

FS 3140

File Based QC Solutions

Instruction Manual

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1. INTRODUCTION

Thank you for purchasing LEADER's measuring instruments. Please read this instruction manual carefully to ensure correct and safe operation.

If you have any difficulties or questions on how to use the instrument after you have read this manual, please feel free to contact your local LEADER agent. After you have read the manual, keep the manual in a safe place for quick reference.

1.1 Scope of Warranty

This LEADER instrument has been manufactured under the strictest quality control guidelines. For a period of one year after the day of purchase, you can receive technical support through email and maintenance support, which includes software updates. To continue receiving the same support and maintenance after one year, you must renew the FS3140 Select Care Contract once a year. Note that even during the warranty period, the following items are not covered by support.

1. Software not produced by LEADER or software that has been changed or altered without written permission from LEADER
2. Software other than LEADER's software
3. Software used in combination with LEADER's software

1.2 About the Trademark

The company name and each brand name that has been described is a trademark or registered trademarks of each company.

2. SPECIFICATIONS

2.1 General

This product is a file-based QC solution that can be used to check the format of content files and perform (no-reference) quality inspection.

2.2 Feature

- **Video and Audio Quality Inspection**

- A variety of inspection items are available for you to choose from. The selected inspection items can be shared through XML importing and exporting.

- **Automatic Inspection**

- Inspection starts automatically when content is entered into a specific, monitored folder. Reports and inspection contents are distributed to appropriate folders specified as Success Path and Error Path.

- **Reporting**

- Designed to facilitate problem identification, both HTML and PDF report files are created.

- **Content Playback**

- An application that can play back inspected contents is available. If errors occur, a list of errors is shown in a separate window. Clicking the thumbnail of an error displayed in an inspection result report pauses the display at the error location, enabling you to check the frames before and after the error.

- **Faster QC Analysis**

- FS3140 quality tests are faster with guaranteed performance, using the power of nVidia's CUDA technology to use the GPU as well as multi-core processing.

- **Supports A Variety Of Formats**

- Container
 - MXF (All OP, including AMWA defined AS, RDD-9, P2, SxS), Transport Stream, Elementary Stream, Program Stream/VOB, AVI, WMV/ASF, QuickTime/MOV, GXF, MP4, 3GPP, LXF, R3D, DPX, DXW
- Video Codec
 - H.264/AVC, MPEG-2, VC-1, H.264/MVC, AVC Intra, IMX 30/40/50 (D10), Apple ProRes, Avid DNxHD, Cineform, DV, DVCPro 25/50/100, JPEG2000, Motion JPEG, Flash VP-6/7, Baseband RGB/YUV/HUFF, H.263/+, MPEG-4 Pt. 2, EXR, DPX, RED
- Audio Codec
 - PCM (WAV/BWF/AES), AC-3/Dolby Digital, EAC-3/Dolby Digital Plus, MLP/Dolby TrueHD, Dolby E, AAC, HE-AAC, DTS, DTS-HD/Master Audio, MPEG-1, MPEG-2/L-1-2-2, AIFF, WMA Standard, WMA Pro
- Ancillary Data
 - CEA-608, CEA-708, SCTE20, ATSC53, SCTE35, DVB Subtitles

2.3 Specifications

2.3.1 Hardware Specification

Recommended Hardware Specifications for FS3140

- Intel Xeon E55xx processor or better (at least one core per VU) – hyperthreading disabled

2. SPECIFICATIONS

(Xeon X56xx or E5-26xx or better preferred)

- Windows 7 Professional/Enterprise or Server 2008 R2 operating system (no third-party anti-virus or firewall installed unless tested by Supplier to specifically not interfere with Software operation). Server 2008 R2 *strongly* preferred.
- 2GB of memory for operating system plus additional 1GB of memory per VU
- 80GB of local hard drive space, recommended 10,000 RPM or better. SSD *strongly* preferred.
- Gigabit Ethernet or faster
- CUDA card for Professional SKU (using nVidia Tesla C-20 series, M-20 series or better, 200 processing cores per VU).

The nVidia Tesla C-20 and M-20 series are functionally equivalent for Aurora processing. The C series is a full profile desktop card, while the M series is a low profile card designed for rackmount servers. Additionally, you may use the S-series Tesla GPU with the daughter card installed in the Aurora controller machine. *At this time, we cannot recommend the use of the K-10 or K-20 GPU cards, as the performance is not optimized for this class of GPU.*

2.3.2 Test Item

| | |
|--------------------|---|
| Syntax Checks | Codec Syntax, Container Syntax, Caption Syntax |
| Container Metadata | Container Bit Rate, Stream Sum Bit Rate, File Size, Compare Stream Length, Compare Container Metadata to Streams, PID Values in Container, Container File Contents, Container Type, Container Timecode Discontinuity, Illegal Word Found in Text Stream, Number of PID, Container File Extension, Container Start Timecode |
| Video Metadata | Video Length, Display Resolution, Frame Horizontal Size, Frame Vertical Size, Display Aspect Ratio, Aspect Ratio Changes, Frame Rate, Individual Video Stream Bit Rate, Is Stream CBR, Profile/Level, Buffer Size, Scan Order, GOP Length, Is GOP Open, GOP Structure, GOP Size in Bytes, Consecutive Picture Length, Quantization, Quantization Difference (I-Frame Pulsing), Color Space, Color Gamut, Color Gamut Legality, Chroma Profile (Colorimetry), Luma Value, Chroma Value, Cadence, Cadence Changes, AFD Value, AFD Value Change Detection, CGMS-A Value, TV/MPAA Rating, Pixel Aspect Ratio, Pixel Aspect Ratio compare to Frame Aspect Ratio, Crushed Black Levels, Super White Levels, Video Stream Timecode Discontinuity |
| Video Quality | Macroblocking Artifacts(Level1), Macroblocking Artifacts(Level2), Macroblock Missing Information, Consecutive Frames(Constant Color Frames), Consecutive Frames(Freeze Frames), Consecutive Frames(Black Frames), Flashing/Strobing, Comb Artifact, Field Order Swap Detection, Letterboxing/Pillarboxing Detection, Black Bar Detection, Color Bar Detection, Tape Hit Detection, Chroma Dropout in a Field, Black Line Detection, Perception Based Video Artifact Detection, Quantization-Based Blurring |
| Audio Metadata | Audio Playtime, Audio Number of Channels, Dolby acmod/Channel count change detection, Audio Bit Rate, Audio Bit Depth, AC-3 Dialogue Normalization (dialnorm), Dolby dialnorm change detection, AC-3 Dynamic Range Gain (dynrng), Audio Language ID |
| Audio Quality | Dropouts/Silence Detection, Audio Dropout Detection, Peak Audio |

2. SPECIFICATIONS

Level Detection (dB), Peak Audio Level Detection (PPM), EBU R128 True Peak, Minimum Audio Level Detection, Dynamic Range (dB), EBU R128 Loudness Range (LRA), Audio Clipping, Test Tone Detection, Audio Channel Phase Detection, Audio Snap Detection, Unmixed Audio Detection, ATSC A/85 - Average Loudness, EBU R128 Momentary - Average Loudness, EBU R128 Short-Term - Average Loudness, EBU R128 Program - Average Loudness, ARIB TR-B32 - Average Loudness

Distribution & Broadcast DVD Constraints, Blu-ray Constraints for Primary Video, Blu-ray Constraints for Secondary Video, CableLabs Constraints, CableLabs VOD Constraints, NTSC Video Format, PAL Video Format, ATSC Video & Audio Format, DVB-T Format, ISDB-T Video Format, ISDB-TB Video Format, XDCAM MXF Restrictions, Sub-items of MXF AS02 Restrictions, iTunes Distribution Profile, Kabel Deutschland, Fox GXF HD Files

Slate/Head Color Bars Must Exist, Test Tone Must Exist, Black Frame Must Exist, Freeze Frame Must Exist, Audio Silence Must Exist

2.3.3 Report

Output Form Composition HTML File, PDF File

| | |
|--------------------------------------|-----------------|
| General Header Information | |
| Status | Input Parameter |
| Container Metadata Summary | |
| Video Stream Metadata Summary | |
| Audio Stream Metadata Summary | |
| Analysis Result / QC Summary | |
| Error / Warnings / Info / QC Details | |
| Template Details | |

General Header Information

- Basic information on product (Product Ver., presence of GPU, etc.)
- Contact

Status

- Status
 - Green : No Errors, Yellow : Warnings, Red : Errors
- Job beginning and end time
- Job duration

2. SPECIFICATIONS

Input Parameter

- Container (full path)
- Used template

Container Metadata Summary

Timecode, Timecode Frame Count, Runtime, Total Bit Rate, Vendor, Stream Essence Count, Stream Storage, Total Size

Video Metadata Summary

Frame Count, Timecode, Timecode Frame Count, Interlaced Mode, Scan Order, Candence, Chroma Profile, Color Gamut/Primaries, Color Depth, Quantization(Avg), Quantization(Min/Max), Active Picture Size, Frame Aspect Ratio, Active Picture Aspect Ratio, Pixel Aspect Ratio, Frame Rate, Bit Rate, Buffer Size, Luma Histogram

Audio Metadata Summary

Frame Count, Timecode, Run Time, Bit Depth, Number of Channels, Language ID, Sample Rate, Bit Rate

Analysis Result / QC Summary

- Specification of Template
- Breakdown of Error / Warning / Information
- Pass Inspection List

Error / Warnings / Info / QC Details

- Error / Warning / Information List of All

Template Details

- Inspection Item List

2.3.4 General Specifications

| | | |
|------------------------|----------|---|
| Content of composition | DVD..... | 1 |
|------------------------|----------|---|

3. BEFORE STARTING THE TEST

3.1 Installing the Software

There are several components to the FS3140 software suite:

- a. FS3140 Controller – this component runs as a Windows Service (FS3140 Master Controller), and includes IIS registration to host the web GUI and API service. This component is only installed with the Full Application option.
- b. FS3140 Verification Unit – this component runs as both a Windows Service (FS3140 Slave Controller) and an executable (VU.exe) and is the main QC engine. This component is installed with both Full Application and Add-On VU options.
- c. FS3140 Tray – this component monitors for hot folder and service status and is only installed with the Full Application option.
- d. FS3140 Shell Extension – this optional component is downloaded separately from the FS3140 installer, and provides client machines the ability add jobs to the FS3140 queue from Windows Explorer.
- e. Java – this optional component is downloaded separately from the FS3140 installer and is only necessary on client machines that want to use the client-side browse control (by default, FS3140's web GUI will use a server-side browse control). Java installation procedure is fairly straightforward, as no options are needed.
- f. SOAP API Demo & Documentation – these are the WSDL and sample C# project to exercise the API as a guide for integration of FS3140 into higher level processes. They are installed at c:\Program Files (x86)\LEADER\F3140 in a ZIP file during the Full Application option.
- g. FS3140 Player – FS3140 includes a set of FS3140 Player, which is downloaded separately from the FS3140 installer. FS3140 Player can play any asset that FS3140 can test, and FS3140 report thumbnails are linked to open container files at error locations directly in FS3140 Player.

Please Follow the steps below to install.

1. Installation of FS3140 application
Please install the "FS3140 application" from the supplied DVD to on your PC.
See section 3.2
2. Installation of FS3140 Player application
Please install the "FS3140 Player" from the supplied DVD to on your PC.
See section 3.2

3.2 FS3140 Application

Please turn off Windows User Account Control, if possible. Installation can continue with it on but we recommend it be turned off.

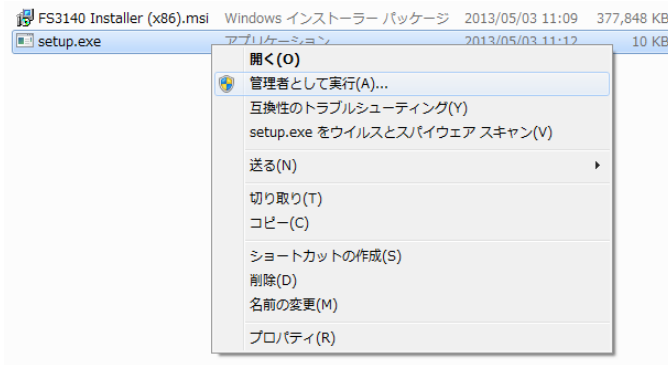
3.2.1 Installing the Controller / Verification Unit(VU)

1. Run setup.exe in the folder FS3140_N.N.NNN.x64

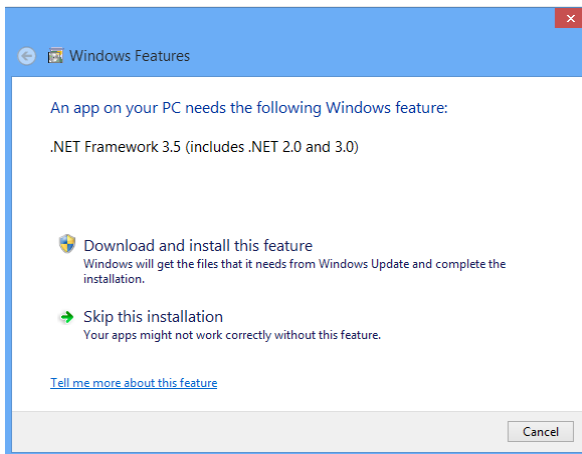
N : 0 - 9

You must right-click setup.exe and choose to Run as Administrator.

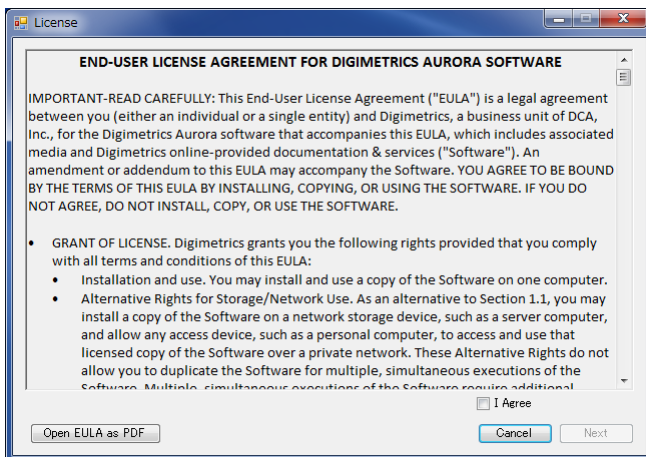
3. BEFORE STARTING THE TEST



Additionally, on Windows 8 or Server 2012, you will be presented with the requirement to install .NET Framework 3.5 before the FS3140 installer can continue. You must install this feature to continue.

