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FactoryTalk View SE Application - Find Server Status and State Using VBA

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Summary

FactoryTalk View SE Application - Find Server Status and State Using VBA

Question

* How can the FactoryTalk View Site Edition (SE) Display Client determine a server’s current status and state using VBA display code?
* How do I determine if an HMI switchover occurred in a FactoryTalk View SE Redundant HMI system?

Environment

* FactoryTalk View SE version 5.X
* FactoryTalk View SE version 6.X
* FactoryTalk View SE version 7.X
* FactoryTalk View SE version 8.X
* FactoryTalk View SE version 9.X

Answer

If you are running FactoryTalk View SE 6.x, download one of the files depending on the size of your project:

**1-3 servers:***serverstatus.gfx*  
**1-6 servers:***serverstatus\_extended.gfx*  
**more than 6 servers:**download either screen and use them as a popup, configuring as many servers as necessary.

VBA Code for each screen can be found in the respective .docx files: *serverstatus VBA Code.docx*, and *serverstatus\_extended VBA Code.docx*

Note: If you are running FactoryTalk View SE 5.00 or 5.10, download the file *View 5.0 CPR9.zip* and follow the instructions below.  
[*View 5.0 CPR9.zip* contains the files and text from the previous revision of this AID.]

Update 2009-11-25:

If your FactoryTalk system contains Historian redundant FTD Interfaces in addition to redundant HMI & Data Servers, refer to [64501 - Determining the Historian SE Redundant Interface Status in a View SE Display](https://rockwellautomation.custhelp.com/app/answers/answer_view/a_id/64501)

What is in this Technote?

This Technote includes 2 screens (GFX file) that will display the current status of the HMI, Data, and FactoryTalk Alarm and Events Tag-Based alarm servers of an application.

* Screen 1

serverstatus.gfx is pre-configured for 3 servers total (potentially for 1 HMI server, 1 data server, and 1 FactoryTalk Alarm and Events Tag-Based alarm server) plus the FactoryTalk Directory.

* Screen 2

serverstatus\_extended.gfx is pre-configured for 6 servers total (potentially for 2 HMI servers, 2 data servers, and 2 FactoryTalk Alarm and Events Tag-Based alarm servers) plus the FactoryTalk Directory.

The screens both use VBA code and requires an initial configuration for the names and areas of all the servers.

Installation and Setup

For FactoryTalk View SE 6.xx +

Download either serverstatus.gfx or serverstatus\_extended.gfx.

These screens can be added to your application as a popup (easiest!) or the contents of the screen can be added to a pre-existing screen in your application.

To add as a popup:

1. Add the file serverstatus.gfx or serverstatus\_extended.gfx to your application.
2. Add a button to a pre-existing screen to display the screen as a popup when pressed:
   * Display serverstatus
   * Display serverstatus\_extended
3. Open the screen in FactoryTalk View Studio. Here is what they look like:
4. Select *Alt+F11* and the VBA Editor will open.
5. Scroll to the TOP of the file to the User-Configurable entries where you will enter the area and server names for your servers.  
   Shown below is the user-configurable area for the serverstatus\_extended.gfx screen. The serverstatus.gfx screen for only 3 servers will have less entries

Note 1: For names use the names in the FactoryTalk Directory not the computer names of the servers they run on.

Note 2: Do not modify any entries past the \*\*\*\* USER CONFIGURABLE ENTRIES END HERE \*\*\*\* section. For example, changing the MAXNUMBEROFSERVERGROUPS to anything higher than 7 will cause errors.

Note 3: When calculating the variable for NUMBEROFSERVERGROUPS keep in mind that any Primary and Secondary server are considered as one group. Changing the NUMBEROFSERVERGROUPS to anything higher than 7 will cause errors.

