReceiveMessageFromOperator(
message As Text,
receivelocaltime As Time)
Link CSMDDataProvider1.OnReceiveMessageFromOperator
FullscreenWindow1.StaticTextMessage.SetText(message)
End Process
```

OnUserHelpRequestChange As Process (ishelprequest As Boolean)**OnUserMaintenanceRequestChange As Process (ismaintenancerequest As Boolean)****OnUserSecurityAlertChange As Process (issecurityalert As Boolean)****OnUserServiceRequestChange As Process (isservicerequest As Boolean)**

Scope: Global

This events are raised each time given requests (alert) is changed (by functions SetUserHelpRequest, SetUserServiceRequest, ..., ClearUserHelpRequest, ... or by remote clear of user requests from operator). In parameter ishelprequest (isservicerequest, ...) is boolean value, if user request is active or not. You can link process to this event for example for displaying requests on touchpanel.

Example

Private Process CSMDDataProvider1_OnUserSecurityAlertChange(issecurityalert **As Boolean**)

Link CSMDDataProvider1.OnUserSecurityAlertChange

FullscreenWindow1.IndicatorAlert.SetValue(issecurityalert)

End Process

OnAttack As Process (fromipaddress As Text, fromport As Long)

Scope: Global

This event is generated, if somebody try to connect with CSMDDataProvider driver and communication fails due to wrong message format or wrong password. It is evaluated as potential attack. IP address and incoming port of attack are stored in parameters fromipaddress and fromport. You can use process linked to this event for example for displaying info about potecial attack on touchpanel.

Example

Private Process CSMDDataProvider1_OnAttack(fromipaddress As Text, fromport As Long)

Link CSMDDataProvider1.OnAttack

Private Var T **As Text**[100]

FormatText (T, "Potencial attack from IP address: {t}:{n}", fromipaddress, fromport)

FullscreenWindow1.StaticTextAttack.SetText(T)

End Process

Functions

GetLastMessageFromOperator (ByRef message As Text, ByRef receivelocaltime As Time)

This function returns last message from operator. Text of the message will be passed to the ByRef parameter message, local time of received message will be passed to the ByRef parameter receivelocaltime. Message is stored in internal driver buffer (ready for reading by this function) until is overwritten by newer message or until function ClearLastMessageFromOperator is used.

Example

```
Private Var MyMessage As Text[200]
Private Var MyMessageTime As Time
GetLastMessageFromOperator (MyMessage, MyMessageTime)
FullscreenWindow1.StaticTextMessage.SetText(MyMessage)
```

ClearLastMessageFromOperator ()

This function deletes last message from operator from internal driver buffer. Receive time of message is set to 0:0.0.

After using this function empty text will be read by function GetLastMessageFromOperator until new message will be received.

SetUserHelpRequest (Optional newrequestreason As Text := "")

SetUserMaintenanceRequest (Optional newrequestreason As Text := "")

SetUserSecurityAlert (Optional newalertreason As Text := "")

SetUserServiceRequest (Optional newrequestreason As Text := "")

These functions can be used for triggering user requests (help, maintenance, service) and security alert. These functions set internal CSMDatProvider driver request flags to true and store reason of request to the internal driver buffer. This data will be send to CSM operator console and will be displayed on operator display. Requests will be displayed on operator console until functions ClearUserHelpRequest (ClearUserMaintenanceRequest, ClearUserServiceRequest, ClearUserSecurityAlert) will be used or until corresponding function from operator console will be called. Each time this functions are used, corresponding events (OnUserHelpRequestChange, OnUserMaintenanceRequestChange, OnUserServiceRequestChange or OnUserSecurityAlertChange) are raised.

Example

```
SetUserMaintenanceRequest ("Please send me the cleaning squad.")
```

GetUserHelpRequest (ByRef requestreason As Text) As Boolean

GetUserMaintenanceRequest (ByRef requestreason As Text) As Boolean

GetUserSecurityAlert (ByRef alertreason As Text) As Boolean

GetUserServiceRequest (ByRef requestreason As Text) As Boolean

These functions return true, if corresponding request (alert) is set or false, if request is not set. Reason text of the request (alert) is passed to the ByRef variable requestreason (alertreason).