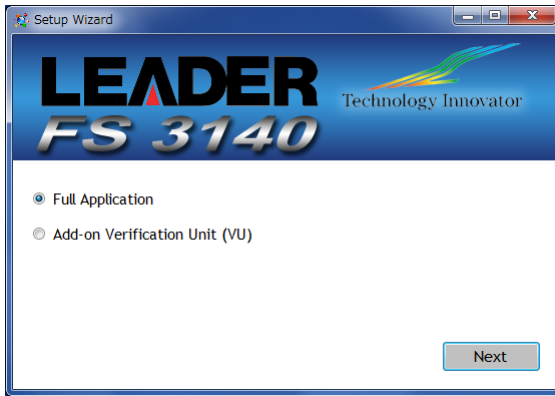


2. The following screen will appear, and is required that you accept the license terms to continue installation. You can save the license terms as a PDF file from this screen also.

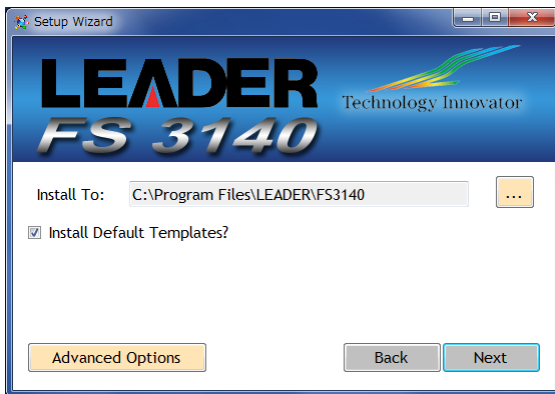


3. After the license acceptance, you will be presented with a dialog box asking you to select an installation profile. Selecting “Full Application” will install the controller and verification units on the same machine (you can always use verification units installed anywhere on your network). Selecting “Add-on Verification Unit” will install only the verification units (this option will prompt you for the location of your controller server, so you must run Full Application install first on a separate computer). Select your desired option and click “Next.” If you are installing the Full Application, continue this process. Otherwise, for Add-On Verification Unit installs, proceed to section 3.2.2.

3. BEFORE STARTING THE TEST



4. The following configuration screen will appear:



Install To: Browse to the location where you would like FS3140 to install.

Default is:

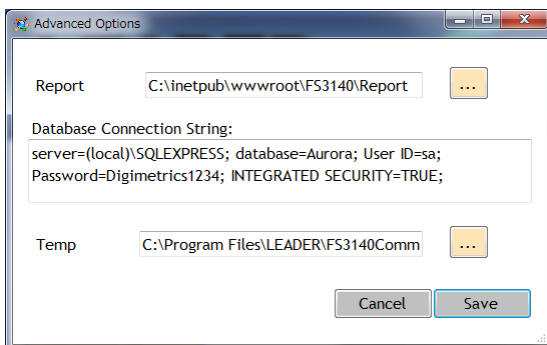
C:\Program Files (x86)\LEADER\FS3140

Install Default Templates: Check box to install a set of 5 pre-configured templates.

Advanced Options: Click to see advanced options (explained in next step).

Click “Next” to begin installation.

5. Advanced Options:



Report: Type in the path to the folder where FS3140 will place job reports.

Default is:

C:\inetpub\wwwroot\FS3140\Report.

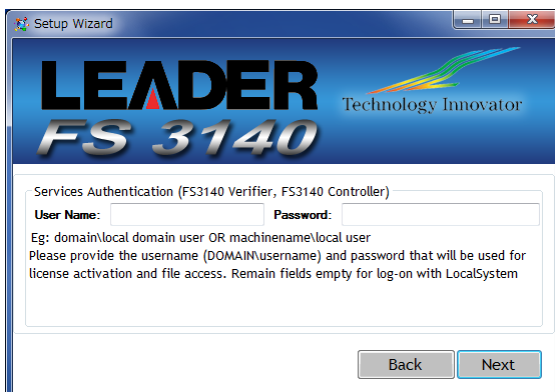
Database connection string: The database connection string displays here. Default should be enough for most systems. Contact Digimetrics support if problems are encountered.

Temp: Type in the path for the working directory. This is the temporary location of your report while the job is in progress. The default path is usually OK for most users.

Click save when finished.

6. Services Authentication. **This step is CRITICAL.**

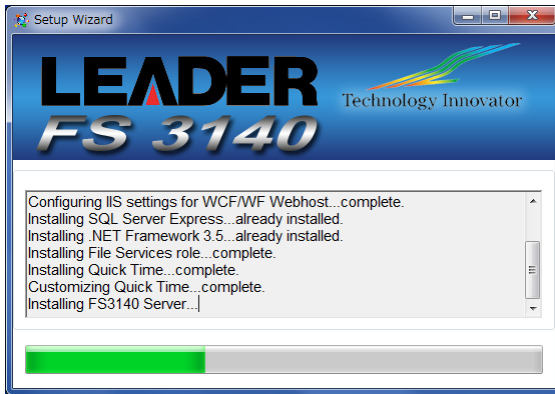
FS3140 services must have authentication to reach the path your files for QC are stored at.:



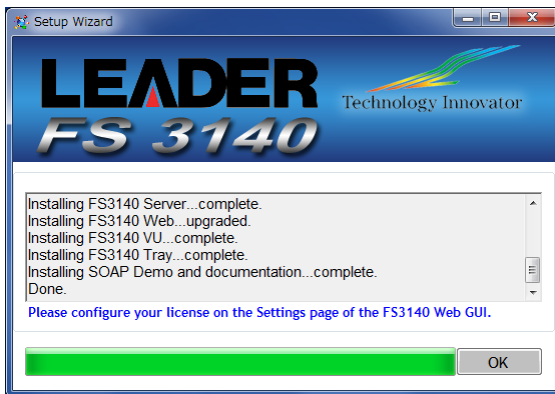
Services Authentication: Enter the domain\local domain user or machinename\local user and password to allow the FS3140 Controller and FS3140 Verifier services to access files on your network. Leave the fields empty to log-on with LocalSystem account. Click “Next” when finished.

3. BEFORE STARTING THE TEST

7. All necessary prerequisites are automatically installed in addition to the FS3140 software:



8. Installation is complete. Please restart before using FS3140 for the first time. Subsequent upgrades/updates will not require a restart:



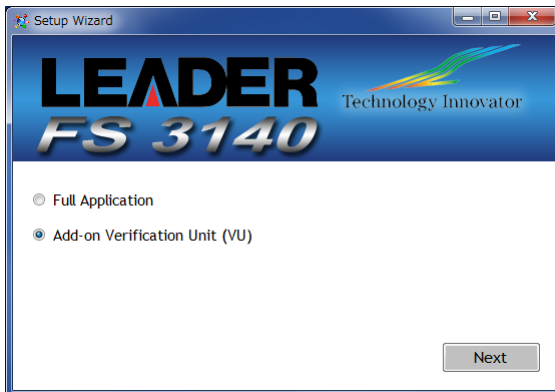
***** **Special Note: If you have User Account Control turned ON** *****

User Account Control may prevent the FS3140 installer from installing certain components. We highly recommend you turn User Account Control OFF (from Control Panel/Users) for the machine running FS3140. If any components fail installation, you may attempt to install these from C:\Program Files (x86)\LEADER\F3140\Pre-requisities. If you still have problems installing components with User Account Control turned on, please contact fs3140_support@leader.co.jp.

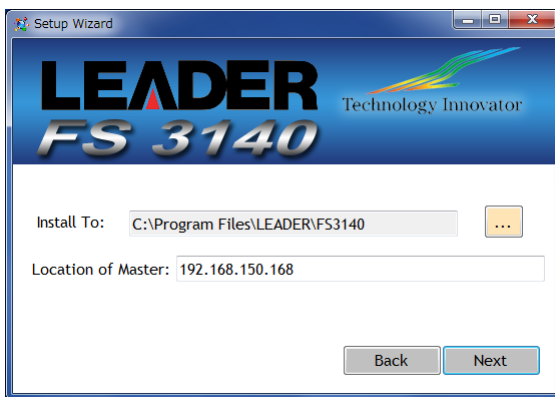
9. Open a web browser on the local machine and go to <http://localhost/FS3140/> (or from a remote computer, open a web browser and go to [http://\[Machine_IP_Address\]/FS3140](http://[Machine_IP_Address]/FS3140)).
10. Enter admin as the login and password for your FS3140 evaluation.

3.2.2 Installing Additional Verification Units on Additional Machines

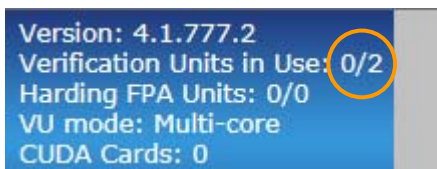
1. This process is quite similar to installing FS3140 on your controller machine, although you will select Additional Verification Unit (VU).



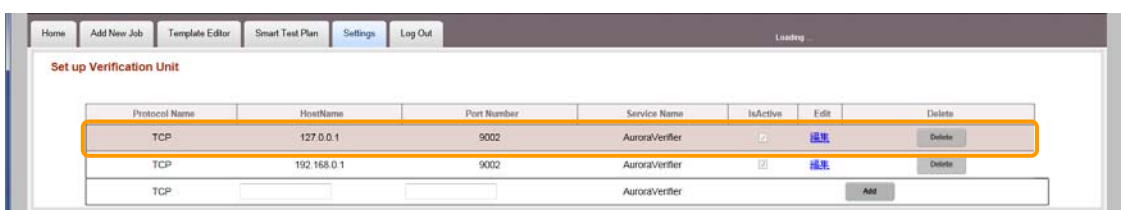
2. The next step asks you the location of the master controller machine (IP address), so that setup can configure the master controller to use the verification units on this remote machine.



3. After installing the majority of components, FS3140 installer will check the status of your license. If you do not have an FS3140 license present, it will prompt you for a license key, which you should have received from LEADER support. You can additionally configure the license using the Settings tab of the FS3140 web GUI from the master controller machine.
4. That's it ! The FS3140 installer will take care of everything else. To confirm that everything is setup correctly, browse to the FS3140 application on your master machine and check that the total number of VUs is as you expect (this number should include the number of VUs on the controller machine plus the number of VUs on your new add-on machine).

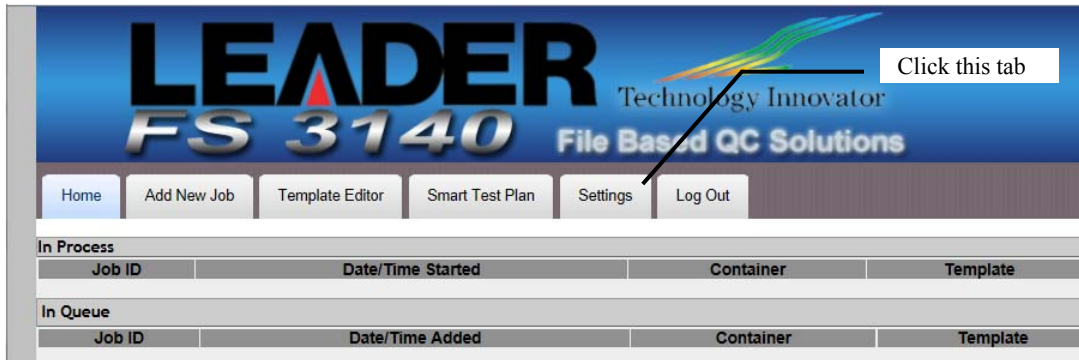


If it does not, check the Settings tab to be sure that the add-on machine is correctly listed.



3.2.3 Activation the software license

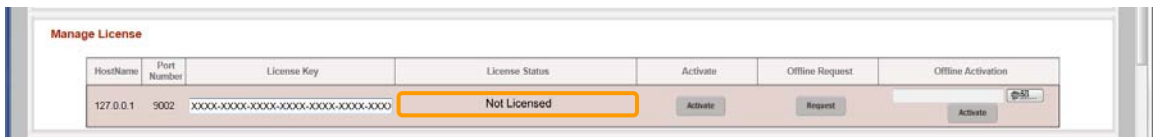
1. License configuration: From the Web GUI click the “Settings” tab.



2. For ONLINE activation (trials or commercial licenses): Enter the 28-character license key provided by LEADER support (include dashes) and click the Activate button in the Activate section.



3. Upon successful license activation the “License Status” section will show the number of days remaining if you are using a trial license or the Commerical License state if using that type of license.



3.3 FS 3140 Player

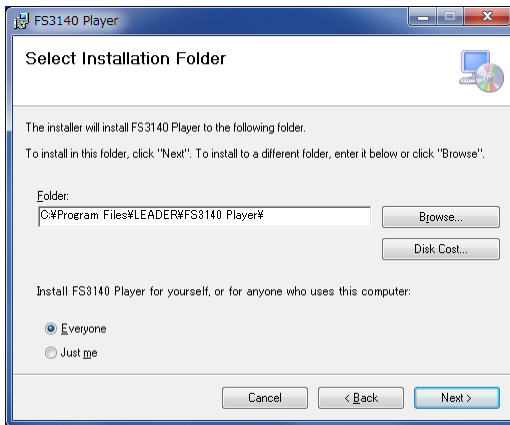
3.3.1 Installing the software

1. Run setup.exe in the folder " FS3140PlayerN.N.NNN.N ".
2. The following screen will appear. Click Next.

N : 0 - 9



3. The following configuration screen will appear:



Install To: Browse to the location where you would like FS3140 to install.

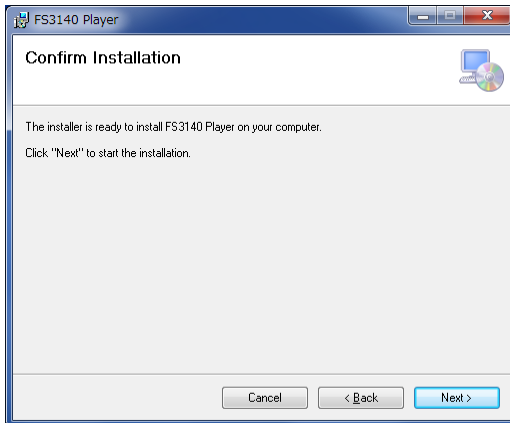
Default is:

C:\Program Files (x86)\LEADER\FS3140 Player

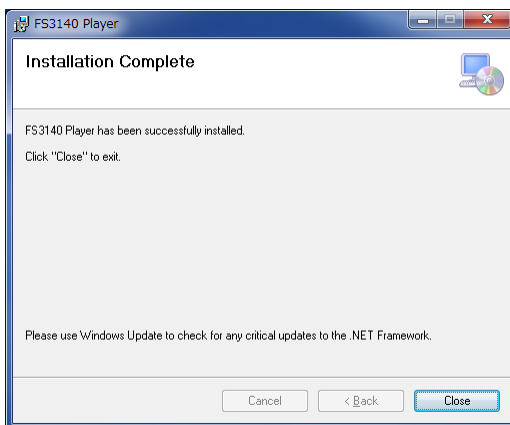
Install FS3140 Player for... We recommend this be set to Everyone, unless your IT department has a specific policy to set it to Just Me

Click “Next” to begin installation.