Note 4: If the server is not under an area, label it as "/"

1. Enter the name(s) of your HMI server(s) with corresponding areas.
2. Enter the name(s) of your data server(s) with corresponding areas.
   * Note: RSLinx Enterprise includes Device-Based FactoryTalk Alarms and Events, if configured.
3. Enter the name(s) of your Tag-Based FactoryTalk Alarms and Events server(s) woth corresponding areas.
4. Enter the correct number of servers for each of the following: NUMBEROFHMISERVERS, NUMBEROFDATASERVERS, NUMBEROFFactoryTalk Alarm and EventsTAGSERVERS  
   max = 2 for serverstatus\_extended  
   max = 1 for serverstatus
5. Enter the number of server groups total. Total is the number of servers you’ve configured + 1 for the FactoryTalk directory.
6. Save the screen.
7. Testing the screen in FactoryTalk View Studio with a test run will work.

If you have more than 6 servers, see the Scalability section below.

To add graphic to an existing screen: - (Recommended only for advanced VBA users)

1. Add the file serverstatus.gfx or serverstatus\_extended.gfx to your application.
2. Open the screen in FactoryTalk View Studio.
3. Copy the graphical contents of the screen to new graphic.
4. While editting the new graphic, select Alt+F11 and the VBA Editor will open.
5. Remove the VBA code that was automatically added (3 or 6 click events).
6. Go back to the a*erverstatus/serverstatus\_extended* screen and select Alt+F11. The VBA Editor will open.
7. Copy the entire contents of the VBA file and paste it the VBA file of the new graphic.
8. Follow steps 6-13 of the previous steps to configure.

Installation and Setup: [For FactoryTalk View SE 5.0 and 5.1]

1. Download and unzip the attached file *View 5.0 CPR9.zip*
2. Unzip the file *server status-state CPR9 v505.ZIP* file which includes the graphics *server status-state CPR9 v505.GFX* file
3. Using View Studio, add the GFX graphic to the target HMI server. Open the graphic in View Studio and navigate to the VBA editor;
4. In the VBA editor, modify the following VBA constant variables so that the default servers point to the actual server(s) in the application (Note: constants can be found at the top General declaration section in the VBA code):
   * HMISERVERNAME
   * HMIAREANAME
   * DATASERVERNAME
   * DATAAREANAME
5. Save the display.

**Scalability**  
  
If there are more than six servers in your application (or more than 2 servers of a certain type), the easiest way to expand functionality is to add a second *ServerStatus* screen (with a different name) and calling it as a popup. It will have its own VBA configuration, thus expanding the potential to 4 servers of each type or 12 servers total per application.

**How this screen works:**

Each server group is pre-configured and labeled as GROUP1 through GROUP7.  
  
GROUP1 = FactoryTalk Directory.  
GROUP2 = HMI Server  
GROUP3 = Data Server (with device-based FactoryTalk Alarm and Events)  
GROUP4 = Tag-Based FactoryTalk Alarm and Events Server  
GROUP5 = 2nd HMI Server  
GROUP6 = 2nd Data Server  
GROUP7 = 2nd Tag-Based FactoryTalk Alarm and Events Server

The GROUP configuration in the VBA code corresponds directly with the organization and object names contained in the the ServerStatus graphic.  
It is not recommended to the modify the ServerStatus graphic without a clear understanding of what you are doing or without the ability to debug VBA code.

If a group is not used, it will automatically become invisible at runtime. All groups are visible by default.  
  
**Note:**The first time the screen is called, you may see the unused group temporarily until the code has a chance to execute and set its visibility to False. This execution may appear to be very slow. If speed is a problem for the end-user when the screen is called up, feel free to manually set the visibility of the unused groups to false directly on the graphic.  
  
