Tektronix®

Aurora
Automated File-based Quality Control System
User Manual

077-1111-04

Tektronix®

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Automated File-based Quality Control System
User Manual

This document supports software version 6.3.

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077-1111-04

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Aurora technical support

Aurora technical support is available on business days from 6:00 AM to 5:00 PM Pacific time and 9:00 AM to 5:00 PM Indian Standard time using the following numbers:

US/Canada toll-free	1-844-219-5329
India toll-free	1800 3000 4835
Russia toll-free	810800-22554411
United Kingdom	44 1344 39 2541
Europe [1] toll-free	00800-22554411

Alternatively, you can send an e-mail request for support to *videosupport@tektronix.com*.

Contacting Tektronix

Tektronix, Inc.
14150 SW Karl Braun Drive
P.O. Box 500
Beaverton, OR 97077
USA

For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit *www.tek.com* to find contacts in your area.

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Getting started

Installation

Installation prerequisites

Before installing the Aurora software, do the following:

- Set your Power Plan to High Performance (Power Options in Control Panel).
- Disable CPU/Core Parking options in Windows (a free utility to perform this operation is located *here)*.
- Disable User Account Control (if possible in your environment).
- Open the firewall port necessary to 'Allow Incoming HTTP Traffic' on the default HTTP ports (Windows Firewall disables this or has this rule set to 'Not Set' by default).

How to install the Aurora software

Perform the following steps to install the Aurora software.

1. The several components of the Aurora software suite are as follows:

   a. **Aurora Controller**: This component runs as a Windows Service (Aurora 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. **Aurora Verification Unit**: This component runs as both a Windows Service (Aurora Slave Controller) and an executable (VU.exe) and is the main QC engine. This component is installed with both the Full Application and with the Add-On VU options.

   c. **Aurora Tray**: This component monitors a hot folder and service status and is installed only with the Full Application option.

   d. **Aurora Shell Extension**: This optional component is downloaded separately from the Aurora installer, and allows client machines to add jobs to the Aurora queue from Windows Explorer.

   e. **Java**: This optional component is downloaded separately from the Aurora installer and is necessary only on client machines that want to use the client-side browse control (by default, the Aurora's web GUI will uses 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 Aurora into

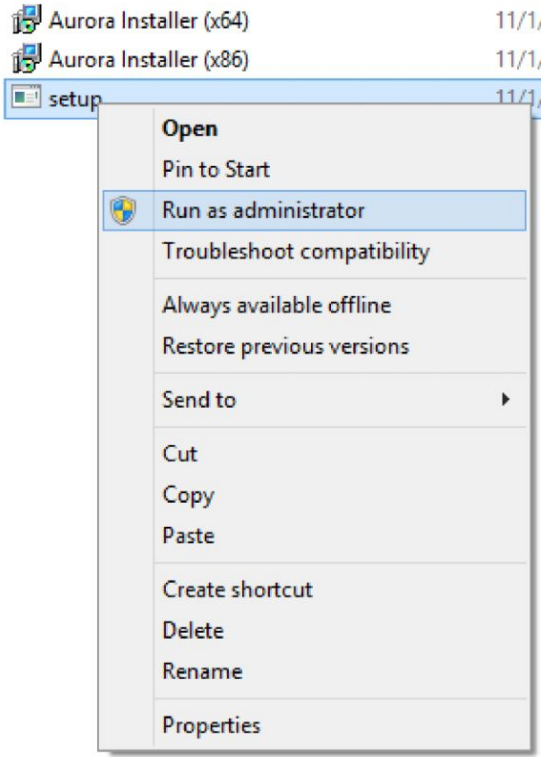
higher level processes. They are installed at c:\Program Files\Tektronix \Aurora in a ZIP file during the Full Application option.

g. **Hydra Player**: Aurora Professional VU and Premium products include a Hydra Player license, which is downloaded separately from the Aurora installer. Hydra can play any asset that Aurora can test, and Aurora report thumbnails are linked to open container files at error locations directly in Hydra. Hydra player installation is covered in the Hydra player manual.

2. Turn off Windows User Account Control. Installation can continue with it on but we recommend it be turned off.

3. Run Setup.exe.

CAUTION. *If you are installing on Windows 8 or Server 2012, right-click setup.exe and select* ***Run as Administrator****.*



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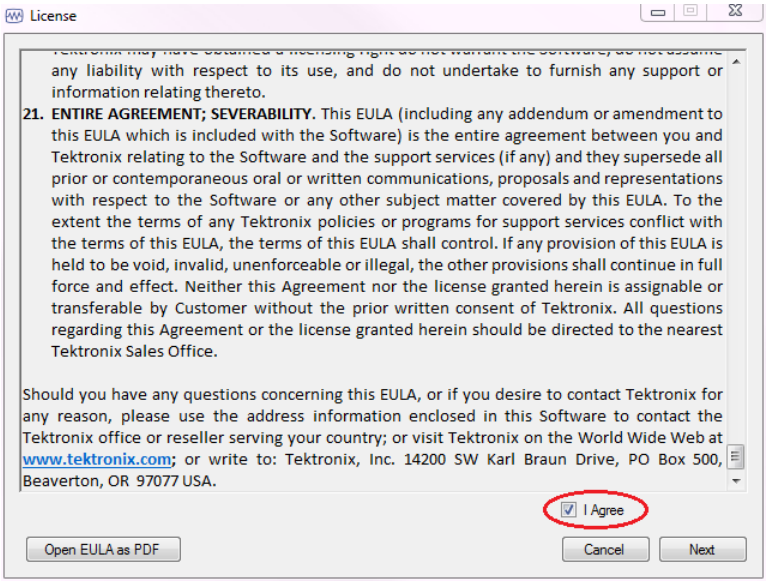
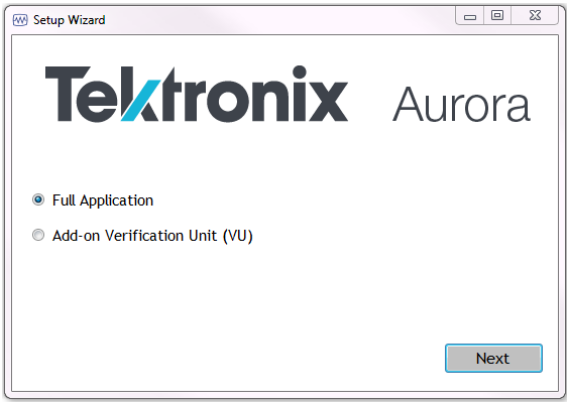
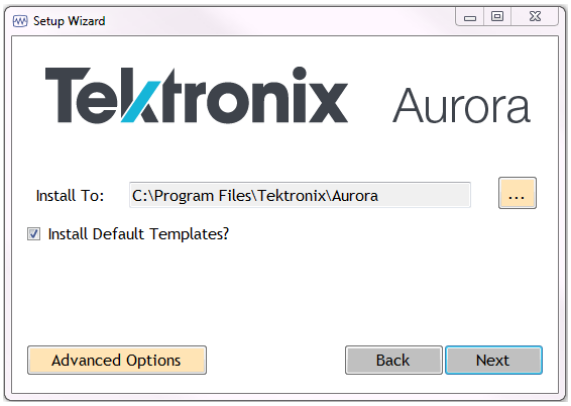
4. The following screen will appear, and is required that you accept the license terms by selecting the I agree check box to continue installation. You can open and save the license terms as a PDF file from the license agreement screen.



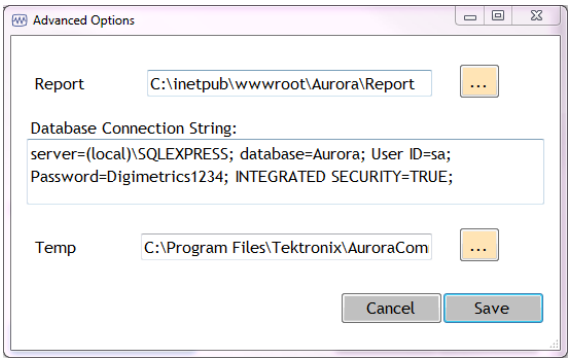
5. After agreeing to the terms of the EULA and clicking Next, you will be asked to select an installation profile. Selecting “Full Application” will install the controller and verification units on the same machine (you can always use verification units installed anywhere on your network). Selecting “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 that section.



6. The following configuration screen will appear:



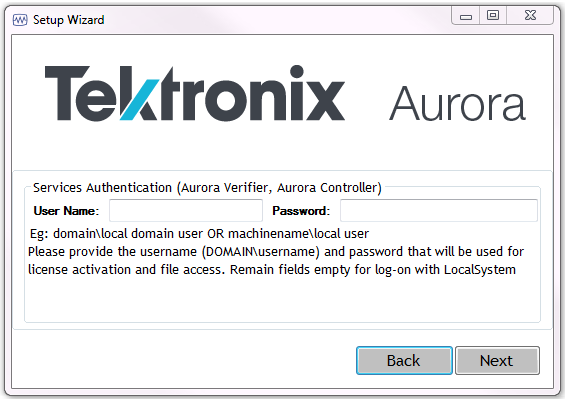
- **Install To**: Browse to the location where you would like to install Aurora or just use the default location. C:\Program Files\Tektronix\Aurora for 64-bit operating systems
- **Install Default Templates**: Check box to install a set of pre-configured templates.
- **Advanced Options**: Click to see advanced options.



- **Report**: Enter the path to the folder where Aurora will save job reports. The default location is: C:\inetpub\wwwroot\Aurora\Report.
- **Database connection string**: The database connection string displays here. The default should be enough for most systems. For assistance, contact *Tektronix Technical Support*.
- **Temp**: Enter the path for the working directory. This is the temporary location of your report while the job is in progress. The default path is typically used.
- Click **Save** when finished.

7. Click **Next** to begin installation.

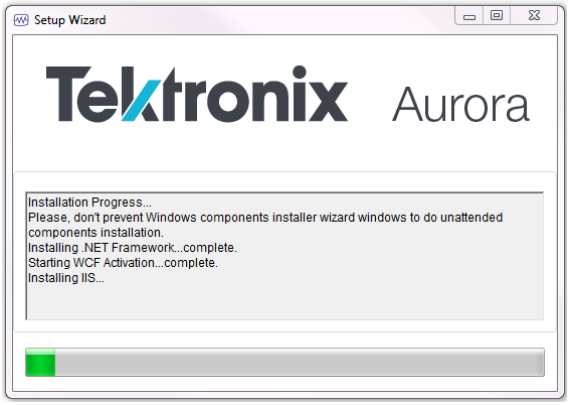
8. **Services Authentication**: This step is CRITICAL. Aurora services must have authentication to reach the path your files for QC are stored at.:



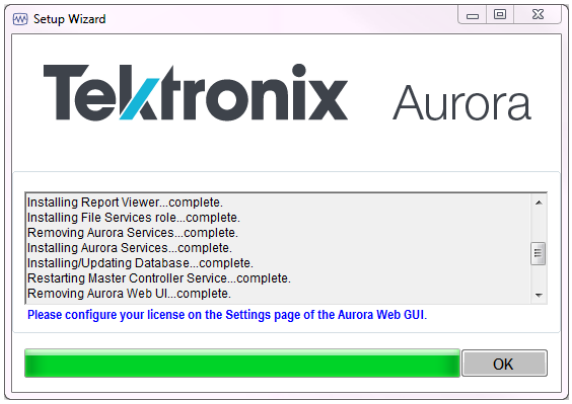
Services Authentication: Enter the domain\user or machinename\local user and password to allow the Aurora Controller and Aurora Verifier services to access files on your network. Leave the fields empty to log-on with the LocalSystem account.

Click **Next** when finished.

9. All necessary prerequisites are installed in addition to the Aurora software. The setup wizard displays a progress window showing the status of the installation processes.



10. Once the initial installation is complete, restart the workstation. Subsequent upgrades or updates will not require a restart:



NOTE. *User Account Control may prevent the Aurora installer from installing certain components. We highly recommend you turn User Account Control OFF (from Control Panel/Users) for the machine running Aurora. If any components fail installation, you may attempt to install these from C:\Program Files\Tektronix\Aurora\Pre-requisites. If you still have problems installing components with User Account Control turned on, please contact Tektronix Technical Support.*

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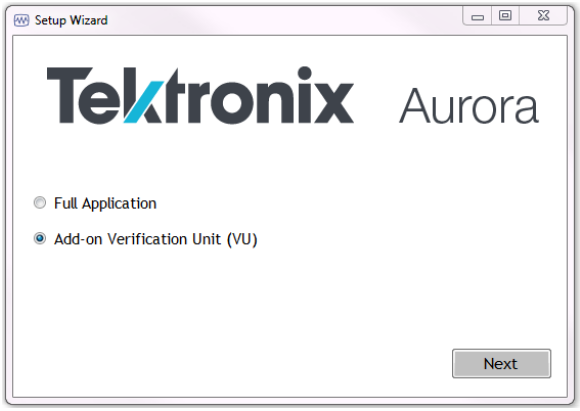
11. Open a web browser on the local machine and go to http://localhost/Aurora/ (or from a remote computer, open a web browser and go to http://[Aurora_Machine_IP_Address]/Aurora.
12. Enter admin as the login and password for your Aurora evaluation.
13. Configure your license received from Tektronix fulfillment using the *process found here*.
14. You are now ready to begin using Aurora. Create a template and add a job to get started. If you have any questions please contact *Tektronix Technical Support*.

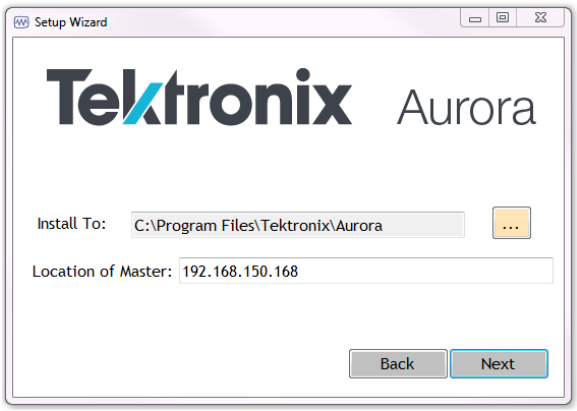
How to install additional verification units on additional machines

Installing additional verification units on additional machines is similar to installing Aurora on your controller machine.

1. Select **Additional Verification Unit (VU)**.

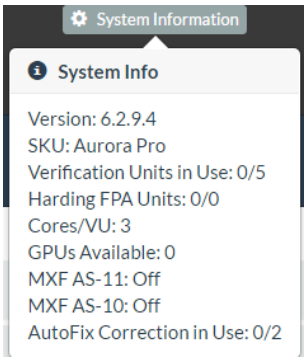


2. The next step asks you for the IP address of the master controller machine, so that setup can configure the master controller to use the verification units on the remote machine.

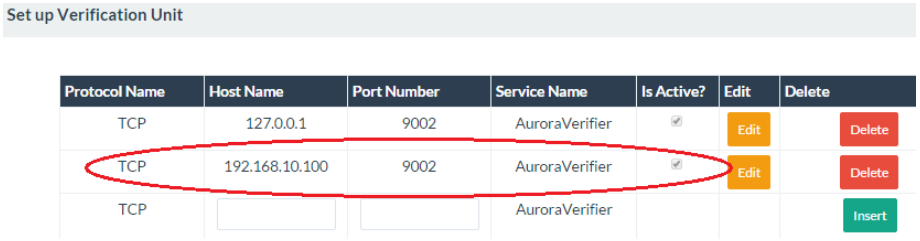


3. After installing the majority of components, the Aurora installer will check the status of your license. If you do not have an Aurora license present, it will prompt you for a license key, which you should have received from Tektronix fulfillment. You can configure the license using the Settings tab of the Aurora web GUI from the master controller machine.

4. The Aurora installer will take care of everything else. To confirm that everything is setup correctly, browse to the Aurora application on your master machine and check that the total number of VUs is as you expect by clicking on System Information in the top right (this number must include the number of VUs on the controller machine plus the number of VUs on your new add-on machine).



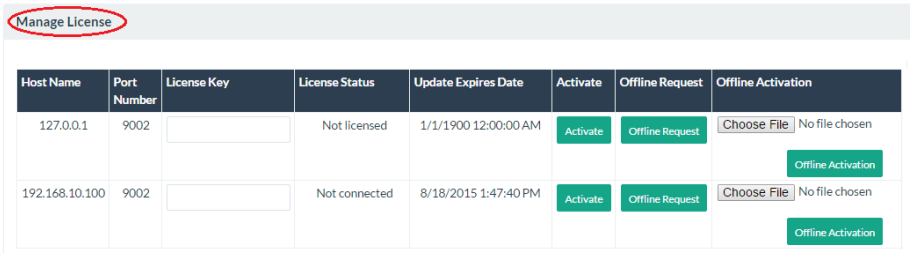
If it does not, check the Settings page (under Options) to be sure that the add-on machine is correctly listed.



Activate the software license

1. **License configuration**: From the Web GUI click the **Options** tab and select **Settings**. Expand the *Manage License* section.
2. **Online** activation (trials or commercial licenses): Enter the 28-character license key provided by Tektronix fulfillment (include dashes) and click the **Activate** button in the **Activate** section.
3. **Offline Trial** activation: Enter the 380-character offline activation key provided by Tektronix fulfillment, and then click the **Activate** button under the **Activate** section. It is not necessary to use the Offline request button for an offline trial.

4. **Offline Commercial License** activation: Enter the 28-character license key provided by Tektronix fulfillment (include dashes) and click Request under the Offline Request heading. Save the resulting file to your computer and send that file to *videosupport@tektronix.com*. You will receive a response file, which you will need to **Browse to** under the **Offline Activation** heading, and then click the **Activate** button in that section.



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

Aurora technical support

Aurora technical support is available on business days from 6:00 AM to 5:00 PM Pacific time and 9:00 AM to 5:00 PM Indian Standard time using the following numbers:

US/Canada toll-free	1-844-219-5329
India toll-free	1800 3000 4835
Russia toll-free	810800-22554411
United Kingdom	44 1344 39 2541
Europe toll-free	00800-22554411

Alternatively, you can send an email request for support to *videosupport@tektronix.com*.

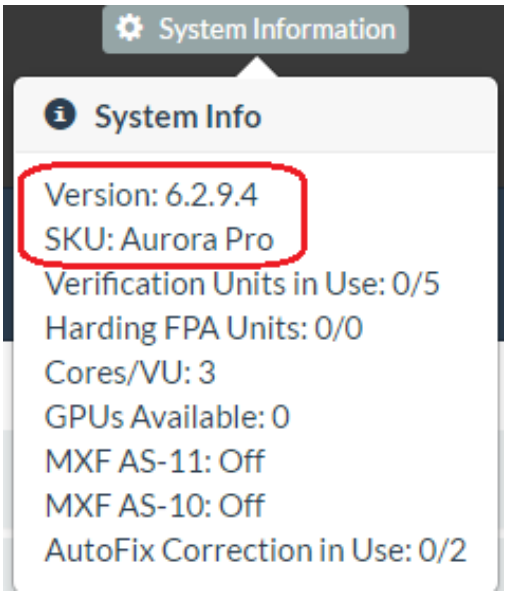
Austria, Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden, Switzerland, and UK.

Aurora software license upgrades

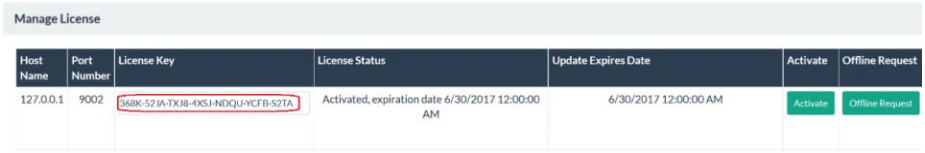
When you want to upgrade your Aurora software license, you will need to provide Tektronix with information about your existing Aurora system as described in the following procedure.

To upgrade the license for Aurora, do the following:

1. Click **System Information**, on the top right of the home page. Make a note of the Version and SKU values or capture a screenshot of the System Information window.



2. Click **Options** > **Settings** > **Manage License**. Make a note of the License Key string or capture a screenshot of the Manage License window.



3. When you are ready to order an upgrade to your Aurora system, send the two screenshots or send the software version number, SKU value, and license key string to a Tektronix sales representative.

First time operation

Login as administrator

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

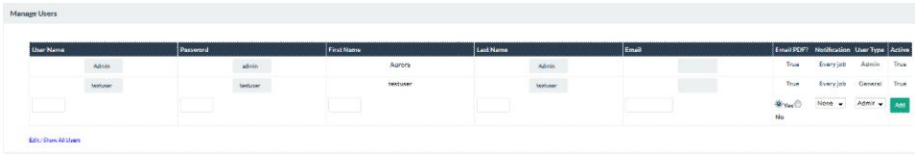
Enter the username and password as **admin**.

Aurora is ready for your use.

Set up new users

Perform the following steps to set up new Aurora users:

1. Select the **Options** tab at the top of the Aurora interface.
2. In the Options tab, select **Settings**, and then select **Manage Users** to open the Manage Users control shown below.



3. Use the Manage Users controls to enter the user privileges for Aurora described below:
   a. Enter the **User Name** that you will use to login each time to the Aurora Verification Unit.
   b. Enter the **Password** that you will use to login. Passwords can be composed of symbols, letters, or numbers or a combination of all three.
   c. Enter the **First Name** of the user.
   d. Enter the **Last Name** of the user.
   e. Enter the **Email** address of the user.
   f. Select **Email PDF?Yes** or **No** depending on whether the user wants to receive a PDF attachment of the job report on notification of the job.
   g. Use the **Notification** drop-down list to select how the user will be notified on job completion:
      - **None**
      - **Every Job**
      - **Only Jobs with Errors**
      - **Only Jobs with Warnings**

h. Use the **User Type** drop-down list to select the type of Aurora user:

a. Select **Admin** to allow the user all administrative privileges for Aurora, including setting up the Aurora Verification Units and managing users.

b. Select **Super user** to allow the user to view and reorder jobs for all users, but to restrict the user from modifying other user's application settings and templates.

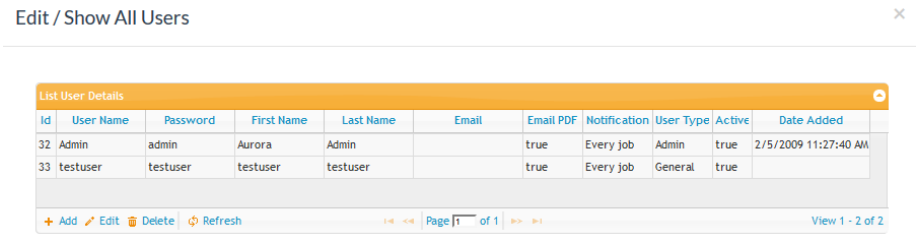
c. Select **General** to limit the user to adding jobs and viewing reports related to that user only (additional user jobs and settings are not accessible.)

i. The **Active** column is for information only and indicates whether the user is currently an active user. There are two Active status options – True or False. To change the Active status, you must click **Edit** (see below).

j. Use the **Edit** control to edit all of the user information, including the *Active* status of the user.

k. After completing all fields for the new user, clicking **Add** to change the user to the Active status.

l. Use the **Edit / Show All Users** control to view all users and edit all the user information, including the ability to delete users.



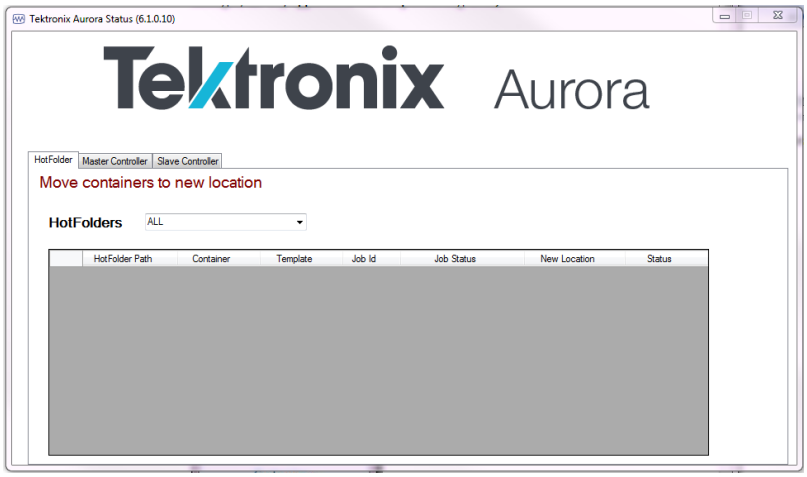
Testuser login

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:\AuroraTemp on the master controller machine. The default password is *testuser*.

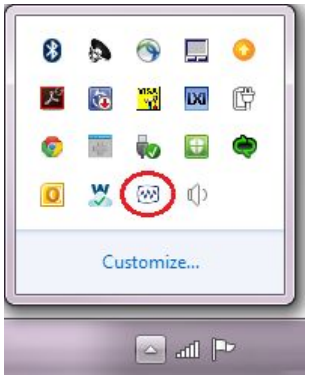
NOTE. *When you log in as testuser it may take longer as Aurora will create CSV dump files for every template test ran. These are files that give support for the errors that Aurora finds in every frame of the test. CSV dump files also show what was measured in order to report the error. This file will add time (sometimes substantially) to each job.*

Aurora tray application

The Aurora tray application is mainly a diagnostic tool for use with *Tektronix Technical Support*. Additionally, this application ensures that the Aurora 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 Aurora services with the Windows service manager, the tray application will keep restarting them).



You can access the Aurora Tray Application by double clicking on the icon at the bottom right of your screen. The Tray Application icon may be hidden in your tray, and can be found by clicking the up arrow.



Log out of Aurora

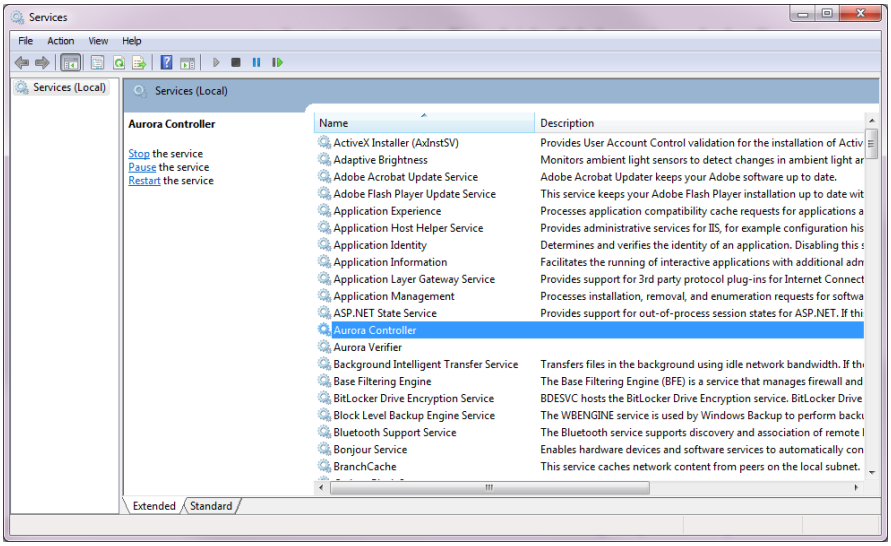
Aurora is designed to be running constantly. When you no longer need to interact with Aurora, click on the **Log Out** tab on the Aurora interface and close the browser window or tab.

Before you start

File access permissions

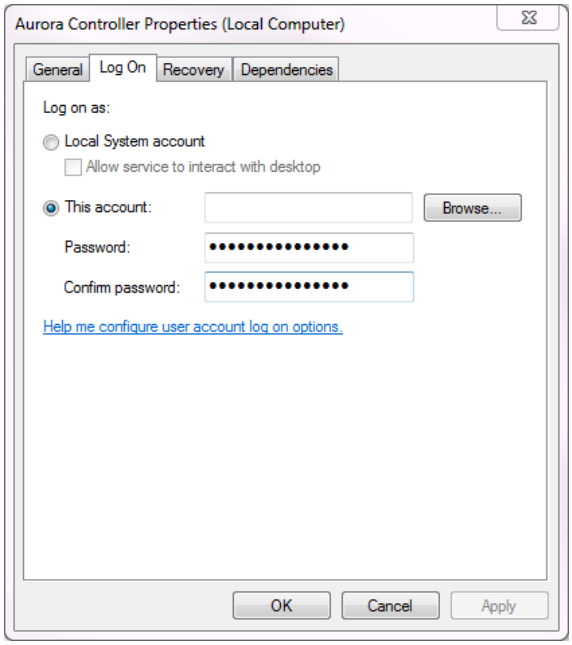
Both Aurora services must have file access permissions to the network storage you will use within your workflow. *If you did not set this during installation*, you must manually configure file access for both Aurora services.