4. After starting installation, you will need to configure the location of the FS3140 installation if you want to use FS3140’s file scan results to speed up frame jumps within files. This setting is optional, and FS3140 Player will install without you specifying this location. The following configuration screen will appear:

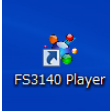


5. All necessary prerequisites are automatically installed in addition to the FS3140 Player, and installation is complete.

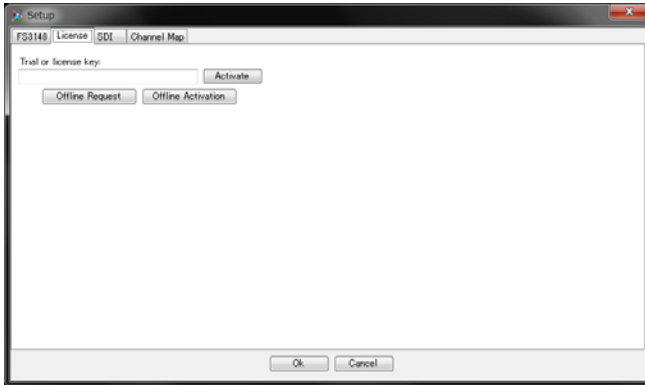


3.3.2 Activation the software license

1. Start FS3140 Player either from the Desktop Icon or the Start Menu shortcut labeled FS3140 Player (located in a LEADER folder).



2. Upon the first startup, you will be presented with a prompt for the FS3140 Player license key.



3. Enter your trial or commercial license key and click Activate. FS3140 Player will use the internet to contact the license server and this window will show the number of days remaining in your license after successful activation.

3.3.3 Increasing file navigation speed with FS3140

FS3140 stores the location of each 'I' frame in a container file in its database, if necessary (it does not store this information for container files that have an embedded timecode track, which essentially serves the same purpose). FS3140 Player can use this I-Frame Binary Information (IBI) to dramatically speed up jumping to a specific location in a file for those files that have already been accessed by FS3140.

For this IBI function to work, FS3140 Player must know the location of your FS3140 server, which can be set by accessing the Setup dialog from the Options section of the Menu Bar or by pressing F11. Choose the FS3140 tab and set the FS3140 IP address or machine name, if you did not already set this during the installation of FS3140 Player.

3.4 Uninstallation

Uninstall FS3140 Application and FS3140 Player according to the following:

1. Open the control panel from the start menu.
2. "Uninstall a program" is selected.
3. Please uninstall six kinds of the following.
 - FS3140 Server
 - FS3140 Setup
 - FS3140 Tray
 - FS3140 VU
 - FS3140 Web
 - FS3140 Player

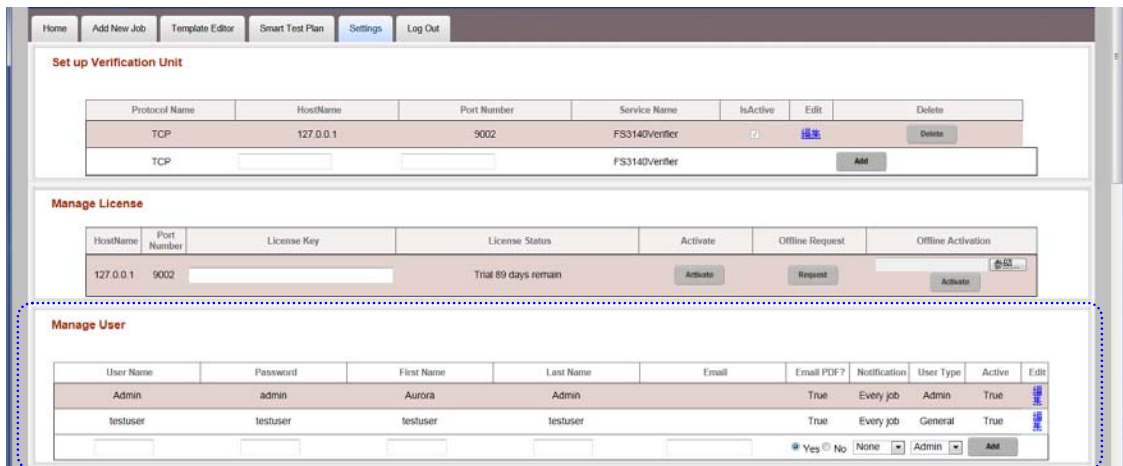
4. RUNNING THE SOFTWARE FOR THE FIRST TIME

4.1 How to login as Administrator

Open any web browser and enter the IP address of the machine FS3140 is installed on followed by /FS3140 (example: <http://192.168.150.10/FS3140> or <http://localhost/FS3140> if you are on the local FS3140 machine).

4.2 Setting Up New Users

At the top of the FS3140 interface, you will see a Settings tab, which contains the Manage User feature, enabling you to set up user privileges for FS3140.



- 1) **User Name:** This is the name that the user will login with each time that he/she logs onto the FS3140 Verification Unit.
- 2) **Password:** The *Password* for the user is entered here. Passwords can be composed of symbols, letters, or numbers or a combination of all three.
- 3) **First Name:** The first name of the user is entered in this column.
- 4) **Last Name:** The last name of the user is entered in this column.
- 5) **Email:** The email address for the user is entered in this column.
- 6) **Notification:** Choose how the user should be notified on their jobs completing:
 - a) **None**
 - b) **Every Job**
 - c) **Only Jobs with Errors**
 - d) **Only Jobs with Warnings**
- 7) **User Type:** There are two options for *User Type* – Admin or General. The Admin user type has all administrative privileges for FS3140, including setting up the FS3140 Verification Units and managing users. The General user type is limited to adding jobs and creating and editing templates.
- 8) **Active:** For information only, this indicates whether the user is a currently active user. There are two *Active* status options – True or False. To change the *Active* status, you must click *Edit* (see below).
- 9) **Edit:** Clicking *Edit* enables you to edit all user information, including the *Active* status of the user.
- 10) **Add:** After completing all fields for the new user, clicking this button adds the user to the *Active* status.

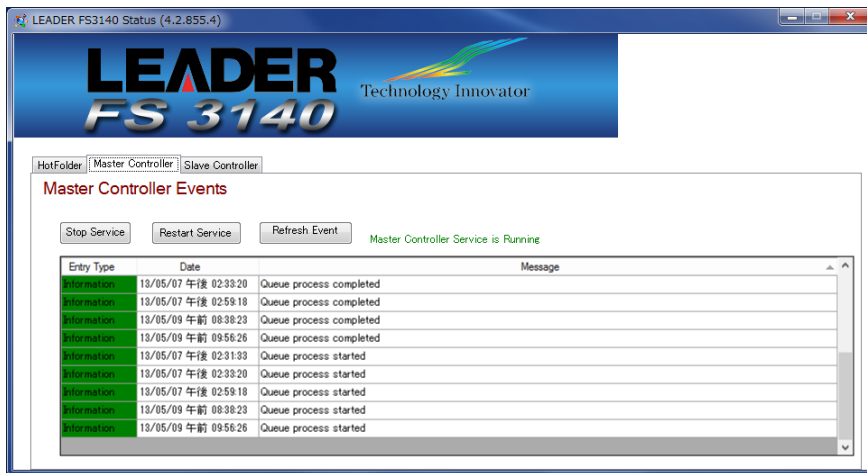
***** **Who is the TESTUSER? What Benefits Do I Get As That User?** *****

Testuser: There are benefits to being logged in as testuser. Testuser can be used to debug issues with files or QC tests. When logged in as the test user, CSV files are created for each checked test in your template. You can retrieve these CSV files from C:\FS3140Temp on the master controller machine.

ToolTips: Being logged in as testuser may take longer as FS3140 is creating CSV dump files for every template test ran. These are files that give support for the errors that FS3140 finds in every frame of the test. CSV dump files also show what was measured in order to report the error. This file will add time (sometimes substantially) to each job.

4.3 FS 3140 Tray Application

The FS3140 tray application is mainly a diagnostic tool for use with LEADER support. Additionally, this application ensures that the FS3140 services (Controller and Verifier) stay running, even in the event of job or machine problems. If you need to stop the services for some reason, you must stop them with the tray application (stopping FS3140 services with the Windows service manager, the tray application will keep restarting them).



You can access FS3140 Tray Application by double clicking on the icon at the bottom right of your screen.



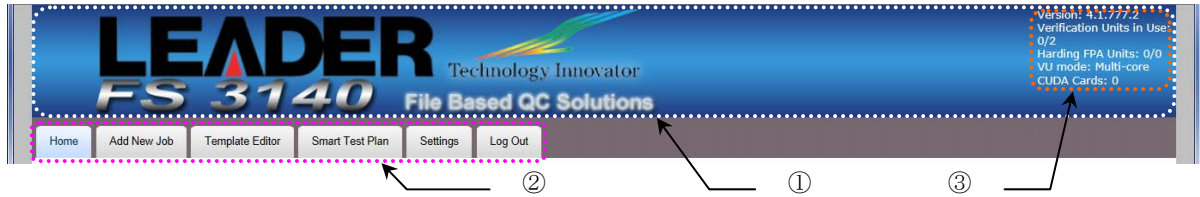
4.4 Logging Out of FS 3140

FS3140 is designed to be running constantly. When you no longer need to interact with FS3140, click on the **Log Out** tab in FS3140's main window and close the browser window or tab.



5. USER INTERFACE

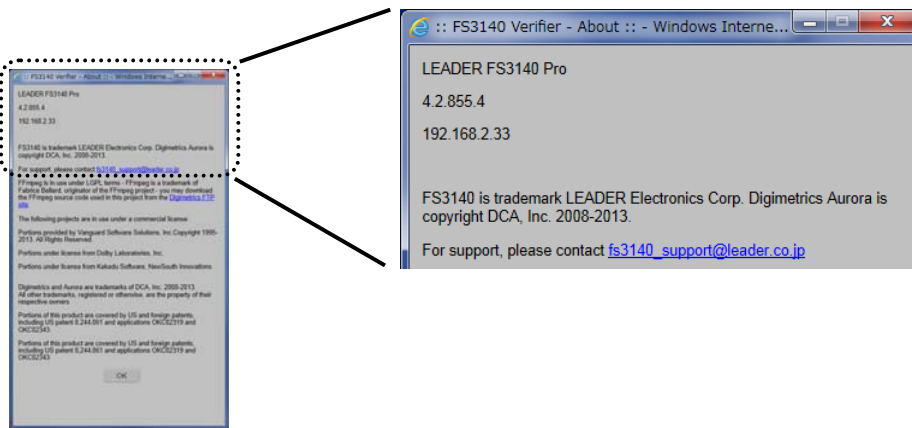
FS3140 is designed for ease of use. The straight-forward and logical interface is divided into several areas that simplify and streamline the entire verification process.



You can see several items in the top of the browser user-interface when first accessing FS3140:

- Title Bar ... ①

Clicking anywhere in the Title Bar will bring up the Help, About box, with version number, IP address of the Master Controller server and support contact information.



- Tab Bar ... ②

this is the main navigation for FS3140, and allows you to perform several key operations, including adding jobs, editing test templates & plans and modifying application settings.

- Status Bar ... ③

this area, to the right of the tab bar, shows you the status of the FS3140 system, including the license options installed, available test units and the VU test mode.

5.1 Description of Tabs

- **Home tab:** Shows the dashboard view of the system, and is the first page shown when logging into FS3140.
- **Add New Job tab:** On this tab, you complete a simple three-step process that consists of selecting a template for the job, selecting a container for the job, and selecting the streams to be verified.
- **Template Editor tab:** Likely the first place you will visit, this is where you create or edit a template that specifies the parameters that you want the verification process to identify as errors or warnings. At the top of the tab, you can select an existing template and modify its' parameters as desired or you can simply create a new template from scratch.

***** Parameters for the template *****

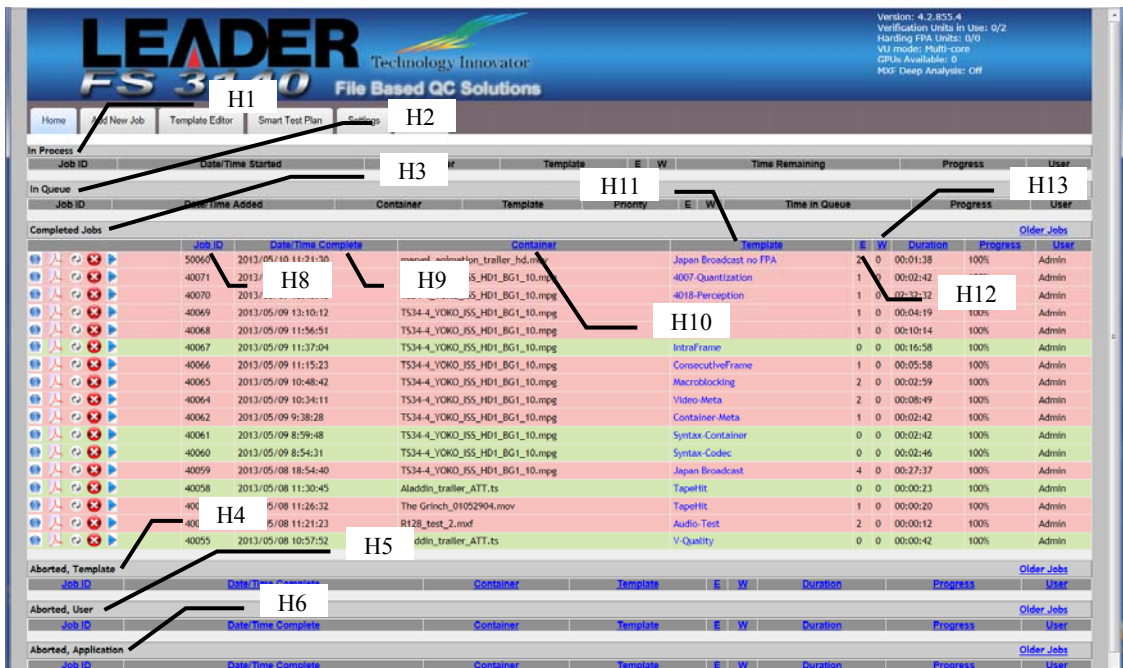
Parameters for the template are divided into several categories including Stream Summary, Syntax Check, Container Parameter, Video Parameter, Video Quality, Audio Parameter, Audio Quality, Distribution/Broadcast Restrictions, and System Specific Distribution Restrictions. You may need to experiment with templates for a couple of days to figure out the most

appropriate settings for these parameters for your particular needs.

- **Smart Test Plan tab:** This section allows you build rules that will automatically select test templates for your incoming files.
- **Settings tab:** You will use this tab to set up verification units, manage users, manage hot folders, and modify any other application settings.
- **Log Out tab:** When you click on this tab, you log off of the FS3140 system.

