Crestron Fusion Version 9.3 Best Practices

The recommendations made by this guide are considered best practices for the installation and operation of Crestron Fusion™ Version 9.3 with the Energy Management (EM) Web Client and the optional Media Services component. Before installing Crestron Fusion, be sure to refer to this guide and compare it against the proposed system.

If further information is required, refer to the latest version of the Crestron Fusion Version 9.3 Installation Guide (Doc. 7462), which can be downloaded from the Crestron® Web site (www.crestron.com/manuals).

Crestron Fusion Configuration

The server where Crestron Fusion is installed should meet or exceed the following specifications to qualify as a best practice:

- Operating system: Windows Server® 2008 R2 with all of the operating system component requirements listed in the Crestron Fusion Version 9.3 Installation Guide (Doc. 7462).

**NOTE:** The 32-bit version of Windows Server 2008 is required for Lotus Notes® and Domino®. Lotus Notes and Domino do not support the 64-bit version.

- Dual Processors: two Dual Core Intel® Xeon® 2.8 GHz.
- Memory (RAM): 8 GB.
- Disk drive: Use Microsoft® recommended disk drive for the operating system drive or 200 GB, whichever is greater.
- Network connection: Gigabit Ethernet Card.
- Host: Physical server.

SQL Server Configuration

The SQL Server® must be separate from the Crestron Fusion server and should meet the following specifications to qualify as a best practice:

- Processor: 4 Core @ 3 GHz.
- Memory (RAM): 16 Gb.

- If it becomes necessary to increase the size of tempdb, spread it out across multiple files or filegroups.
- In larger systems break out the physical disk location of each filegroup for the three Crestron Fusion databases; Main Database, Log Database and Report Database onto separate hard drives.
- Drive capacity should be sufficient to support 10 Gb of disk space for data files and 10 Gb of disk space for transaction logs.
- The database administrator should implement a plan for nightly data back-ups. This keeps the transaction logs at an optimal size.
- The Crestron Fusion database recovery model in SQL Management Studio should be set to Simple unless the database administrator requires Full.
- The database administrator should implement a maintenance plan that reorganizes the indexes and statistics updates on a weekly basis.
- The database administrator should implement a plan to monitor the SQL Server’s overall health and disk space.
- Network connection: Gigabit Ethernet Card.
- Communication Protocol: TCP only. Named pipes should be disabled on the SQL server and not used.
- Authentication from Crestron Fusion: Windows Integrated Authentication or SQL Authentication.

Microsoft Exchange Configuration

For the best integration with Crestron Fusion, Microsoft Exchange should be set up in the following manner:

- Microsoft Exchange version: Exchange 2007, SP2 or Exchange 2010 using EWS.
- Server Components: one mailbox server, one client access server and one hub server. Follow Microsoft Exchange best practices for configuration.
- Domain Service Account: the Domain Service Account for the Crestron Fusion Schedule Service should have full mailbox access to all Exchange mailboxes for the resource rooms in the installation. The service account must also have its own mailbox.
Room Calendars: Set up as Exchange resources and add one meeting via Microsoft Outlook® to validate each calendar.

Follow Microsoft’s guidelines for general Outlook calendar use and meeting requests as laid out in this article: http://office.microsoft.com/en-us/outlook-help/outlook-meeting-requests-essential-dos-and-donts-HA001127678.aspx

**NOTE:** When ending a series of recurring meetings, it is best to set a new end date instead of simply deleting the series. This keeps the past meetings on attendee’s calendars while removing future occurrences after the new end date. Deleting the series removes the meetings from attendee’s calendars and is not recommended.

**Lotus Notes Configuration**

Lotus Notes and Domino should be set up as described below:

- Lotus Notes/Domino Versions: Domino and Lotus Notes Client should be version 8.5.
- Domino Account: a Domino account with no mailbox, but has access to read/write resource reservations and has read access to the Domino directory.

**R25 Configuration**

R25 should be set up as described below:

- The *Enable New Meeting Detection* check box should not be selected unless necessary.
- The *Enable Room Actions* check box should not be selected unless necessary.
- Whenever possible, the latest version of Crestron’s TPMC-4SM having OOTB version 1.6.0 or later should be used. This version polls the network every five minutes as opposed to every minute in previous versions.
- When programming touch screens, set polling intervals as far apart as possible for the local network.
- If the R25 Web Services Database is on SQL Server, set the Parameterization option to *Forced*.
- If the R25 Web Services Database is on an Oracle server, ensure that Cursor Sharing is set to *Force*.
- Ensure that a plan to maintain the integrity of the database is in place.

- Institute WSSESSIONID in the HTTP header of the RoomView® connector to avoid rapid growth of the www_cookie, r2sesessions, www_schedule and audit_trail tables.

