CAMIO Administrator User Guide V5.5.5

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SINCE DAY ONE.

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Welcome to CAMIO

Purpose of This Manual

This manual provides a comprehensive resource for CAMIO system administrators. It covers CAMIO 5, and covers the functions available in the Admin Tools user interface, which are used to set up a CAMIO system, MOS Newsroom Interface, playout devices, users and user preference. This manual does not cover extended functions of CAMIO Cluster and DR systems which are covered in other documents. This manual does not cover the creation, upload, and management of CAMIO assets using the Asset Manager user interface.

Customer Support

If you have questions, please contact Chyron customer support in your region.

- Americas and Asia, call +1 631 845 2132.
- In Europe and Africa, call +44 208 996 9933.

Visit the Chyron Website at www.chyron.com, for immediate access to our user forums, knowledge base and an array of documentation, downloads and other information to assist you.

Some Useful Definitions

- **Contexts** are groups of assets available (Templates, Images, etc.) for use in CAMIO. **Contexts** are most commonly used to manage content that shares a common look. For example, you can create two **Contexts** to distinguish between morning news and evening news graphics, each with their own look. **Contexts** can also be used to manage users. If your facility employs graphics to which only specific users should have access, then this type of asset might be located in a separate **Context**, since user privileges include a choice of accessible **Contexts**.

- **Templates and Scenes**, for use in a CAMIO environment, can be created on multiple different Chyron templating platforms. Templates can be graphics, clips, or automation cues, and are defined as the shells that are married with **Replaceable** items in LUCI that are fulfilled by a producer or reporter. Templates must have appropriate **XML** data associated with them. Each rendering device, upon creation of the CAMIO template, automatically creates this **XML**, which then must be uploaded into CAMIO, through a variety of methods, to be available to producers. The PRIME system refers to Templates as Scenes.

- **Images**, for use in CAMIO's MOS System, must be of image formats compatible with the rendering device with which they are used (e.g., **BMP**, **JPG**, **PNG**, **TGA**, **TIF**, etc.). These images can be created using a wide variety of applications and uploaded to **Asset Manager** from a PC or Mac.

- **Movies**, for use in CAMIO's MOS System, must be in a compatible movie format for the device that is rendering it. These movies can be uploaded to **Asset Manager** from a PC or Mac.

- **Asset Manager** is a simple-to-use HTML5-based application for managing CAMIO content through a lightweight web browser client.

- **LUCI** is the graphic interface used by the newsroom to browse the CAMIO content and create **MOS Objects**. From LUCI, the newsroom user can load, edit and preview a template, and then insert it into a script.

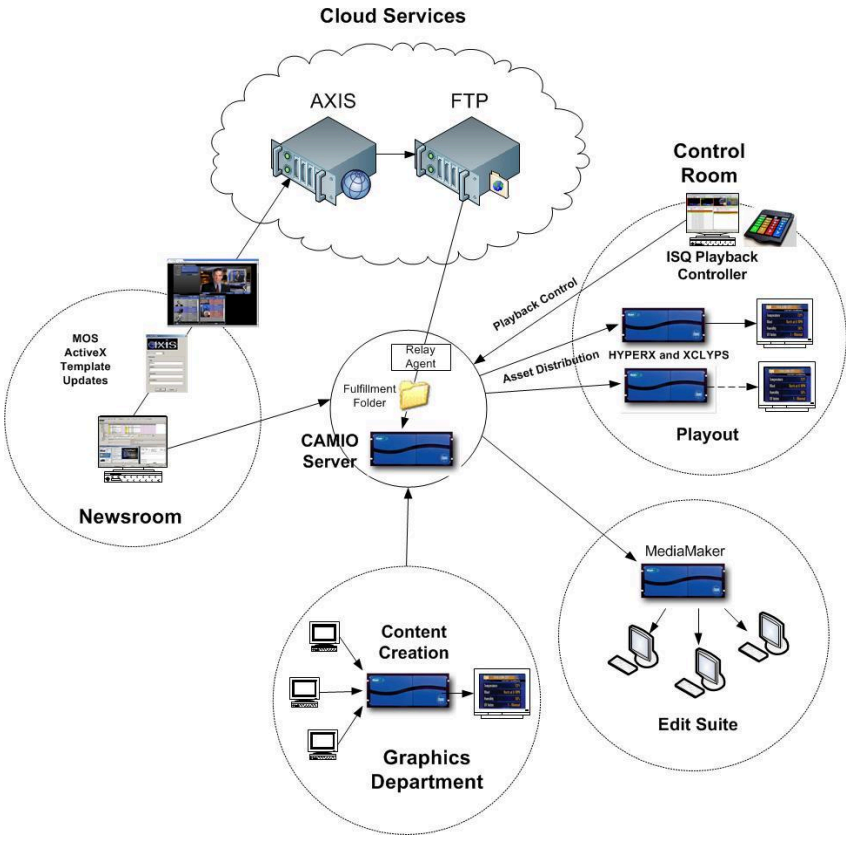
- **Virtual Channels** are defined in CAMIO. Template assets are then assigned appropriate channels for output. In the **Context Admin Tools**, there is a **Virtual Channel**-to-**Physical Channel** mapping that is used to determine the exact physical output channel for each of these virtual channels.