5.2 Details of the tabs

5.2.1 Home Tab



After logging into the application, FS3140’s main window opens to the *Home* tab, which is essentially, the dashboard view of the entire system. All jobs are color coded as

- Blue (Not Started Yet)
- Green (No Problems, or only Information items generated by template events)
- Yellow (Warnings generated by template events)
- Red (Errors, either generated by template events or from an abort condition)

Dashboard Categories

- H1 : You can view an *unlimited* number of jobs **In Process**. When jobs are in process, you can view the report for events generated up to that point or abort the job. Aborting the job will move it to Aborted, User.
- H2 : You can view an *unlimited* number of jobs **In Queue**. The jobs in this list are always blue, and you can use the controls on the left side to re-order or pause these jobs. You can also use the controls above this category to cancel or pause all the jobs in the queue.
- H3 : You can view *no more than twenty* **Completed Jobs**. These jobs successfully finished the QC process and you can now view the report in HTML or PDF, reschedule the same file for another QC pass, or delete the job from the system.
- H4 : You can view *no more than twenty* **Aborted, Template** jobs. This list shows the jobs that have been aborted, due to a threshold in the template.

H5 : You can view *no more than twenty* **Aborted, User** jobs. This list shows the jobs that have been canceled by a user on the web interface or via the API.

H6 : You can view *no more than twenty* **Aborted, Application** jobs. This list shows that jobs that FS3140 has been unable to process (and whose reports will contain the error for what caused the abort).

Dashboard Columns

H8 : Job ID – FS3140 assigns Job IDs to every container file that is presented to the system, sequentially, starting at 1.

H9 : Date/Time – Presented in MM/DD/YYYY HR:MIN:SEC AM/PM format.


H10 : Container Name – the file name (exclusive of path) of the container file for the job.


H11 : Template – the test template in use for that particular job. Clicking an entry in this column will open the Template Editor with that test template loaded.


H12 : E – the Error count for that job.


H13 : W – the Warning count for that job.


Dashboard Buttons


 Opens the HTML report view. For In Process jobs, this report may be incomplete or have template events that exceed your defined thresholds (some events are cleaned up in a post-job process).


 Opens the PDF report view (only available for jobs that are no longer In Process). An exact duplicate of the HTML report view in an offline viewable format.


 Opens the Add New Job tab with the Container File and Template loaded, allowing for simple re-queuing of files.

 For In Queue jobs, moves the selected job up one spot in the queue.

 For In Queue jobs, moves the selected job down one spot in the queue.

 For In Queue jobs, toggles the selected job between Pause and Available for Processing status.

 For In Process or In Queue jobs, this button aborts the job. For jobs already complete, this button removes the job from the system.

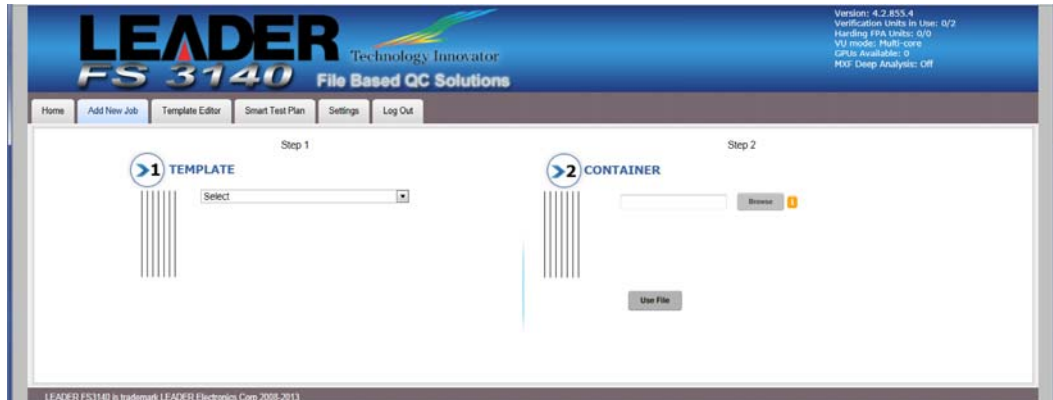
 For Complete Jobs, Opens the Container File in the FS3140 Player for Review (additionally, populates the Review Bar with the FS3140 QC events).

Finding Jobs from Home / Dashboard View

- You can easily locate a particular job by using your browser's Control + F function.
- You may also **sort** any of these job lists by simply clicking on any of the underlined section titles (such as Job ID, Date/Time Complete, Container, Template, E, W and User). Sorting the data will change which twenty jobs are in view.
- If you wish to see more than twenty jobs in any category, you can click on the blue **Older Jobs** title at the far right. This will open a new window displaying *all* the jobs in the database for that particular category. For example, clicking on the **Older Jobs** title under the **Aborted, User** category will allow you to view *all* jobs in the database that you, the user, have aborted. You can also filter this data using the Control + F function or sort by clicking on the underlined section titles.

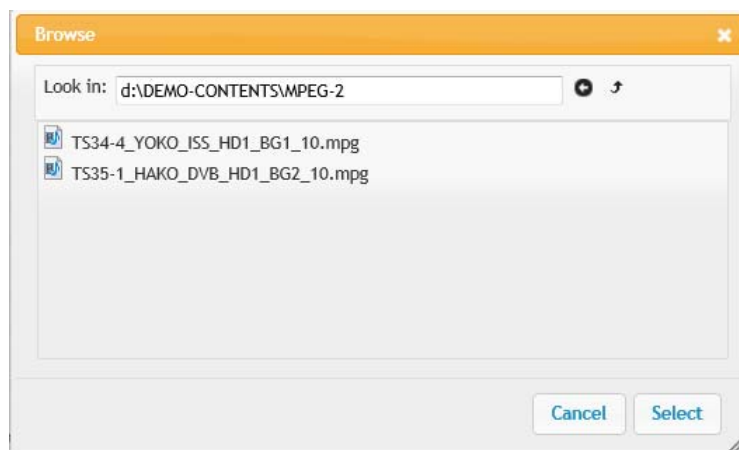
5.2.2 Add New Job tab

As the name implies, the **Add New Job** tab for FS3140 is where you set up new jobs manually. While most users will choose to run jobs automatically via the Hot Folder interface or WSDL-based SOAP API, FS3140 does allow for manual job creation.

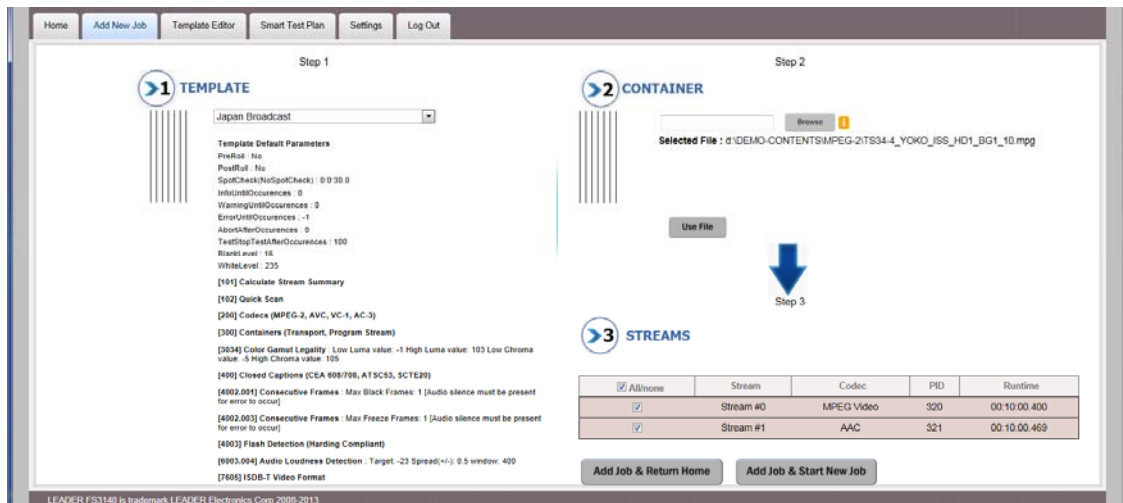


Step 1 - Template: This is where you select the template to be used for the verification process. To select a template, simply click the down-arrow and select a template from the list. After selection of the template, the tests within that template will be shown on this page. The template list will contain your *Smart Test Plans* (at the top preceded by ST_), your standalone *Templates* (in the middle of the list) and the *Generate Output Template* option (always at the bottom).

Step 2 – Container: In this step, you select the container of files that you want to verify. To select the container, click the **Browse** button to navigate to the location of the desired files. By default, FS3140 will show a server-side browse control, which only shows files that the FS3140 server has access to. You can choose to use a client-side browse control, which requires Java. When using the client-side browse control, any files you select that are not accessible to the FS3140 server will not be able to be added as a Job.



Step 3 – Streams: In the final step for adding a job, you must select the streams to be verified and opt whether to return to the Home tab or create another job. Checkboxes appear in the first column of the streams list and you simply select the desired streams to be verified or choose the **Select/Deselect All** checkbox (by default, all the streams in the container are selected). After you've selected the streams to be verified, two buttons appear below the streams: **Add Job & Return Home** and **Add Job & Start New Job**. Select the desired option to complete the *FS3140 Verifier Add New Job* tab.

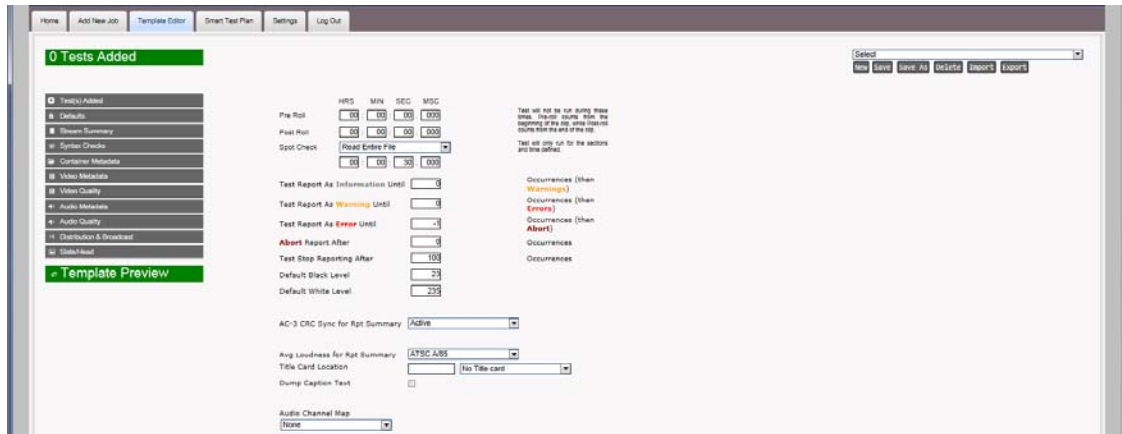


5.2.3 Template Editor tab

The Create/Edit Template tab is where you customize the verification process to meet the needs of your particular production process.

FS3140 ships with several default templates:

- Quick Scan – just scans the file and codec headers to report basic stream summary information.
- Stream Summary Only – scans the file heads and decodes the streams to report full stream information.
- Syntax Check – will report stream summary and perform a syntax check on the container and streams.
- Quality Test – will report stream summary and check for most of the artifacts listed in Video Quality and Audio Quality sections (full functionality for Pro version users only).
- Tape Ingest – reports stream summary and checks for the most common tape ingest artifacts (full functionality for Pro version users only).
- Film/Analog Ingest – reports stream summary and checks for most common film/analog ingest artifacts (full functionality for Pro version users only).
- ATSC Broadcast – tests for ATSC audio & video distribution constraints and measures A/85 loudness.
- CableLabs VOD – tests for CableLabs VOD distribution constraints.
- DVB-T Broadcast – tests for DVB-T (including ETSI 101 290) distribution constraints and measures R128 loudness.
- Japan Broadcast – tests for ISDB-T distribution constraints (ARIB B-10) and measures ARIB TR-B32 loudness.
- UK Broadcast – tests for DVB-T (including ETSI 101 290) distribution constraints, measures R128 loudness, checks gamut legality and tests for PSE/flash events (requires optional HardingFPA component for full functionality).



You can create an entire suite of templates, one for each type of file that you may need to verify. While the process of creating a template is simple and straight-forward, making the appropriate selections for your particular process is one that may take a bit of experimentation until you find the right mix. The following section details the parameters of the Template Editor tab.

Defaults allows you define template-wide defaults which apply to the entire set of tests:

- a. Pre-Roll – the amount of time that will be skipped before all tests start.
- b. Post-Roll – the amount of time that will be skipped prior to the end of the clip.
- c. Spot Check – the amount of time to test small sections of the clip. You can choose to spot check.
 - i. Read Entire File
 - ii. Start, Mid & End
 - iii. Start Only
 - iv. Mid Only
 - v. End Only
 - vi. Start & End Only
- d. Test Report As Information Until – all test items will report as Information until this number of occurrences. Setting this value to -1 will have events always report as Information.
- e. Test Report as Warning Until – all test items will first report as Information, then become Warnings for this number of occurrences (at which time, they will report as Errors). Setting this value to -1 will have events always report as Warnings.
- f. Test Report as Error Until – all test items will report as Error until this number of occurrences (at which time, they will stop reporting). Setting this value to -1 will have events always report as Errors.
- g. Abort Report After – Stops the job and creates a report after this many occurrences of a test event.
- h. Tests Stop Reporting After – the number of occurrences after which FS3140 will stop adding instances to the report.
- i. Default Black and White Levels – these values are measured in 8-bit steps (0-255).
- j. Average Loudnes for Report – this allows you to select the standard for loudness that will be shown in the stream summary section of the report. Setting this value does not automatically add the loudness test to your template – it only adds a report item for the one program value.
- k. Title Card – optional item to capture a thumbnail of the title card and display this visual metadata next to the digital metadata on the report.

Any of these defaults can be overridden at the individual test level by adding the test using the Add and Override Defaults button.

Template Test Categories – for details on each specific test available in the FS3140 template, refer to the FS3140 Help File manual or click on the question mark icon next to each test.

- **Stream Summary:** You can an option to run a full Stream Summary, or a short, QuickScan summary. QuickScan disables all other tests, only scans the container and codec headers to return a simple stream summary (the advantage of this QuickScan is very fast identification of large volumes of content, generally under 5 seconds per file).
- **Syntax Checks:** These tests pertain to syntax conformance for containers, codecs and caption data.
- **Container Metadata:** These tests are related to container metadata, including total bit rates, included codecs and comparing container metadata to the streams.
- **Video Metadata:** These tests pertain to video metadata, generally found in the sequence layer/header.
- **Video Quality:** These tests actually decode the video frames to check for items such as macroblocking artifacts, interlacing artifacts, embedded black bars, freeze frames and color bars.
- **Audio Metadata:** These tests pertain to audio metadata from the header.
- **Audio Quality:** These tests actually decode the audio samples/frames to check for items such as silence, levels and clicks/pops/snaps.
- **Distribution & Broadcast:** These are grouped tests for the most common distribution or broadcast constraints, such as ATSC, DVB-T, CableLabs VOD and iTunes.
- **Slate/Head Format:** These tests allow you to define items that must exist in your content (black, freeze, color bars, silence, tones) and have FS3140 issue an event if the item is missing.