**DO NOT REMOVE OBJECTS OR GROUPS. The VBA code will error if it trying to set visibility on the group or object that has been deleted.**

**What server states are there?**  
  
Prior to the SE CPR9 release, the *DisplayClient Object Model* provided functionality to determine a server’s active/standby status through the use of the application *GetServerStatus()* method. Example displays showing how to use this method in earlier releases are provided in technote [27597 - RSView SE - Determining the Active and Standby Server Status in a Display Client](https://rockwellautomation.custhelp.com/app/answers/answer_view/a_id/27597)

In addition to the above, functionality introduced in FactoryTalk View SE 5.0 (CPR9) determines a server’s current state (in more detail) using VBA. The *DisplayClient Object Model* has been expanded to include the method *GetServerState()* which will return one of 15 following server states for both the active and standby servers:

* gfxServerStateActive (0) - the server is the active server
* gfxServerStateStandby (1) - the server is the standby server
* gfxServerStateOutOfService (2) - the server is out of service due to failure
* gfxServerStateSecondaryNotDefined (3) - the secondary server has not been defined
* gfxServerStateNotInUse (4) - the server is out of service through manual intervention
* gfxServerStateStandbySync (5) - the server is the standby server and is synchronizing with the active server
* gfxServerStateActiveSync (6) - the server is active and is synchronizing with the standby server
* gfxServerStateActiveNoPartner (7) - the server is active and disconnected from the standby server
* gfxServerStateCommError (8) - Unable to reach host
* gfxServerStateLoading (9) - the server is loading
* gfxServerStateStarting (10) - the server is starting
* gfxServerStateReady (11) - the server is ready to provide service
* gfxServerStateReadyToBeActive (12) - the server is synchronized and is ready to become active
* gfxServerStateReadyToBeStandby (13) - the server is synchronized and is ready to become standby
* gfxServerStateNotLoaded (14) - the server is not loaded

The graphic display file attached provides an example of display code showing how the *DisplayClient Object Model* can be used to determine any server’s current status and state. The example utilizes common code to determine the status and state for the FactoryTalk Directory Server, an HMI server, a Data server, and a FactoryTalk Alarm and Events Tag-Based alarm server.  
  
Note:For FactoryTalk View SE v10 and onward, there are two Redundancy Functions, PrimaryServerStatus(ServerName) and SecondaryServerStatus(ServerName). You no longer need use above solutions. The function will return a constant integer that presents the status of the primary server.   
The argument is an absolute reference to a server. It can only be a literal string with the format /AreaName/ServerName, where AreaName is the name of the area and ServerName is the name of the server. The argument must be enclosed in double quotes, for example, PrimaryServerStatus("/Area1/HMI\_Demo"). For detail, please refer to online help of FactoryTalk View SE.

**Further questions?**

If you have questions about how this sample code works or have questions on how to make enhancements, you may ask for assistance in the [Support Forums](http://rockwellautomation.hivelive.com/pages/home). This sample code is presented as a starting point only to help generate ideas for your own project. As with all code, please test thoroughly before implementing in a production environment. .

While Technical Support will be happy to answer general questions about the FactoryTalk View SE product, they will not write application or VBA code for you.

**Always remember that when using VBA, error checking is a must!**  
  
See [51771 - Sample VBA: Learn Error Handling Techniques](https://rockwellautomation.custhelp.com/app/answers/answer_view/a_id/51771)

For more VBA examples, you may check [459824 - FactoryTalk View SE VBA - All You Need To Know - TOC](https://rockwellautomation.custhelp.com/app/answers/answer_view/a_id/459824)

**See "File Attachments" below to download the above referenced files.**

Attachments

File

[AID 44624 View 5.0 CPR9.zip](https://rockwellautomation.custhelp.com/ci/okcsFattach/get/44624_4)

File

[serverstatus VBA Code.docx](https://rockwellautomation.custhelp.com/ci/okcsFattach/get/44624_5)

File

[serverstatus.gfx](https://rockwellautomation.custhelp.com/ci/okcsFattach/get/44624_6)

File

[serverstatus\_extended VBA Code.docx](https://rockwellautomation.custhelp.com/ci/okcsFattach/get/44624_7)

File

[serverstatus\_extended.gfx](https://rockwellautomation.custhelp.com/ci/okcsFattach/get/44624_8)