- **Layers** are a PRIME feature that enables the PRIME system to independently render multiple scenes to one output. Higher-numbered layers are displayed over lower-numbered layers.

How CAMIO Works

CAMIO is a centralized asset server that manages content for playback using Chyron equipment. It provides the following functions:

- Assets are uploaded from the Art Department to the CAMIO Server using either the rendering device, **Asset Manager** or **Ingest** folders.
- Once uploaded, the newsroom staff (producers) can browse these assets and select templates within a simple interface called LUCI. The producer can select a template, and can then edit any text, images or movie **Replaceable** fields in the Template and insert it into their **MOS** rundown.
- The MOS Newsroom system publishes a rundown to CAMIO, specifying which **MOS Objects** are required for playout. CAMIO sends these required assets to the playout machines, along with a rundown in **XML** format. When a rundown is deactivated by the newsroom system, then CAMIO removes the objects that are no longer needed from the playout machines.



Admin Tools Utility

The **Admin Tools** utility is used to configure and manage the CAMIO system.

- **Access to Admin Tools should be restricted to the trained CAMIO system administrators only.**
- **It is advised that the default login be changed and/or replaced by specific administrator logins.**

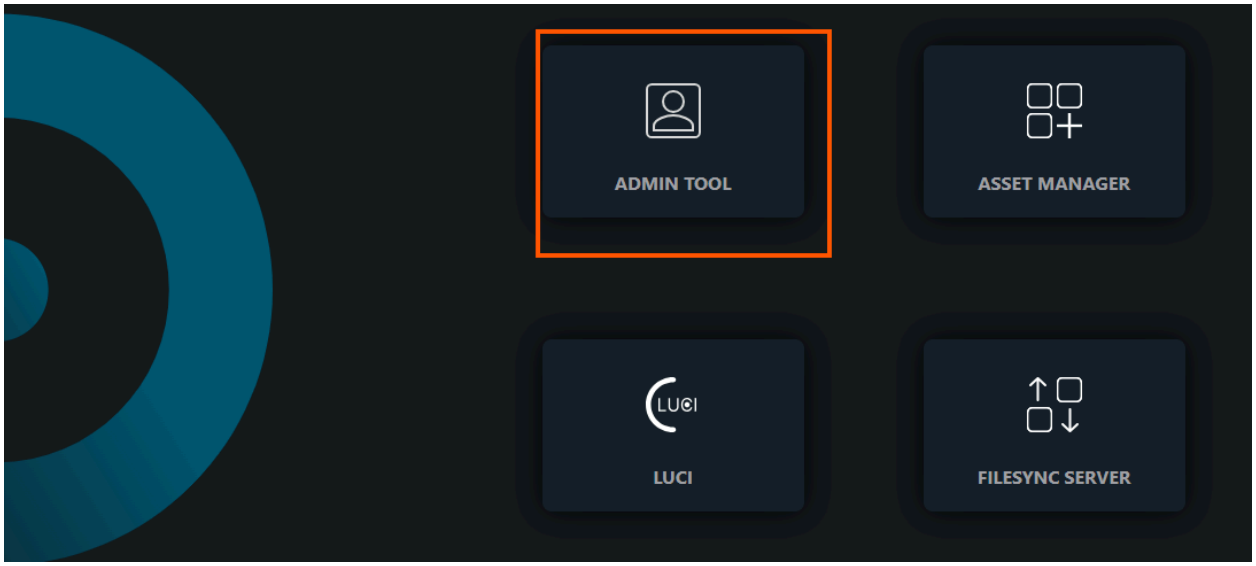
Opening and logging in to the Admin Tools Utility