- Open the Services manager by pressing Windows Key + R and typing services.msc.



- Locate **Aurora Controller** and right click the service and select **Properties**.

- In the **Log On** tab of the service properties, assign an account and password that has permissions to access your shared storage.



- Click **Apply**, and then restart the service.
- Repeat these steps for Aurora Verifier service.

Set your service logon credentials in the Aurora Installer, so that these credentials are saved during future software updates. If you do not set your logon credentials in the Aurora Installer, you will have to reset service permissions after each software update.

Test template customization

Aurora includes several *default test templates*, but you can also customize the templates. Before running your first job, you should do one of the following:

- Use the *Template Editor* to *modify a default template* to match your QC needs
- Use the *Template Editor* to *create a new test template*
- Use the *Template Editor* to make a new template from a known good/bad file.

Aurora has many adjustments in the template editor, and the results you receive on the report could vary based on how each test is configured.

NOTE. *Customizing your test template is the most important step in having QC results that will efficiently help you make automated or assisted decisions in your workflow.*

If you need assistance, your reseller can help you configure test templates. If you purchased the Annual Service and Maintenance (ASM) agreement for Aurora, you can contact *Tektronix Technical Support* to help configure your test template.

Audio service configuration

If you process AES wrapped tracks or have mono channel audio essence tracks that need to be grouped together and tested/played as a single audio service, use the *Audio layout* to ensure that your tracks are tested correctly.

For each track count, you need to define how the tracks map into services, and then which services should actually be tested. The unchecked services will be assumed to be ‘pad’ and will not be tested.

Operating basics

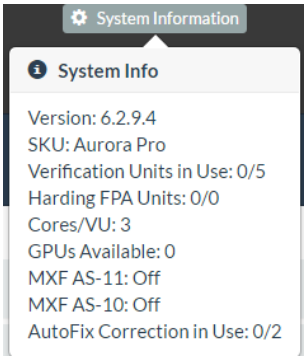
Product overview

Main user interface

Aurora 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 view several items in the top of the browser user-interface when you first access Aurora:

- **Product Information Area**: Displays the product name: Tektronix Aurora.
- **System Information** button: Displays the license options and available VUs for the Aurora system.



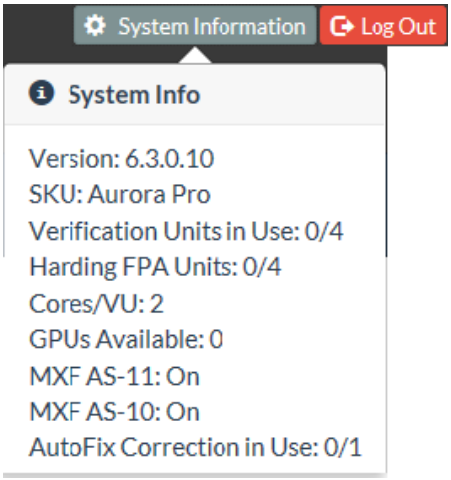
- **Tab Bar**: Toolbar is the main navigation for Aurora, which allows you to add jobs, edit test templates & plans and modify application settings.
- **Log Out** button: At the top right, this red button logs you out of the Aurora system.

Tab descriptions

- ***Dashboard***: Displays the dashboard view of the system, and is the first page displayed when logging into Aurora.
- ***Add New Job***: This tab, helps you to complete a simple three-step process. Select
  - Template for a job
  - Container for the job
  - Streams to be verified
- **Templates**: You can use the options you define in your templates to setup how files to be tested by Aurora.
  - ***Template Editor***: You can create or edit a template that specifies the parameters that you want the verification process to identify as errors or warnings. At the right side of the page, you can select an existing template and modify its parameters as desired or you can simply create a new template from scratch. File Read, Defaults, Audio Layout and QC tests help you to add tests to the template. QC test parameters include 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 the several tests to determine the most appropriate settings for these parameters for your particular needs.
  - *Template Manager*: Displays all the saved templates. You can select any template to edit, delete, rename, copy, export, and import them. If you select more than one template, you can only delete, copy, export, and import them.
  - ***Smart Test Plan***: You can build rules that will automatically select test templates for your incoming files.
  - **Compatibility Check**: Allows you to check whether the templates on your Aurora system require any modifications after updating to the current release of Aurora. You can also use this page to force existing templates to use new options available in new Aurora releases.
- **Analytics**: Includes standard features to search for older jobs and view trends for the most common occurring QC events. If you have the Result Comparison add-on, you can also use the Analytics tab.
- ***Options***: You can set up verification units, manage users, manage hot folders, and modify any other application settings. You can also access API documentation and view the Help, About information box, including support contact information from this tab.

Optional features

Aurora includes the vast majority of features shown in this manual at no additional cost. However, some features that are not used universally are only available with a product add-on. You can see the status of these optional features in the top right hand corner of the Aurora User Interface window.



GPU Acceleration: This features is only available in Aurora Professional (Aurora Core users must upgrade to Aurora Professional to turn this feature on). Aurora used the NVIDIA professional series (Quadro K5000 or better and any Tesla series) cards to accelerate tests shown in the template editor with the NVIDIA icon NVIDIA. CUDA. next to them.

- Tape Hit Detection: With the GPU acceleration, there should be no noticeable impact to your QC performance. Without this feature, you may notice slowdowns between 5-20x.
- Perception-Based Video Artifact Detection (PVAD): With the GPU acceleration, there should be no noticeable impact to your QC performance. Without this feature, you may notice slowdowns between 3-5x.
- Subliminal Shot Detection: With the GPU acceleration, there should be no noticeable impact to your QC performance. Without this feature, you may notice slowdowns of 25-50%.
- JPEG 2000 decoding acceleration: With the GPU acceleration, you'll be able to decode JPEG 2000 files up to 4x faster than without this feature. This option is available with the Advanced Codec Pack.

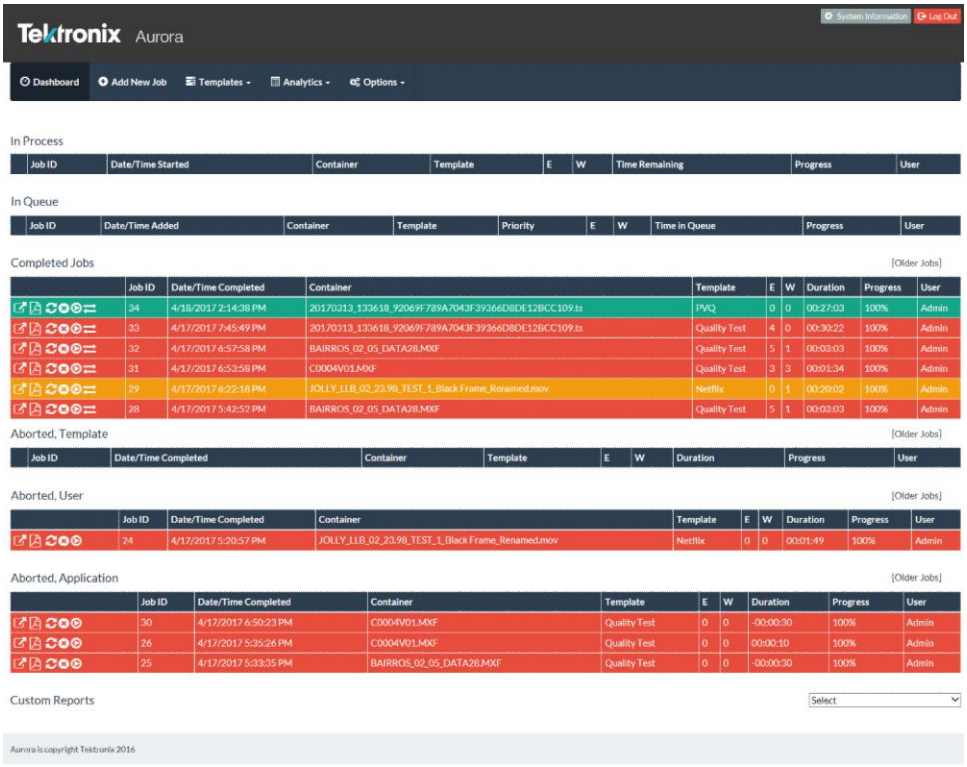
Harding FPA: Aurora includes its' own photo-sensitive epilepsy test, but some customers will prefer to have the Cambridge Research Systems (CRS) Harding logo on their report.

Advanced Codecs: For customers requiring the use of Canopus or HEVC, these codecs are available as a plugin to Aurora Core or Professional. GPU acceleration of JPEG 2000 is also available as an option. Customers requiring the use of Dolby E can add it as a plugin to Aurora Core (Dolby E is included at no cost with Aurora Professional).

Result Comparison: This analytics plugin enables you to compare QC reports from two different points in the workflow and have Aurora highlight only the differences created by the second process.

Dashboard view

After logging into the application, Aurora's browser window opens to the Dashboard tab, which is the main view of the entire system.



All jobs are color coded as described below.

- Blue: Not started yet.
- Green: No Problems or only Information items generated by template events.
- Orange-Yellow: Warnings generated by template events.
- Red: Errors, either generated by template events or from an abort condition.

Dashboard job categories

Different job categories are listed below:

- 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.
- 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.
- You can view the most recent 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.
- You can view the most recent twenty **Aborted**, **Template** jobs. This list displays the jobs that have been aborted, due to a threshold in the template.
- You can view the most recent twenty **Aborted**, **User** jobs. This list displays the jobs that have been cancelled by a user on the web interface or via the API.
- You can view the most recent twenty **Aborted**, **Application** jobs. This list displays the jobs that Aurora was unable to process (and whose reports will contain the error for what caused the abort).

Dashboard columns and sorting

- Job ID : Aurora assigns Job IDs to every container file that is presented to the system, sequentially, starting at 1
- Date/Time: Presented in MM/DD/YYYY HR:MIN:SEC AM/PM format.
- Container Name: The file name (exclusive of path) of the container file for the job
- 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
- E: The Error count for that job
- W: The Warning count for that job

You can sort any of these dashboard job categories by clicking on the section titles (such as Job ID, Date/Time Complete, Container, Template, E, W and User). Sorting will sort the twenty jobs that are in view.

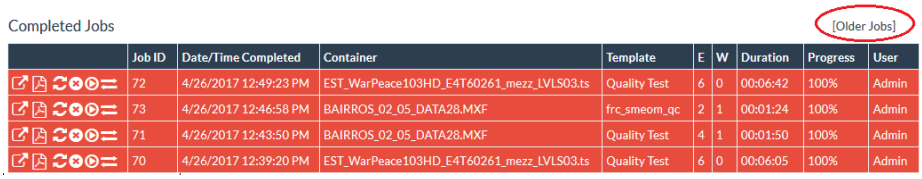
Dashboard buttons

- : Opens the HTML report view in a new browser tab. 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 HTML report view in a pop-up window.
- : 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 requeuing of files.
- : In Queue jobs, moves the selected job up one spot in the queue.
- : In Queue jobs, moves the selected job down one spot in the queue.
- : In Queue jobs, toggles the selected job between Pause and Available for Processing status.
- : 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 Hydra Player for Review (additionally, populates the Review Bar with the Aurora QC events).
- : For Complete Jobs, starts a comparison Job (if you have the Analytics add-on for Result Comparison license) using the currently selected job's container file as the reference.

View older jobs

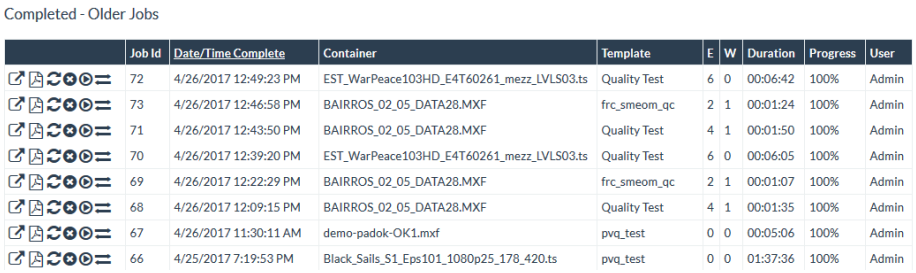
There are three methods to find older jobs:

1. Click the **Older Jobs** link to the right of the Dashboard Job Category.



	Job ID	Date/Time Completed	Container	Template	E	W	Duration	Progress	User
	72	4/26/2017 12:49:23 PM	EST_WarPeace103HD_E4T60261_mezz_LVLS03.ts	Quality Test	6	0	00:06:42	100%	Admin
	73	4/26/2017 12:46:58 PM	BAIRROS_02_05_DATA28.MXF	frc_smeom_qc	2	1	00:01:24	100%	Admin
	71	4/26/2017 12:43:50 PM	BAIRROS_02_05_DATA28.MXF	Quality Test	4	1	00:01:50	100%	Admin
	70	4/26/2017 12:39:20 PM	EST_WarPeace103HD_E4T60261_mezz_LVLS03.ts	Quality Test	6	0	00:06:05	100%	Admin

Displays the list of all completed jobs on the system.

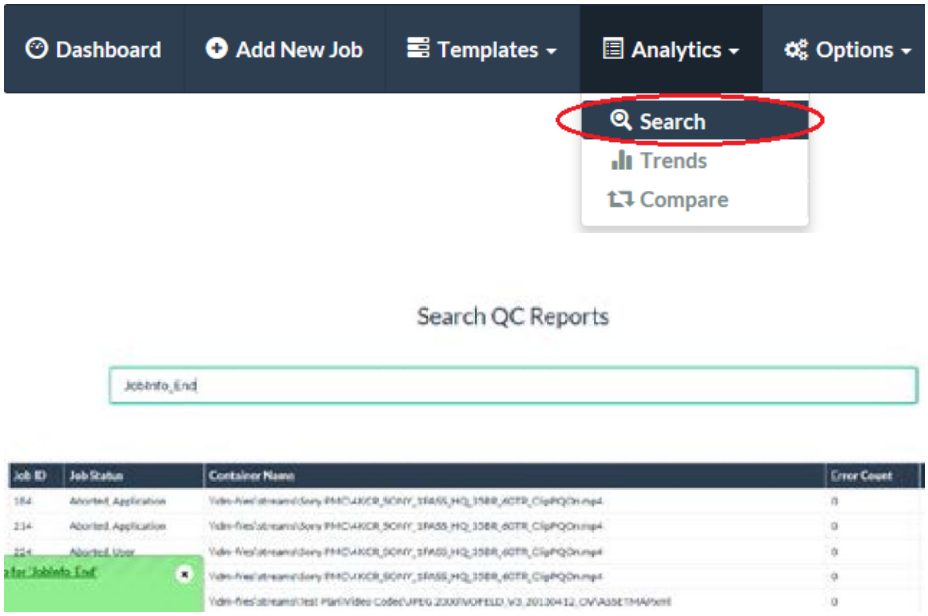


	Job Id	Date/Time Complete	Container	Template	E	W	Duration	Progress	User
	72	4/26/2017 12:49:23 PM	EST_WarPeace103HD_E4T60261_mezz_LVLS03.ts	Quality Test	6	0	00:06:42	100%	Admin
	73	4/26/2017 12:46:58 PM	BAIRROS_02_05_DATA28.MXF	frc_smeom_qc	2	1	00:01:24	100%	Admin
	71	4/26/2017 12:43:50 PM	BAIRROS_02_05_DATA28.MXF	Quality Test	4	1	00:01:50	100%	Admin
	70	4/26/2017 12:39:20 PM	EST_WarPeace103HD_E4T60261_mezz_LVLS03.ts	Quality Test	6	0	00:06:05	100%	Admin
	69	4/26/2017 12:22:29 PM	BAIRROS_02_05_DATA28.MXF	frc_smeom_qc	2	1	00:01:07	100%	Admin
	68	4/26/2017 12:09:15 PM	BAIRROS_02_05_DATA28.MXF	Quality Test	4	1	00:01:35	100%	Admin
	67	4/26/2017 11:30:11 AM	demo-padok-OK1.mxf	pvq_test	0	0	00:05:06	100%	Admin
	66	4/25/2017 7:19:53 PM	Black_Sails_S1_Eps101_1080p25_178_420.ts	pvq_test	0	0	01:37:36	100%	Admin

2. Use the **Custom Reports** section at the bottom of the Dashboard to run pre-defined searches for common categories of older jobs.

- Reports from today
- Reports from the last 5 days
- Reports from the last 7 days
- Reports from the last 30 days
- Reports with more than 10 errors
- Long running jobs
- Stream-summary only reports
- All comparison jobs
- Comparison jobs with errors

3. Use the **Search** feature on the Analytics tab to perform natural language and complex searches



QC jobs

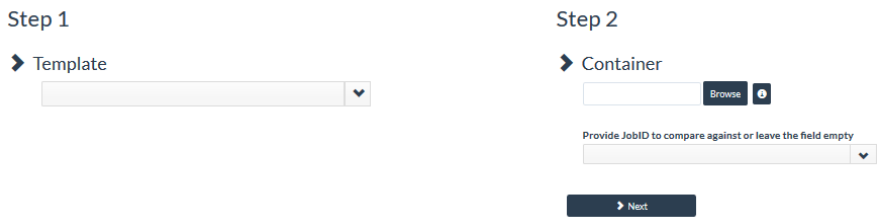
Add new job tab

You can set up new jobs manually from the Add new job tab. Perform the following steps to add a job to the QC queue.

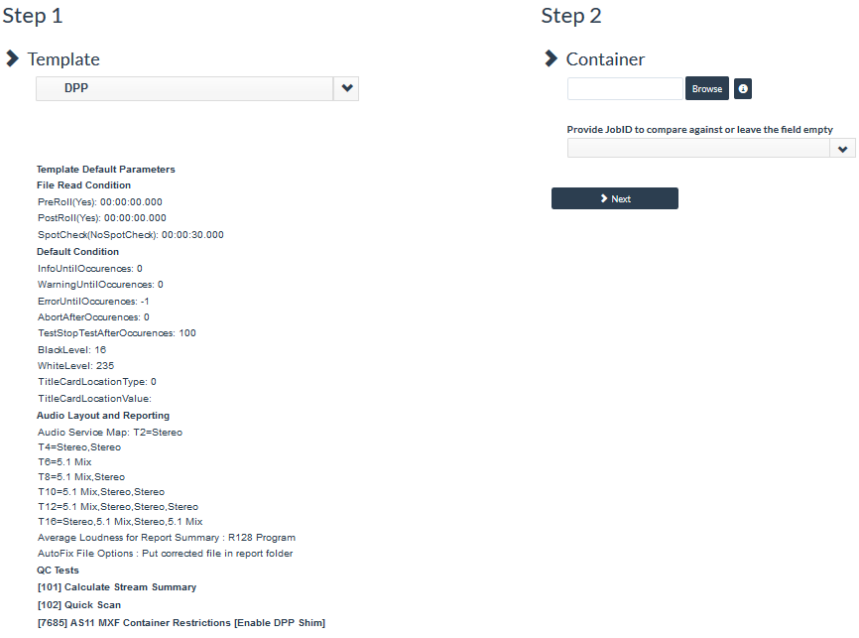
1. From the Aurora Homepage, click **Add New Job**.
2. Use the **Step 1** controls to select a template:

a. Use the **Template** drop-down list to select a saved template. In addition to the default templates, the template list contains your Smart Test plans (at the top preceded by ST_) as well as your user-created Templates (in the middle of the list).

NOTE. *You can also type any portion of the template name to search for a template.*



b. As shown below, the test parameters of the selected template are shown below the Step 1 Template section.



3. Use the **Step 2** controls to select the container of files you want to verify:

a. Click the **Browse** button to navigate to the location of the file(s) to be tested.

By default, Aurora will show a server-side browse control, which shows only the files that the Aurora server has access to. You can *choose* to use a client-side browse control, which requires Java. When using the client-side browse control, the files you select that are not accessible to the Aurora server will not be able to be added as a Job.

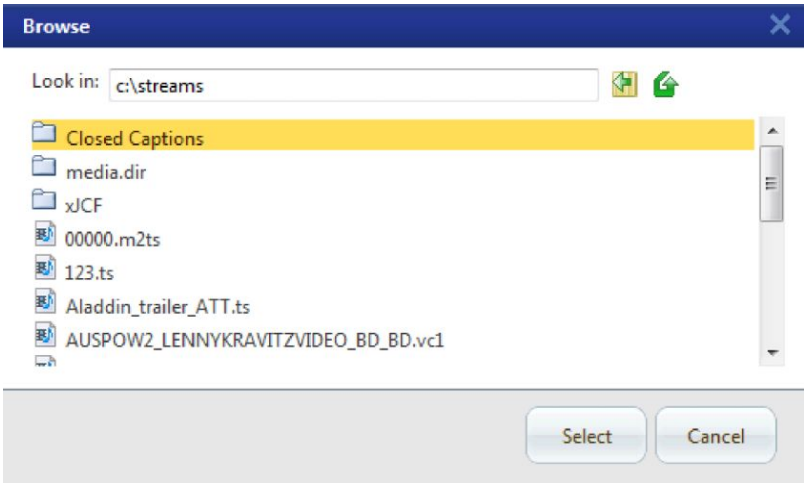


Figure 1: Server-side browse control

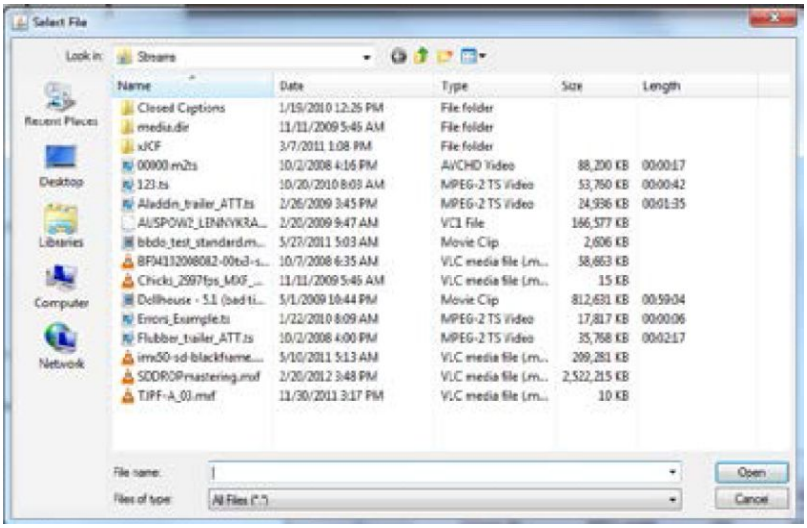
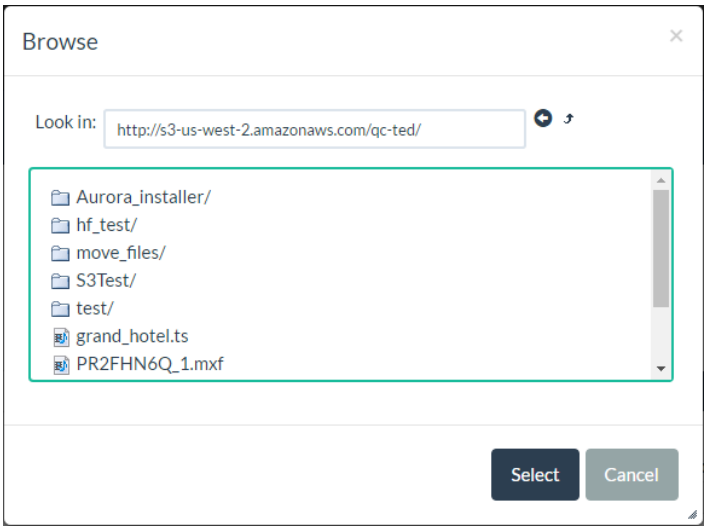


Figure 2: Client-side browse control

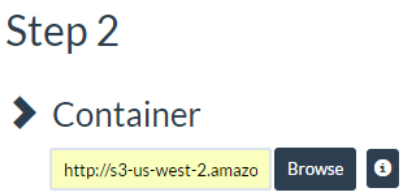
To select files from AWS S3, enter the URL path with or without the credentials to server-side browse control. Provide the region along with the URL. Eg., http://<AccessKey>:<SecretKey>@s3-<region>.amazonaws.com/<bucketname>/

Or

http://s3-<region>.amazonaws.com/<bucketname>/



Alternately, you can specify the complete file path including file name in the Container text field as shown below.



http://s3-<region>.amazonaws.com/<bucketname>/<folder>/<filename.ext>

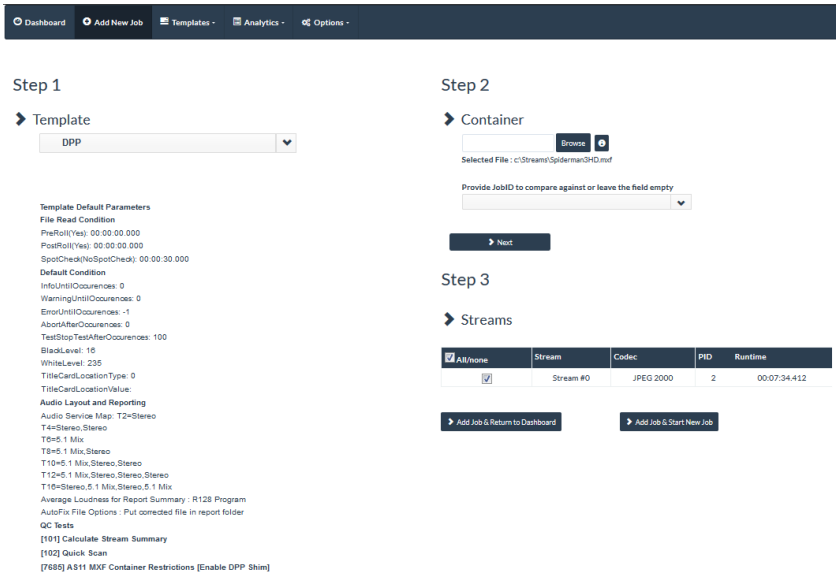
Or

http://<AccessKey>:<SecretKey>@s3-<region>.amazonaws.com/<bucketname>/<folder>/<filename.ext>

You can use the above steps for Hot Folder configuration and add job via Web service API.

b. If you want to compare the results of this job against a previous job, use the **Provide JobID** drop-down list to select an existing job file.

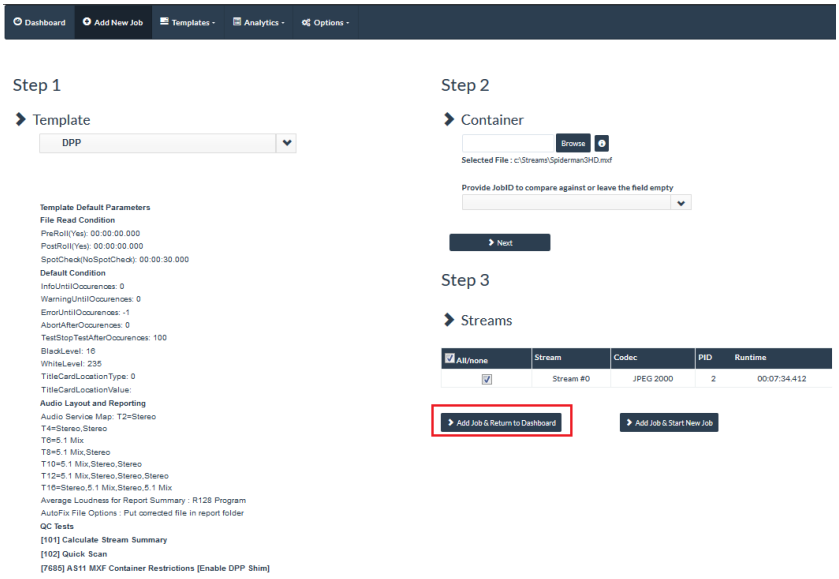
c. Click **Next** to continue. As shown below, the Step 3 controls appear below the Step 2 section.



