AID 44624 FTView SE 5.0 CPR9 - Determine a server's current status and state using VBA display code

Update 2009-11-25: If your FactoryTalk system contains Historian redundant FTLD Interfaces in addition to redundant HMI & Data Servers, refer to Answer ID 64501 - Determining the Historian SE Redundant Interface Status in a View SE Display

Background:
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 Aid# 27597*RSView SE - Determining the Active and Standby Server Status in a Display Client*.

In addition to the above functionality, FTView SE 5.0 (CPR9) introduces new functionality to determine a server's current state. 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 below 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 and a Data server.

Installation and Setup:
1. Download and unzip the attached *server status-state cpr9 v505.ZIP* file which includes the graphics *server status-state cpr9 v505.GFX* file;
2. Using View Studio, add the GFX graphic to the target HMI server. Open the graphic in View Studio and navigate to the VBA editor;
3. 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
4. Save the display.

How It Works:
The *Application* object "appStatus" (declared with the *WithEvents* qualifier) is used to initiate runtime updates to the server status and state: the *ServiceDisruption()* and *ServiceRecovery()* events are used to update the server status; and the *ServerStateChanged()* event is used to update the server state.

The application's method *GetServerStatus()* is used to obtain the current status for each respective server. This method call utilizes four parameters:
- sFullServerName (input parameter): specifies the server's full name including the server's area. Example: "/AreaName:ServerName";
- sscPrimaryStatus (output parameter): returns a gfxServerStatusConstant valuefor the primary server. The returned value can be Active, Standby, or Out-Of-Service;
- sscSecondaryStatus (output parameter): returns a gfxServerStatusConstant value for the secondary server. The returned value can be Active, Standby, Out-Of-Service, or Undefined; and
- strActiveComputerName (output parameter): returns the name of computer running the active server.

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The application's method *GetServerState()* is used to obtain the current state for each respective server. This method call utilizes three parameters:
- sFullServerName (input parameter): specifies the server's full name including the server's area. Example: "/AreaName:ServerName";
- sscPrimaryState (output parameter): returns the current gfxServerStateConstant value for the primary server. Refer to user Help documentation for specific return values; and
- sscSecondaryState (output parameter): returns the current gfxServerStateConstant value for the secondary server.

The staus-state display uses specific colors to indicate the server status for each server: green to indicate an active server; yellow to indicate a standby; and red to indicate an Out-of-Service or unavailable server. The applicable server state is displayed in text.

The display includes "Select Server…" buttons for each server group to facilitate the selection of alternate servers should the application include multiple servers.

The display also includes an "Refresh" button to manually update server status and state. This button is normally not required as server status and state are automatically updated whenever there is a status/state change event.

See attached below the *VBACode_ServerStatusState.txt* file which provides the text version of the VBA code used in this display.

Scalability:
The above display provides a visual server status-state display for three servers (the FT Directory server, an HMI server, and a Data server) using common VBA code. The display can be expanded to provide a visual display for more than 3 servers by adding additional server groups using "Copy and Paste". The VBA code would need to be expanded to include any additional server group(s) added.

See attached below the *AddingAFourthServerGroup.RTF* file showing the necessary steps to add an additional server group. Also attached below is the *server status-state 4Servers CPR9.ZIP* file containing the resulting graphic.

Applicability: FTView SE CPR9

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