Chrome is the preferred browser for administering CAMIO. To open the **CAMIO Admin Tool Utility**:

1. Do one of the following.
    1. From any system connected to the CAMIO Server network:
        a. Open an internet browser (preferably Chrome), and then enter: **http://<CAMIO_SERVER>/CAMIO**

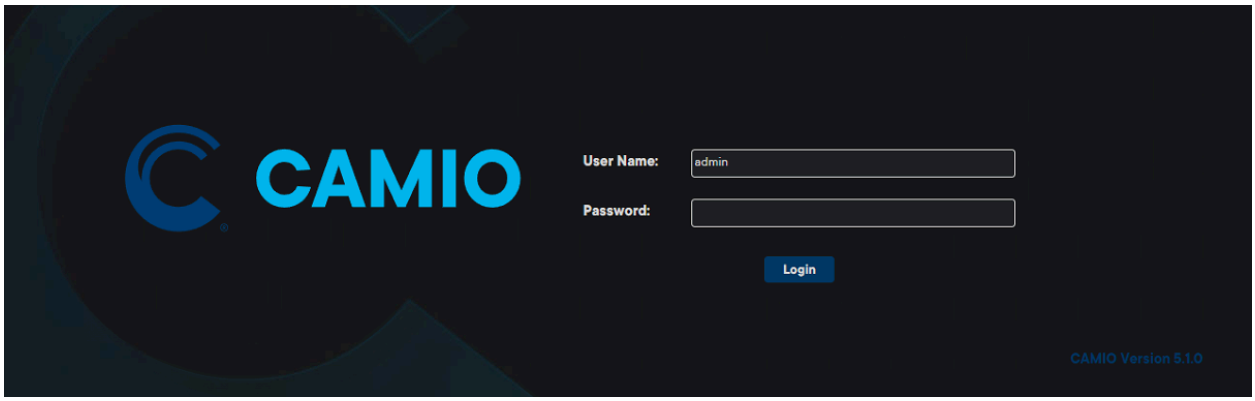
        The **CAMIO Central** home page displays.

        b. Click the **CAMIO Admin Tool Utility** button.



    2. Or, go directly to the **Admin Tool Utility** by entering: **http://<CAMIO_SERVER>/CAMIO/Management**

The **CAMIO Admin Tool** login window is displayed. The CAMIO version number appears below the sign-on boxes in a dark blue color.

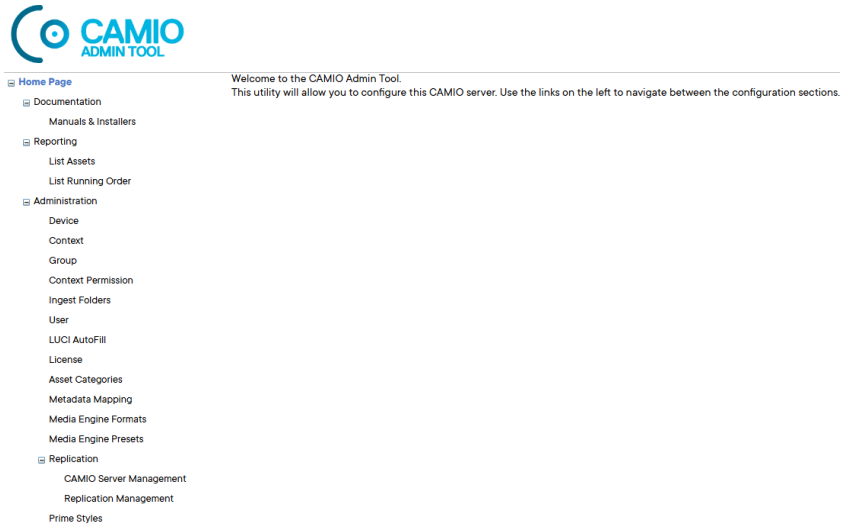


2. Upon initial entry, a login prompt displays. Default login is:
Username = admin, **Password = admin**

   You can change the **Username** and **Password** after logging in to the system.