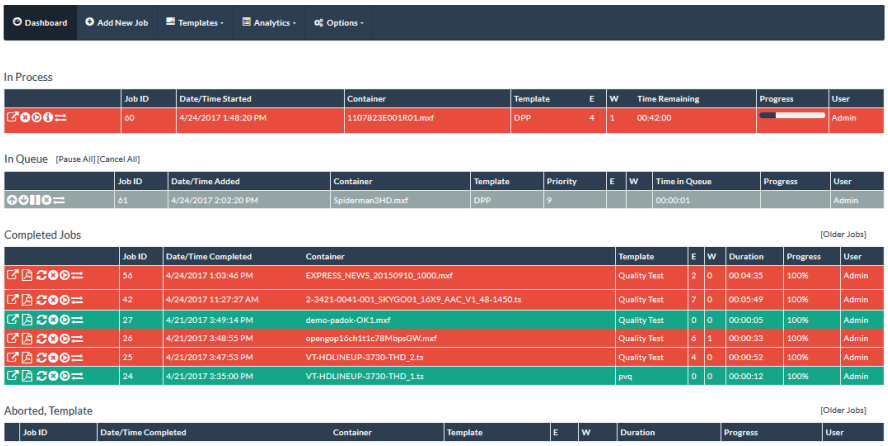
4. Use the **Step 3** controls to select the streams to be verified and opt whether to return to the Dashboard or create another job:

   a. Use the check-boxes in the first column of the streams list to select the desired streams to be verified or choose the Select/Deselect All checkbox (by default, all the streams in the container are selected).

   b. After you've selected the streams to be verified, click one of the two buttons below the streams list to add the job to the QC queue:**Add Job & Return to Dashboard** or **Add Job & Start New Job**.



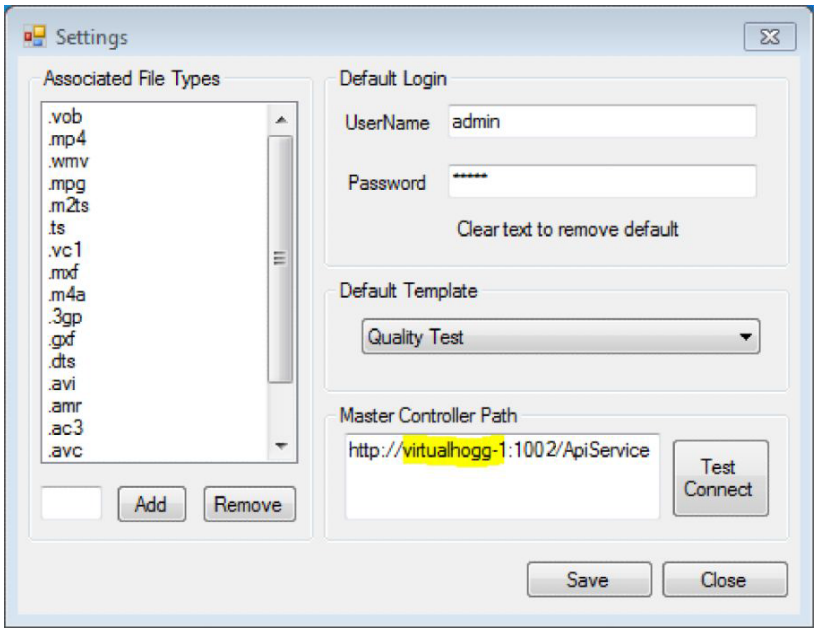
5. After you have added the job, you can view the jobs **In Queue** from the dashboard.



Aurora shell extension

You can to install the Aurora shell extensions (this is a separate download and installer that you execute on a client machine, not the Aurora server), that utilize the SOAP API to send jobs to the Aurora queue. You must configure the shell extension prior to using it the first time.

1. To set up shell extensions, go to the Aurora folder of your Start Menu or navigate to C:\Program Files\Tektronix\Aurora\Aurora Shell Extension.
2. Run DCA.Aurora.ShellExtension.exe.
3. Set the API service location by changing the machine name to be the machine name or IP Address of the machine where the Aurora application is installed. The highlighted area below is where you should make this change.



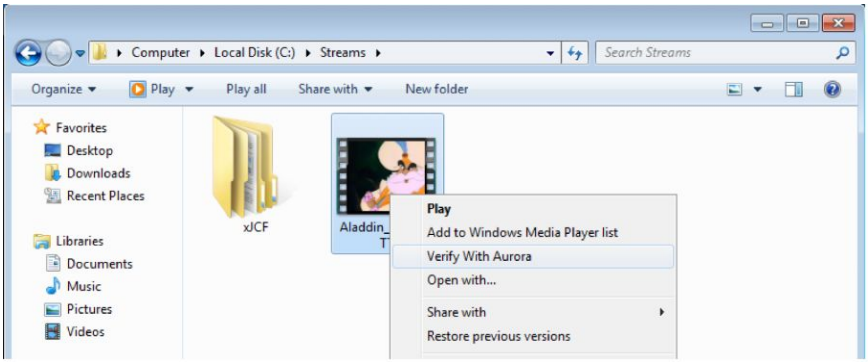
4. Set the username and password that shell extension jobs should be logged as.
5. Select which template the shell extension jobs should be checked against.
6. Set the file extensions the shell extensions will monitor.
7. To test the connection, click the **Test Connect** button.

   Once the shell extension configuration is saved, Windows Explorer enables the right-click option with monitored extension to send the file to Aurora.

   NOTE. *Make sure that the file you right click on to automatically send to the Aurora queue is the file that Aurora server has access.*

8. Once you have right clicked on a file that is shared with the host, choose the **Verify with Aurora** option.

9. The file will then be sent to the Aurora queue.



How to add jobs with referenced essence container files

When dealing with referenced essence containers, always point Aurora to the top-level container. By using the top-level container (usually the one with the smallest file size, since there is no embedded essence), Aurora will automatically test all reference audio, video and ancillary data referenced as a single asset, even if they exist in disparate physical or virtual locations, such as a subfolder or separate network path.

MXF. In an MXF environment, such as Omneon MediaGrid, this will be the OP-1b container file in the root folder.

MOV. In MOV environments, such as Avid ISIS, use the publicly available MOV container file (this file will be quite small in size, usually under 100KB).

P2. For P2 media, select the XML file in Contents/Clip subfolder.

SxS. For SxS media, select the Index.xml file in the root of the SxS folder.

HLS (HTTP Live Streaming). For Apple HLS files, select the *.m3u8 playlist/manifest file.

Smooth Streaming. For Microsoft Smooth Streaming files, select the *.ism playlist/manifest file.

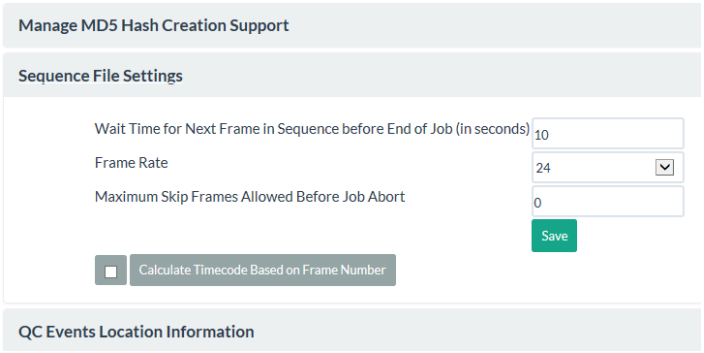
MPEG DASH. For MPEG DASH files, select the *.mpd playlist/manifest file.

HDS (HTTP Dynamic Streaming). For Adobe HDS files, select the *.f4m playlist/manifest file.

IMF and DCP. For IMF files, you can select either the ASSETMAP.xml or any of the CPL XML files for tests (ASSETMAP will test all CPLs). For unecrypted DCP files, select the ASSETMAP.xml.

How to add jobs for frame-wrapped sequence files

For frame-wrapped sequences of files, including RED, DPX, EXR, AVC Intra, PNG and J2K, Aurora will automatically look for the next frame in the sequence after a job has been started with any the first frame of the sequence. Aurora will look for a numeric value just prior to the file extension to determine sequence positioning (such as frame00001.dpx or render00320.r3d, where the frame # would be 1 and 320, respectively). You can set the timeout value to complete the job (how long Aurora will wait for the next frame in the sequence before finalizing the job) on the Settings page of the Options tab. In this same location, you can set the frame rate Aurora will use for calculating duration (and Hydra will use for playback).



When running a sequence file job, Aurora QC events will show a frame file name in addition to time values. Additionally, sequence files will play back in Hydra as a single video stream.

How to add jobs with the DXW generic container to group mono essence files

If you have multiple mono essence files that you would like to aggregate for testing purposes (such as several DPX files or an H.264 video essence with mono channel audio track files), the DXW generic container offers the ability to group these files together so that Aurora will test them as a single, continuous source. The advantages of this method include being able to test:

- an entire feature length set of renders
- multiple sets of audio & video essence combinations together prior to a final transcode/wrap
- test multiple mono essence audio tracks as a single audio service (using the Aurora Service Map feature of the Template Editor)

The DXW container is a simple XML file that can be generated by hand-editing or scripting up file locations and referencing them with clip entries. As long as this file has the DXW file extension. Aurora will parse the contents and test all listed clips together.

Example DXW file contents (for motion video content) - notice the multiple clips

```
<?xml version="1.0" encoding="UTF-8"?>
<indexFile xmlns="urn:digimetrics-xml-wrapper"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:digimetrics-xml-wrapper
```

```
DXWschema.xsd">
<clip file="media/Desperado+L21_inAS02_v0.mxf"
type="video"/>
<clip file="media/Desperado+L21_inAS02_a0.mxf"
type="audio"/>
<clip file="media/Desperado+L21_inAS02_a1.mxf"
type="audio"/>
<clip file="media/Desperado+L21_inAS02_vbi0.mxf"
type="data"/>
</indexFile>
```

Example DXW file contents (for single frame content, such as DPX or EXR) – one clip, multiple frames

```
<?xml version="1.0" encoding="UTF-8" ?>
<indexFile xmlns="urn:digimetrics-xml-wrapper"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:digimetrics-xml-wrapper
DMSCLIP.XSD">
<clip type="video" framerate="25">
<frame file="Sequence 01_90000.dpx" />
<frame file="Sequence 01_90001.dpx" />
<frame file="Sequence 01_90002.dpx" />
</indexFile>
```

In all DXW cases, point Aurora to the DXW file to start a job.

Other job add methods

You may also add jobs to the Aurora queue via the *hot folder/watch folder* monitor or via the SOAP API.

Template Editor

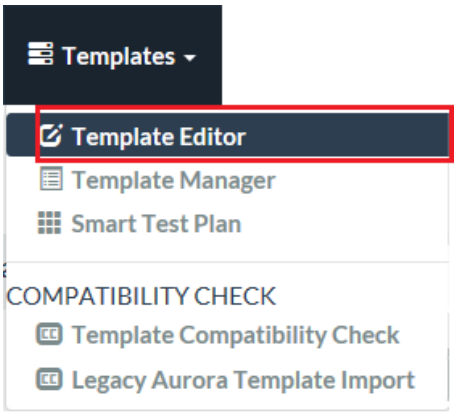
Use the Template Editor to create and to edit the custom verification processes for your particular production needs. You can create/ edit an entire suite of templates, one for each type of file that you may need to verify.

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.

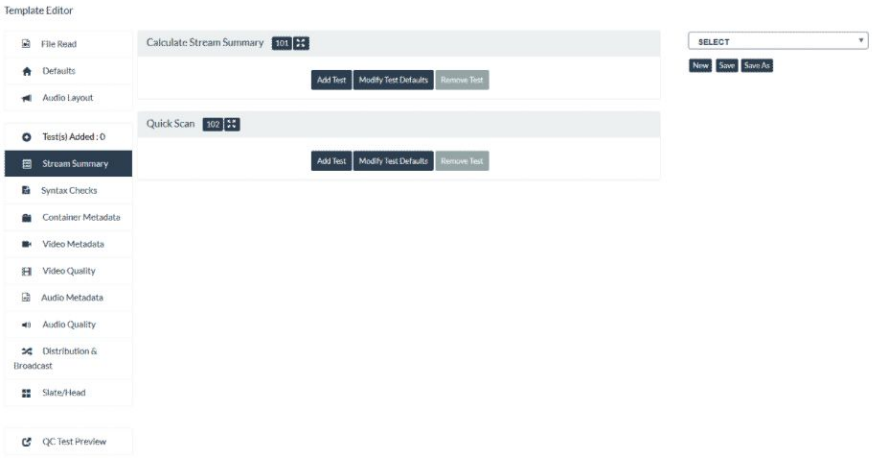
Aurora uses the template editors, which separates sections of the test template into smaller portions to allow simpler template organization. You can create a template using the following:

- **File Read**: Defines the portion of the file to be tested.
- **Default**: Defines parameters such as how you want errors reported, the default white and black levels, and the location where you want the test report to be delivered.
- **Audio Layout**: Defines audio parameters such as the loudness standard, how to handle mono essence audio tracks, and the location where you want the corrected audio files to be delivered.
- **QC Tests**: Defines which QC tests will be used and the parameters to be used for each QC test.

To create a test template, select **Template** > **Template Editor** to select a combination of default or user-created tests and combine them into a template to be used during testing.



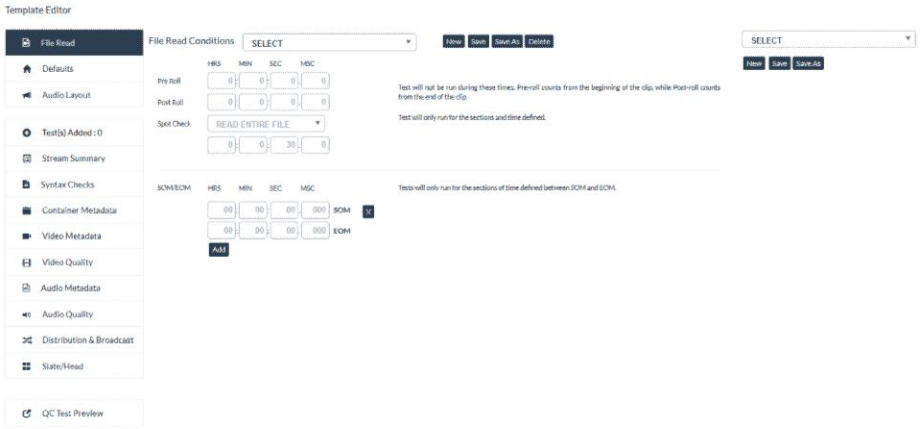
NOTE. *While most of your editing and tune up process will involve defining the QC tests, it is important to also define and use the File Read, Default and Audio Layout so that your content is tested appropriately.*



NOTE. *Complete details on the tests available in Aurora are available by clicking the Test Index Number next to each test in the Web browser interface.*

File read

The File read allows you to set the following file read conditions:



- Pre Roll: Sets the period of time from the start of the clip that you want to exclude from verification tests. You can set the time in hours, minutes, and seconds.

  NOTE. *The Pre Roll parameter counts from the beginning of the clip. The Post Roll parameter counts from the end of the clip.*

- Post Roll: Sets the period of time at the end of the clip that you want to exclude from verification tests. You can set the time in hours, minutes, and seconds.
- Spot Check: Selects the portion of the clip to be tested and the period of time to test the defined section(s) of the clip. You can set the time in hours, minutes, and seconds. You can select the following portions of the clip to spot check:
  - Read Entire File
  - Start, Mid & End
  - Start Only
  - Mid Only
  - End only
  - Start & End Only

- SOM/EOM: Sets the start of material and the end of material.

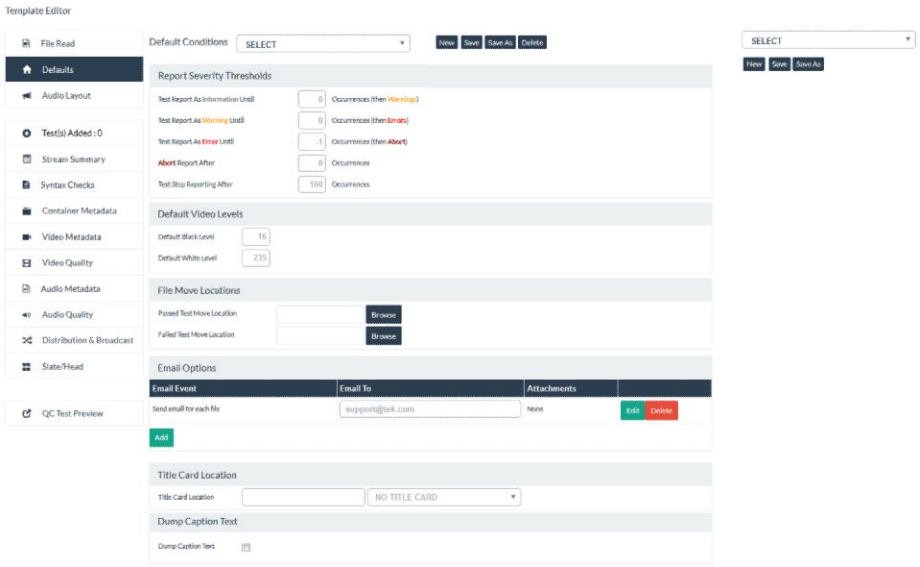
NOTE. *Tests will run during the time defined between the SOM and the EOM.*

SOM: The SOM parameter sets the start timing of material in the clip. You can set the time in hours, minutes, and seconds.

EOM: The EOM parameter sets the end timing of material in the clip. You can set the time in hours, minutes, and seconds.

MSC: Enter the frame number as per the TCR.

Default The default allows you to set the default conditions:



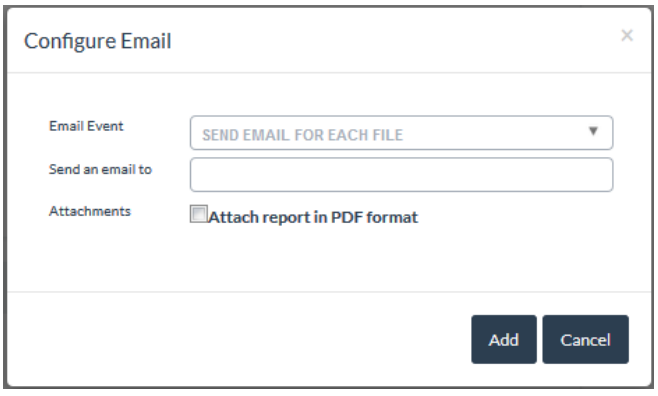
- Test Report as Information Until [x] Occurrences (then Warnings): Sets the number of test events that will report as Information, after which additional test events will be reported as Warning. Set this value to -1 to have test events always report as Information.
- Test Report as Warning Until [x] Occurrences (then Errors): Sets the number of test events that will report as Warnings, after which additional test events will be reported as Errors. Set this value to -1 to have test events always report as Warnings.
- Test Report as Error Until [x] Occurrences (then Abort): Sets the number of test events that will report as Errors, after which additional test events will cause the test to abort. Set this value to -1 to have test events always report as Errors.
- Abort Report After [x] Occurrences: Sets the number of test events that will be reported before the test aborts.
- Test Stop Reporting After [x] Occurrences: Sets the number of verification errors that will be listed in the Test Report before the test stops reporting errors.
- Default Black Level: Sets the default black level for the clip. The values are measured in 8-bit steps (0-255).
- Default White Level: Sets the default white level for the clip. The values are measured in 8-bit steps (0-255).

NOTE. *Any of the above defaults can be overridden at the individual test level by adding the test using the Add and Override Defaults button. Other defaults apply to the entire template, and may not be modified per test.*

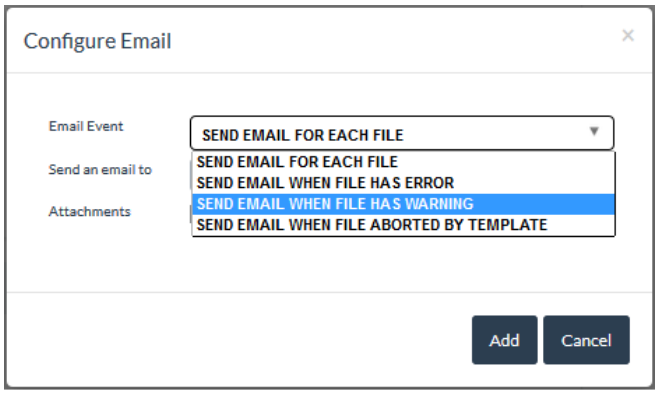
- Title Card Location: This optional parameter captures a thumbnail of the title card and displays this visual metadata next to the digital metadata on the report. You can use the drop-down list to select from the following options:
  - No Title Card
  - Frame Count From Beginning
  - PTS Location
  - TCR Location
- Dump Caption Text: When checked, creates a CSV time-aligned file of the caption text placed in the same folder as the top level container file.
- Passed Test Move Location: When set, any time this template is used and all tests pass or create only information items, the container and essence files will be moved to this location.

NOTE. *The Passed and Failed Test Move Locations specified here take precedence over the locations specified in the Hot Folder configuration. If no locations are specified here, the normal Hot Folder pass/fail locations will be used.*

- Failed Test Move Location: When set, any time this template is used and any test creates a warning or error item, the container and essence files will be moved to this location.
- Email Options: When set, email is sent to the configured email address after the file is processed. Email will be sent based on the selected email event type:



  - Send email for each file
  - Send email when file has error
  - Send email when file has warning
  - Send email when file aborted by template



When the **Attach report in PDF Format** option is:

- Selected, the email will be sent with the pdf report along with the link to HTML report
- Not selected, only the link to HTML report is sent in emails

Multiple Emails can be configured by adding email Ids separated by ';' or ','. When an email ID is configured for "To address" in both the template and User settings, then one email will be sent and duplicate emails will be avoided.

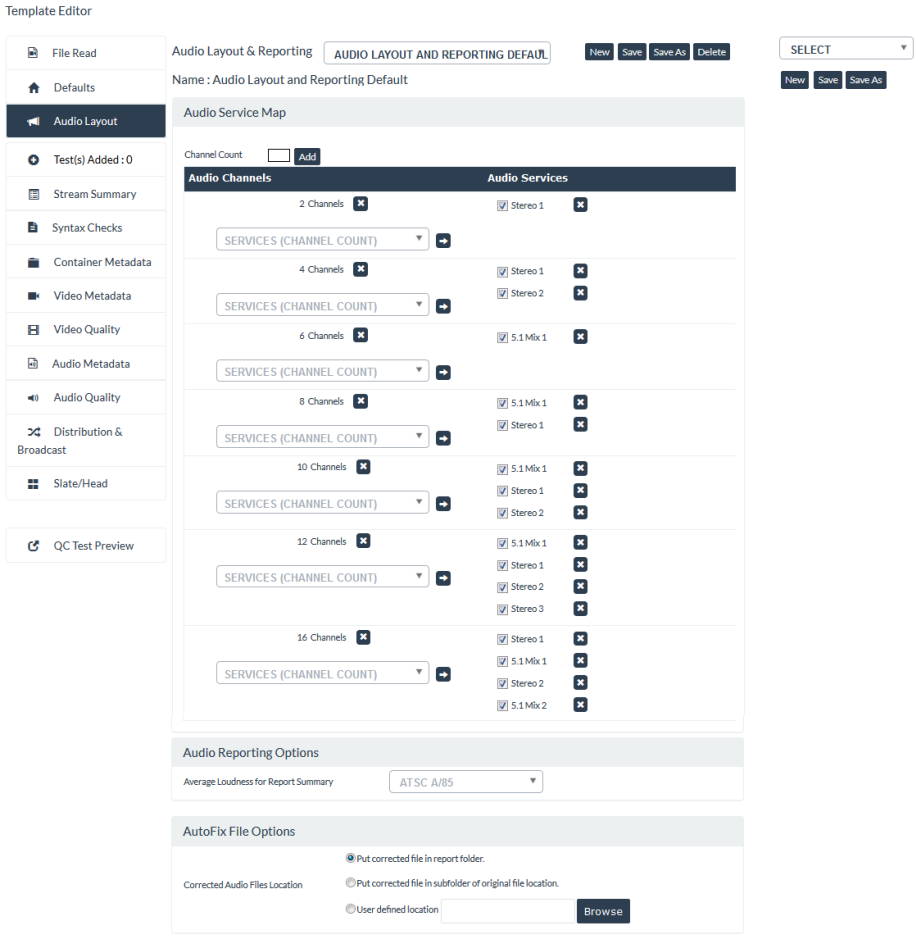
To configure the Email Ids in "CC address", prefix the email id with "(CC)".

To configure the Email Ids in "BCC address" then prefix the email id with "(BC)".

Email Id(s) without the prefix "(CC)" and "(BC)" will be in the "To address".

Audio layout

The default audio layout page displays the default conditions. You can add, remove, and edit the audio service combinations.



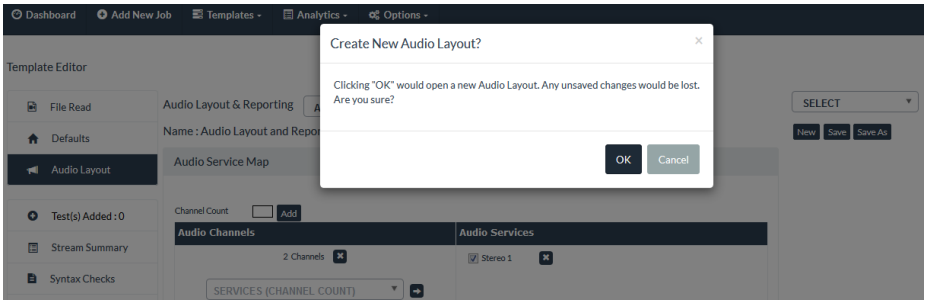
You can also set the audio layout conditions:

- **Audio Service Map (ASM)**: Audio service map, enables you to configure the output audio services based on the input audio having number of channels in it. This section describes various steps involved in **Configuring the ASM table** and creating **Audio Layout** template.
- Average Loudness for Report Summary: Selects 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. Use the drop-down list to select from the following loudness standards:
  - ATSC A/85
  - R128 Program
  - ARIB TR-B32
  - FTVA OP-59
  - NONE

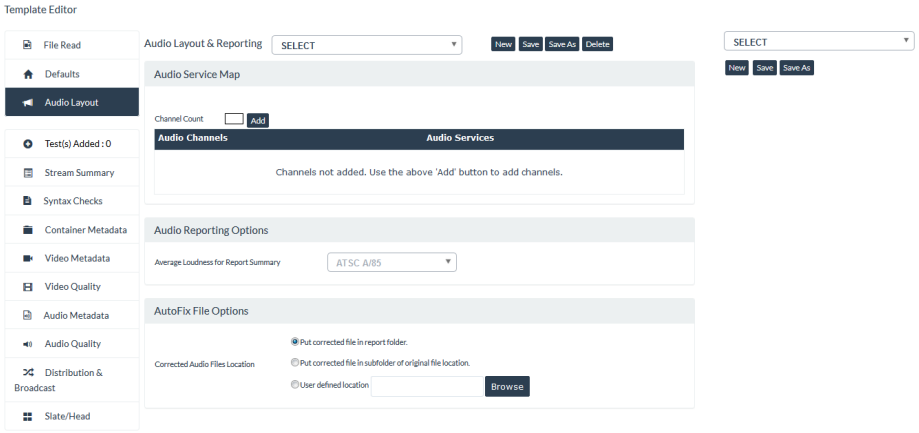
- Corrected Audio Files Location: Sets the location where the corrected audio file will be placed, from the following options:
  - Put corrected file in report folder
  - Put corrected file in subfolder of original file location
  - User defined location: Click the Browse button to select a location on your computer or network

Configuring the ASM table. Complete the following steps to configure the ASM table:

1. Start Aurora Web-UI.
2. From **Template** > **Template Editor**, select **Audio Layout**, and click **New**.



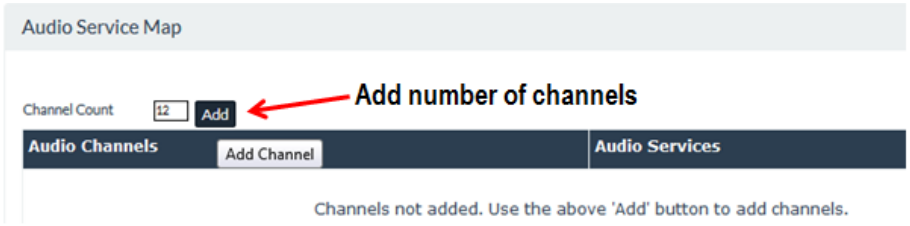
3. Select **OK**, to open the New Audio Layout. You can now configure the audio service map.