Example

```
Private Var MyMaintenanceReason As Text[50]
If GetUserServiceRequest (MyMaintenanceReason) Then
  FullscreenWindow1.IndicatorMaintenanceReason.SetValue(True)
  FullscreenWindow1.StaticTextMaintenanceReason.SetText(MyMaintenanceReason)
Else
  FullscreenWindow1.IndicatorMaintenanceReason.SetValue(False)
  FullscreenWindow1.StaticTextMaintenanceReason.SetText("")
End If
```

`ClearUserHelpRequest ()`
`ClearUserMaintenanceRequest ()`
`ClearUserSecurityAlert ()`
`ClearUserServiceRequest ()`

These functions clear user requests (alerts) and corresponding reason texts. You can use this function for canceling of user request (alert). Each time this functions are used, corresponding events (`OnUserHelpRequestChange`, `OnUserMaintenanceRequestChange`, `OnUserServiceRequestChange` or `OnUserSecurityAlertChange`) are raised.

CSMDDataCollector (driver)

Description

This driver is the core of CSM – it communicates with all monitored sites using LAN/WAN connection and provides data to all operator user interfaces CSMSOverviewUI. It also automatically sends e-mail notifications and writes data to log files.

The instance of this driver is typically created in Central Station and it needs six TCP Client channels.

Properties

This driver has no properties.

Events

This driver has no events.

Functions

This driver has only functions for communication with graphic object CSMSOverviewUI. These functions are used by module CSMSOverviewInterface and there are no user applicable functions.

CSMSOverviewUI (graphic window)

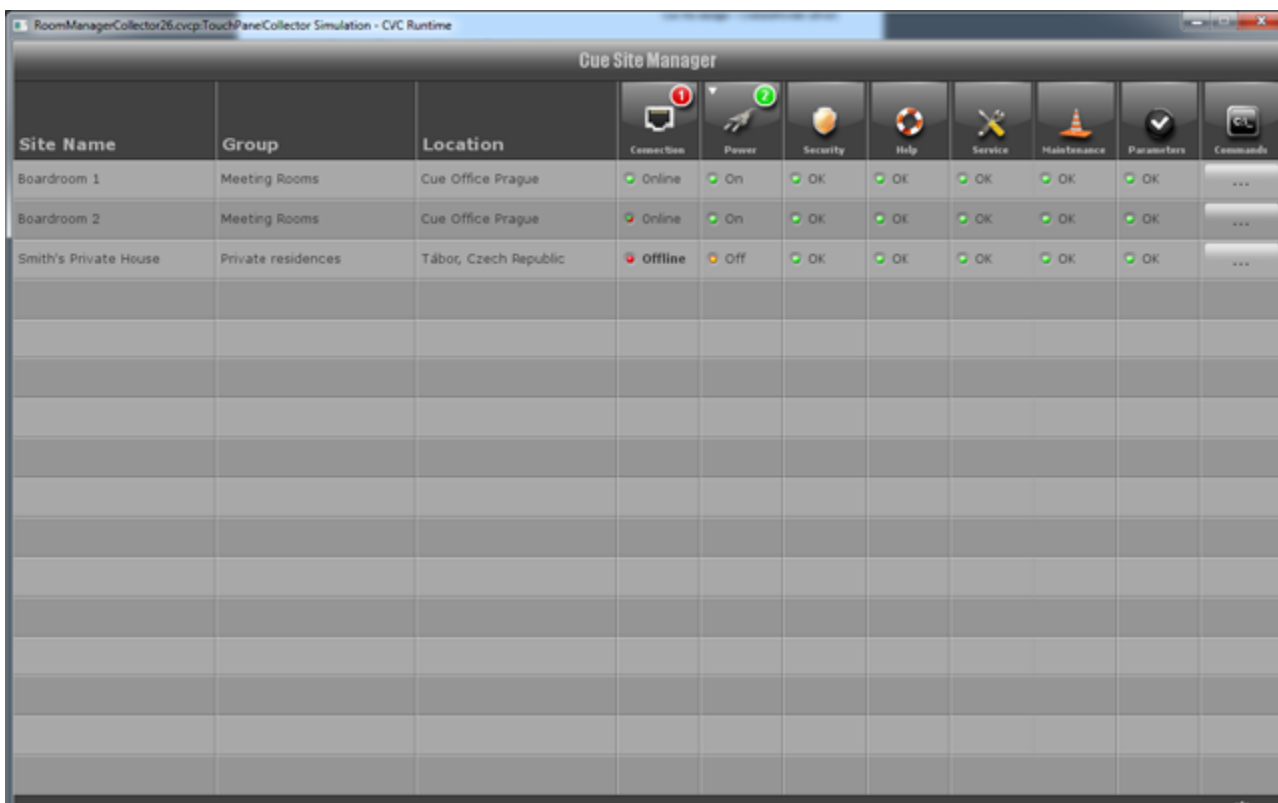
Description

This graphic window type object is used to display the data of all monitored sites, for example parameter values, online/offline states, security alerts, service requests etc. It also allows to send commands to sites and configure all necessary parameters.