   Click the **Sign In** button to open the **Admin Tools UI**.

   All **CAMIO Admin** functions are accessed from the menu items along the left side of the screen.



Admin Tools Menu Items

The following comprise the **CAMIO Admin Tools**:

- Documentation
    - Manuals and Installers
- Reporting
    - List Assets
    - List Running Order
- Administration
    - Device
    - Context
    - Group
    - Context Permission
    - Ingest Folders
    - User
    - LUCI Autofill
    - License
    - Asset Categories
    - Metadata Mapping
    - Media Engine Formats
    - Media Engine Presets
    - Replication
        - CAMIO Server Management
        - Replication Management
    - PRIME Styles
    - MOS Reskinning
- Configuration
    - CAMIO Configuration
    - LUCI Configuration
    - MOS Configuration
    - Playlist Configuration
    - FileSync Configuration
    - Media Engine Configuration
    - LUCI User Defaults Configuration
    - Job Schedule Configuration
    - AXIS Configuration
    - Automation Transition Configuration

Documentation

The **Documentation** section displays manuals and installers relevant to either the operation or installation of CAMIO. These are updated periodically with new CAMIO releases.

Manuals and Installers

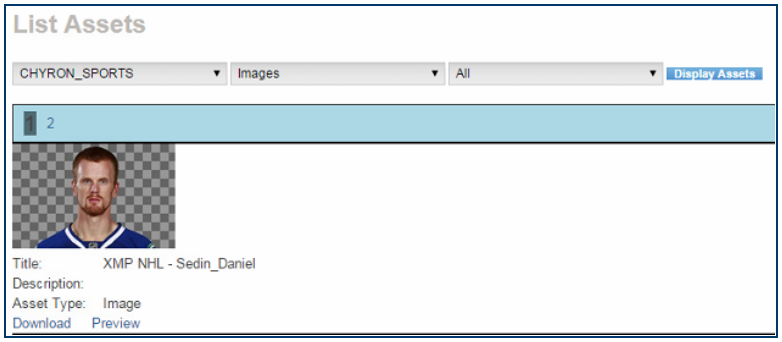
- Installers can be found at: https://da.chyron.com (ask your Chyron representative for credentials)
- Contact Chyron Support for the proper version of LUCI container to use your newsroom system.

Reporting

The **Reporting** section displays status information about the CAMIO server, including a display of available assets, and active **Running Orders** currently on CAMIO.

List Assets

Selecting **List Assets** exposes the options shown below.



The drop-down menu at the left specifies which context is to be returned. The drop-down menu in the middle specifies the type of asset type to be returned (images, videos, etc.). The drop-down menu at the right specifies the type of asset is to be returned (assets, deficient assets or fulfilled assets).

Once the parameters are set, selecting **Display Assets** shows all assets that follow the parameters set by the drop-down boxes. Each asset displays a thumbnail of the asset, and the asset's **Title, Description** and **Asset Type**. Selecting **Download** downloads a copy of the asset to the local system. The downloaded file contains

- Thumbnail
- Filename
- Title
- Description

- Asset type

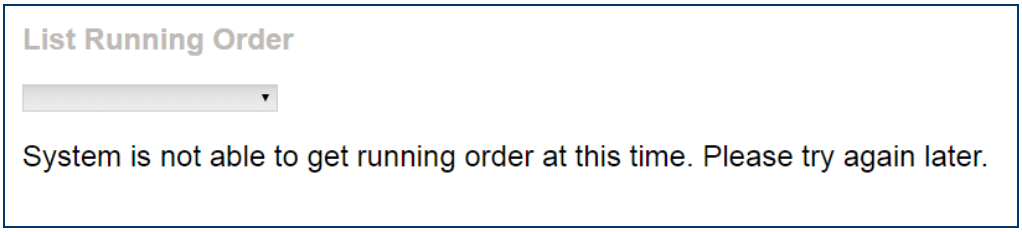
for each asset. Files are downloaded in htm format.