4. As part of ASM configuration, the first step is to add Channel Count. Channel Count is the total number of channels input audio which would be used to configure channel mapping. e.g., If input file has 12 channels audio

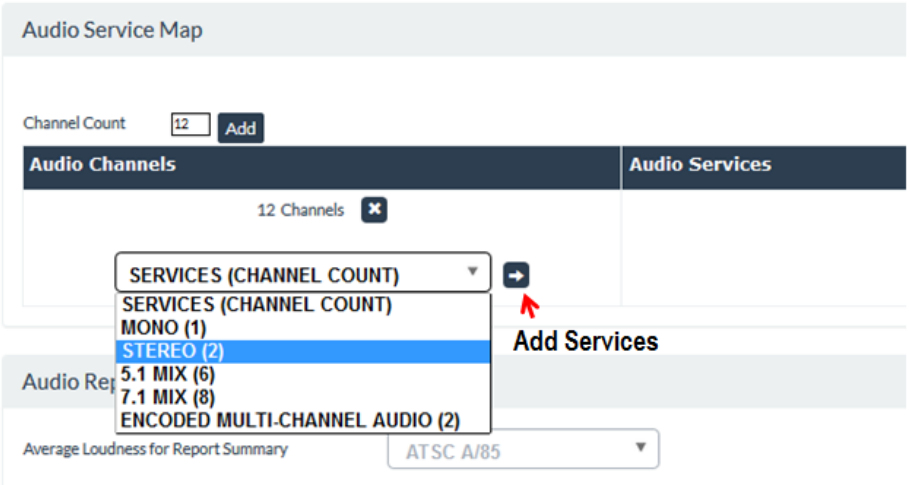
track(s), then you can map these channels to various services consisting of Stereo, EMCA, 5.1Mix etc.

Below figure shows Adding Chanel count of channels for mapping.



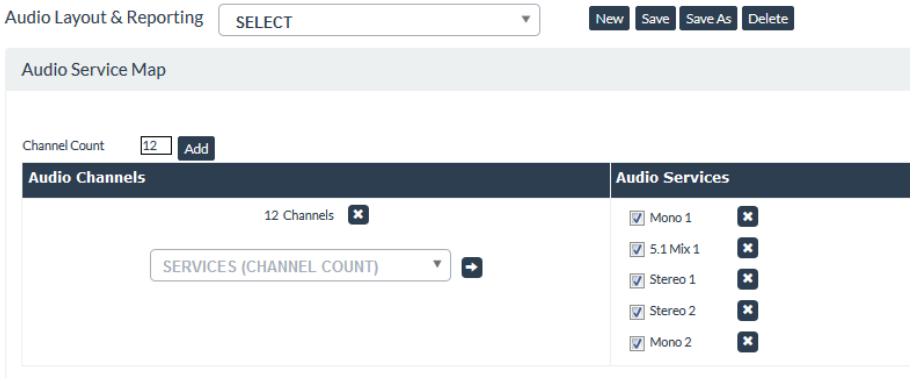
Once an appropriate value is entered, click **Add** button to update.

5. After Channel Count is updated, UI provides an option to add various Services for mapping. In the below image you can find 12 Channels which indicates that the Channel count that is added in the previous point is included.

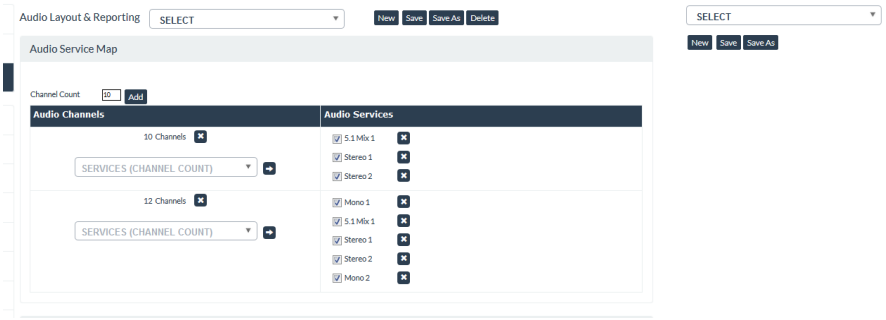


6. You can select Services for mapping by clicking the drop-down list next to **SERVICES (CHANNEL COUNT)**. The drop-down list displays various services.
7. After selecting a service from the drop-down, press the right arrow to add the selected service to the Audio Service list.

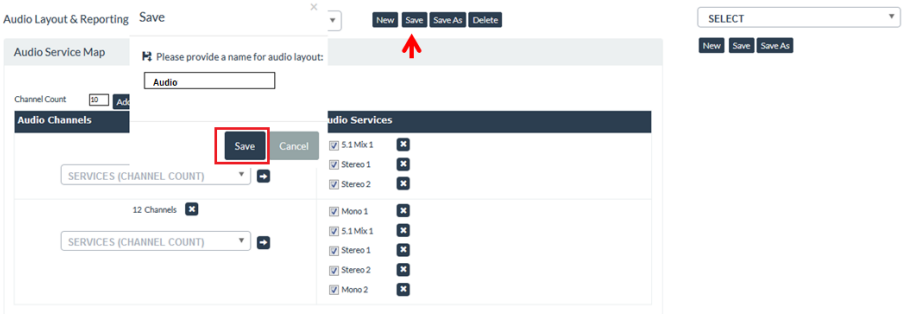
8. Repeat the steps 6 and 7 till all the services are added as shown in the following image.



9. To remove/edit any service from the Audio Services list, click the cross mark at the end of each service.
10. Repeat steps 4 to 8 to add multiple maps for various channel Count values viz., 8, 12, 16 etc. The Configuration is shown as below.



11. To remove/edit the Channels, click the cross mark at the end of the respective Channels. This removes the entire mapping including the related Audio Service Configuration for that Channel Count option.



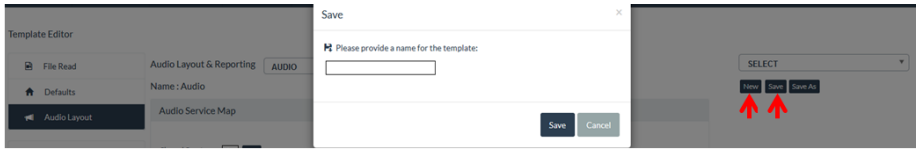
12. Click **Save** to save the audio layout configuration.

Creating the Audio Layout & Reporting Template. Complete the following steps to create the Audio Layout & Reporting template:

1. After the Audio Service Map is configured, select **Save** / **Save As** option to save the template.
2. Provide an appropriate template name and click **Save** to save the template.

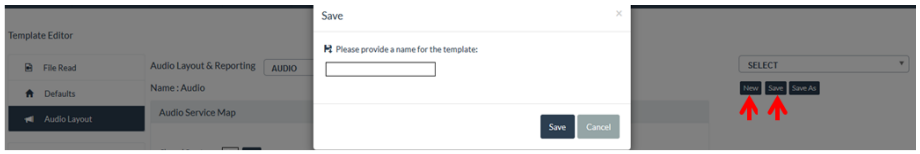
Complete the following steps to create the Audio Layout & Reporting template:

1. After the Audio Service Map is configured, select **Save** / **Save As** option to save the template.
2. Provide an appropriate template name and click **Save** to save the template.



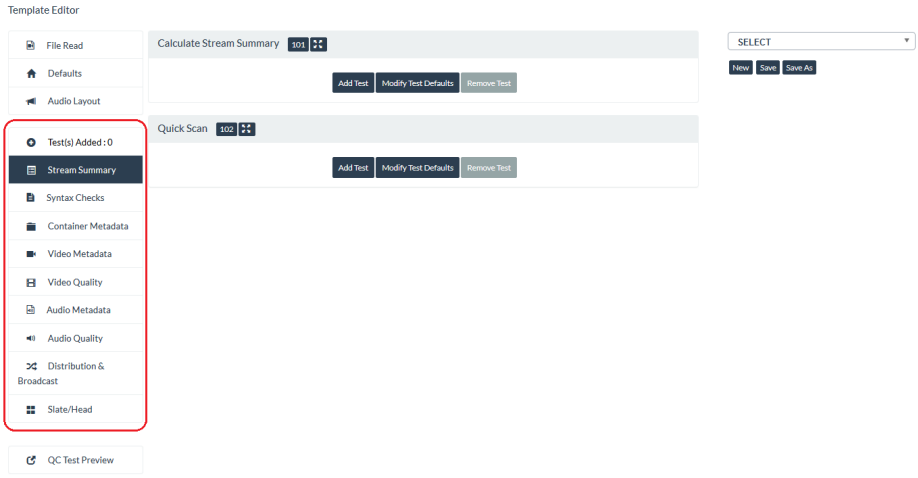
Creating the Audio Layout & Reporting Template. Complete the following steps to create the Audio Layout & Reporting template:

1. After the Audio Service Map is configured, select **Save** / **Save As** option to save the template.
2. Provide an appropriate template name and click **Save** to save the template.



QC tests

The QC tests allows you to set the QC test conditions. Select a QC category on the left to display related tests in the middle of the page.



For details on each specific test available in the Aurora template, click on the icon next to each test.

NOTE. *When you click the Template Index Number hyperlink, a new window appears providing you with a help file explaining the specific test.*

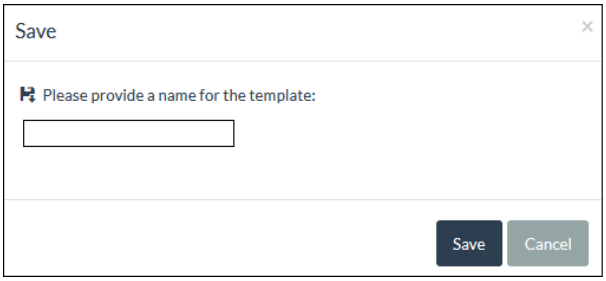
---

1. Select the following tests:
   - **Stream Summary**: You can opt 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).
   - **Test(s) Added**: Displays all the tests which are added to the template.
   - **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 Aurora issue an event if the item is missing.

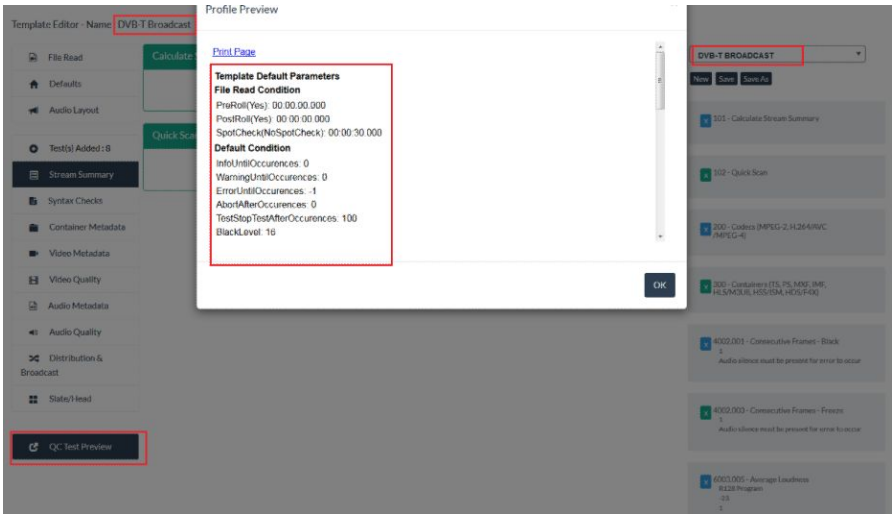
2. Click **Add Test** to add the test. The selected tests are displayed on the right side.

3. Click **Save** to save all the selected tests to a template.



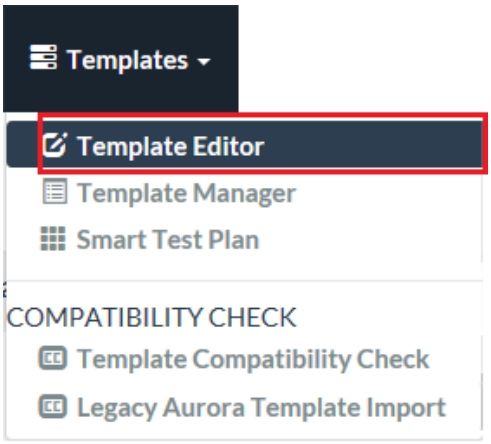
NOTE. *You can also add the selected tests to the default template available in the drop-down list.*

4. **QC Test Preview**: You can view all the tests which are saved to the selected template in the drop-down list.



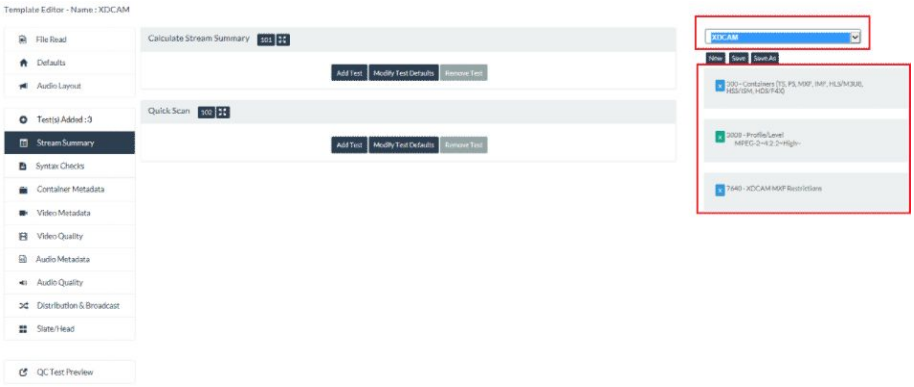
How to edit QC tests in an existing template. The following procedure describes how to edit, add, or delete tests in an existing template.

1. From the Aurora dashboard, click **Templates > Template Editor**.

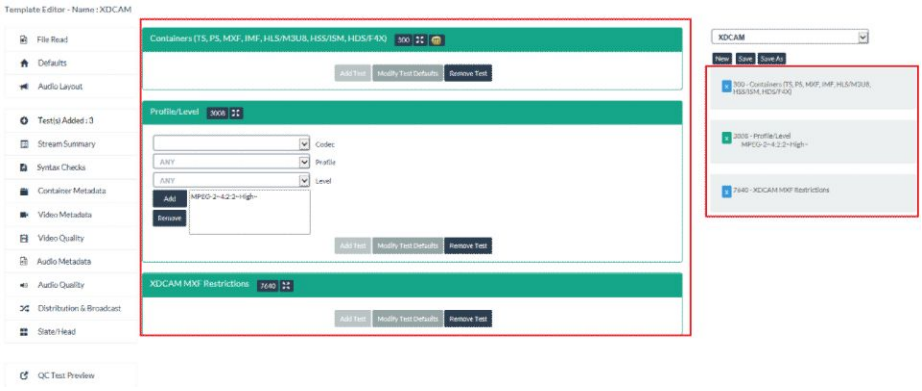


2. In the predefined templates drop-down list, select the template you want to edit.

3. After you select the template, the current tests for that template appear on the right side. The example below displays the tests which were added to the template.



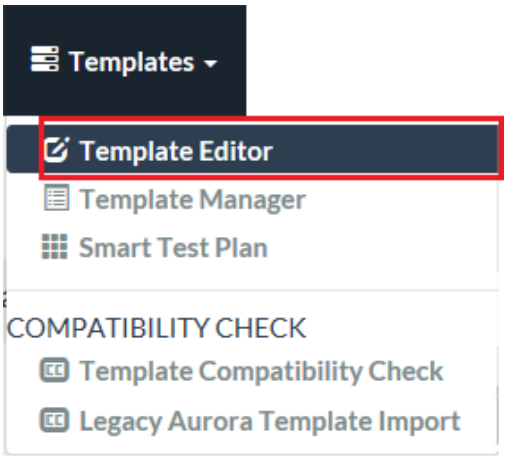
4. Select any of the tests on the right side. All the added tests will be displayed as shown below.



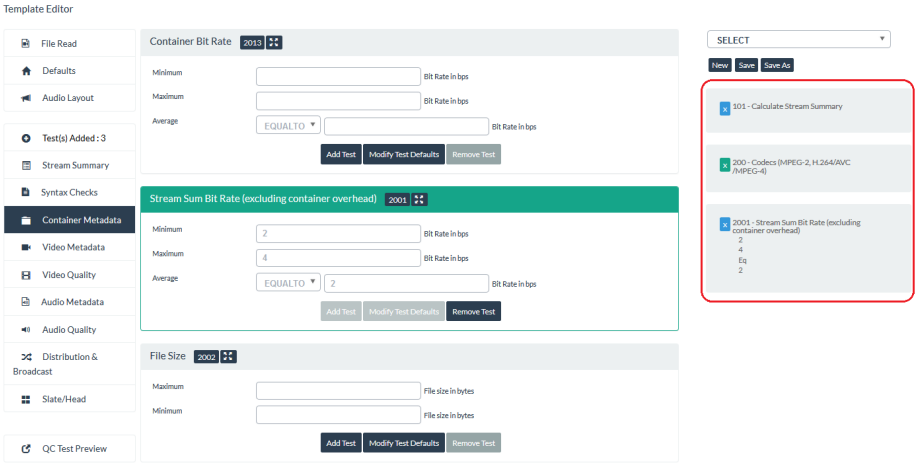
5. You can now edit, add, or delete tests from the template.
6. After you are done modifying the tests in the template, click **Save** to save the updated template.

How to add QC tests to a new template. The following procedure describes how to add QC tests to create a custom test template.

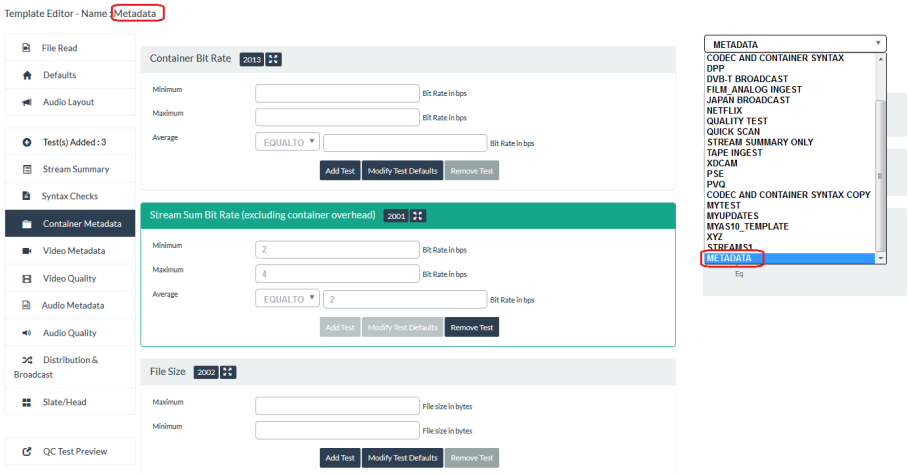
1. From the Aurora dashboard, click **Templates** > **Template Editor**.



2. Select a QC test category on the left to display related tests. To change the default settings for a test, click **Modify Test Defaults** to open a dialog where you can customize the test. Click **Save** to save the test changes to the Test Defaults.
3. To add tests to the template, click **Add Test** button below each selected test. The added tests are displayed on the right hand side of the Template Editor.



4. To save the test after you have completed modifying and adding tests to the template, click **Save As** and enter a name for the template in the Save dialog. After the new template is saved, the name of the template appears on the display. The example below shows the added template name as **Metadata**.



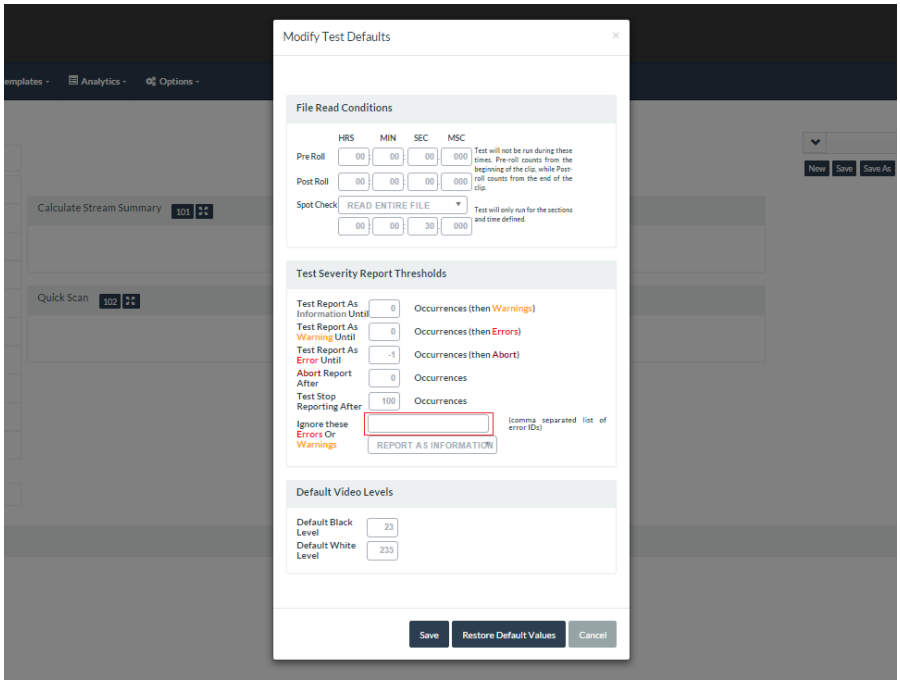
5. The new template you created will now be available in the list of templates in the drop-down list of the Template Editor and in the Template Manager.

How to ignore specific errors or warnings in Aurora. As a part of QC test default configuration, you can specify that certain errors or warnings (which could be resulting from the test execution) need to be ignored, in either of the following ways:

- Report the errors or warnings at reduced level of severity, viz. Information
- Completely suppress the errors or warnings by not reporting them in Aurora

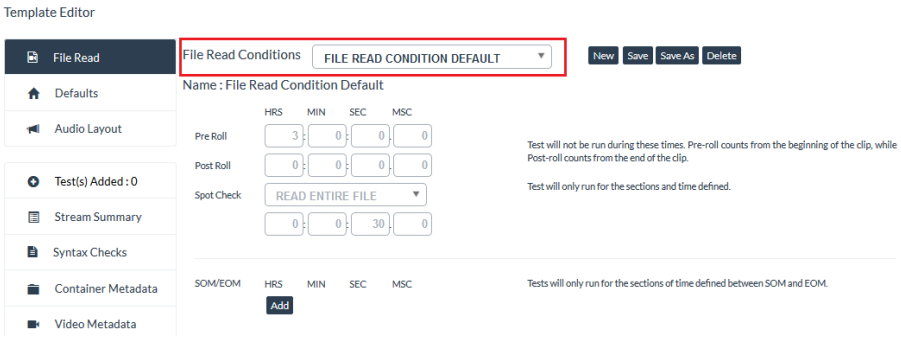
To edit the default settings for a test and specify this configuration, do the following:

1. Specify the ID's of the errors or warnings to be ignored in **Modify Test Defaults** > **Test Severity Report Thresholds** > **Ignore these Errors Or Warnings** text box. If more than one error or warning is to be suppressed for a test, then specify the IDs separated by a comma.



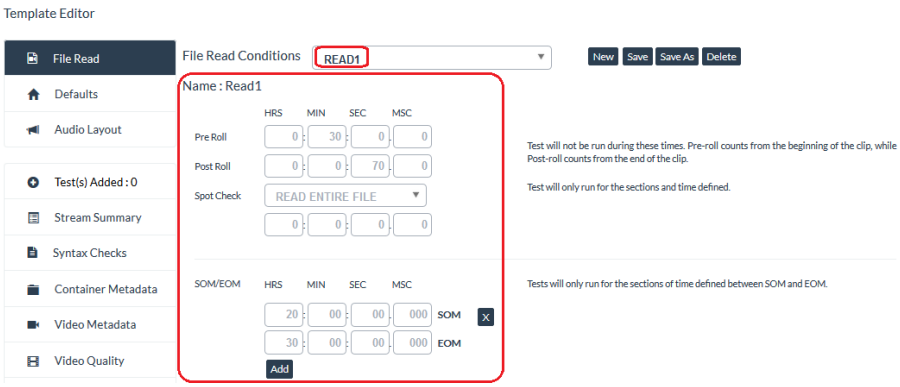
2. In the adjoining drop-down list, choose either **REPORT AS INFORMATION** or **SUPPRESS COMPLETELY** depending on the way the error or warning needs to be ignored.

How to recall default and saved condition. Aurora provides default condition that you can use with their default configuration, or you can use them as the basis to create custom configuration for the tests.



When you create and save a new default configuration for the test, that configuration will be available in the drop-down list at the top of the test.

File Read, Defaults, and Audio Layout has a separate drop-down menu on the top, allowing you to select from default and custom configuration. When you select a default or custom configuration from the drop-down list, the template editor displays the current settings for the selected condition. The example below shows the custom condition for the File Read condition.



How to exclude QC tests from a group in a template. Several QC tests are offered in the Aurora Template editor as groups of tests. These include the Codec & Container Syntax tests and Broadcast/Distribution Constraint tests. There may be times when you want to disable specific tests within a pre-existing test group, or times when you want to change the severity of a specific test in that group. This is possible by exporting the template to XML, modifying the XML, and then re-importing the template.

1. Export a template that has your test group that you wish to modify already in the template. Exporting a template is possible by going to the Template Editor and clicking the Export button.
2. Edit the XML source using an XML editor, or use a text editor such as Notepad or WordPad.
   - Change the Template Name (at the top of the XML file in <Template name =" "/> tag. This will prevent your edited template from replacing the original template.
   - Search for the ID of the test group you want to modify. You can find the Test ID located next to the test name in the template editor, or by looking up the test in the Aurora Help File Manual. This ID will be listed as:

     ```
     <Test type="Static">
     <Setup id="7603">
     ```

     - where 7603 will be the test ID.
   - Modify subtest within the group using the <Subtest/> tag
     - Example 1 – Excluding a subtest

       ```
       <Test type="Static">
       <Setup id="7603">
       <Subtest id="7603.002" Exclude="Yes" />
       </Setup>
       </Test>
       ```

     - Example 2 – Redefine a subtest to be a Warning, rather than Error

       ```
       <Test type="Static">
       <Setup id="7603">
       <Subtest id="7603.004">
       <TestWarningUntilOccurences>500</
       TestWarningUntilOccurences>
       <TestStopTestAfterOccurences>500</
       TestStopTestAfterOccurences>
       </Subtest>
       </Setup>
       </Test>
       ```
3. Save your XML template file.
4. Import your modified XML template into Aurora using the Import button in the Template editor.

How to add audio QC tests with corrective options. Aurora uses Dolby audio loudness for correcting the dolby channels. In the QC tests, AutoFix for Audio Loudness is a correction option. AutoFix for Audio Loudness is designed to accept an input container file, demux, and decode the audio, correct the audio for the user-selected ITU-R BS.1770-2 specification (1770-3 is used for True Peak measurement and limits), re-encode and replace the audio track into a copy of the original container file, without modifying the original file's mux parameters or metadata.

By default, AutoFix for Audio Loudness will correct audio to a target threshold LU and also apply a makeup gain (AGC) to ensure that corrected audio is not too quiet after correction. You may modify the audio specification used, the correction methodology and the AGC parameters to ensure that output audio will meet your requirements.

AutoFix for Audio Loudness measures and automatically corrects audio against ITU-R BS.1770-2 compliant specifications, including:

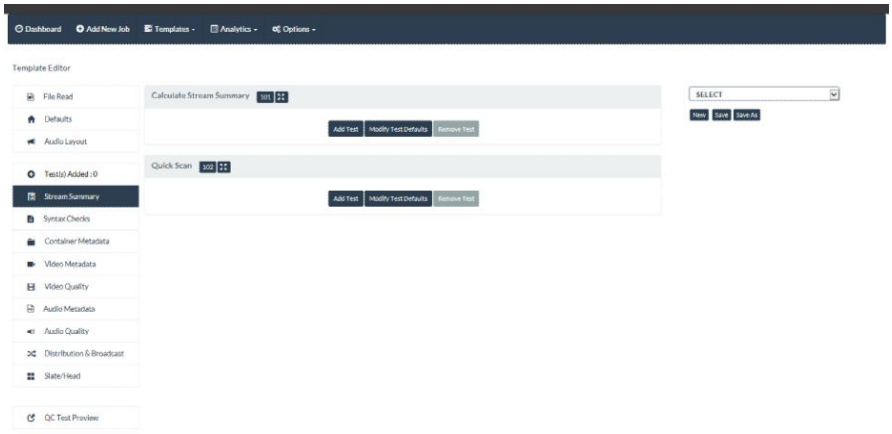
- ATSC A/85
- EBU R128
- ARIB TR-B32
- Free TV Australia OP-59
- Generic 1770-3

Each of these implementations of the BS.1770 series of standards has their own requirements for the following values:

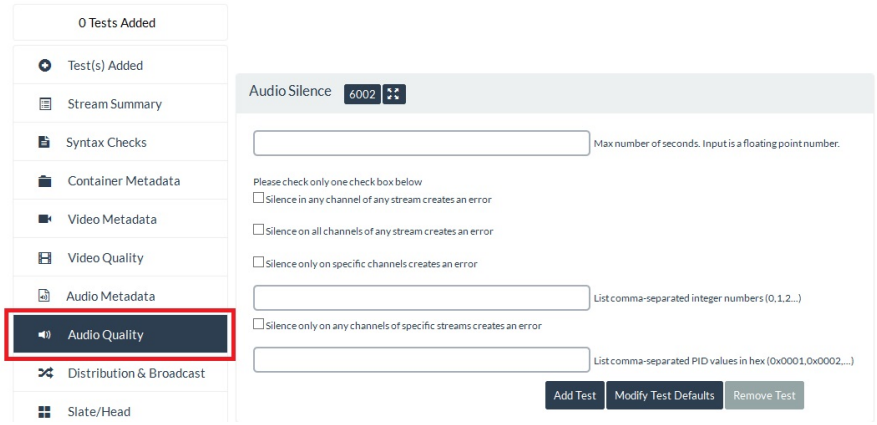
- Target LU: It is the target loudness unit, measured on a negative infinite scale, with 0 being the loudest possible audio. A single loudness unit is functionality equivalent in volume/amplitude to a single dB (decibel).
- Measure Window: It is the length of time that audio will be measured for the target LU. In many standards, the measure window overlaps for a period of time, which is not user-modifiable.
- Gate/Range dB: It is the noise gate threshold, which is the maximum increase in loudness occurring in a measure window that must occur for the loudness measurement to create a correctable event. The use of the noise gate in average loudness prevents sudden and expected changes, such as explosions, from creating dramatic impacts on the overall measured or perceived loudness.