Creating Templates From Scratch

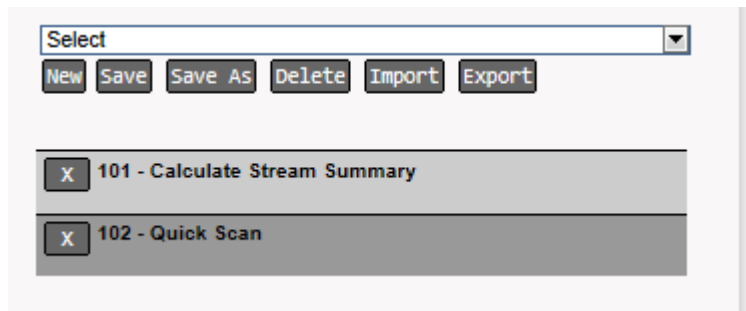
1. Click on the **Template Editor** tab.
2. Select the tests you want to add from the available categories, and use either the Add with Defaults button



or Modify Test Defaults button, which will expose an editor allowing you to change any of the defaults.

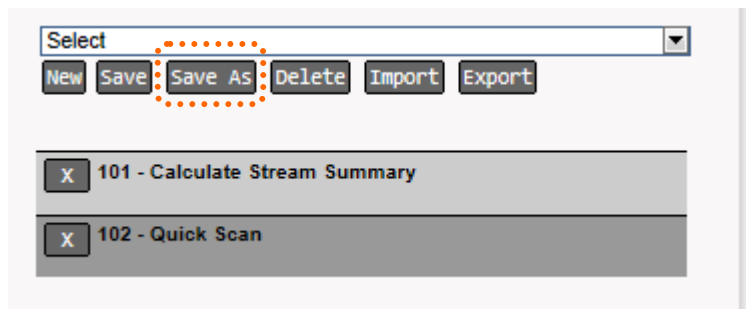


- As you add tests to the template, you will see the list build up on the right side of the editor.

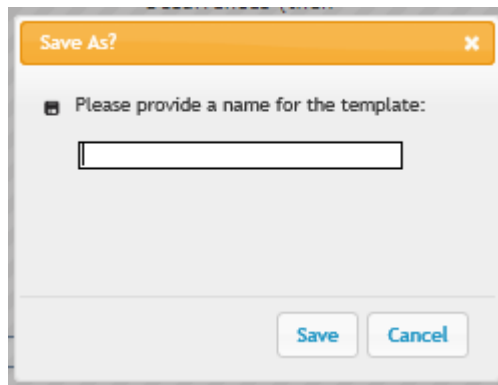


You can remove tests by clicking the X next to the test.

- When you are done adding tests and configuring parameters, click *Save As* button on the right side of the editor.



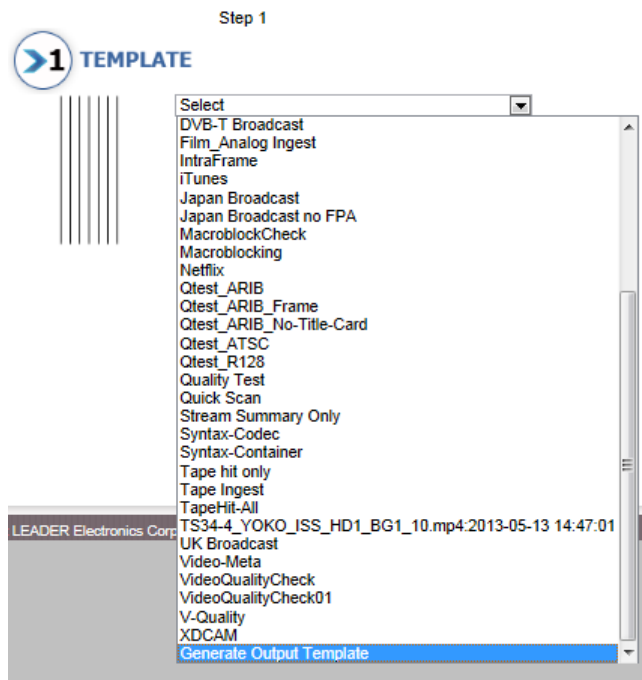
- A new textbox will appear, where you can enter the name your new template, and then click the Save button.



- To edit any template, find the template you wish to edit in the Select Template drop-down list.
- Make changes as necessary.
- Click *Save*

Creating Templates From an existing file

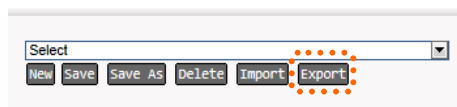
- Click on the **Add New Job** tab.
- Select 'Generate Output Template' in the template list. This option will always be at the bottom of the list of available templates.



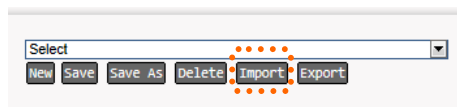
3. Browse to the file you want to create a template based upon.
4. FS3140 will create a stream summary report for this file and upon completion of scanning the file, a template named after the container file name will appear in the Template List. This template will contain the measured values for every parameter possible from your file.
5. You should edit this template to remove or modify any tests that may not be applicable to your situation. Rarely is the output of Generate Output Template directly usable in a production scenario without modification.

Creating Templates From an existing file

1. From within the **Template Editor** tab, you can export templates to an XML file using the Export button, allowing you to transport them to other FS3140 installations or send them to LEADER support for analysis.



2. You can import a template XML file by using the Import button.



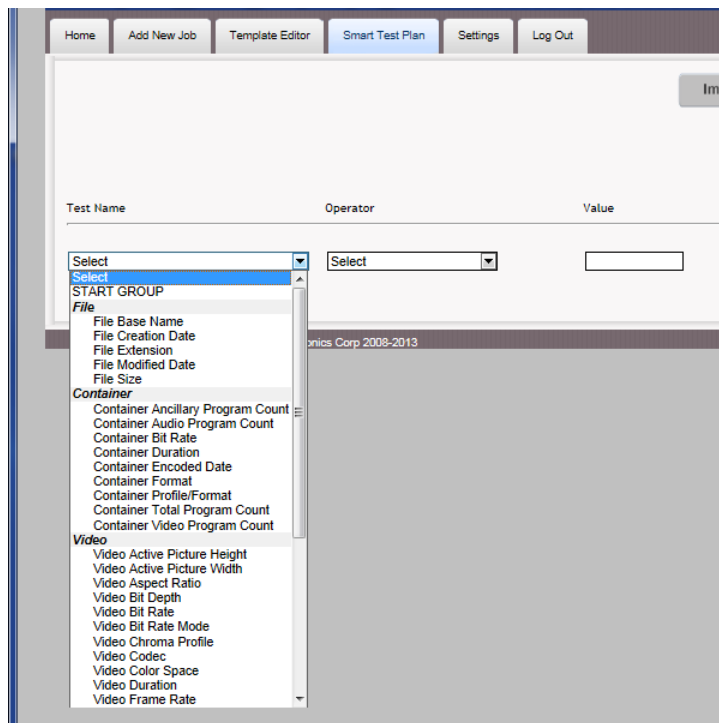
3. Template XML files must conform the DigimetricsTemplate XML schema.

5.2.4 Smart Test Plan tab

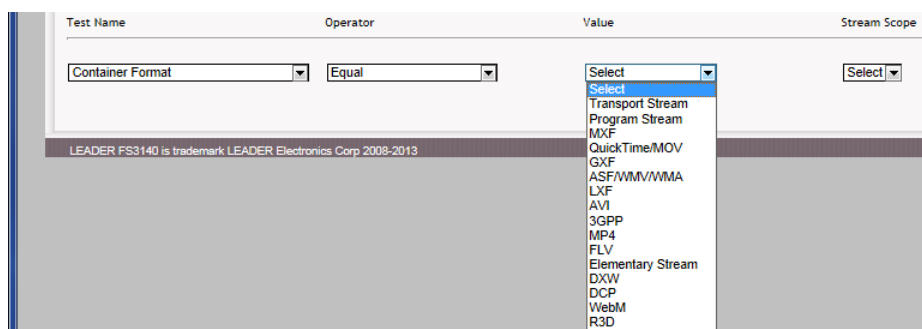
Once you have defined several test templates for several different file or delivery scenarios, you can set FS3140 to automatically select the proper test template, depending on the incoming file characteristics using the Smart Test Plan feature. Essentially, Smart Test Plans allow you to build IF/THEN or IF-AND/THEN statements to select templates, and also to define an OTHERWISE case, if an incoming file does not meet any of the Smart Test Plan criteria.

Building New Smart Test Plane

1. Start by selecting the Smart Test Plan tab on the user interface.
2. Choose a test from the Test Name group. You can select nearly any piece of metadata regarding the file that is shown on the FS3140 Stream Summary section of the report.

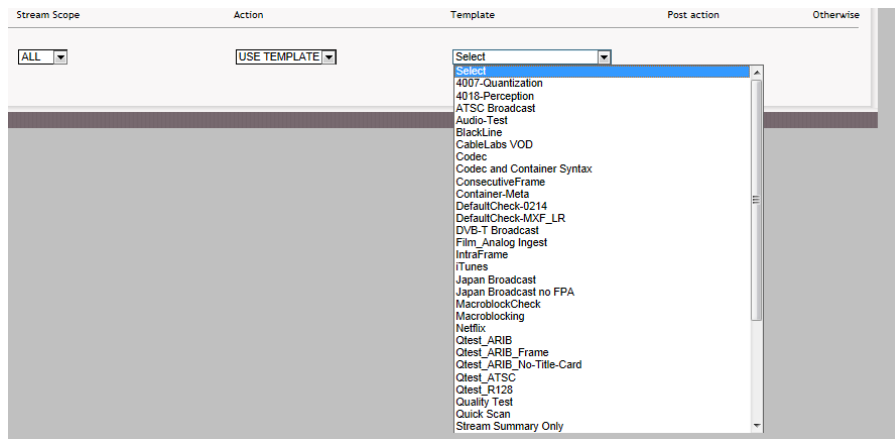


3. Select an Operator (EQUAL/NOT EQUAL/CONTAINS, etc.). The operators will change dynamically, based upon the test selected.
4. Select a Value for the test operator. If the test has pre-defined values (such as codec names or container types), the Value list will automatically populate with those values. If the test does not have pre-defined values, you should enter a valid value (the editor will prompt you if you enter an out of range value, such as an alphabetic value in a test that is measured with an integer).

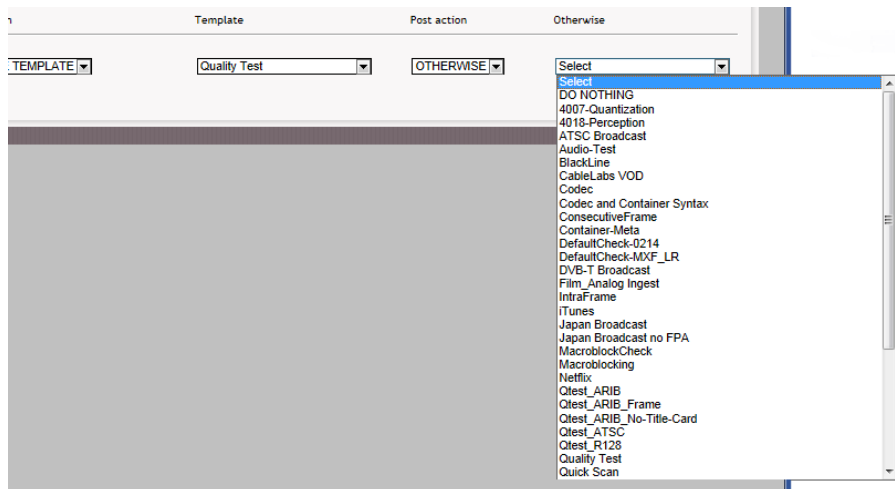


5. Select a Stream Scope, either ALL STREAMS or ANY STREAM, to define which streams within the container this test should apply to. For more tests, ALL STREAMS is the proper selection, unless you specifically want to constrain the test.
6. Select an Action.
 - a. AND IF – Uses the current test AND the next test to make a determination on which template to use
 - b. OR IF – Uses the current test OR the next test to make a determination on which template to use

- c. USE TEMPLATE – Use the results of the tests up to this point to determine which template to use
7. If you have selected AND/OR in the Action, go back to step 2 and continue to add tests until you have a test chain built up that adequately describes the file you want to test, and then select USE TEMPLATE. If you have already adequately described the file and have selected USE TEMPLATE, you can choose a template from the list of saved templates. Select a Stream Scope, either ALL STREAMS or ANY STREAM, to define which streams within the container this test should apply to. For more tests, ALL STREAMS is the proper selection, unless you specifically want to constrain the test.



8. After selecting the template to use for that test or group of tests, you can select a Post Action. Either start a new group of tests with NEW IF, or choose your OTHERWISE condition, to use if an incoming file does not meet any of your test criteria. For NEW IF, follow steps 2-6 again. For OTHERWISE, continue to step 9.
9. When selecting OTHERWISE, you simply select the test template to use when none of the test criteria are met.



Saving Smart Test Plane

Once you have your criteria for the Smart Test Plan built up, you can save the Test Plan using the controls in the upper right corner of the page.



Using Smart Test Plane

Once your Smart Test Plans are saved, they will show up in the Template List of Add New Job, Hot Folders and the SOAP API with your test plan name, preceded by ST_. So in the example shown above, we would this test plan shown as ST_Master Plan. Your Smart Test Plans will always show at the top of Template List. When you select a Smart Test Plan for a job or hot folder, the correct template from your rules/tests will automatically be selected and used by FS3140.




Importing/Exporting Smart Test Plane

You can import or export smart test plans as XML files, using the Import/Export buttons on the Smart Test Plan page. This allows you to build a test plan at one site and use it at any other site.