**Google Calendar Configuration**

Google Calendar should be set up in the following manner:

- The Google API must be activated: the Google Calendar API service on the domain must be enabled.
- The Google API console should be used to create the OAuth credentials and the Google service account.
- Each room must have its own Google account and calendar and must share its calendar with the service account.
- Each room shared with Crestron Fusion must have its *Subscribe* setting enabled and must share its calendar as governed by local policy.
- Each user must have a Google account with a calendar.

**Crestron Fusion Web Client Desktop Configuration**

The web client workstation should be configured in the following manner:

- Screen Resolution should be a minimum of 1280 x 1024, 24-bit color quality.
- Browser should be Internet Explorer® 9.0, Mozilla Firefox 19 or Safari 5.0 and the browser window should be maximized.
- If referring to Crestron Fusion at various times throughout the day, it may be better to remain logged in.

**Crestron Fusion Installation**

When installing Crestron Fusion, these best practices should be followed:

- The installer’s account must have Administrator rights on the Crestron Fusion server and database creator rights on the SQL Server. It must also have SQL login rights with container creation and database owner rights.
- IIS and SQL Authentication should be Windows Integrated.
- The domain account under which the Crestron Fusion services run must have database owner rights on the database.
Control System Programming

The configuration of the control system in the installation should be:

- Symbol Version: Symbol Version 7.2 or higher is compatible with Crestron Fusion.
- Control System: 2-Series or later. There should be one control system per room and one calendar per control system.

NOTE: For installations having combined rooms, please contact Crestron Support.

Capture Requirements

If the optional Media Services (Capture) component is to be installed, the requirements in the following sections apply:

General Requirements-Hardware

- The Crestron Fusion server, SQL Server, FTP server, CaptureLiveHD™ Streaming Server (WOWZA Media Server™) and the Transcoding server must be separate physical servers.
- The Capture HD® recorder must be installed in the room to be recorded.
- At least one Capture HD recorder per recorded room.
- Edit the Capture HD recorder hostname to reflect the name of the room in which it is installed using alpha-numeric characters only.

NOTE: The Capture file naming format is hostname-timestamp. Naming the Capture HD recorder to reflect the room name makes sorting the day’s recordings manageable in large facilities.
Remote Asset Management Software

**General Requirements - Networking**

- All servers must be in the same network segment.
- All Servers must be in the same Active Directory domain.
- All servers must be connected to a 1 Gbps Ethernet port, preferably on the same physical switch.

**General Requirements - FTP Server**

- Separate, dedicated FTP server.
- FileZilla is the recommended FTP application.
- There must be a separate FTP account for each Capture HD recorder for the best security. Each account must have “write” and “modify” permissions.

**NOTE:** Minimal security is covered by having a single account for all of the Capture HD recorders in the system. This is not recommended.

**General Requirements - Transcoding Server**

- Separate dedicated Transcoding server using FFMPEG™ libraries (libavformat).
- Files that are transcoded must be stored on the CaptureLiveHD (WOWZA) server.
- Transcoding load must be tailored to match the capabilities of the Transcoding Server’s processor. Refer to “Transcoding” in the next column for more information.
- Default settings for resolution and video quality must be used.

**General Requirements - CaptureLiveHD Streaming Server**

- Transcoded files must be stored on the local drive of the CaptureLiveHD Streaming Server.
- IIS7 must be installed on the CaptureLiveHD Streaming Server.
- IIS7 must contain the directory structure for both the RSS feeds and the Crestron Media Player.
- WOWZA Server 3.0 is required on the CaptureLiveHD Streaming Server.

- The CaptureLiveHD Streaming Server and WOWZA must be load tested before deployment using available load testing tools.

**Transcoding**

Transcoding is a processor-intensive activity requiring the consideration of the number of threads supported by the CPU in the transcoding server. This information can be found on the CPU manufacturer’s Web site.

To maximize CPU utilization, two fields on the “Media Service and Capture Devices” page of the Configuration Web Client must be set: **Number of Concurrent Transcoding Jobs Per Server** and **Number of Threads to use for each Transcoding Job**.

These two settings must be based on the processing power of the server and set so that the multiple of these settings is not larger than the number of threads supported by the CPU. Therefore, if the CPU supports 12 threads, the transcoding server is set to process six jobs per server at two threads per job. (i.e., enter 6 in the **Number of Concurrent Transcoding Jobs per Server** field and 2 in the **Number of Threads to Use for Each Transcoding Job** field)

**For More Information**

For more information on these and other procedures in Crestron Fusion, please consult the embedded help by clicking the Help icon at the upper right of the Crestron Fusion interface.

**Further Inquiries**

If specific information cannot be located or questions arise after reviewing this guide, please take advantage of Crestron’s award winning customer service team by calling the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876].

The online help section of the Crestron Web site (http://www.crestron.com/onlinelp) can be used to ask questions about Crestron products. First-time users need to establish a user account to benefit from all features.

The specific patents that cover Crestron products are listed at patents.crestron.com

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