Complete the following steps to add AutoFix audio correction to a template:

1. From the dashboard, click **Templates** > **Templates Editor**.

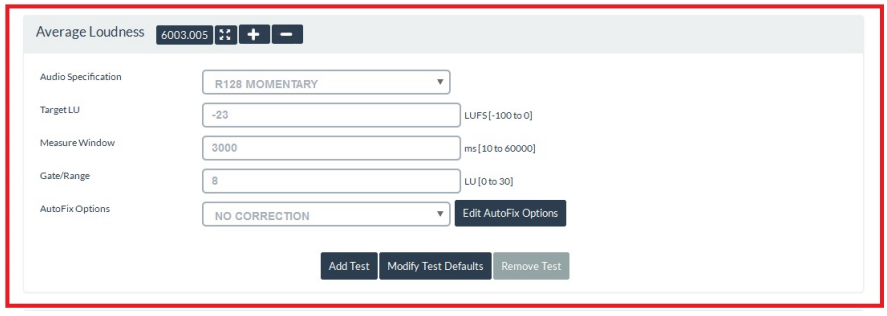


2. Select **Audio Quality**.



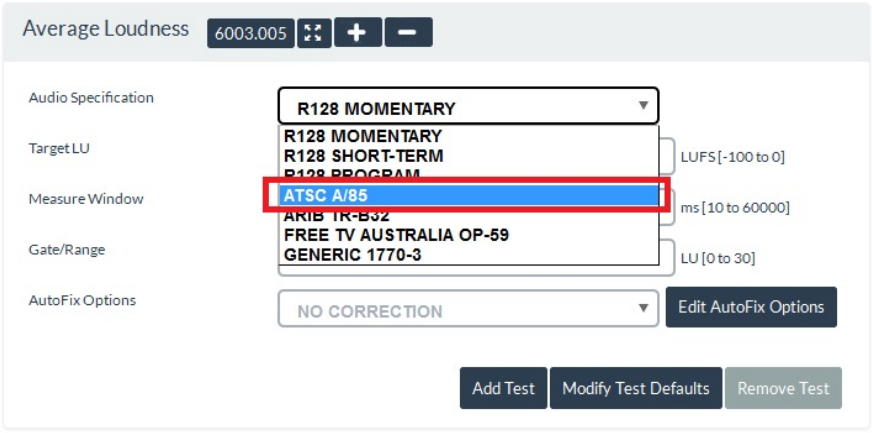
.

3. Select **Average Loudness** with the test id **6003.005**

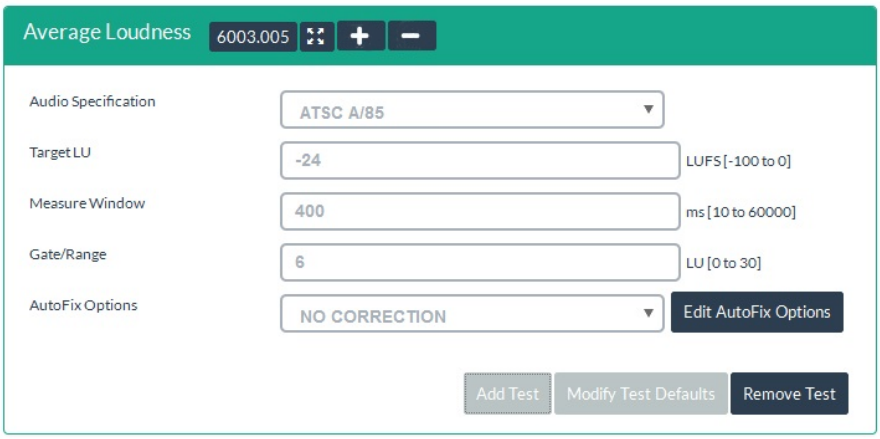


.

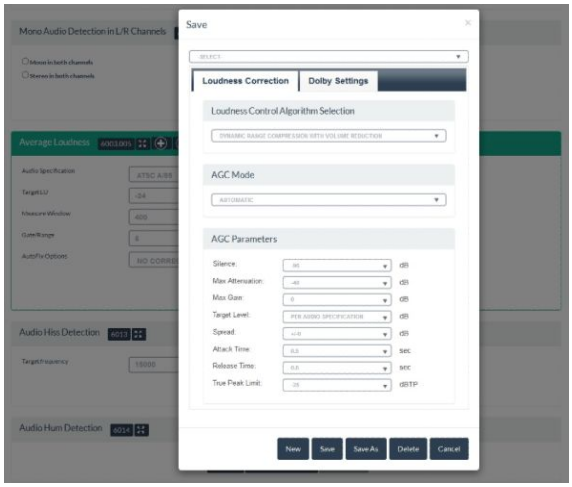
4. From **Audio Specification** drop-down select **ATSC A/85**.



5. Click **Add Test** button to add audio specification to the template editor. The selected audio specification to measure the audio loudness is added to the test 6003.005.

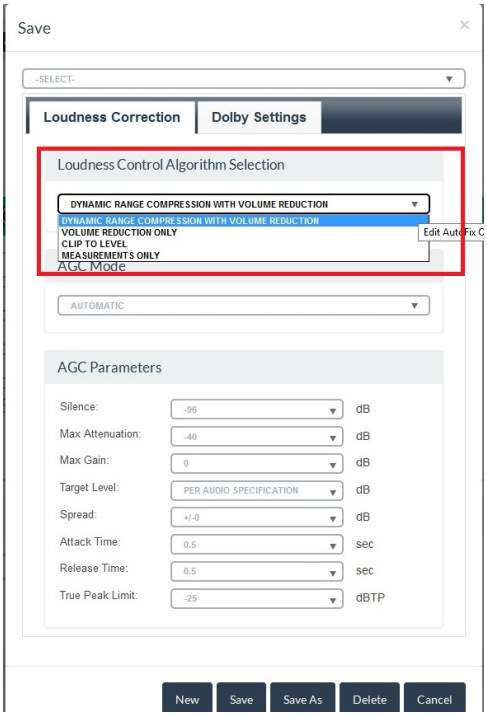


6. Once the audio specification is added to the audio loudness feature, you need to add Autofix options to the test. Click **Edit AutoFix Options** button beside AutoFix Options to display a popup with multiple options to be set for Loudness Correction and Dolby Settings.



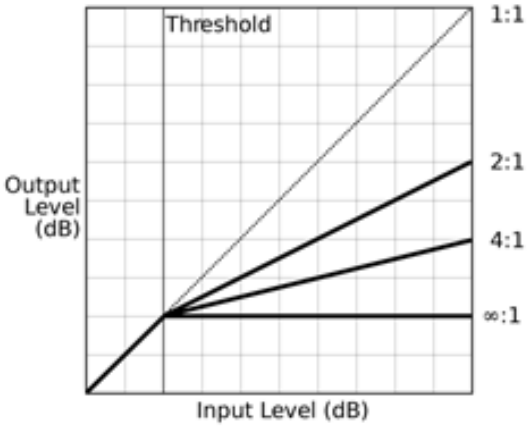
7. **Loudness Correction**: It includes Loudness Control Algorithm Selection, AGC Mode, and AGC Parameters.

a. Loudness Control Algorithm Selection:

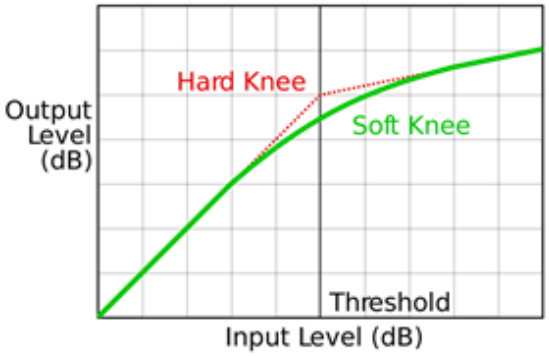


- **Dynamic Range Compression with Volume Reduction**: Dynamic Range Compression is a technique long used in audio engineering, and offers several adjustments to bring waveforms into compliance with a desired threshold level. The first is the threshold level itself. AutoFix sets this level using the Target LU of the selected audio specification from the user interface. This means that any level below the user preset point is NOT subject to any form of processing. When a peak level is detected above the user preset, only those peaks are processed using an audio precision dynamic compression algorithm.

  The compression ratio defines the amount of gain reduction: a ratio of 2:1 means that if input level is 2 dB over the threshold, the output signal level will be 1 dB over the threshold. AutoFix uses a nominal compression ratio to achieve superior sonic results. This is possible due to quad band filter detectors explained below in detail.



How fast the compression ratio takes effect is defined by the attack and release phase. Attack defines how quickly the leading edge of the signal is processed for gain deduction, while release defines how quickly the processor returns to unity gain when levels fall below the threshold. AutoFix sets the attack and release automatically, based upon the input signal, always with the goal being to apply a soft knee response curve to the gain change. A soft knee avoids several known audio artifacts related to sharp gain changes (particularly, ringing, breathing & pumping).



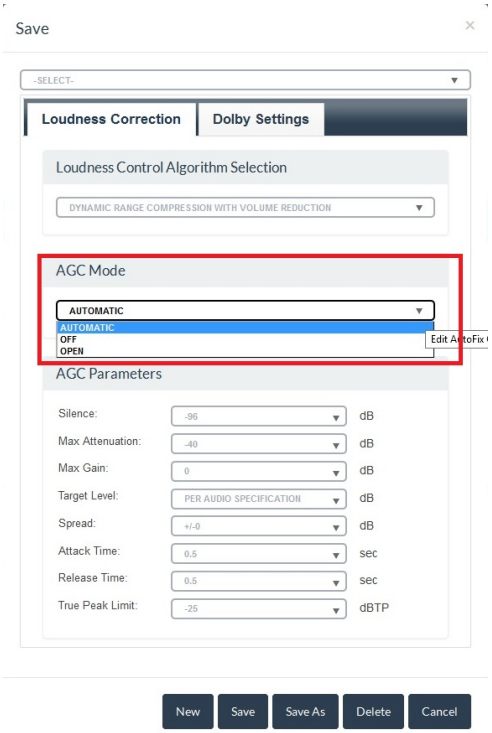
AutoFix utilizes a multi-band compressor, which allows the ratio and attack/release to function differently on different frequency bands. The advantage of multiband compression over full-bandwidth (full-band, or single-band) compression is that unneeded audible gain changes or "pumping" in other frequency bands is not caused by changing signal levels in a single frequency band.

Our multi-band compressor avoids crosstalk between frequency ranges by employing symmetrical fourth order slopes at the crossover frequencies. Upon recombination of the waveform at the

output of our compressor, we employ an additional gain limiter to ensure that the Target LU desired is achieved.

- Volume Reduction only: In this methodology, the dynamic range is not modified, but the amplitude of the waveform is reduced, similar to just turning down the volume knob on an amplifier.
- Clip to Level: This is the roughest form of correction, and is best used in live, growing file scenarios only. Correction is performed by simply clipping the audio waveform when it exceeds the Target LU. Audible artifacts will be most likely to occur with their form of correction

b. AGC Mode: In addition to the correction methodology, you have the ability to setup a make-up gain from the Correction Options tab of the Settings dialog, which occurs after the correction, since loudness correction will many times leave you with audio that may be too quiet to use in your applications. By default, AutoFix AGC is set to Off, which avoids any additional processing of the audio after correction/ normalization. For most customers, the Automatic setting will be appropriate, which allows AutoFix to determine the appropriate set of parameters to use for your audio to bring the lowest level of the audio to 10 LU below the Target LU of your audio specification.



You may also select 'Open' AGC, which allows you to customize the AGC parameters:

- Silence – the threshold below which no makeup gain will be applied. Default is -62 dB
- Max Attenuation – the maximum adjustment that will be made to audio waveform in the negative direction (necessary for joining measure windows of audio, in case of an extremely loud event occurring). Default is -12 dB
- Max Gain – the maximum adjustment that will be made to the audio waveform in the positive direction. Default is 12 dB.
- Target Level – you can set the level you want to push the audio back up to, post correction. Default is the Target LU, although you can

also set this to a level below the Target LU, to account for headroom requirements.

- Spread – the spread allowed around the Target Level, to allow the AGC to avoid making audible artifacts. Default is +/- 1.0 dB.
- Attack Time – the slope of the waveform when applying a gain, expressed as the amount of time to work the gain in. Default is 1.5 seconds.
- Release Time – the slope of the waveform when applying an attenuation, expressed as the amount of time to work the reduction in. Default is 1.5 seconds.
- True Peak Limit – the limit in dBTP of the waveform, as measured by the True Peak algorithms and filters of ITU-R BS.1770-3. Default is -2 dBFS

c. AGC Parameters:

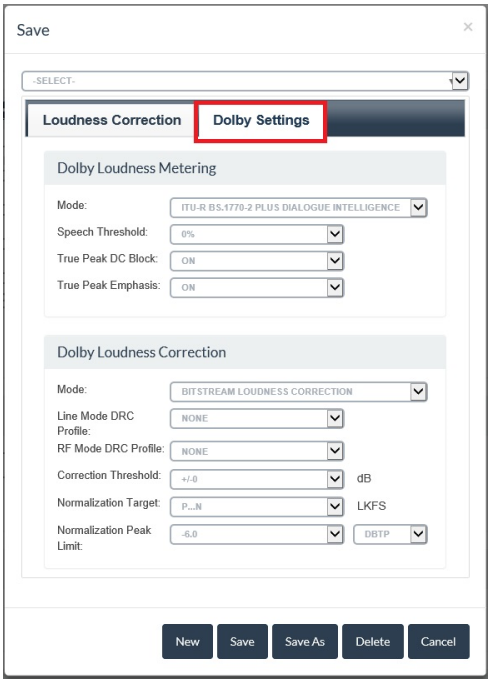
8. Dolby Audio Options: AutoFix uses the settings in the Correction Options tab (including AGC) for all non-Dolby codecs. Dolby codec support is available with a separate option to AutoFix. Since Dolby codecs have different sets of metadata available for correction, Dolby correction options are exposed in the Dolby tab as shown below.

The Dolby options are separated into Loudness Metering and Loudness Correction.

Dolby Loudness Metering:

- Mode: You can select from
  - ITU-R BS.1770-2 with Dialogue Intelligence (the default)
  - ITU-R BS.1770-1 with Dialogue Intelligence (for legacy measurements)
  - ITU-R BS.1770-2 (no dialogue intelligence will be applied, making this measurement match the non-Dolby AutoFix measurement mode)
  - Leq(A) plus Dialogue Intelligence (not recommended, and only for legacy purposes)
- Speech Threshold – default at 20%, not recommended to modify
- True Peak DC Block – default to OFF, not recommended to modify

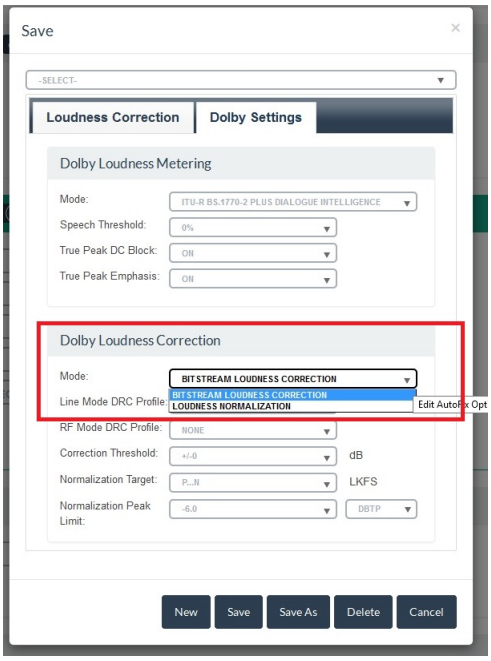
- True Peak Emphasis – default to OFF, not recommended to modify



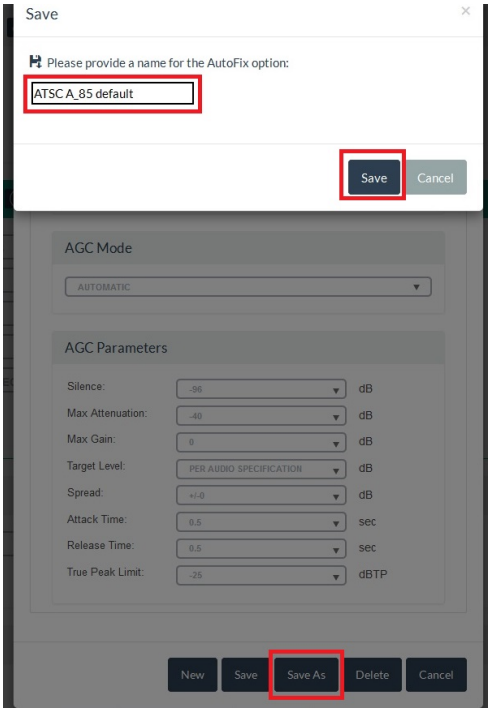
Dolby Loudness Correction:

- Bitstream Loudness Correction – will adjust the Dolby dialnorm and DRC words and adjust the CRCs to account for the new values
- Loudness Normalization – will adjust/rescale the audio waveform to the Target LU (Normalization Target) while staying below the user selected True Peak limit.

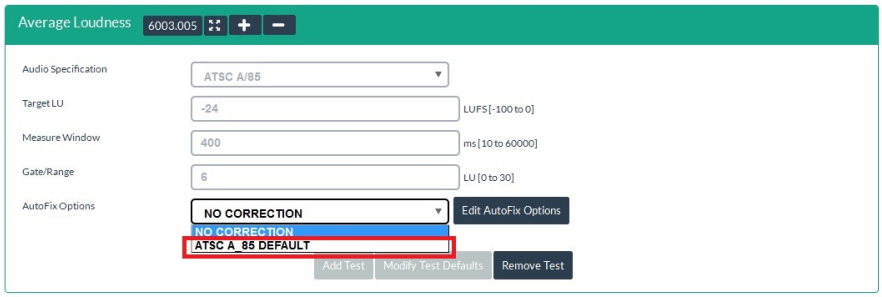
For all Dolby correction, you can set the Dynamic Range Compression (DRC) Profile, which is default to Predict from Input, as well as the correction threshold (spread) around the Target LU. If selecting Loudness Normalization, you can set the Normalization Target and True Peak limit.



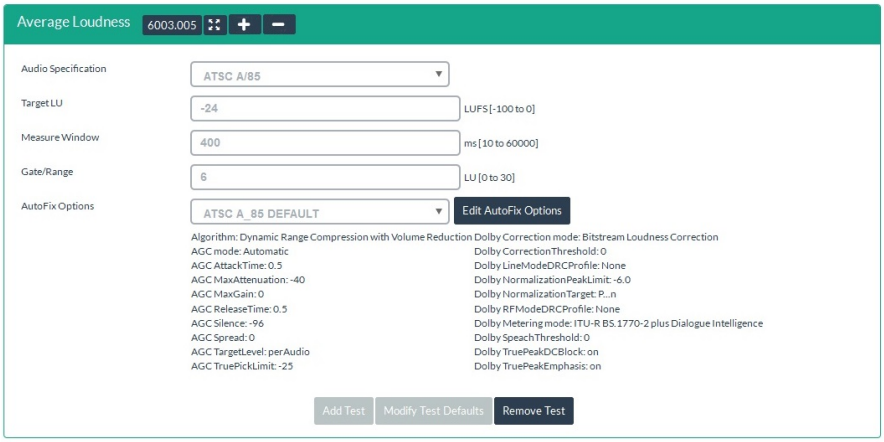
9. Once you have completed making your adjustments and are ready to save those settings, click **Save As** button on the bottom of the dialog window, which will open a save dialog box. Provide a name for the AutoFix settings, such as “ATSC A_85 defaults”.



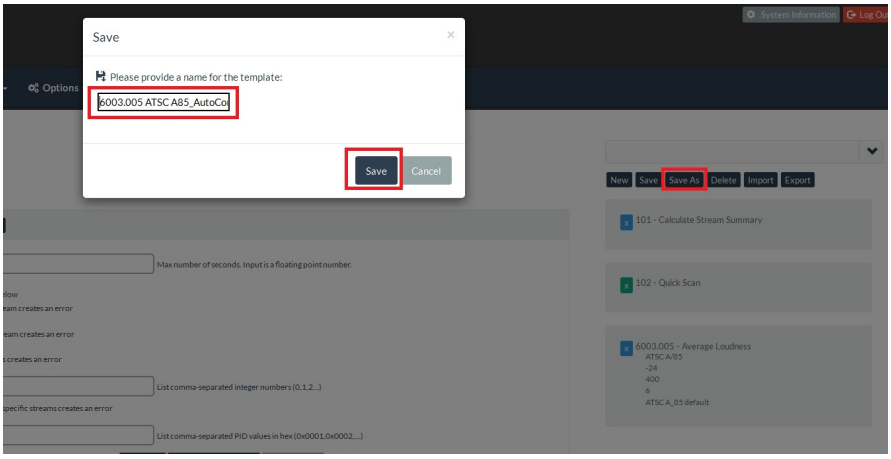
10. Click on the down arrow in the AutoFix Options box, and you should now see the AutoFix template you just saved, “ATSC A_85 DEFAULT”, select this template to add to your test 6003.005.



11. Once you add the AutoFix template to your test, you can view the AutoFix summary to the test, as shown below.

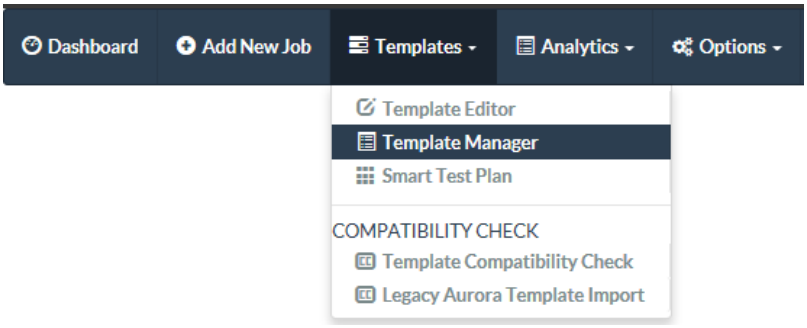


12. Scroll up to the top of the page and click **Save As** button to save the template.

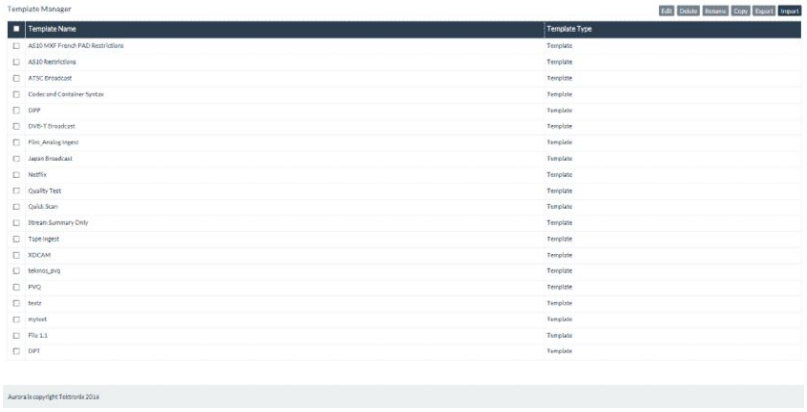


Template Manager

Aurora ships with several predefined default templates. The Template Manager helps you to view all the templates.



You can view all the templates including the default templates and the user-defined templates.



You can edit, delete, rename, copy, export, and import any selected template.

NOTE. *If more than one template is selected, you can only delete, copy, export, and import the template.*

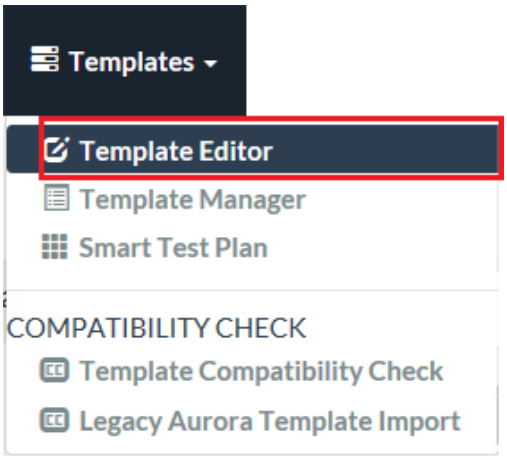
How to create templates or use default templates

You can use the Template Editor to create user-defined templates or to use the default templates supplied with Aurora. Aurora templates are created using File Read, Default, Audio Layout, and QC tests. The created template is then used to submit a job for Aurora QC.

How to create a custom test template

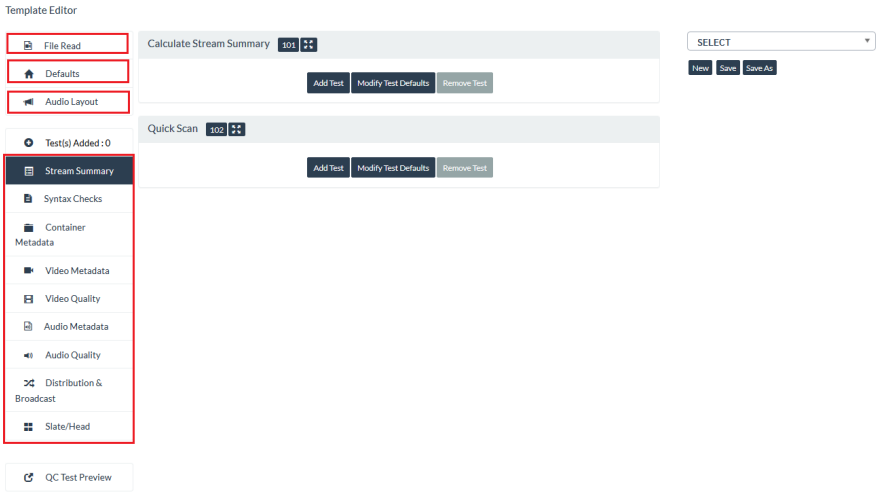
Perform the following steps to create a custom test template.