6. REPORTS

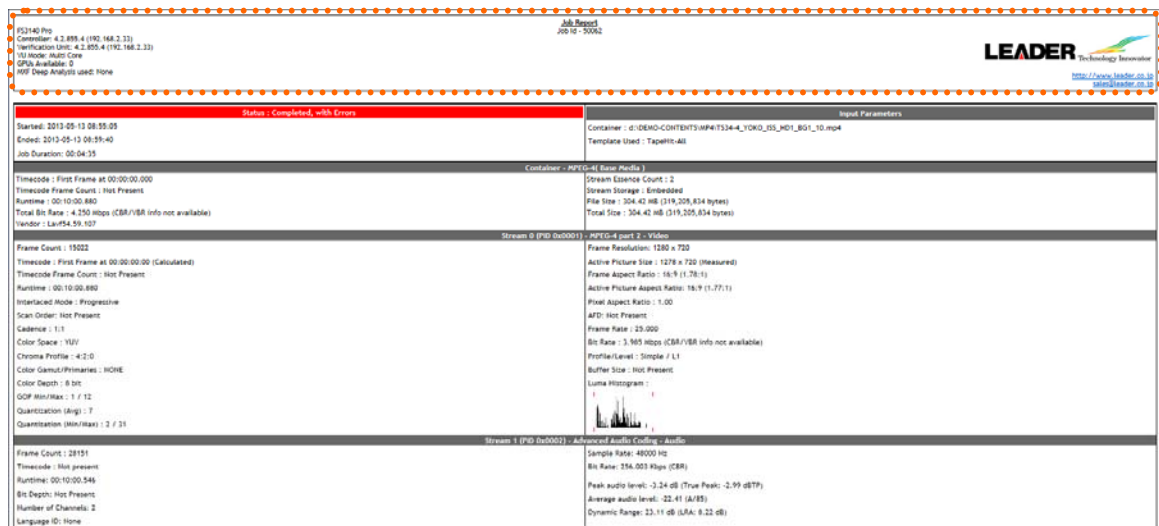
6.1 Options for Accessing and Viewing Job Reports

You have three options when accessing a job report:

- **First Option:** Click on the **HTML**  icon, which will open the report in a new tab or window. The HTML report has dynamically adjustable sections that allow for events to be collapsed and expanded.
- **Second Option:** You can click on the **PDF**  icon (located next to the Globe icon). When you choose to view the report as PDF, all link sthat you would normally click on are expanded to include all details.
- **Third Option:** You can click on the **Player**  icon, which will open the file in the FS3140 Player and populate the FS3140 QC events from the report in the Review Bar of the player.

6.2 Understanding Job Reports

FS3140 Job reports are designed to provide all relevant stream summary and QC results in as few pages as possible, as well as be viewable online and offline in the same view.



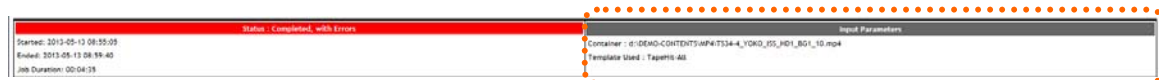
The screenshot displays a 'Job Report' for a completed job. The top header includes product information (FS3140 Pro, Controller 4.2.899.4) and LEADER Technology Innovator contact details. A red status bar indicates 'Completed, with Errors'. The report is divided into sections: 'General Information' (start/end times, duration), 'Input Parameters' (container, template), 'Container - MPEG-4 (Error Media)' (stream count, storage), 'Stream 0 (PID 0x0001) - MPEG-4 part 2 - Video' (frame count, resolution, aspect ratio, bit rate, and a Luma Histogram), and 'Stream 1 (PID 0x0002) - Advanced Audio Coding - Audio' (sample rate, bit rate, peak/average audio levels).

General Header Information: At the top of the report, basic information about the product SKU, versions, server locations, VU mode and GPU availability are shown. The Job ID displays below the Job Report heading and LEADER contact information displays on the right-hand side of the header. Depending on which contact link is clicked, you may visit the LEADER website or email LEADER support.



This close-up shows the red status bar with the text 'Completed, with Errors'. Below it, the 'Job Information' section lists: Started: 2013-05-13 08:55:05, Ended: 2013-05-13 08:59:40, and Job Duration: 00:04:35.

Status: When the Status bar located on the left of the report is green, it indicates that the job completed with no errors identified; when it is yellow, it indicates that the job was completed with warnings; when it is red in color, it indicates that errors were detected. Below the Status header, the time that the job began and ended is listed as well as the length of time it took to complete the job.




This close-up shows the 'Input Parameters' section, which lists: Container: 0-DEMO-CONTENTS\MP4\TS34-4_YOKO_05_H01_B01_10.mpg and Template Used: Tapetris-All.

Input Parameter: The general input parameters are listed under this heading on the right of the

report, including the Container and Template used for the job.

| Container - MPEG-4 Base Media | |
|--|--|
| Timecode - First Frame at 00:00:00.000 | Stream Essence Count : 2 |
| Timecode Frame Count : Not Present | Stream Storage - Embedded |
| Runtime - 00:10:00.660 | File Size - 304.42 MB (319,205,634 bytes) |
| Total Bit Rate : 4.150 Mbps (CBR/VBR info not available) | Total Size - 304.42 MB (319,205,634 bytes) |
| Vendor - Lavf54.59.107 | |

Container Metadata Summary: You can find the results for Stream Essence Count, Stream Storage (Embedded or Referenced), File Size, Total Size, Timecode Essence, Runtime, and Dark Metadata (if present, a link will be shown) can be found under this heading in the report.

| Stream 0 (PID 0x0001) - MPEG-4 part 2 - Video | |
|--|---|
| Frame Count : 15022 | Frame Resolution: 1280 x 720 |
| Timecode - First Frame at 00:00:00:00 (Calculated) | Active Picture Size : 1278 x 720 (Measured) |
| Timecode Frame Count : Not Present | Frame Aspect Ratio : 16:9 (1.78:1) |
| Runtime - 00:10:00.660 | Active Picture Aspect Ratio: 16:9 (1.77:1) |
| Interlaced mode - Progressive | Pixel Aspect Ratio : 1.00 |
| Scan Order - Not Present | AFD: Not Present |
| Cadence : 1:1 | Frame Rate : 25.000 |
| Color Space - YUV | Bit Rate - 3.965 Mbps (CBR/VBR info not available) |
| Chroma Profile - 4:2:0 | Profile/Level - Simple J L1 |
| Color Gamma/Primaries - H264 | Buffer Size - Not Present |
| Color Depth - 8 bit | Luma Histogram |
| GOP Min/Max - 1 / 12 |  |
| Quantization (Avg) : 7 | |
| Quantization (Min/Max) : 2 / 31 | |

Video Stream Metadata Summary: The information listed under this heading in the report includes: Frame Count, Runtime, Interlaced Mode, Color Space, Chroma Profile, Color Depth, GOP Type, GOP Min/Max, Cadence, Closed Captions, Profile/Level, Frame Resolution, Frame Rate, Bit Rate, Display Aspect Ratio, Quantization (Avg), Quantization (Min/Max), Buffer Size, and AFD.

The luma histogram is also shown (the template defaults for black/white points are the red lines on the histogram), and if a Title Card is required by the template, this will be shown next to the luma histogram.

| Stream 1 (PID 0x0002) - Advanced Audio Coding - Audio | |
|---|--|
| Frame Count : 28151 | Sample Rate: 48000 Hz |
| Timecode - Not present | Bit Rate: 256.003 Kbps (CBR) |
| Runtime - 00:10:00.546 | Peak audio level: -3.24 dB (True Peak: -2.99 dBTP) |
| Bit Depth: Not Present | Average audio level: -22.41 (A188) |
| Number of Channels: 2 | Dynamic Range: 22.11 dB (LRA: 8.22 dB) |
| Language ID: None | |

Audio Stream Metadata Summary: Under this heading in the job report, you will find: Sample Count, Runtime, Bit Depth, Number of Channels, Language ID, Sample Rate and Bit Rate.

Peak & average audio levels are shown (average levels display the standard used in that measurement, as defined in the defaults section of the template), as well as the dynamic range. Dolby Metadata will only be shown if a Dolby codec is in use.

| Analysis Results | | | |
|--|---------------------------------------|--|--|
| Template Used - Japan Broadcast | | | |
| Unique Errors (134 Instances) | | | |
| 27 | (1207 / 17991 frames, 6.71% of clip) | 303 (Color Gamut Legality (EBU R103:2000)) | Jump to First Occurrence |
| 5 | (185 / 17991 frames, 1.03% of clip) | 4001.000 (Freeze Frame) | Jump to First Occurrence |
| 100 | (100 / 28147 frames, .36% of clip) | 5003.000 (Audio Loudness Detection (EBU R128 Momentary)) | Jump to First Occurrence |
| 2 | | 7902 (H264-T Forensic) | Jump to First Occurrence |
| Unique Warnings (0 Instances) | | | |
| 0 Unique Information (0 Instances) | | | |
| Errors (4 Unique , 134 Instances) [Show All] [Hide Details Only] | | | |
| Warnings (0 Unique , 0 Instances) [Show All] [Hide Details Only] | | | |
| Information (0 Unique , 0 Instances) [Show All] [Hide Details Only] | | | |
| Original Events [Show All] [Hide Details Only] | | | |
| Template Specifics (Japan Broadcast) [Details] | | | |

Analysis Results/QC Summary: The results of the analysis include the template used for the job, the template specifics, and a list showing a breakdown of the number of errors, warnings, information, and passed tests. Clicking the category of any QC events will expand that category to show the list of QC events generated, as well as the number of occurrences and the percent of the clip they appear in. Clicking the Test Index Number next to the Test Description will launch the help file for that test. You can also click the link to Jump to First Occurrence of that event in the details.

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Errors (4 Unique, 134 Instances) [Show All] [Hide Details Only]

| Item ID | Test Performed | Instances | Rule Type |
|----------------------|--|--|---|
| 2000 | Freeze Frame | 9 (181/1799) total frames, 1.02% of clip | Video Quality Parameters |
| 1 | Consecutive Freeze frames exceeds template threshold of 1 | | Stream - 0 (IPD - DaD140) - MPEG-2 video Start at 07:39:26.102 GOP 1 Frame Index 2 Pkt 2839 TCR 00:00:00:02 Continues for 80 Frames Ends at 07:39:38.772 GOP 6 Frame Index 83 Pkt 19744 TCR 00:00:02:23 |
| 1 | Consecutive Freeze frames exceeds template threshold of 1 | | Stream - 0 (IPD - DaD140) - MPEG-2 video Start at 07:39:38.706 GOP 7 Frame Index 87 Pkt 20662 TCR 00:00:02:27 Continues for 3 Frames Ends at 07:39:38.972 GOP 7 Frame Index 89 Pkt 20928 TCR 00:00:02:29 |
| 1 | Consecutive Freeze frames exceeds template threshold of 1 | | Stream - 0 (IPD - DaD140) - MPEG-2 video Start at 07:39:39.129 GOP 7 Frame Index 91 Pkt 21439 TCR 00:00:02:01 Continues for 3 Frames Ends at 07:39:39.226 GOP 7 Frame Index 96 Pkt 22128 TCR 00:00:02:06 |
| 1 | Consecutive Freeze frames exceeds template threshold of 1 | | Stream - 0 (IPD - DaD140) - MPEG-2 video Start at 07:39:40.840 GOP 9 Frame Index 118 Pkt 28938 TCR 00:00:02:38 Continues for 86 Frames Ends at 07:39:42.810 GOP 14 Frame Index 204 Pkt 90793 TCR 00:00:06:24 |
| 1 | Consecutive Freeze frames exceeds template threshold of 1 | | Stream - 0 (IPD - DaD140) - MPEG-2 video Start at 07:39:43.844 GOP 16 Frame Index 226 Pkt 96124 TCR 00:00:07:16 Continues for 7 Frames Ends at 07:39:43.777 GOP 16 Frame Index 233 Pkt 98899 TCR 00:00:07:23 |
| 2004 | Color Gamut Legality (EBU R103-2000) | 27 (1207/1799) total frames, 6.71% of clip | Video Stream Parameters |
| 1 | Color gamut is out of range per EBU R103-2000, due to the chroma being 100% above the tolerance levels | | Stream - 0 (IPD - DaD140) - MPEG-2 video - Low Luma: 0% High Luma: 0% Low Chroma: 0% High Chroma: 100% Start at 07:40:57.481 GOP 171 Frame Index 2441 Pkt 476824 TCR 00:01:21:13 Continues for 1 Frames Ends at 07:40:57.583 GOP 171 Frame Index 2442 Pkt 477018 TCR 00:01:21:14 |
| 1 | Color gamut is out of range per EBU R103-2000, due to the chroma being 100% above the tolerance levels | | Stream - 0 (IPD - DaD140) - MPEG-2 video - Low Luma: 0% High Luma: 0% Low Chroma: 0% High Chroma: 100% Start at 07:40:57.951 GOP 171 Frame Index 2444 Pkt 477436 TCR 00:01:21:16 Continues for 1 Frames Ends at 07:40:57.885 GOP 171 Frame Index 2445 Pkt 477619 TCR 00:01:21:17 |

Error/Warnings/Info/QC Details: This list appears just below the QC Summary. Clicking *Show All* will bring up the entire list of the reported error, warning, or information tests. In this list, the Item ID, Test Performed, Instances and Rule Type are provided and the Item ID number is a clickable link to the actual applicable rule. To hide the detailed list, click *Hide Details Only*.

Clicking the thumbnail from these events will launch the FS3140 Player (if installed) on your client machine with the event frame on pause in full resolution.

Template Specifics (Japan Broadcast) [Details]

| Template Default Parameters | Test Parameters |
|---|-----------------|
| <pre> Prefail: No Postfail: No SpotCheck/NoSpotCheck: 0:0:30:0 InfraLinesOccurrences: 0 WarningInfraOccurrences: 0 BreakdownOccurrences: 1 AbortAfterOccurrences: 0 TestStopTestAfterOccurrences: 100 BlackLevel: 16 WhiteLevel: 235 [101] Calculate Stream Summary [102] Quick Scan [200] Codex (MPEG-2, AVC, VC-1, AC-3) [300] Containers (Transport, Program Stream) [303] Color Gamut Legality - Low Luma value: 1 High Luma value: 103 Low Chroma value: 0 High Chroma value: 105 [400] Closed Captions (CCA 608/708, ATSC3, SCTE20) [4002.001] Consecutive Frames - Max Black Frames: 1 [Audio silence must be present for error to occur] [Audio silence must be present for error to occur] [4003.001] Consecutive Frames - Max Freeze Frames: 1 [Audio silence must be present for error to occur] [Audio silence must be present for error to occur] [4003] Flash Detection (Banding Complaint) [5003.004] Audio Loudness Detection - Target: -23 [spread+/-]: 0.5 window: 400 [7405] SDI6-1 Video Format. </pre> | |

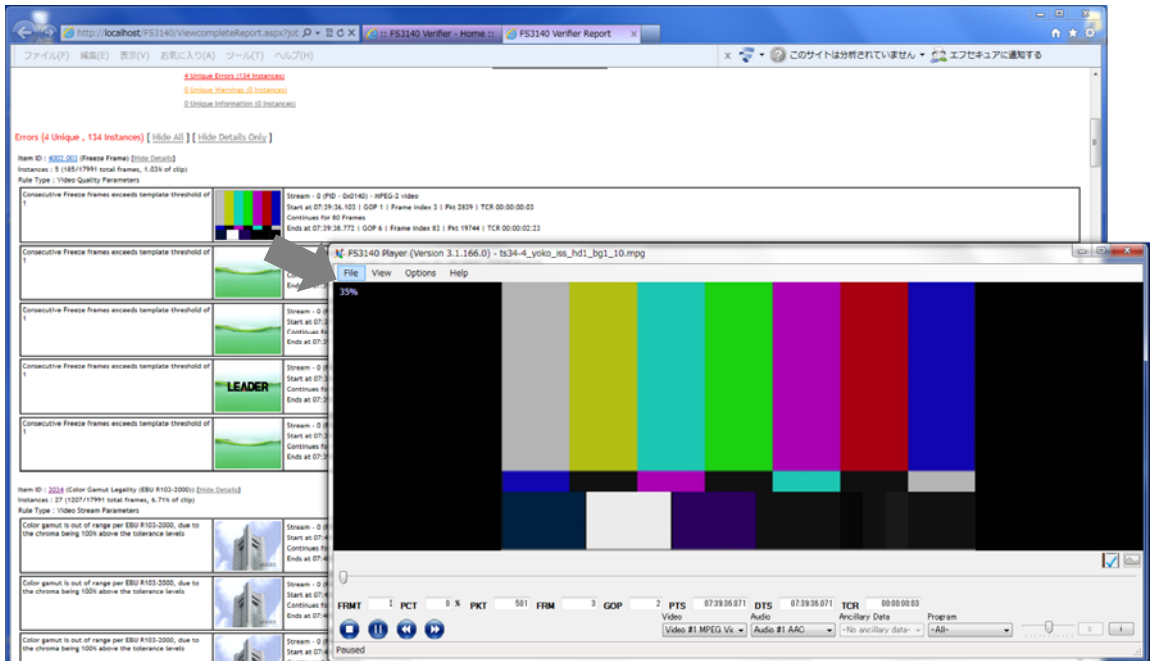
Template Details: At the bottom of every FS3140 report, there is a link to show the Details of the template used for the job, which will show the exact list of tests used.