The instance of this graphic object has to be created in Operator Console. CSMSOverviewUI can run on touchpanel or other CUE units with graphic output min resolution 768 x 480 pixels. Recommended resolution is 1280 x 800 pixels or higher.

This graphic object requires the CSMSOverviewInterface module.

The number of displayed monitored sites depends on monitor resolution. If it is not possible to show all site lines on the screen, site lines can be scrolled.



The screenshot shows the 'Cue Site Manager' interface. At the top, there is a toolbar with icons for Connection (with a red '1'), Power (with a green '2'), Security, Help, Service, Maintenance, Parameters, and Commands. Below the toolbar is a table with the following data:

Site Name	Group	Location	Connection	Power	Security	Help	Service	Maintenance	Parameters	Commands
Boardroom 1	Meeting Rooms	Cue Office Prague	Online	On	OK	OK	OK	OK	OK	...
Boardroom 2	Meeting Rooms	Cue Office Prague	Online	On	OK	OK	OK	OK	OK	...
Smith's Private House	Private residences	Tábor, Czech Republic	Offline	Off	OK	OK	OK	OK	OK	...

Properties

Property Name	Data Type	Allowed Values	Default Value	Description
Position				
X	Long	0 to screen resolution width		X position of left top corner of object
Y	Long	0 to screen resolution height		Y position of left top corner of object
Width	Long	Depends on the object	Depends on the object	Width of the object
Height	Long	Depends on the object	Depends on the object	Height of the object
Behavior				
Visible	Boolean	True, False	True	Visibility of object. It tells to rendering system whether the object should be drawn on the touch panel or not.
Locked		Yes No	No	By this property it is possible to lock position and size of object in IDE (while programming touch panel, not in runtime).
Join		One of the existing joins	Empty	Join is not used in this object.
OpenMode	Long	Modal Modeless Topmost	Topmost	It is the method of the window activation.
Appearance				
DateFormat	Long	2 = d.M.yyyy 3 = d-M-yy 4 = yyyy-MM-dd 5 = yyyy-M-d 6 = yy-M-d	2	Format of date. See figure below for more details.
TimeFormat	Long	2 = HH:mm 3 = h:mm tt	2	Format of time. See figure below for more details.

DateFormat description

<div style="background-color: #cccccc; padding: 10px; display: inline-block;">2</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">5.7.2011</div> <div style="margin-left: 20px;">d.M.yyyy</div>	<div style="background-color: #cccccc; padding: 10px; display: inline-block;">3</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">5-7-11</div> <div style="margin-left: 20px;">d-M-yy</div>	
<div style="background-color: #cccccc; padding: 10px; display: inline-block;">4</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">2011-07-05</div> <div style="margin-left: 20px;">yyyy-MM-dd</div>	<div style="background-color: #cccccc; padding: 10px; display: inline-block;">5</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">2011-7-5</div> <div style="margin-left: 20px;">yyyy-M-d</div>	<div style="background-color: #cccccc; padding: 10px; display: inline-block;">6</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">11-7-5</div> <div style="margin-left: 20px;">yy-M-d</div>

TimeFormat description

<div style="background-color: #cccccc; padding: 10px; display: inline-block;">2</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">17:30</div> <div style="margin-left: 20px;">HH:mm (24 hours)</div>	<div style="background-color: #cccccc; padding: 10px; display: inline-block;">3</div> <div style="background-color: #cccccc; padding: 10px; display: inline-block; margin-left: 20px;">5:30 P.M.</div> <div style="margin-left: 20px;">h:mm tt (12 hours A.M. / P.M.)</div>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Functions

SetOpenMode(newopenmode As Long) As Boolean

This function sets OpenMode to newopenmode. You can use following constants as parameter

- _OW_MODAL for Modal open mode
- 0 for Modeless open mode
- _OW_TOPMOST for Topmost open mode

Function returns True on success or False if an error occurs (parameter has wrong value).

GetOpenMode() As Long

This function returns current OpenMode of the window.

ShowObject()

This function shows object, property Visible is set to True.

HideObject()

This function hides object, property Visible is set to False.

Events

This graphic window has only events for communication with driver CSMSDataCollector. These events are used by module CSMSOverviewInterface and there are no user applicable events.

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Notes

A series of horizontal dotted lines providing a template for handwritten notes.