1. From the dashboard, click the **Templates** tab and select **Template Editor**.



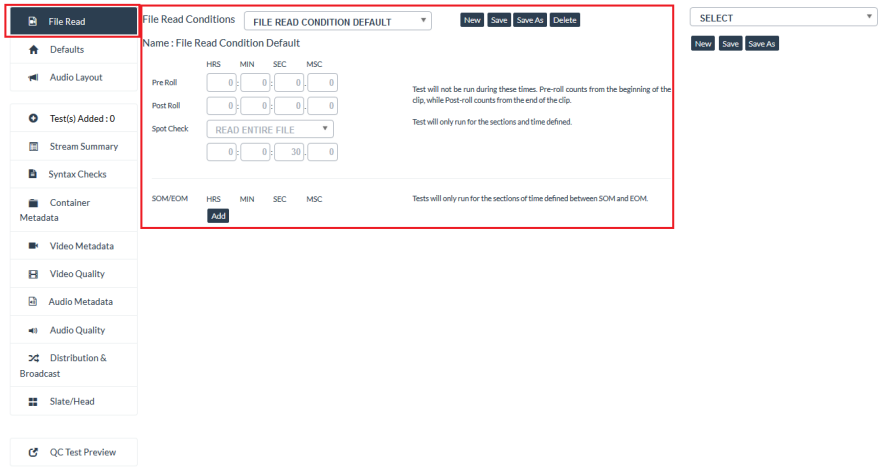
You can view:

- File Read
- Default
- Audio Layout
- QC tests



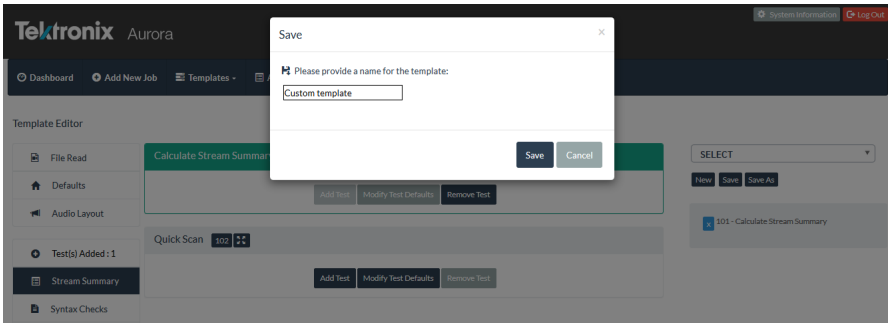
2. By default the File Read, Defaults, and Audio Layout displays the default configurations.

3. Use the drop-down list at the top, to select the configuration you want to use.



NOTE. *You need to select the condition for QC tests as it does not have the condition for its own. You can select an existing configuration under each of the sections of File Read, Defaults, and Audio Layout and save them as part of the template. If no selection is made under any\all of these sections, then the default configuration will be selected for that section(s).*

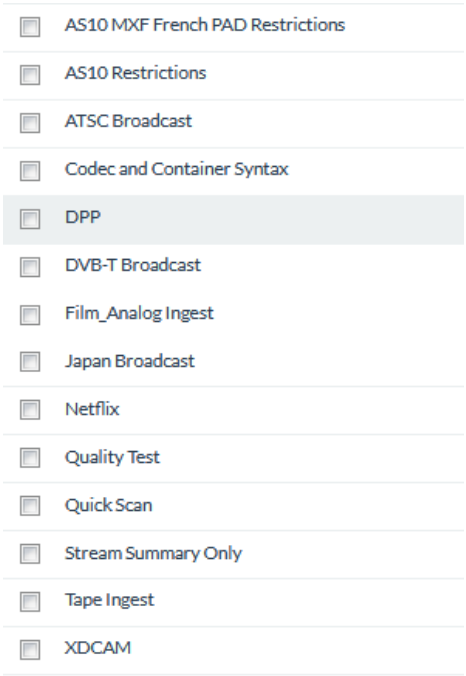
4. Select the tests in QC section.
5. When you are done selecting the sections, click **Save** to open the Save dialog.
6. In the Save dialog, enter a name for the template and click **Save** to store the template in the Aurora database for use in jobs, Smart Test plans or hot folder operations. The example below shows a template being saved, named Custom template.



You can view the custom test template in the drop-down list of the Template Editor and in the Template Manager.

Default templates

Aurora ships with several predefined default templates. The figure below shows the drop-down list of default templates.



Aurora includes the following default template templates:

- AS-10 MXF French PAD Restrictions: Tests for AS-10 MXF Container restrictions, checks for Scan order changes, Macro blocking Artifacts, Tape Hits, Freeze / Blur frames, measures R128 Loudness, detects test tones, Audio dropout, detects Hum / Wow / Flutter, Phase reversal, and Channel correlation.
- AS10 Restrictions: Tests for the AMWA AS-10 compliance of the MXF file.
- ATSC Broadcast: Tests for ATSC audio & video distribution constraints and measures A/85 loudness
- Codec and Container Syntax: Checks for Codec and Container bitstream syntax, timecode syntax and discontinuities and Closed Caption syntax checks.
- DPP: Checks for the AS-11/DPP distribution compliance of the MXF file for SD/HD profiles.
- DVB-T Broadcast: Tests for DVB-T (including ETSI 101 290) distribution constraints and measures R128 loudness
- Film/Analog Ingest: Reports stream summary and checks for most common film/analog ingest artifacts (full functionality for Professional version users only)
- Japan Broadcast: Tests for ISDB-T distribution constraints (ARIB B-10) and measures ARIB TR-B32 loudness
- Netflix: Tests specific to Netflix content distribution & packaging

- Quality Test: Will report stream summary and check for most of the artifacts listed in Video Quality and Audio Quality sections (full functionality for Professional version users only)
- 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
- Tape Ingest: Reports stream summary and checks for the most common tape ingest artifacts (full functionality for Professional version users only)
- XDCAM: Will confirm compliance to SMPTE RDD-9 for XDCAM interchange.

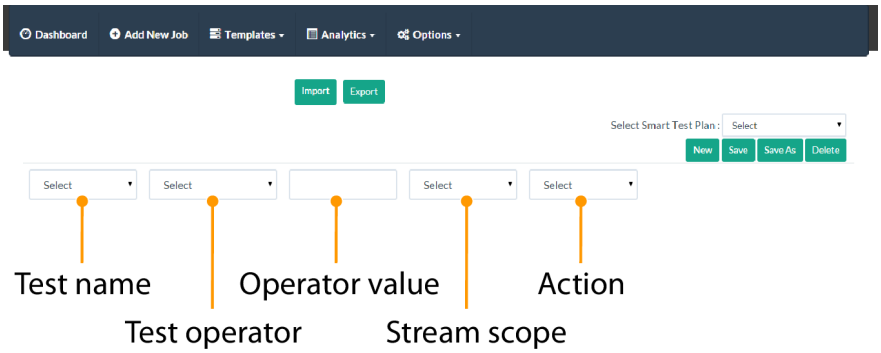
Smart Test plans

Smart Test plans allow rule-based selection of a Template based on the metadata characteristics of the incoming media file for each job. After you have defined several test templates for several different file or delivery scenarios, Smart Test plans allow you to build IF/THEN or IF-AND/THEN statements to select templates. You can also define an OTHERWISE case to provide a method to process an incoming file that does not meet any of the Smart Test plan criteria.

How to build a new Smart Test plan

Perform the following steps to build a new Smart Test plan:

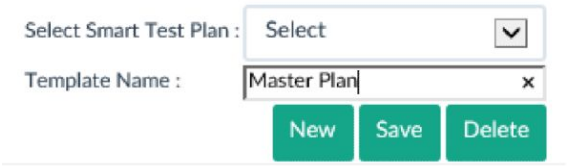
1. From the Templates tab, select Smart Test Plan. To build a plan, you will select items from the drop-down lists and enter a value for the test operator.



2. Choose a test from the Test Name drop-down list. You can select any piece of metadata regarding the file that is shown on the Aurora Stream Summary section of the report.
3. Select a test operator from the Operator drop-down list. The operator types will change dynamically based on the type of test you selected.
4. Select or enter a value for the test operator. If the selected test has predefined values (such as codec names or container types), the Value list will

automatically populate with those values. If the test does not have predefined values, you need to enter a valid test 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 (ALL or ANY) from the drop-down list to define which streams within the container this test should apply to. For most tests, ALL is the proper selection, unless you specifically want to constrain the test.
6. Select a test action from the Action drop-down list:
   - AND IF: Uses the current test AND the next test to make a determination on which template to use.
   - OR IF: Uses the current test OR the next test to make a determination on which template to use.
   - USE TEMPLATE: Use the results of the tests up to this point to determine which template to use.
   - MOVE: Sets a location to move the incoming file if the rules ahead of this action are met.
7. If you select AND IF or OR IF as the Action, a new test row appears to allow you to define an additional test. Repeat steps 2-6 as necessary to add tests until you have a test chain that adequately describes the file you want to test.
8. In the last test of the plan, select USE TEMPLATE as the action. An additional drop-down list appears that allows you to select which Template to use from the list of default and saved test templates.
9. After selecting the test template to use for that test or group of tests, an additional drop-down list appears that allows you to select a post-test action:
   - Select NEW IF to start a new group of tests. In this case repeat steps 2-9 to define the additional tests.
   - Select OTHERWISE, to select a test template to use when none of the test criteria in the plan are met.
10. Once your test criteria for the Smart Test plan is complete, click Save As and enter a template name to save the new Smart Test plan.

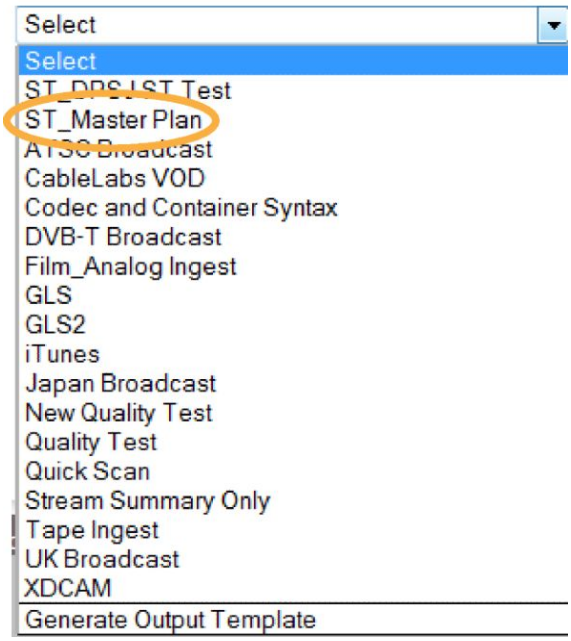


How to use a Smart Test plan

The Smart Test plans you create are displayed in the Template lists of the Add New Job, Hot Folders and the SOAP API displays. The names of the Smart Test plans are preceded by ST_.

In the preceding procedure for creating a new test plan, the test plan name was entered as "Master Plan." The example template list shown below displays that Smart Test plan as "ST_Master Plan."

User created Smart Test plans are always displayed at the top of the 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 Aurora.



How to import and export Smart Test plans

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.

How to import or export templates

Aurora allows you to import and export test templates in the form of XML files for use with other Aurora installations or to send them to *videosupport@tektronix.com* for analysis. Perform the following steps to import or export a template file:

To import the templates

1. On the Template Manager page, click the **Import** to import.
2. Click **Browse** to browse to the desired file location.
3. Click **OK** to proceed.

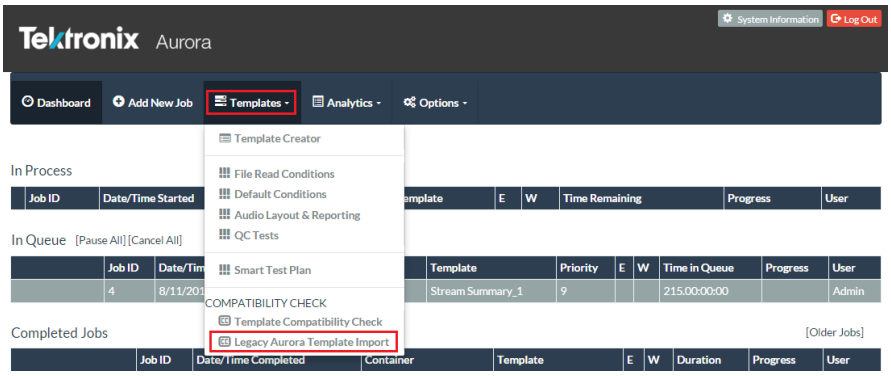
To export the templates

1. In Template Manager page, select one or more templates.
2. Click **Export** to export the templates.
3. In the dialog box, click **OK** to export the selected templates to XML/Zip file.

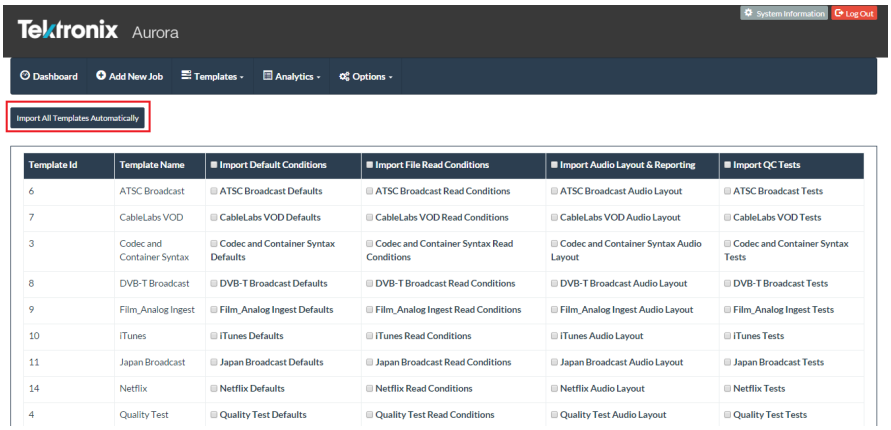
How to import Aurora legacy templates

The following procedure is an example of how to convert an Aurora legacy templates from the dashboard into the template:

1. From the dashboard, click the **Templates** tab and select **Legacy Aurora Template Import**.

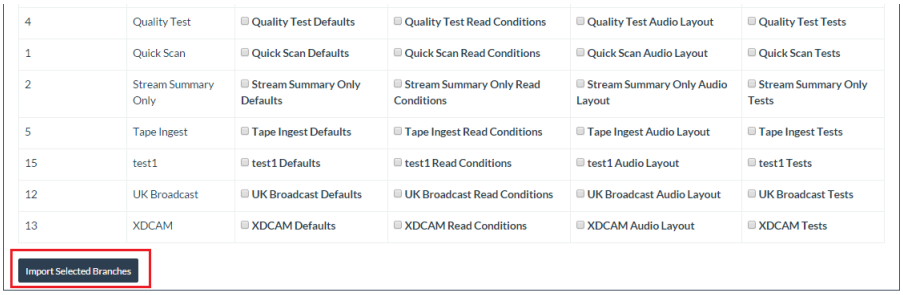


The window displays the list of templates. The templates displayed are the legacy templates Aurora found during the query.

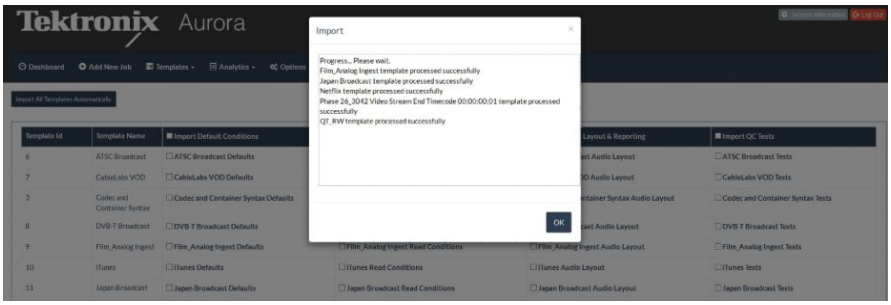


2. Click **Import All Templates Automatically** button present at the upper left hand side of the window, to convert all the templates.

3. To import only the selected templates, select the check box beside the template and click **Import Selected Branches** button present at the bottom left side of the window.

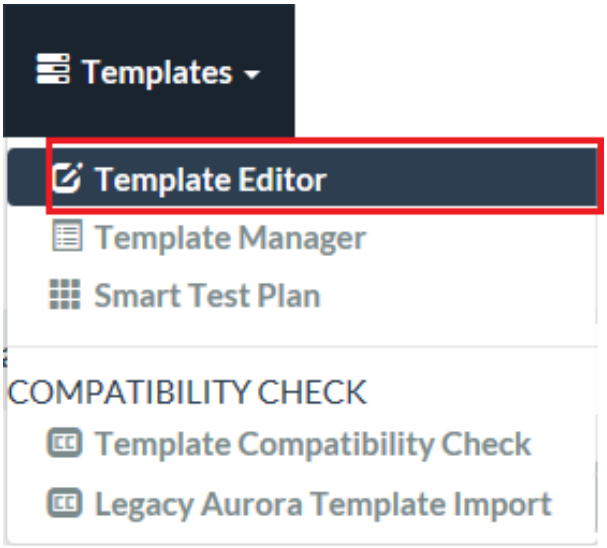


A pop up appears displaying the start of conversion process from legacy template to new Aurora templates.

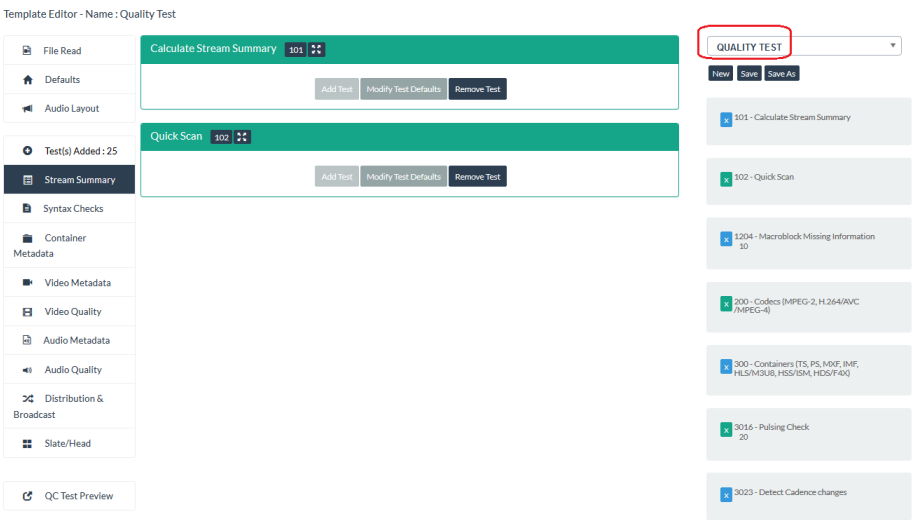


- Click **OK** button, after all the templates are converted.

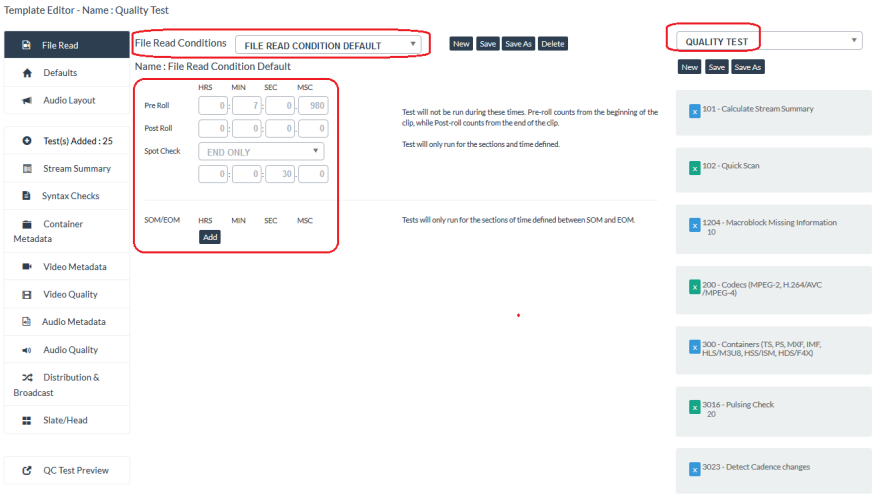
4. From **Template** tab, select **Template Editor**.



5. In the **Template Editor** page, click the drop-down list and select any template.



6. For example, if you select Quality Test, the default condition of the template is displayed for that template.



Reports

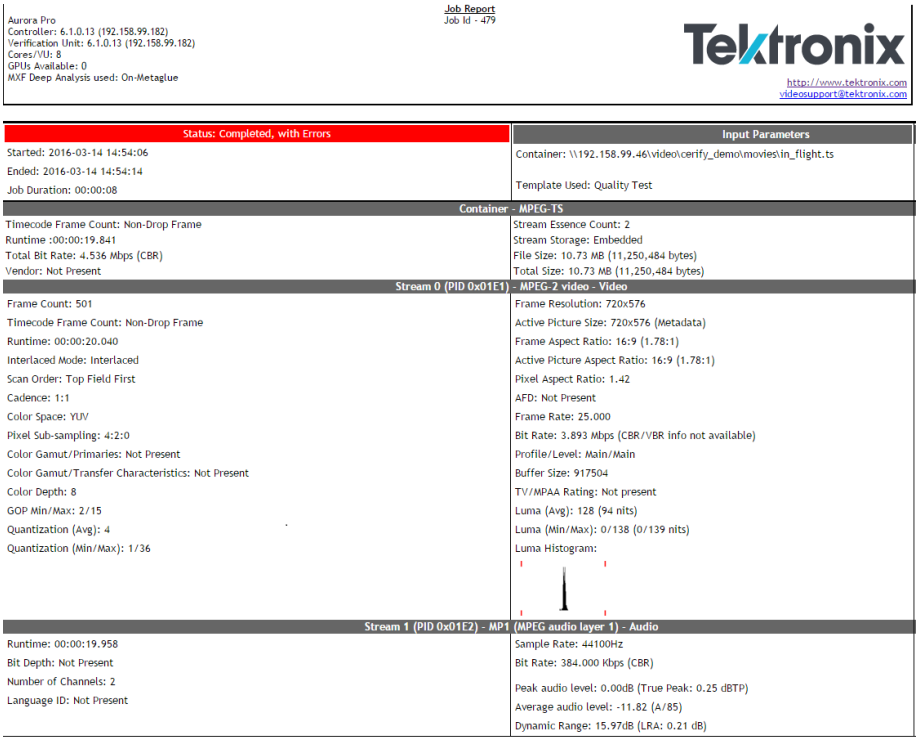
Options for accessing and viewing job reports

You have three options when accessing a job report:

- **First Option**: Click 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**: Click the PDF icon (located next to the Globe icon). When you choose to view the report as PDF, all links that you would normally click on are expanded to include all details.
- **Third Option**: Click the Player icon, which will open the file in the Hydra Player if installed and populate the Aurora QC events from the report in the Review Bar of the player.

How to understand a Job Report

Aurora 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.



Aurora Pro
Controller: 6.1.0.13 (192.158.99.182)
Verification Unit: 6.1.0.13 (192.158.99.182)
Cores/VU: 8
GPUs Available: 0
MXF Deep Analysis used: On-Metaglue

Job Report
Job Id - 479

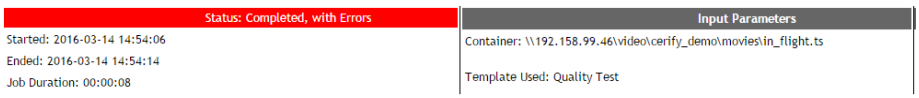
Tektronix
http://www.tektronix.com
videosupport@tektronix.com

Status: Completed, with Errors	Input Parameters
Started: 2016-03-14 14:54:06	Container: \\192.158.99.46\video\cerify_demo\movies\in_flight.ts
Ended: 2016-03-14 14:54:14	
Job Duration: 00:00:08	Template Used: Quality Test
Container - MPEG-TS	
Timecode Frame Count: Non-Drop Frame	Stream Essence Count: 2
Runtime :00:00:19.841	Stream Storage: Embedded
Total Bit Rate: 4.536 Mbps (CBR)	File Size: 10.73 MB (11,250,484 bytes)
Vendor: Not Present	Total Size: 10.73 MB (11,250,484 bytes)
Stream 0 (PID 0x01E1) - MPEG-2 video - Video	
Frame Count: 501	Frame Resolution: 720x576
Timecode Frame Count: Non-Drop Frame	Active Picture Size: 720x576 (Metadata)
Runtime: 00:00:20.040	Frame Aspect Ratio: 16:9 (1.78:1)
Interlaced Mode: Interlaced	Active Picture Aspect Ratio: 16:9 (1.78:1)
Scan Order: Top Field First	Pixel Aspect Ratio: 1.42
Cadence: 1:1	AFD: Not Present
Color Space: YUV	Frame Rate: 25.000
Pixel Sub-sampling: 4:2:0	Bit Rate: 3.893 Mbps (CBR/VBR info not available)
Color Gamut/Primaries: Not Present	Profile/Level: Main/Main
Color Gamut/Transfer Characteristics: Not Present	Buffer Size: 917504
Color Depth: 8	TV/MPAA Rating: Not present
GOP Min/Max: 2/15	Luma (Avg): 128 (94 nits)
Quantization (Avg): 4	Luma (Min/Max): 0/138 (0/139 nits)
Quantization (Min/Max): 1/36	Luma Histogram:
Stream 1 (PID 0x01E2) - MP1 (MPEG audio layer 1) - Audio	
Runtime: 00:00:19.958	Sample Rate: 44100Hz
Bit Depth: Not Present	Bit Rate: 384.000 Kbps (CBR)
Number of Channels: 2	Peak audio level: 0.00dB (True Peak: 0.25 dBTP)
Language ID: Not Present	Average audio level: -11.82 (A/85)
	Dynamic Range: 15.97dB (LRA: 0.21 dB)

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

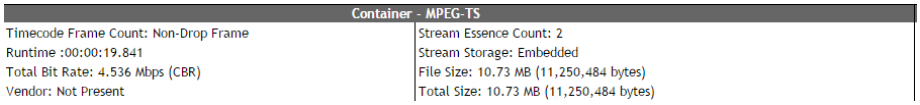
Status: The Status bar is on the left of the report. Here are what the colors mean: Green, indicates that the job completed with no errors identified; Yellow, indicates that the job was completed with warnings; Red indicates that errors were detected.

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.



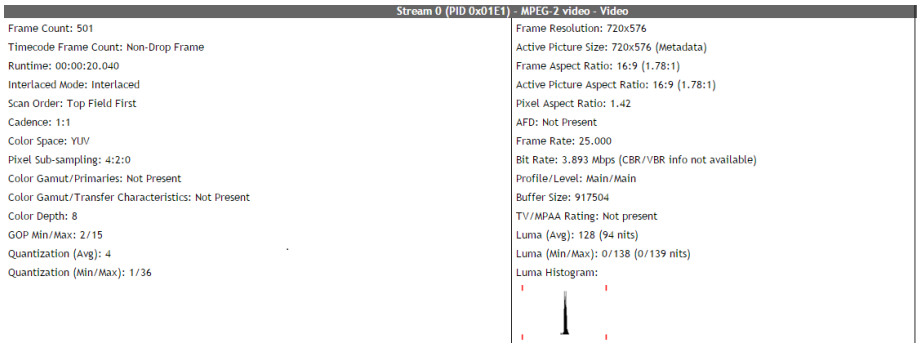
Status: Completed, with Errors	Input Parameters
Started: 2016-03-14 14:54:06	Container: \\192.158.99.46\video\cerify_demo\movies\in_flight.ts
Ended: 2016-03-14 14:54:14	
Job Duration: 00:00:08	Template Used: Quality Test

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-TS	
Timecode Frame Count: Non-Drop Frame	Stream Essence Count: 2
Runtime :00:00:19.841	Stream Storage: Embedded
Total Bit Rate: 4.536 Mbps (CBR)	File Size: 10.73 MB (11,250,484 bytes)
Vendor: Not Present	Total Size: 10.73 MB (11,250,484 bytes)

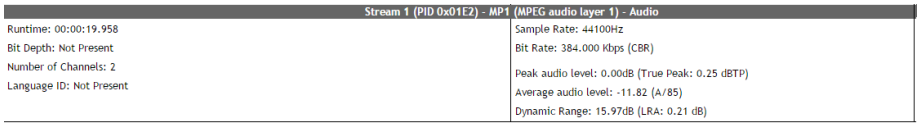
Container Metadata Summary: You can find the results for Stream Essence Count, Stream Storage (Embedded or Referenced), File Size, Total Size, Timecode Essence, Runtime, and Dark Metadata (if present, a link will be shown) can be found under this heading in the report.