6.3 Opening The File in FS3140 Player from An Error Report Location

To jump to the exact location of an error in the FS3140 Player:

1. Ensure that FS3140 Player is installed on the Windows PC you are viewing the FS3140 error report from.
2. Also ensure that the local Windows PC has access to the file location (same file permissions as the FS3140 server).
3. Click on the thumbnail associated with the error location.

6. REPORTS



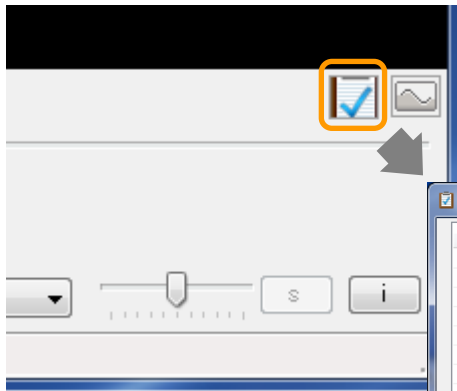
- FS3140 Player will open the file, on pause at the error location. You can use the standard FS3140 Player toolbar controls or keyboard shortcuts to play the file from there.

6.4 Using the FS 3140 Player Review Bar to View Results and Edit QC Events

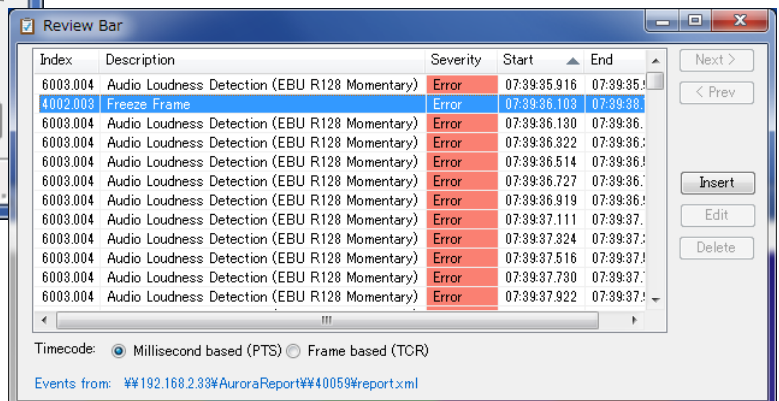
The Review Bar will populate and be available for use when you start playback either:

- By clicking a thumbnail link in an FS3140 report, or
- By clicking the Play button on the Home/Dashboard view next a file.

In either case, the selected container file will open in FS3140 Player and the Review Bar button (to the bottom right of the video window) will become active.



Clicking this button will open the Review Bar, and the FS3140 QC events will be automatically populated for you to use.



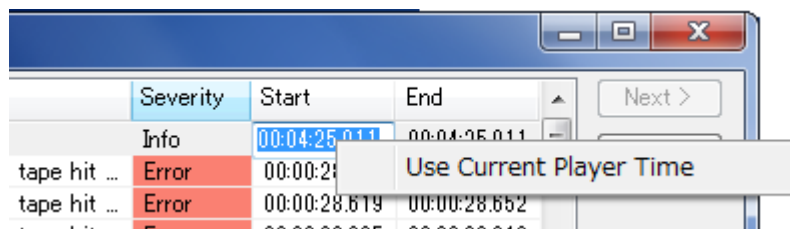
As you play through the video, the closest artifact to your current location will highlight. You can also use the Next and Prev buttons to advance directly to the next artifact.

If you need to change the severity of an FS3140 event, you can click the Edit button and a dropdown menu will appear, allowing you to modify the severity.

| | | |
|--------------------------------|---------|----|
| Alternating Lines tape hit ... | Error | 00 |
| Alternating Lines tape hit ... | Error | 00 |
| Alternating Lines tape hit ... | Error | 00 |
| Alternating Lines tape hit ... | Info | 00 |
| Alternating Lines tape hit ... | Warning | 00 |
| Alternating Lines tape hit ... | Error | 00 |
| Alternating Lines tape hit ... | Error | 00 |
| Alternating Lines tape hit ... | Error | 00 |

Additionally, you can choose to Delete an FS3140 QC event completely, using the Delete button. *If you Delete QC events, the original events will be saved in the XML of the FS3140 Report as Original Events.*

You can also choose to Insert a QC event that may not have been caught by the automated QC, using the Insert button. For Start and End time, you can right-click in those columns and insert the current time from the Player.



7. OTHER FS3140 SETTINGS

7.1 Managing Hot Folders/Watch Folders

The Manage Hot Folder feature allows to setup hot folders (watch folders) to provide a simple level of automation.



From the Settings tab, find the section labeled Manage Hot Folders. You need to set the following items:

- Hot Folder Path – the path that FS3140 will monitor for incoming files to test.
- Template – the template that the incoming files will be tested against. You will also see your Smart Test Plans in this list.
- Success Path – the path files will be moved to if all of the tests in the template pass.
- Error Path – the path files will be quarantined if any template tests fail.
- File Copy Only – by default, hot folder operations copy the report and supporting files along with the container file to the Success or Error path. If you only want the container file (for instance, to build nested hot folders or automate other downstream operations), check this box.
- Subfolders? – by default, FS3140 does not scan subfolders with the hot folder monitor (to avoid duplicating jobs on referenced essence files, like MXF OP1b, HLS and P2). If you want to check subfolders and add jobs for the files found there, check this box.
- Sort – you can choose how incoming files are sorted to be added to the job queue. FS3140 defaults to FIFO, but you can also choose LIFO, sort by date, sort by filename and sort by filesize).
- Priority – you can set a priority for each hot folder, from 1-9 (1 is highest priority).
- **Add** – After completing all fields, clicking this button adds the new Hot Folder.

***** **ToolTips** *****

If you are using Hot Folders on a server that supports integrity checks during file operations (most broadcast playout servers do), you can save time on file copies to Success and Error locations by checking the box that disables the FS3140 File Integrity check.

7.2 Setting Up Email Notifications

FS3140 can be configured to automatically email the user upon completion of the job, depending on the settings in the User section of the Settings page. Email notifications include the file name and test results in the subject of the email, error summary in the body of the email and an attached PDF copy of the job report.

From the **Settings** tab, enter the Server's SMTP IP Address, the account from which the Email should be generated, and the Email server's SMTP port number for communication.

7.3 Automatic Clean-Up of Old Jobs

You can have FS3140 automatically delete old job reports from your server and SQL database by using the Delete Jobs feature on the Settings tab.

Simply input a value in the older than x# of days box, and provide a backup file location (UNC paths only), and then press Delete. FS3140 will prompt you to be sure you want to delete these jobs, and then process your clean-up activity.

***** ! **Caution** *****

There is currently no way to automatically add jobs back to FS3140 after you have deleted them, so be sure you do not need to access these jobs from the FS3140 user interface or database before you delete them.

7.4 Enabling Multi-Core Testing Support

FS3140 ships, by default, to using one CPU core for each VU. This is the most efficient use of CPU resources, as it avoids the overhead of splitting tasks between multiple CPUs, and if the job queue is always full, it is the fastest mode of operation.

However, understanding that many customers do not keep the job queue full 24 hours a day, 7 days a week, and that many situations call for processing a single file as fast as possible (rather than enabling full throughput of a batch of jobs), FS3140 offers a multi-core processing mode that reserves 4 CPU cores for each VU.

You can find this option under the Settings tab. When you enable (or disable) this mode, all jobs in process will restart, so it is best to only change this mode when you have no jobs in the queue.

7.5 Changing the PDF Report Name

You may want to have your PDF reports named in a human readable fashion, and FS3140 allows this to occur using an option under the Settings tab. You can use the following variables in any state to form a PDF report name:

| | |
|-------------|---|
| %FILE_NAME% | your container file name |
| %PRODUCT% | the product name (in this case, FS3140) |
| %JOB_ID% | the FS3140 Job ID |

By default, FS3140 creates PDF with this syntax:

```
% PRODUCT% – Report – Job – %JOB_ID% – FILE – %FILE_NAME%.pdf
```

7.6 Setting a Quarantine File Location

During watch folder/hot folder operation, you can set a location for files to be moved if errors occur, but in some cases, you may want to quarantine aberrant files that have created abort conditions in your workflow, as these are probably files that need no further human review and just need to be rejected.



FS3140 offers this configuration in the Settings tab.

7.7 Changing The Browse Control

You may want to use a client-side browse control (your native OS browse control) instead of the server-side control that FS3140 uses by default.

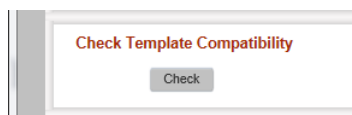


The server-side browse control ensures that no jobs are added to the FS3140 queue that the FS3140 server cannot reach. If you choose to use the client-side browse control, you must have the same permissions on the client machine as you do on the FS3140 server (FS3140 will not upload files to its' queue from paths it cannot access).

To change this setting, find File Selector Type Preference under the Settings tab. Unchecking Server side browse control will enable the client-side control. If you leave server side browse on, you can specify a default browse path that the control will start in (the client side control will default to a path per your operating system defaults).

7.8 Checking Template Compatibility for Upgrades

When upgrading FS3140 versions, it is possible that some of your templates will use older versions of template parameters that are no longer valid in the new version of FS3140. The Template Compatibility tool, located in the Settings tab, ensures that you can always upgrade your templates when you upgrade FS3140.



When you check template compatibility, you will be presented a list of your templates, and if any are not valid for the current FS3140 version, you will be given a link to fix that template in the Template Editor, which will provide you detailed direction on which tests need to be modified to bring your template back into compliance.

7. OTHER FS3140 SETTINGS

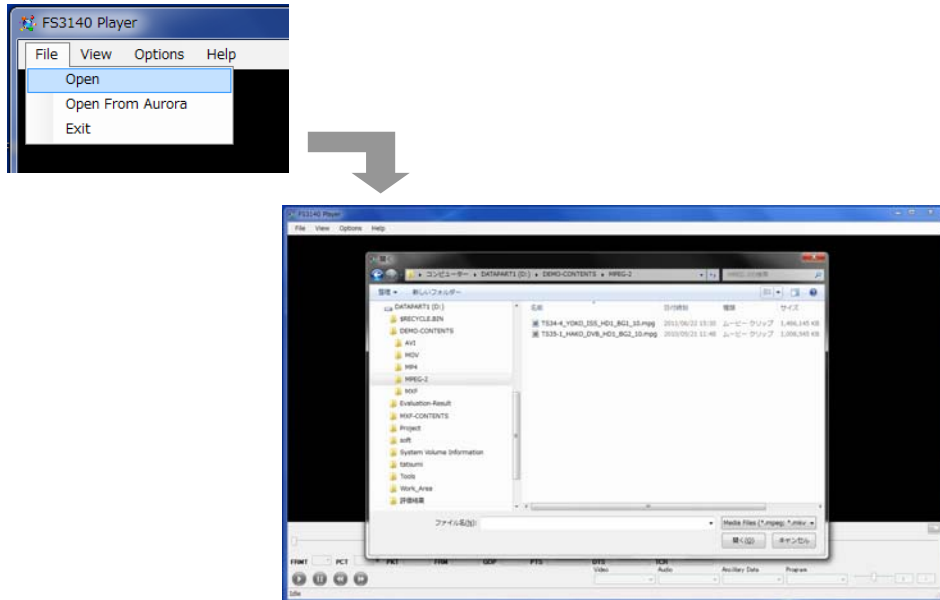
| Index | ID | Name | Valid | Fix? |
|-------|-------|--|-------|----------------------|
| 1 | 23 | DefaultCheck-0214 | False | Fix? |
| 2 | 24 | DefaultCheck-MXF_LR | False | Fix? |
| 3 | 20071 | 4007-Quantization | True | View |
| 4 | 20070 | 4018-Perception | True | View |
| 5 | 20069 | BlackLine | True | View |
| 6 | 6 | ATSC Broadcast | True | View |
| 7 | 10055 | Codec | True | View |
| 8 | 7 | CableLabs VOD | True | View |
| 9 | 20059 | Audio-Test | True | View |
| 10 | 3 | Codec and Container Syntax | True | View |
| 11 | 20066 | ConsecutiveFrame | True | View |
| 12 | 20063 | Container-Meta | True | View |
| 13 | 8 | DVB-T Broadcast | True | View |
| 14 | 9 | Film_Analog Ingest | True | View |
| 15 | 10 | iTunes | True | View |
| 16 | 20067 | IntraFrame | True | View |
| 17 | 11 | Japan Broadcast | True | View |
| 18 | 30061 | Japan Broadcast no FPA | True | View |
| 19 | 10057 | MacroblockCheck | True | View |
| 20 | 20065 | Macroblocking | True | View |
| 21 | 20057 | Netflix | True | View |
| 22 | 10052 | Qtest_ARIB | True | View |
| 23 | 10054 | Qtest_ARIB_Frame | True | View |
| 24 | 10053 | Qtest_ARIB_No-Title-Card | True | View |
| 25 | 10050 | Qtest_ATSC | True | View |
| 26 | 10051 | Qtest_R128 | True | View |
| 27 | 4 | Quality Test | True | View |
| 28 | 1 | Quick Scan | True | View |
| 29 | 2 | Stream Summary Only | True | View |
| 30 | 20062 | Syntax-Container | True | View |
| 31 | 30062 | Tape hit only | True | View |
| 32 | 20061 | Syntax-Codec | True | View |
| 33 | 5 | Tape Ingest | True | View |
| 34 | 20068 | TapeHit-All | True | View |
| 35 | 30063 | TS34-4_YOKO_ISS_HD1_BG1_10.mp4:2013-05-13 14:47:01 | True | View |
| 36 | 12 | UK Broadcast | True | View |
| 37 | 20064 | Video-Meta | True | View |
| 38 | 10059 | VideoQualityCheck01 | True | View |
| 39 | 10058 | VideoQualityCheck | True | View |
| 40 | 20058 | V-Quality | True | View |
| 41 | 13 | XDCAM | True | View |

8. FS 3140 PLAYER

8.1 Opening Files for Playback

To start playing a file in Hydra, use one of the following methods:

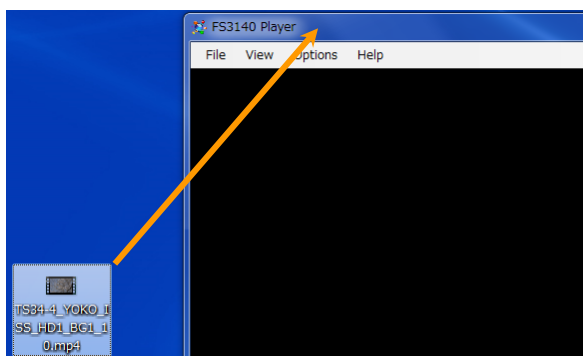
- Select File, Open from the menu bar of the application, and browse to the file location.



- Select File, Open from FS3140 from the menu bar of the application, which will open the FS3140 dashboard in your web browser, after which you can select the the Play in Viewer icon.
- Drag a file onto the FS3140 Player icon on the desktop (hold down left mouse button and drag file).



- Drag a file onto the title bar of the open FS3140 Player application (hold down left mouse button and drag)



8.2 File Type Supported For Playback

FS3140 Player supports nearly all file types in existence for the storage of audio and video essence today. Any format supported by FS3140 Player should also be supported by Hydra for playback. This includes (current as of Januar, 2013):

Containers: Transport Stream, Program Stream, MXF (OP-Atom, OP-1a, OP-1b, AS-02, AS-03), GXF, LXF, AVI, WMV/ASF, MOV/MP4, 3GPP, HLS/M3U8 (HTTP Live Streaming), ISM (IIS Smooth Streaming)

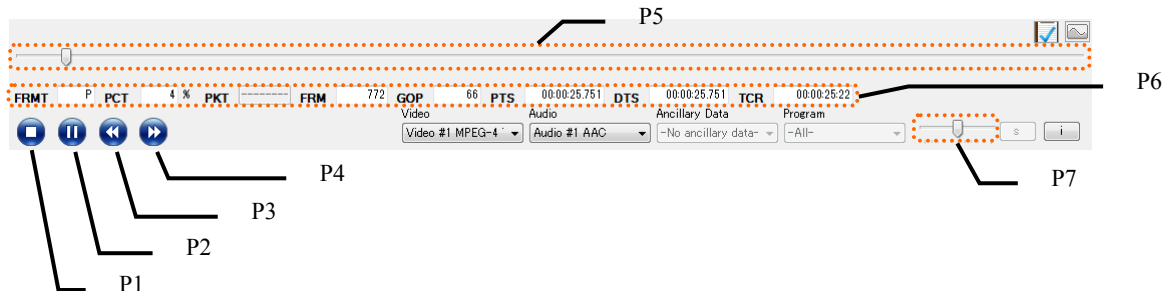
Video Codecs: H.264/AVC, MPEG-2, VC-1, XDCAM, AVC Intra, IMX 30/40/50 (D10), Apple ProRes, Avid DNxHD, Cineform, DV, DVCPro 25/50/100, JPEG2000, Motion JPEG, Flash VP-6/7, Baseband RGB/YUV/HUFF, H.263/+, MPEG-4 Pt. 2

Audio Codecs: PCM (WAV/BWF/AES), AC-3/Dolby Digital, EAC-3/Dolby Digital Plus, MLP/Dolby TrueHD, Dolby E, AAC, HE-AAC, DTS, DTS-HD/Master Audio, MPEG-1, MPEG-2/L-1,2,3, AIFF, WMA Standard, WMA Pro

Ancillary Data: 608 Captions, 708 Captions (wrapping/muxing modes of CDP, SCTE20 or ATSC/Grand Alliance), DVB Subtitles

8.3 Playback Controls

Playback can be controlled either via the FS3140 Player toolbar or via Keyboard shortcuts.



P1 : Play/Stop button

P2 : Play/Pause button (spacebar)

P3 : Rewind button (left arrow key)

P4 : Fast Forward button (right arrow key)

P5 : Location Scrubber

P6 : Location Bar Section

P7 : Volume

By default, FS3140 Player will start playback at the beginning of the file. You can set FS3140 Player to start playback from a specific location, by changing any data on the Location Bar section. This includes:

| | |
|-----|---|
| PCT | percent of the file (from zero) that playback is currently located at |
| PKT | transport stream packet number (only applies to Transport Stream files) |
| FRM | video frame number |
| GOP | video GOP number |
| PTS | presentation time stamp |
| DTS | decoded time stamp |
| PCR | presentation clock reference |

8.4 Selecting Video, Audio or Ancillary Data Essence For Playback



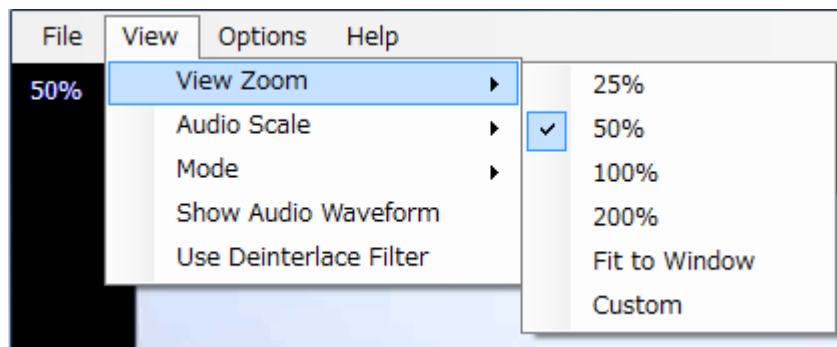
By default, FS3140 Player will start playback using the numerically first PID in each essence category, or the numerically first Program described by the container (even if the first program references PIDs that would not be considered numerically first). You can override these essence selections on the FS3140 Player toolbar.

8.5 View Options

Several options exist to change the presentation view in FS3140 Player. By default, FS3140 Player will show the video essence in the presentation window, preferring to show the video at 100% of the pixel density, but if your monitor is too small, FS3140 Player will automatically maximize the window and present the video at a scaling necessary to show the entire picture.

View Zoom

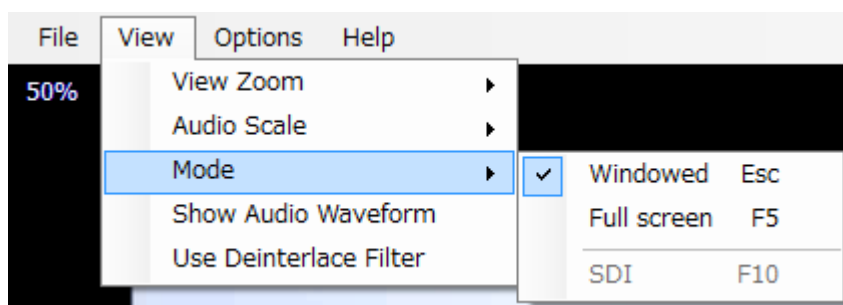
From the Menu bar, select View, Zoom, and select from the following options:



- Several pre-defined percentage scaling factors are available. If you select a scaling factor that exceeds your monitor resolution, FS3140 Player will show either horizontal or vertical scroll bars (or both, if necessary).
- Fit to Window scales the picture to fit inside your monitor resolution, scaling up or down, as necessary.
- Custom – you may enter any custom scaling factor you desire. Be aware that values over 200% on HD content may cause problems with some video cards.

View Mode

From the Menu bar, select View, Mode and select from the following options:



- Windowed – show the application title bar and window controls. This option is available by pressing Esc on your keyboard at anytime a file is open.

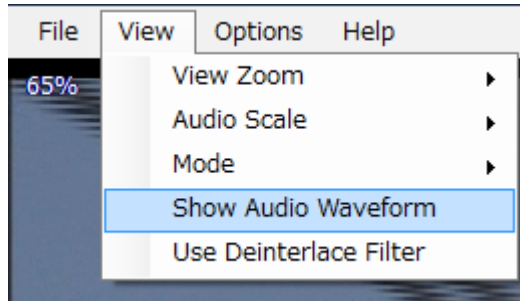
8. FS 3140 PLAYER

- Full Screen – hide the application title bar and window controls to use more screen real estate. This option is available by pressing F5 on your keyboard at anytime a file is open.

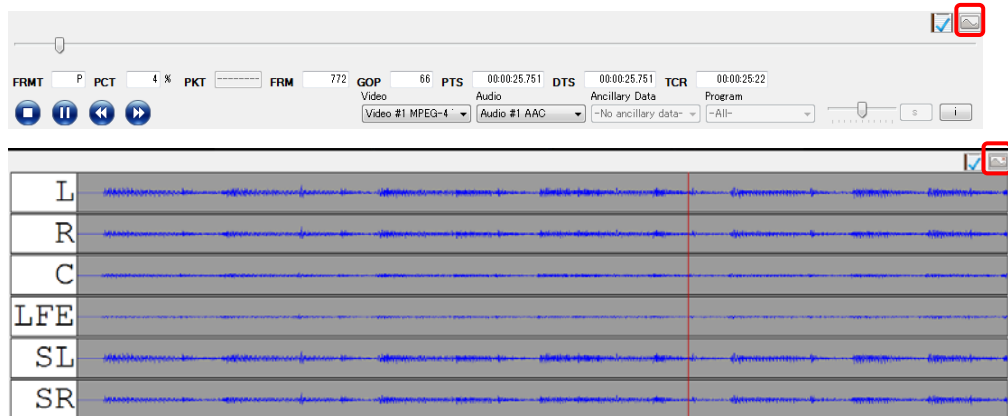
Show Audio Waveform

You can view the audio waveform in one of two manners:

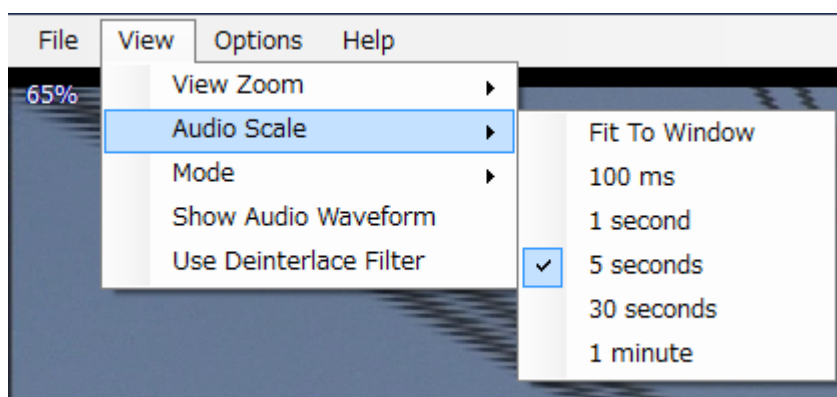
1. Select View, Show Audio Waveform from the Menu Bar.



2. Select the Waveform button from the FS3140 Player Toolbar. Clicking this once will show the waveform, and clicking the button again will hide the waveform.



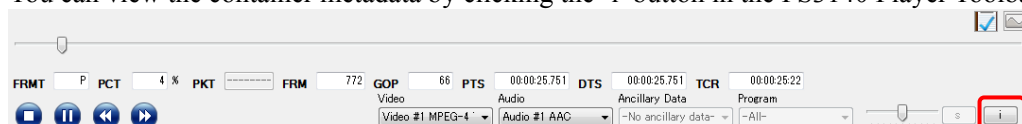
You can also change the Audio Scale shown in the waveform by selecting View, Audio Scale from the Menu Bar.



- Fit to Window will scale the entire waveform to the width of your monitor
- Otherwise, you can choose to scale the waveform by a time factor

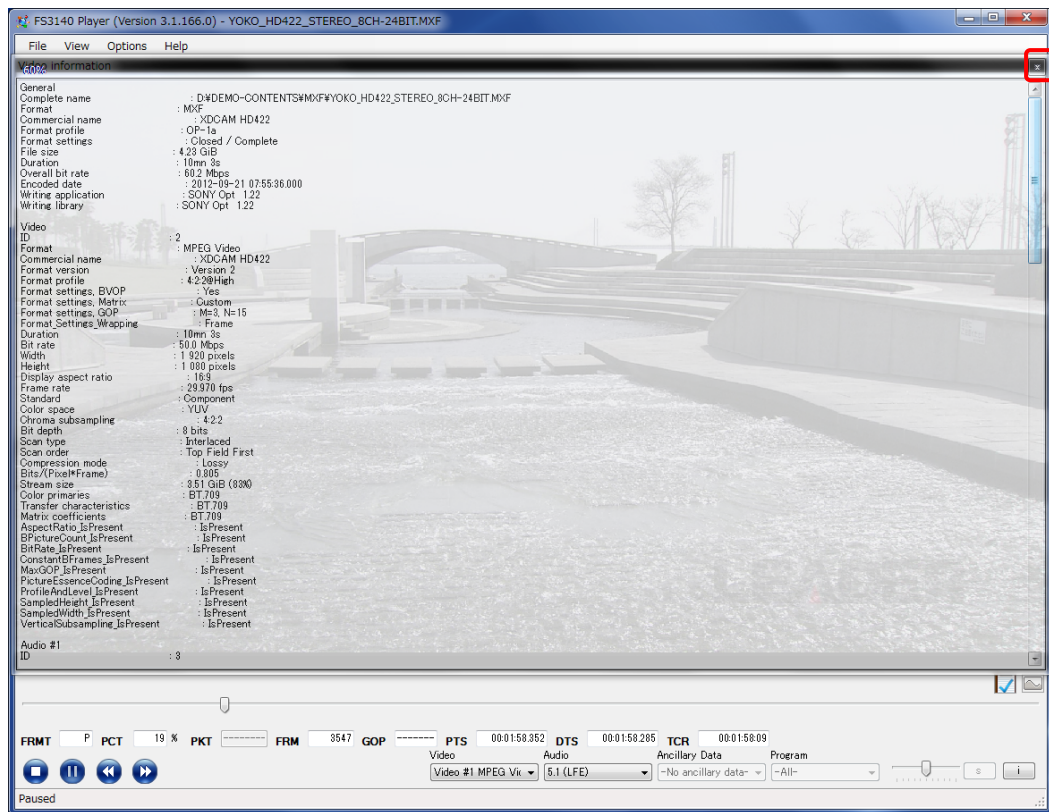
Show Container Metadata

You can view the container metadata by clicking the 'i' button in the FS3140 Player Toolbar.



8. FS 3140 PLAYER

You can close the metadata view by clicking the red 'X' in the top right corner of the metadata viewer.



LEADER

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