Stream 0 (PID 0x01E1) - MPEG-2 video - Video	
Frame Count: 501	Frame Resolution: 720x576
Timecode Frame Count: Non-Drop Frame	Active Picture Size: 720x576 (Metadata)
Runtime: 00:00:20.040	Frame Aspect Ratio: 16:9 (1.78:1)
Interlaced Mode: Interlaced	Active Picture Aspect Ratio: 16:9 (1.78:1)
Scan Order: Top Field First	Pixel Aspect Ratio: 1.42
Cadence: 1:1	AFD: Not Present
Color Space: YUV	Frame Rate: 25.000
Pixel Sub-sampling: 4:2:0	Bit Rate: 3.893 Mbps (CBR/VBR info not available)
Color Gamut/Primaries: Not Present	Profile/Level: Main/Main
Color Gamut/Transfer Characteristics: Not Present	Buffer Size: 917504
Color Depth: 8	TV/MPAA Rating: Not present
GOP Min/Max: 2/15	Luma (Avg): 128 (94 nits)
Quantization (Avg): 4	Luma (Min/Max): 0/138 (0/139 nits)
Quantization (Min/Max): 1/36	Luma Histogram:

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 0x01E2) - MP1 (MPEG audio layer 1) - Audio	
Runtime: 00:00:19.958	Sample Rate: 44100Hz
Bit Depth: Not Present	Bit Rate: 384.000 Kbps (CBR)
Number of Channels: 2	Peak audio level: 0.00dB (True Peak: 0.25 dBTP)
Language ID: Not Present	Average audio level: -11.82 (A/85)
	Dynamic Range: 15.97dB (LRA: 0.21 dB)

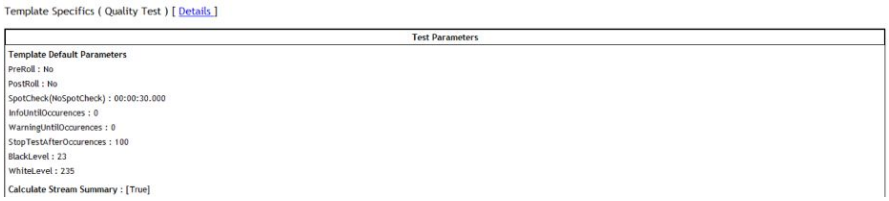
Audio Stream Metadata Summary: Under this heading in the job report, you will find: Sample Count, Runtime, Bit Depth, Number of Channels, Language ID, Sample Rate and Bit Rate.

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/QC Summary: The results of the analysis include the template used for the job, the template species, 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.

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 Hydra Player (if installed) on your client machine with the event frame on pause in full resolution.


Template Specifics (Quality Test) [Details]

Test Parameters
Template Default Parameters
PreRoll : No
PostRoll : No
SpotCheck(NoSpotCheck) : 00:00:30.000
InfoUntilOccurences : 0
WarningUntilOccurences : 0
StopTestAfterOccurences : 100
BlackLevel : 23
WhiteLevel : 235
Calculate Stream Summary : [True]

Template Details: At the bottom of every Aurora 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.

Help files from the report

To see further explanation on the root cause of a QC event, or to understand how the test is working, click the Test Index Number next to any of the Test Names in the report. This shows a help file from the Aurora server.

Item ID : 4004.001 (Comb Artifacts) [Show Details]

Instances : 100 (106/ 2870 total frames, 3.69% of clip)

Rule Type : Video Quality Parameters

4004 – Comb Artifact & Field Order Swap Detection

Category:
Video Quality Parameters

Test Description:
Interlacing Artifacts, an artifact which manifests by showing a shift in every other line around motion area format that loses any reference to the proper field order. The Verification Unit has two separate tests to d

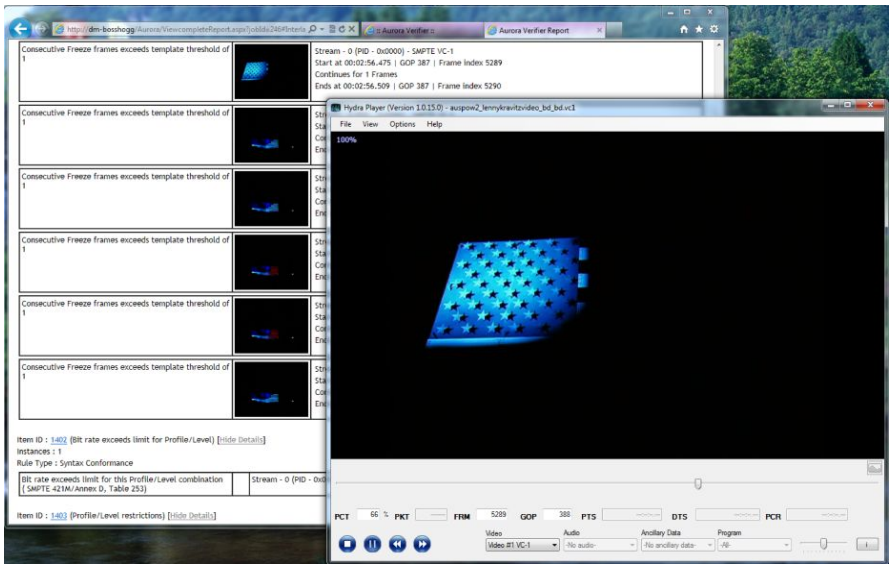
1) Comb Artifacts (Encoded scan line artifacts) – The Verification Unit uses an algorithm to detect jag de- interlaced content has been progressively encoded. These types of artifacts will likely only be

2) Field Swaps (Fields out of order) – The Verification Unit uses an algorithm to detect an object in th then left again, and so on), producing a stutter-type motion. This type of artifact will likely be visi zig-zag field to field.

How to open the file in Hydra Player from an error report location

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

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



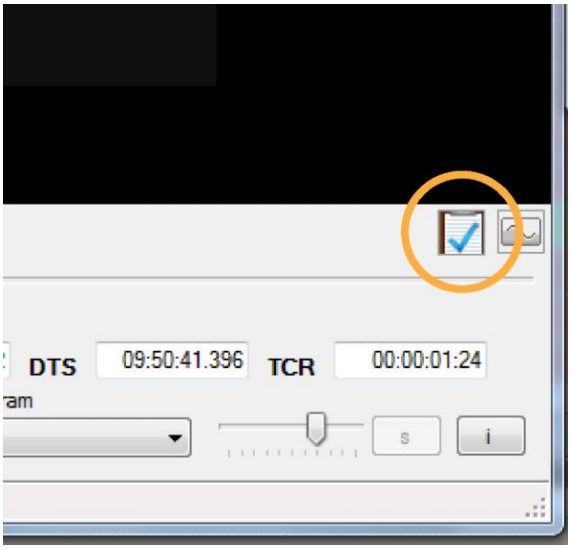
4. The Hydra Player will open the file, paused at the error location. You can use the standard Hydra toolbar controls or keyboard shortcuts to play the file from there. Refer to the *Hydra User Manual* for more details on the Hydra Player.

How to use the Hydra Review Bar to view results and edit QC events

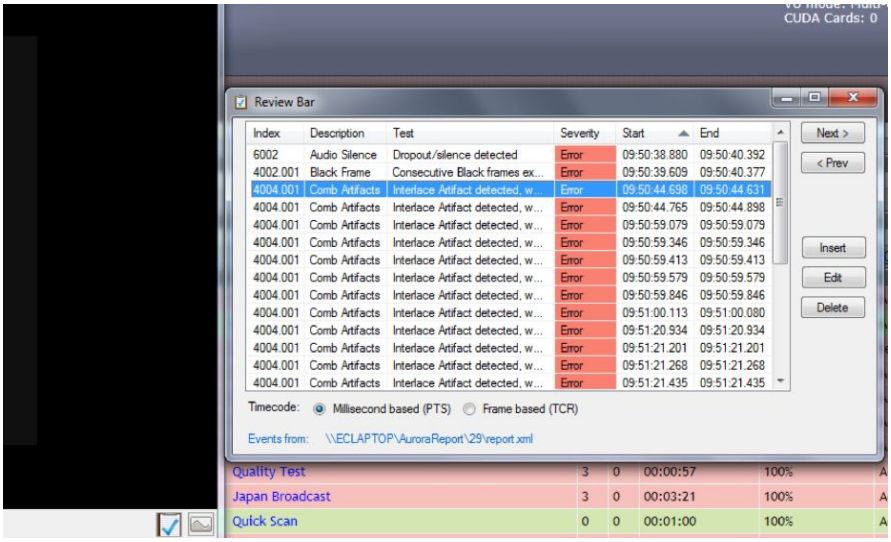
The Review Bar (available in Hydra Player version 3.0 and later) will populate and be available for use when you start playback using one of the following methods:

- By clicking a thumbnail link in an Aurora 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 Hydra Player and the Review Bar button (to the bottom right of the video window) will become active.

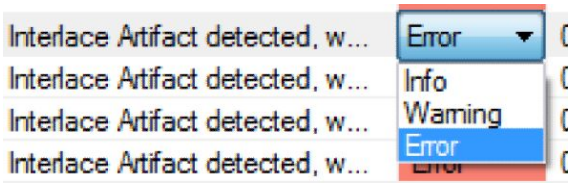


Click this button to open the Review Bar, and the Aurora QC events will be automatically populated for you to use.



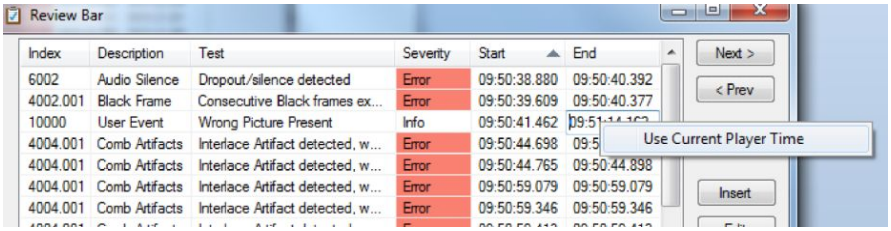
As you play through the video, the closest artifact (warning, error, or information) to your current location will be highlighted. You can also use the Next and Prev buttons to go directly to the next artifact.

If you need to change the severity of an Aurora event, you can click the Edit button and a drop-down menu will appear, allowing you to modify the severity.



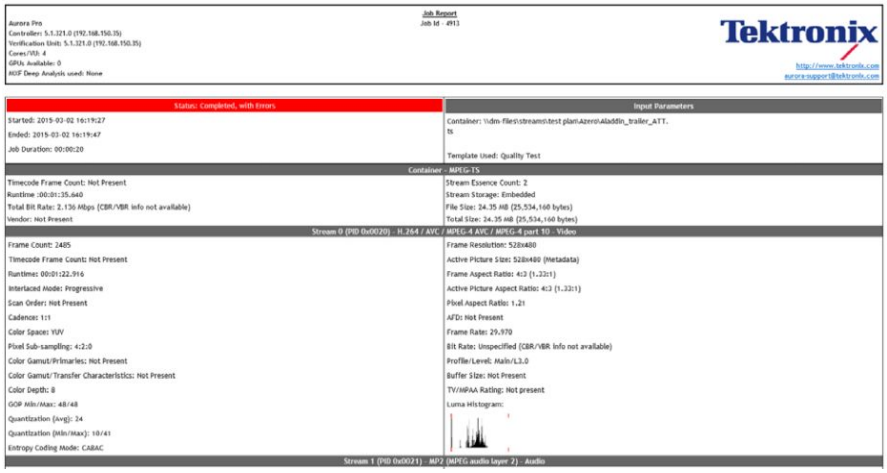
Additionally, you can Delete an Aurora QC event completely, using the Delete button. If you Delete QC events, the original events will be saved in the XML of the Aurora Report as Original Events.

You can also 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.



How to print job reports

There are two methods to print a job report:



First method.

1. Select the desired job by clicking the HTML icon on the lefthand side of the Home tab page that corresponds with the report you wish to print.
2. When the job report opens in the new window, use your Browser's print command to print the job report as desired

---

NOTE. *About Printing Job Reports With This Option: When printing Aurora job reports using your browser's print command, keep in mind that Aurora job reports are WYSIWYG, i.e., what you see is what you get.*

If you want to print the job report with a list of all errors, then you must click Show All so that all errors appear in the report. If you print the job report without clicking Show All, then the complete list of errors will not be printed in the report.

Second method.

1. Select the desired job by clicking on the PDF icon on the lefthand side of the Home tab page that corresponds with the report you wish to print.
2. When the job report opens in the new window, use your Browser's print command to print the job report as desired.

NOTE. *About Printing Job Reports With This Option: When printing Aurora job reports in PDF, keep in mind that in Aurora PDF job reports all links are expanded to include all details.*

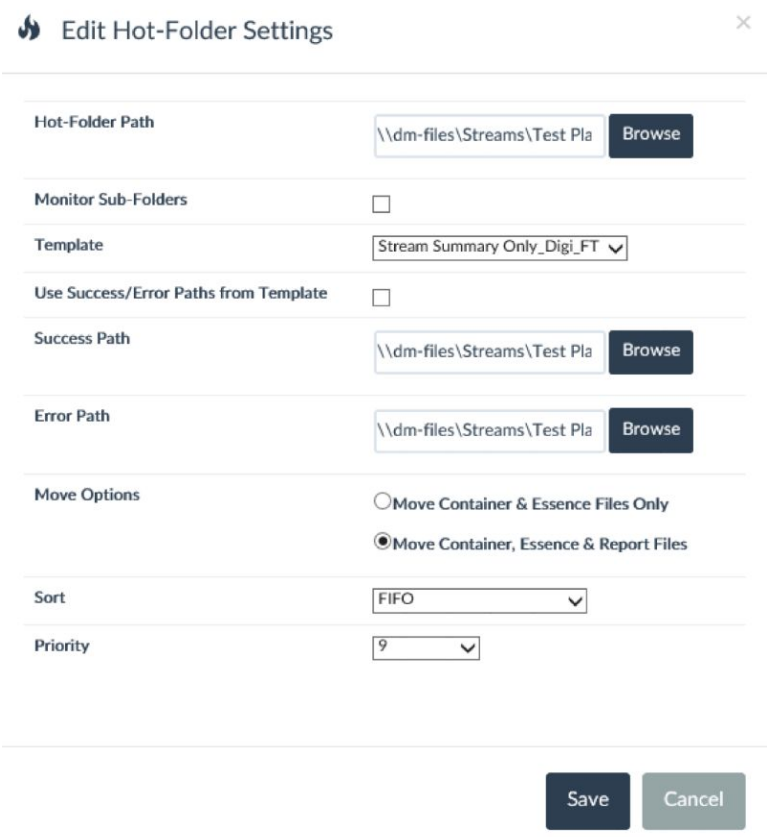
All information that you view by clicking on a link is included in this PDF report.

How to automate the QC process

Hot folders-Watch folders

The Manage Hot Folder setting (available on the Settings page of the Options tab) allows you to setup hot folders (watch folders). Hot folder settings provide you a simple level of automation.

From the Settings tab, find the section labeled Manage Hot Folders. Choosing to Add, Edit or Clone a hot folder will open the Hot Folder Wizard. When cloning an existing hot folder, the wizard will populate with a current hot folder's values and allow you to change those values and save a new hot folder.



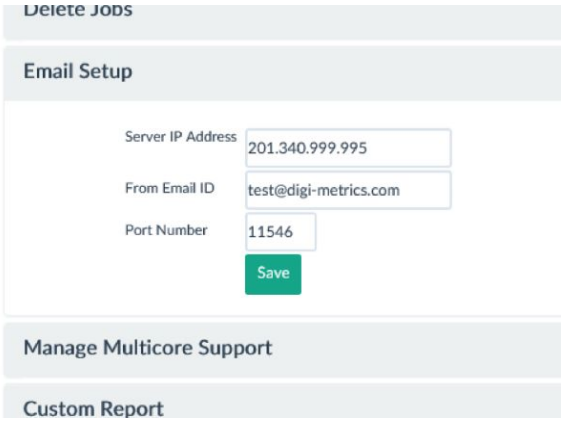
The hot folder wizard view allows you to define:

- **Hot Folder Path**: The path that Aurora will monitor for incoming files to test.
- **Monitor Sub-Folders**: If selected, the subfolders of the Hot Folder will also be monitored for incoming files. If you are using playlist/manifest files (such as HLS or IMF), you should leave this unchecked.
- **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.
- **Move Options** Allows you to select which files should be moved after the end of the test.
- **Sort**: You can choose how incoming files are sorted to be added to the job queue. Aurora defaults to FIFO, but you can also choose LIFO, sort by date, sort by filename and sort by file size).
- **Priority** You can set a priority for each hot folder, from 1-9 (1 is highest priority).

Email notifications

Aurora can be configured to automatically send an email 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 page of the Options 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.



Starting with Aurora 5.1, you may specify multiple email addresses in the User E-Mail Address field, if you need more people notified.

- Use comma [,] or semicolon [;] as a deliminator between email addresses
- If you want to cc or bcc an address, prefix, including parentheses, with (cc) or (bc)

Application Programming Interface (API)

Aurora includes a Web services based application programming interface (API) that uses the Simple Object Access Protocol (SOAP) to exchange messages between the automation client software and the Aurora server. Using this API, Aurora can be fully integrated into other content management, broadcast automation and workflow systems.

The Aurora SOAP API is described by a WSDL definition that can be retreived from the Aurora server at http://localhost:1002/ApiService?singleWsdl. If you wish to retrieve the WSDL from a remote computer, you need to do the following:

1. Stop the Aurora services (Aurora Controller and Aurora Verifier) using the Aurora Trap Application. If you stop these services using the Windows Service Manager, the tray application will automatically restart them.
2. Edit the Tektronix.Aurora.MasterController.Services.exe.config file located at C:\Program Files\Tektronix\Aurora\Aurora Services and edit lines 93-97, replacing localhost with the IP address of the Aurora Controller machine:

```
<host>
<baseAddresses>
<add baseAddress="http://localhost:1002/
ApiService"/>
</baseAddresses>
</host>
```

3. Restart the Aurora services.

Aurora API. The service endpoint for the Aurora API is http://hostname:1002/ApiService. Starting with version 5.2, Aurora hosts its API on port 1002 with a namespace of tektronix.com. If you are using the legacy dca.com namespace from version 5.1 or earlier, you can continue to use that version of the API by addressing port 1001, but be aware that no new functions will be added to the legacy interface.

Complete documentation of the methods in the Aurora API can be found online, by selecting API Documentation from the Options menu.

A software development kit for the Aurora API, including the WSDL file, documentation, and code samples can be found at C:\Program Files\Tektronix\Aurora\SOAP API Demo Project.zip.

CeriTalk API. Starting with version 6.0, Aurora also includes the CeriTalk API to provide compatibility with existing software integrations to Cerify systems. The WSDL definition can be retrieved from http://localhost/CeriTalk?wsdl and the service endpoint is http://hostname/CeriTalk. As with the legacy Aurora API, no new functions will be added to the CeriTalk interface in future Aurora releases.

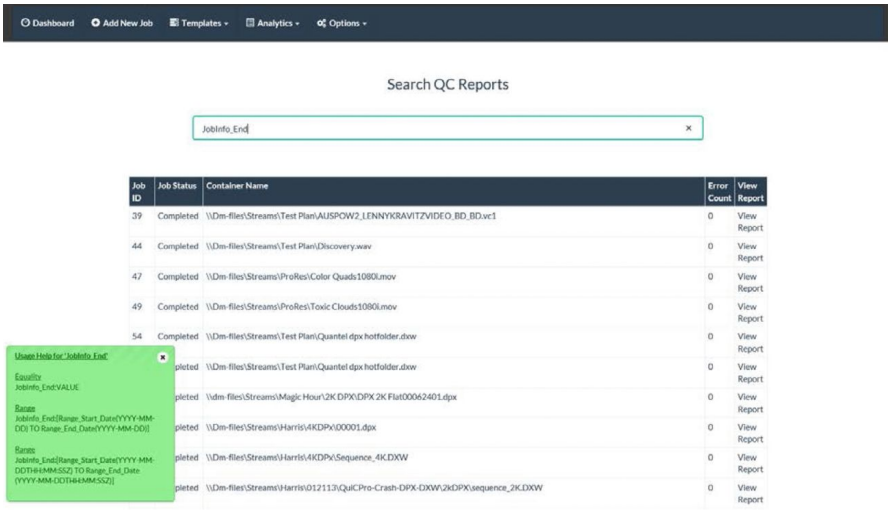
A software development kit for the CeriTalk interface, also including its WSDL file, documentation and code samples, can be found at C:\Program Files \Tektronix\Aurora\ceritalk-sdk-7.9.1.14.zip.

Aurora analytics

The analytics features of Aurora offer new ways to find older jobs, identify trends from the job results and compare job results.

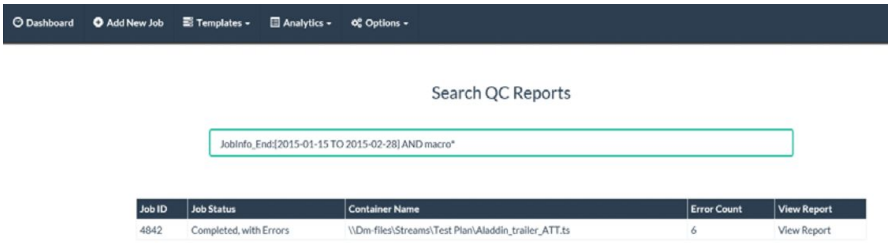
Search

You can access Search from the Analytics tab on the user interface, and use the query box with natural language to find most common answers. Search is a standard feature in all products of Aurora.



The Aurora search feature indexes all of the XML reports run on the Aurora system, so you can find anything that exists in the XML. Typing a specific XML tag into the Search query box will bring up Usage Help for that feature, allowing you to see how to search specifically within that tag.

It is possible to combine searches with Boolean operators to perform complex searches.



+

Some examples of complex searches:

Jobs from the last 30 days: JobInfo_End:[2014-07-18 TO 2014-08-18]

Jobs from the last 30 days without errors: JobInfo_End:[2014-07-18 TO 2014-08-18] AND Errors_UniqueCount:0

Jobs from the last 30 days with errors: JobInfo_End:[2014-07-18 TO 2014-08-18]] AND Errors_UniqueCount:[1 TO 99999]

Jobs from the last 30 days with exactly 1 error: JobInfo_End:[2014-07-18 TO 2014-08-18]] AND Error_Count:1

Jobs from the last month with errors: JobInfo_End:[2014-07-18 TO 2014-08-18] AND Errors_UniqueCount:[1 TO 99999]

Jobs from the last month with Macroblocking errors: JobInfo_End: [2014-07-01 TO 2014-08-01] AND Error_Name:"Macroblocking Artifacts*"

Jobs with Macroblocking errors: Error_Name:"Macroblocking Artifacts*"

Jobs with Macroblocking artifacts which have more than 50 errors: Error_Name:"Macroblocking Artifacts*" AND Error_Count:[50 TO 1000]

Jobs with “Black Frame” errors for a specific location or file: Error_Name:"Black Frame" AND JobInfo_Filepath:Aladdin_trailer_ATT.ts

Jobs aborted by user: JobInfo_Status:"Aborted, User"

Jobs aborted by user in last 30 days: JobInfo_Status:"Aborted, User" AND JobInfo_End:[2014-07-18 TO 2014-08-18]

Jobs aborted by Application: JobInfo_Status:"Aborted, Application"

Trends

This feature shows a chart of the most common QC events occurring in your Aurora system. You can define the length of time shown on the chart, by number of days or number of reports to consider. You can also choose to reset the chart at any time.

Filters

You can choose whether to show Errors, Warnings or Information (or any combination) on the trend chart.

Display Order

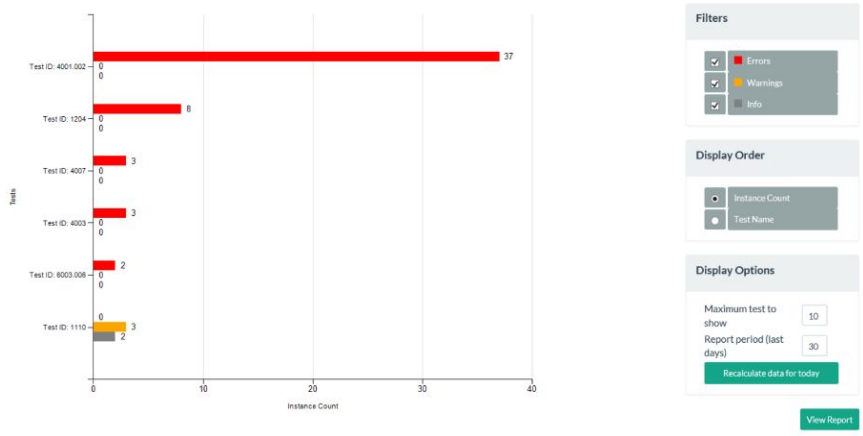
By default, the chart will sort by the number of Instances, but for some customers, Test Name is a preferable order

Display Options

You can set the maximum number of tests to show and the report period. You may also use the 'Recalculate Data' button to reset all charts to today.

View Report

Click here to view the Trend chart.

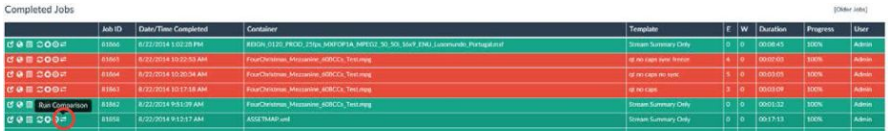


Result comparison

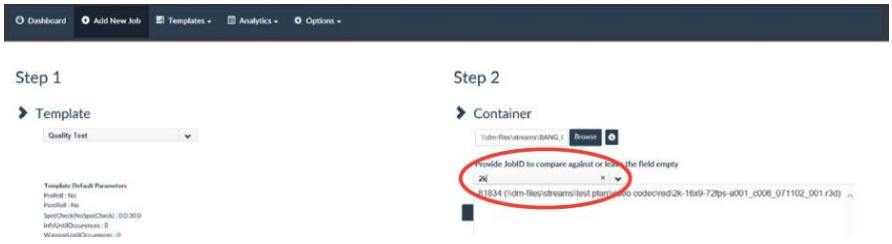
This optional feature (sold as an add-on to Aurora) enables a new report to be created by comparing two existing jobs from different points in the workflow. You can start a comparison job in 3 ways:

1. From the Analytics tab select Compare, the screen displays Compare Job setup page.

2. From the Dashboard select the Compare icon to start a job using an existing file from that job, which displays the Compare Job setup page.



3. From the Add New Job page selecting a job ID to compare against when starting a new job.



A result comparison job uses two different reports, a reference report, which should be the job run first in the workflow, and a downstream report, which should be the last job run in the workflow. The comparison report will highlight the differences between the two.

From the Result Comparison job setup page, you can select any two reports to use for a comparison by searching in the Job ID box for either a Job ID or a file name (you will always be shown both Job ID and the associated file name to make the proper selection).

The Swap button allows you to reverse the position of the files between Reference and Downstream.

A Compare job will not show in the queue or process, as it runs immediately, and as an XML comparison, it runs very quickly. Compare jobs will be shown in the Completed job section linked to the reference or downstream report, depending on your selection in the *Comparison Settings* in Options.

By checking the Audio Fingerprint setting in Comparison Settings, the Compare job will also check to be sure that the audio stream relative fingerprint (using relative amplitude and frequency movement) matches between the two jobs. If any audio drift has been introduced, the Compare job will show a new error in the report with the level of drift shown.

Other Aurora settings

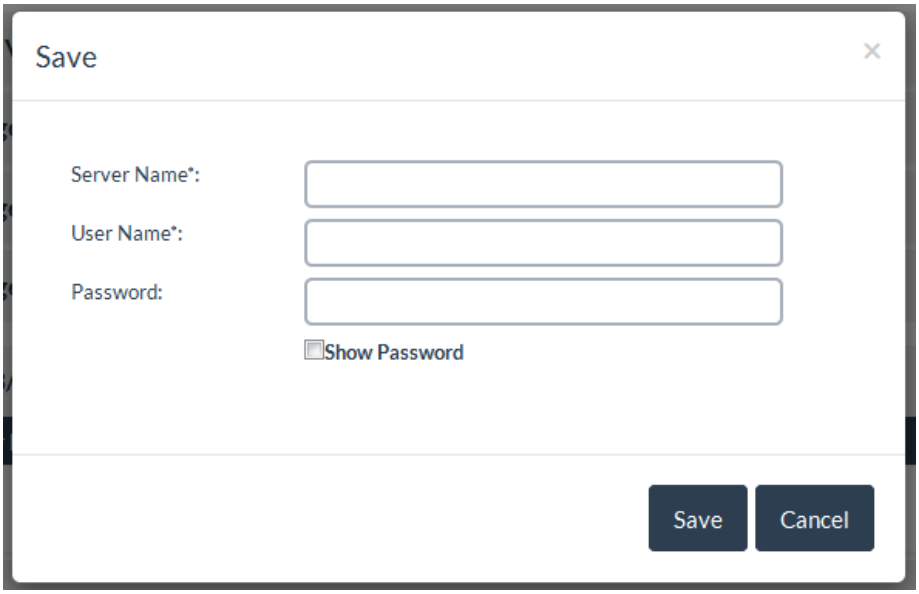
The Settings page on the Options tab contains many useful configurations to the Aurora system.

Manage Credentials

Configure SMB/CIFS credentials.

1. From the Settings page of the Options tab, select **Manage Credentials** and then select **SMB/CIFS** to configure the SMB/CIFS credentials.

2. To add SMB/CIFS credentials, click **Add** to open the dialog shown below.



3. Enter the SMB/CIFS server name or IP Address in the **Server Name** field.

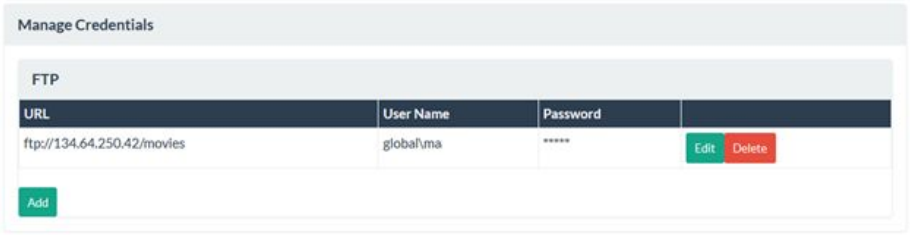
NOTE. *Enter only the server name or IP Address without any share folder name. You can provide the share name while accessing the files or folder (Eg: \\<servername>\<sharedfolder>)*

4. Enter the username (domain name, if applicable, should be in the format "<domain>\<user>).
5. Enter the password.
6. Click **Save** to save the information.

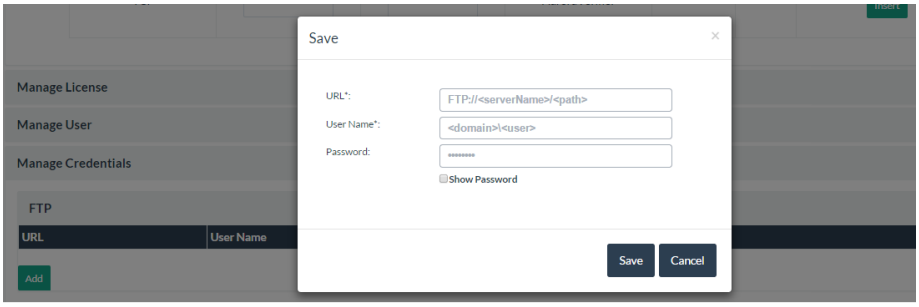
Aurora will use these credentials while accessing the files or folder.

Configure FTP credentials.

1. From the Settings page of the Options tab, select **Manage Credentials** and then select **FTP** to configure the FTP credentials.



2. To add FTP credentials, click **Add**, which opens the dialog shown below.

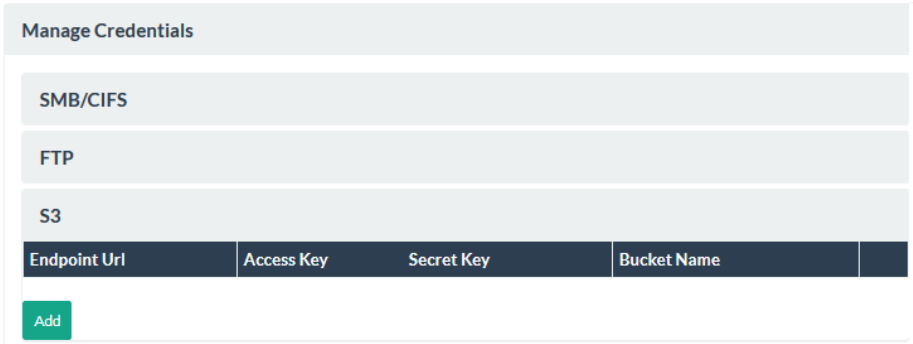


3. Enter the FTP path in the URL (FTP://<serverName>/<path>).
4. Enter the username (domain name, if applicable, should be in the format "<domain>\<user>")
5. Enter the password.

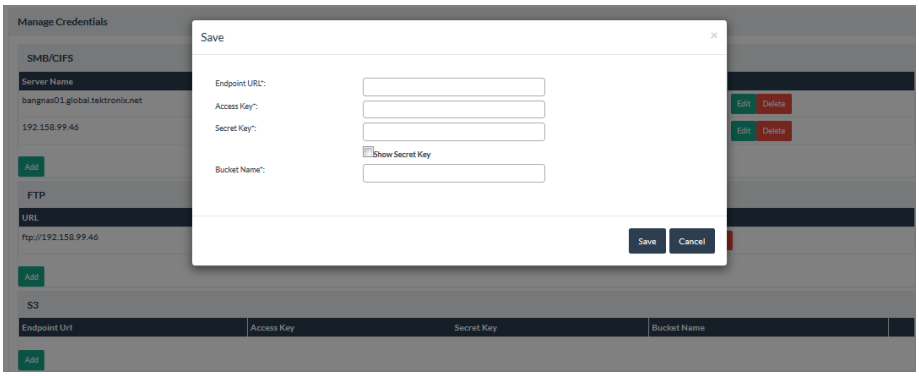
Any FTP file which gets processed using the CeriTalk method will make use of the saved credentials.

Configure S3 Credentials.

1. From the Settings page of the Options tab, select **Manage Credentials** and then select **S3**.



2. To add S3 credentials. Click **Add**, a dialog box appears.



3. Enter the Endpoint URL.

   The endpoint URL should be in this format: https:// <hostname:port or http:// <hostname:port>.

   Default host is s3.amazonaws.com, default port for http is 80, and https is 443.

4. Enter the access name in the **Access Key** field.

   Access Key is an alphanumeric text string that uniquely identifies the owner of the account. No two accounts can have the same AWS Access Key.

5. Enter the secret key in **Secret Key** file.

   Secret Key is a password.

6. Select **Show Secret Key** to display the secret key while you type.

7. Enter the bucket name in the **Bucket Name** field.

   S3 bucket is a container for objects stored in S3. Every object is contained in a bucket.

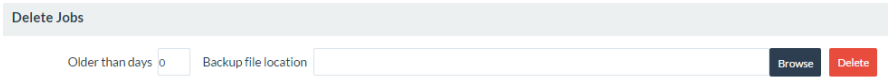
8. Click **Save** to save the information.

The Secret Key (password) and Access Key form a secure information set that confirms the identity of the user.

Aurora will use these credentials while accessing the files from S3 if you have not specified the credentials in the URL.

Automatic clean-up of old jobs

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

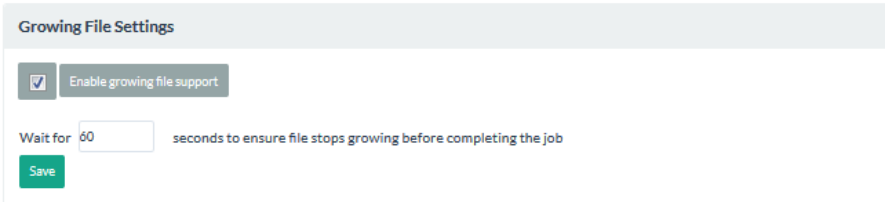


Simply input a value in the older than x# of days box, and provide a backup file location (UNC paths only), and then press Delete. Aurora will prompt you to be sure you want to delete these jobs, and then process your clean-up activity.

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

Growing file settings

When growing file support is selected, Aurora starts the QC process as soon as the file is available and will not wait for the file to be ingested completely.



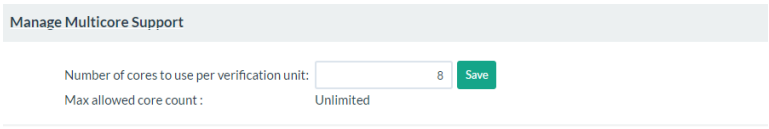
By default, Aurora waits for 10 seconds to ensure file stops growing before completing the job.

Manage multi-core testing (set CPU cores per VU)

Aurora is multi-threaded and can be set to reserve CPU cores for each VU in the system. Each Aurora product has a maximum allow CPU core value that can be set:

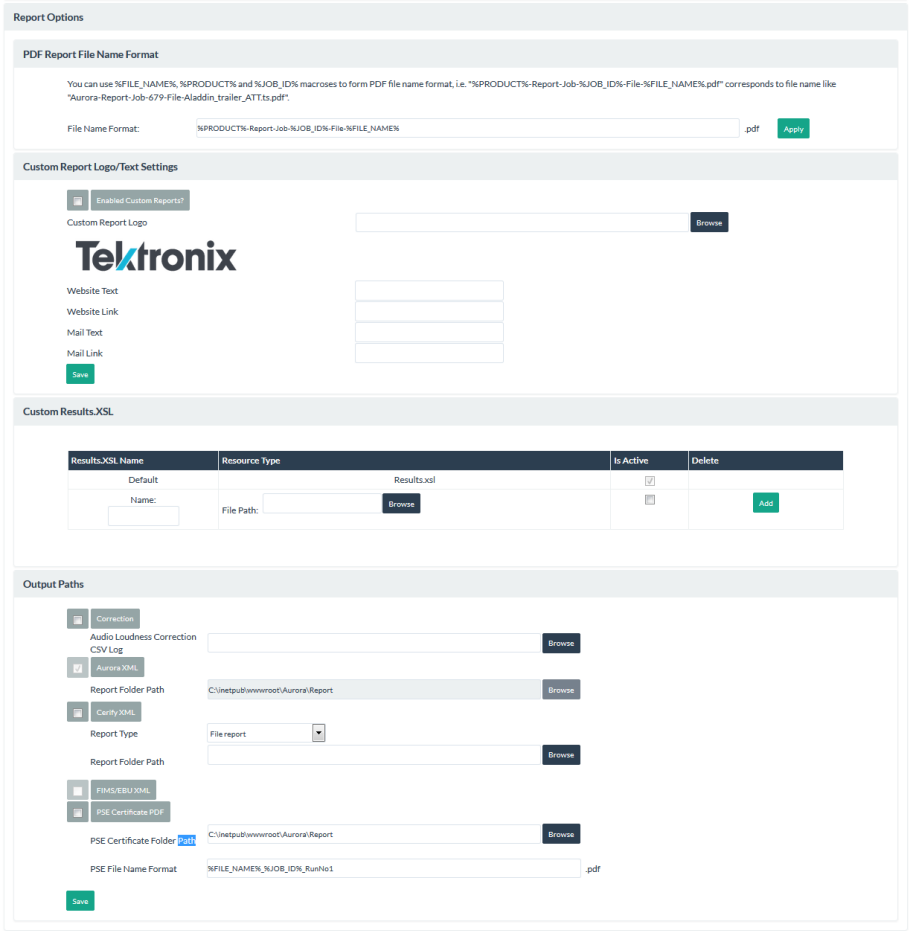
Aurora Core – 4 cores/VU maximum

Aurora Professional – unlimited



NOTE. *When you modify the CPU core count, all jobs in process will restart, so it is best to only change this mode when you have no jobs in the queue.*

Report Options



PDF Report File Name Format

You may want to have your PDF reports named in a human readable fashion, and Aurora 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, Aurora)

%JOB_ID% - the Aurora Job ID

By default, Aurora creates PDF with this syntax: %PRODUCT%-Report-Job-%JOB_ID%-File-%FILE_NAME%.pdf which would create a report named something like: Aurora-Report-Job-16-testfile.mxf.pdf.

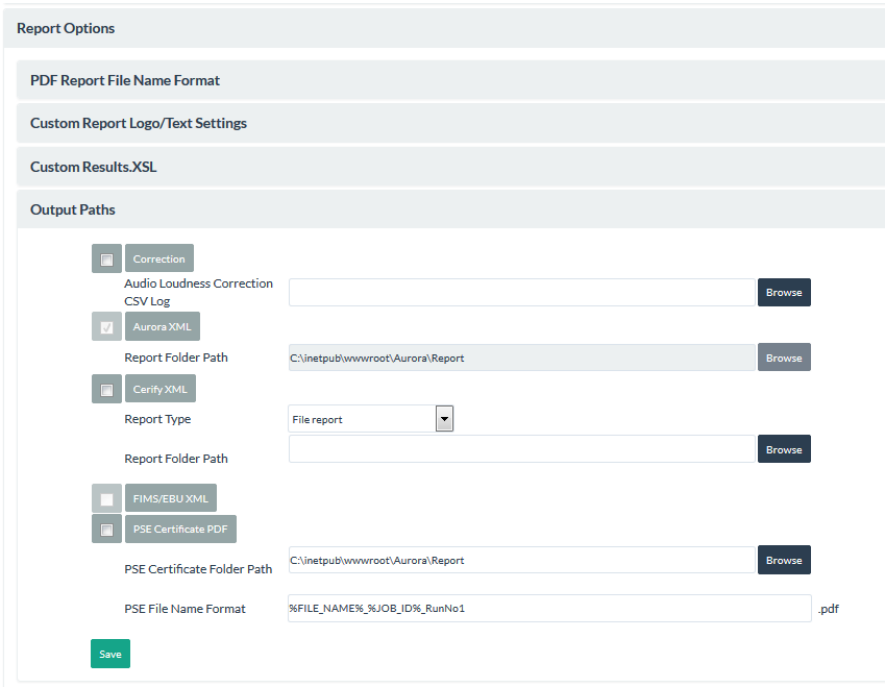
Custom Report Logo/Text Settings

By default, the Tektronix logo, website and support information are shown on the reports. If you prefer to use your own information, you can modify those items here, and all future reports created will use your settings.

Custom Results Stylesheet (Results.XSL)

If you prefer to re-order items on the report or show only certain report items, you can customize the results.xsl stylesheet (found for any previously run jobs at C:\inetpub\wwwroot\Aurora\Report\[JOB#]\Common) and have Aurora use your custom version.

Output Paths



Correction: When selected the log containing details of the audio loudness correction is generated in the specified location. The details include parameters such as audio loudness and dialnorm values, before and after correction.

Aurora XML: This option is selected by default and Aurora XML report will be generated. You cannot deselect Aurora XML and also cannot modify the report path

Cerify XML: Select to generate Cerify-compatible XML report. By default, both Job report and File report are generated in the folder path C:\inetpub\wwwroot \Aurora\Report\[JOB#]\CerifyReport". You can configure the path to generate the Cerify XML report in a different folder. The Cerify report XML will be saved in the folder path configured. User can choose to generate File report or Job report or both reports. The filename pattern for the Cerify XML files match the file name pattern that Cerify uses. Cerify XML report file names include the job name as part of the file name string. If the job is created using CeriTalk, then the job name passed as parameter to CreateJob() CeriTalk method will be part of the Cerify report file name. If the job is created from Aurora Web UI, then job ID is used instead of job name in Cerify report file name. The file naming convention to be followed for Cerify XML report is:

You can configure the path to generate the report in a different folder. The Cerify report XML will be saved in the folder path configured. User can choose to generate File report or Job report or both reports. The filename pattern for the Cerify XML files matches the file name pattern that Cerify uses. Cerify XML report file names include the job name as part of the file name string. If the job is created using CeriTalk, then the job name is passed as parameter to CreateJob() CeriTalk method will be part of the Cerify report file name. If the job is created from Aurora Web UI, then job ID is used instead of job name in Cerify report file name. The file naming convention to be followed for Cerify XML report:

- Job report - <Jobname>_End_<timestamp>.xml >
- File report - <Jobname>_<Filename>_End_<timestamp>.xml

FIMS/EBU XML: Generation of FIMS/EBU XML is not yet supported.

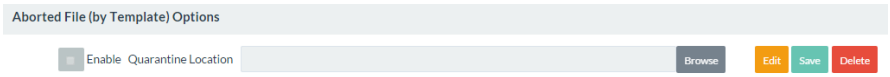
PSE Certificate PDF : Select to generate PSE Certificate as a PDF file. The Certificate will be generated only if the system has “Harding FPA” license and the respective test is added. The PSE Certificate will be generated in the respective job id folder in the name of “PseReport.pdf”. The PDF file will be copied into the folder path configured in “PSE Certificate Folder Path”. The PDF file name in “PSE Certificate Folder Path” will be in the format configured in “PSE File Name Format”.

When the format has “%JOB_ID%,” then the respective job id will be added in the pdf filename. When the format has “%FILE_NAME%,” then the respective name of the file will be added in the pdf filename. For example, cricket.mpg is the file processed with the job id “24” and “PSE File Name Format” is configured with the value “%FILE_NAME%_%JOB_ID%_RunNo1” then the PSE report file name will be “cricket.mpg_24_RunNo1.pdf”.

The PSE Certificate will have Tektronix logo on the bottom right corner. If you prefer to use your own logo, you can configure the logo in **Settings** -> **Report Options** -> **Custom Report Logo/Text Settings**. Select **Enabled Custom Reports** and add your log in “Custom Report Logo”.

Set a quarantine file location

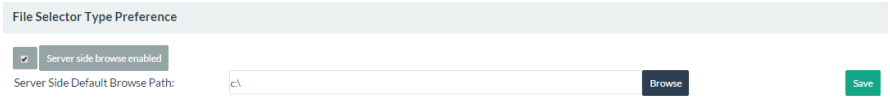
During watch folder/hot folder operations, you can set a location for files to be moved if errors occur. In some cases, you may want to quarantine aberrant files that have created abort conditions in your workflow, as these are probably files that need no further human review and just need to be rejected.



Aurora allows you to configure this in the Settings tab.

Change the browse control (file selector type)

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

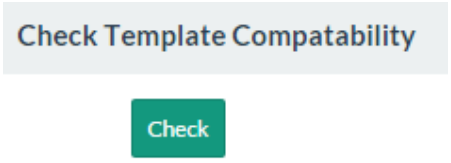


The server-side browse control ensures that no jobs are added to the Aurora queue that the Aurora server cannot reach. If you choose to use the client-side browse control, you must have the same permissions on the client machine as you do on the Aurora server (Aurora will not upload files to its' queue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

Clear Server side browse control enables the client-side control. If you leave server side browse selected, you should 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).

Check template compatibility for upgrades

When upgrading Aurora 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 Aurora. The Check Template Compatibility tool, located in the Settings tab, ensures that you can always upgrade your templates when you upgrade Aurora.

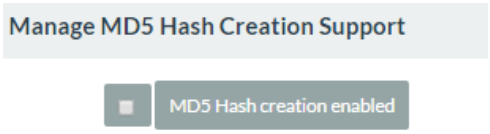


When you check template compatibility, you will be presented a list of your templates, and if any are not valid for the current Aurora version, you will be given a link to Fix that template in the Template Editor, which will provide you detailed direction on which tests need to be modified to bring your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

Index	ID	Name	Valid	Fix?
1	12	UK Broadcast	False	Fix?
2	13	XDCAM	False	Fix?
3	6	ATSC Broadcast	True	Open in Template Editor
4	8	DVB-T Broadcast	True	Open in Template Editor
5	3	Codec and Container Syntax	True	Open in Template Editor

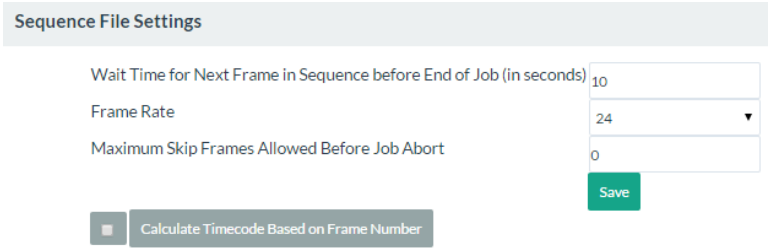
MD5 hash creation

If you would like Aurora to create an MD5 hash file for each of the container files tested, this option can be checked. The MD5 hash is stored in plain text in a *.MD5 file with the same base file name as the container (so a container file named TESTFILE.MXF will have an MD5 hash stored in TESTFILE.MD5).



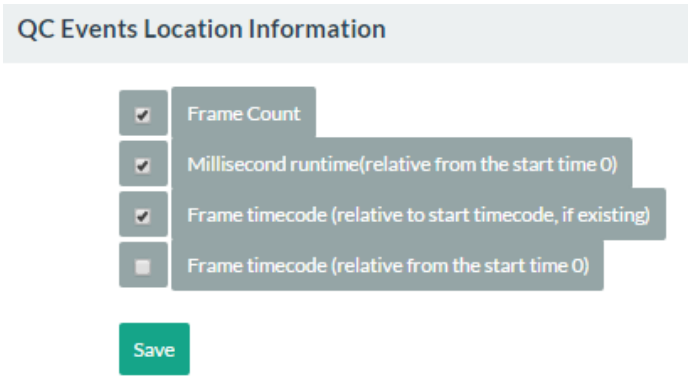
Sequence file settings

When Aurora finds a sequence of frame files in the same folder (such as RED, DPX, EXR, J2K), it will automatically attempt to find the next numeric sequence named file to continue testing (e.g. frame001.dpx to frame002.dpx). This setting changes the amount of time Aurora should wait for the next sequence named file before assuming the frame renders are complete.



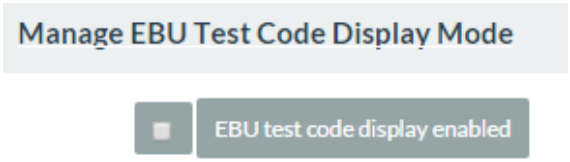
Change how QC event locations are reported

Aurora QC events can be reported using multiple types of location information. So you can customize of how Aurora displays the location of the QC event. Multiple locations can be shown in the report.



Toggle EBU test codes on-off

Tektronix supports the EBU QC standardization effort, which defines standard QC test codes and definitions. To see the EBU test codes in the Aurora Template Editor, check this option.



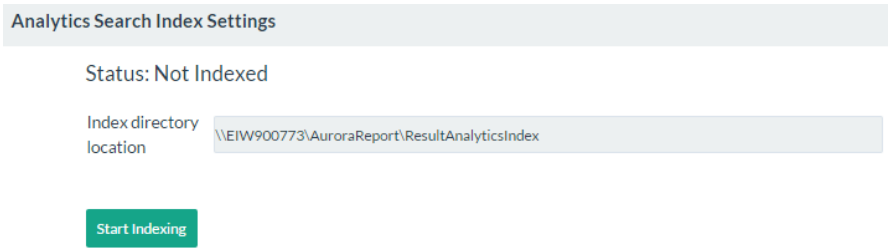
Analytics comparison settings

If you have the Result Analytics Add-On, these settings allow you to configure:

- Which comparison jobs to show on the Dashboard (All, Original Jobs Only, Comparison Jobs Only)
- How comparison jobs will be shown linked on the Dashboard (Linked to Reference Job, Linked to Downstream Job, Linked to Both)
- TCR range inaccuracy – the amount of inaccuracy you will allow between runtime values before a miscomparison is created
- Audio Fingerprint Comparison – toggles the setting to check the audio fingerprint, allowing Aurora to detect if the audio is the same (or drifted) between the two files being compared. Audio Fingerprints allow you to compare audio, even if the second job has a different mix or codec.

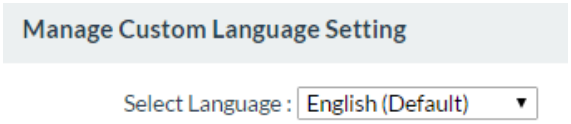
Analytics search index settings

Allows configuration of location of the search index, which is the default to your Aurora Report folder.



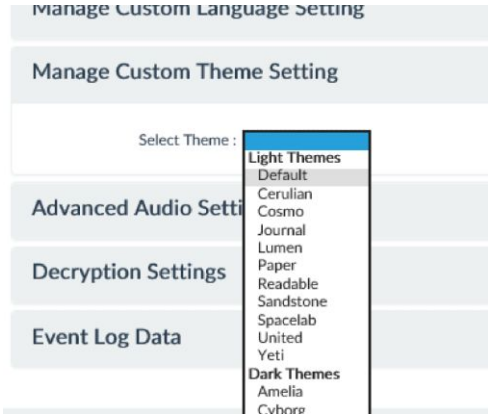
Custom language setting

Allows the user interface and report language to be set. Only new reports for jobs run after the language selection will render in the new language (Aurora will not re-render old jobs in a new language).



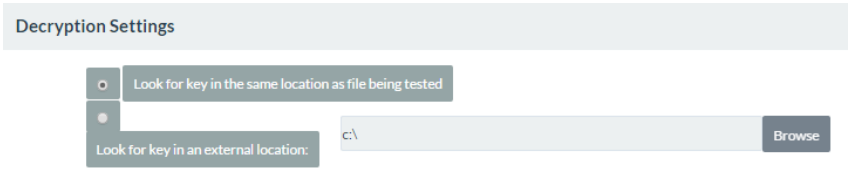
Custom theme setting

Allows the user interface to be rendered in different color palettes, which can be especially helpful for QC operators in darker environments.



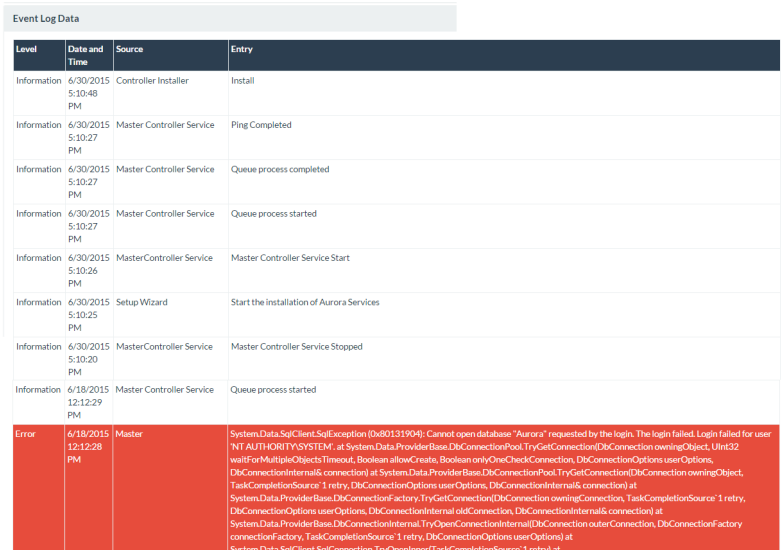
Decryption settings

Aurora allows AES encrypted HLS file sets to be decrypted and tested by defining the location of the AES keys.



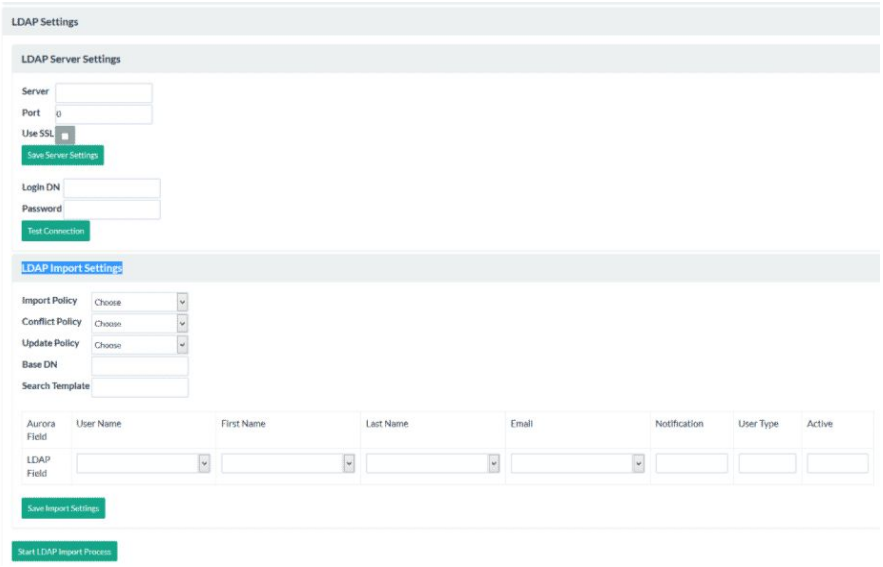
Event log data

Aurora no longer uses the Windows Event Viewer to show data about the processes, so if you need to quickly see how the Aurora service event data (i.e., in a support situation), you can view that information here.



LDAP settings

Aurora supports importing users and passwords from any LDAP standard server source.



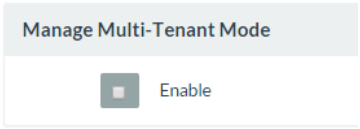
LDAP server settings. When you expand the LDAP Server Settings, you can view the server name and port entry. You have to configure the LDAP server name and port entry. If your server requires SSL, select the check box.

Click the **Save Server Settings** button to save the information.

You need to configure the Login Distinguished Name (DN) and Password. Click **Test Connection** option to ensure that your credentials are correct and a connection can be made.

LDAP import settings.

How to import users. Use the green **Start LDAP Import Process** button at the bottom of this section. Depending on your import settings all your users will be imported or you will be presented with a list of users as defined by your import settings. If you select **Choose** you will be presented with a box to the far left of the user which you can check. After you select the users, click the **Save** button at the bottom.

Multi-tenant mode

By default, Aurora is in single tenant operating mode, which retains all job data from run-to-run. If you prefer to delete all job data after the report XML is retrieved for each job, Aurora allows you to set Multi-Tenant Mode by checking the 'Enable' box in this section.