Selecting **Preview** previews the asset on a new tab.

This user interface is meant for quick checks only. The Asset Manager UI is a better tool for browsing and editing assets.

List Running Order

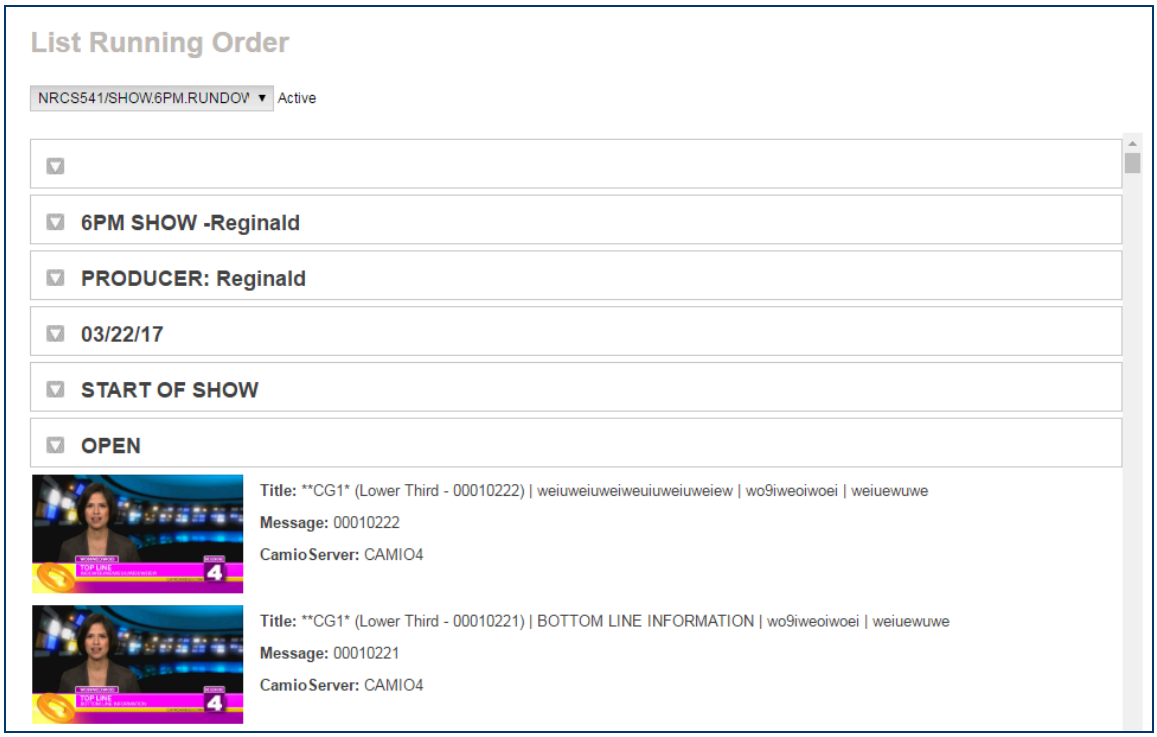
This view shows all active **Running Orders** being sent to CAMIO by the Newsroom Computer System via MOS Protocol. If there are no currently active **Running Orders**, then the view displays the following:



If there are one or more active **Running Orders** being sent to CAMIO, then you can select a **Running Order** from the drop-down box.

The label **Active** applies only to ENPS, for which a **Running Order** can be published to CAMIO, but is not active.

A rundown that is not active is not sent to the CAMIO Rundown Endpoint and Viewer (formerly iSQ) for playout.



The **Running Order** shows the rundown broken down into stories, and each story shows the **MOS Object's** thumbnail and some metadata.

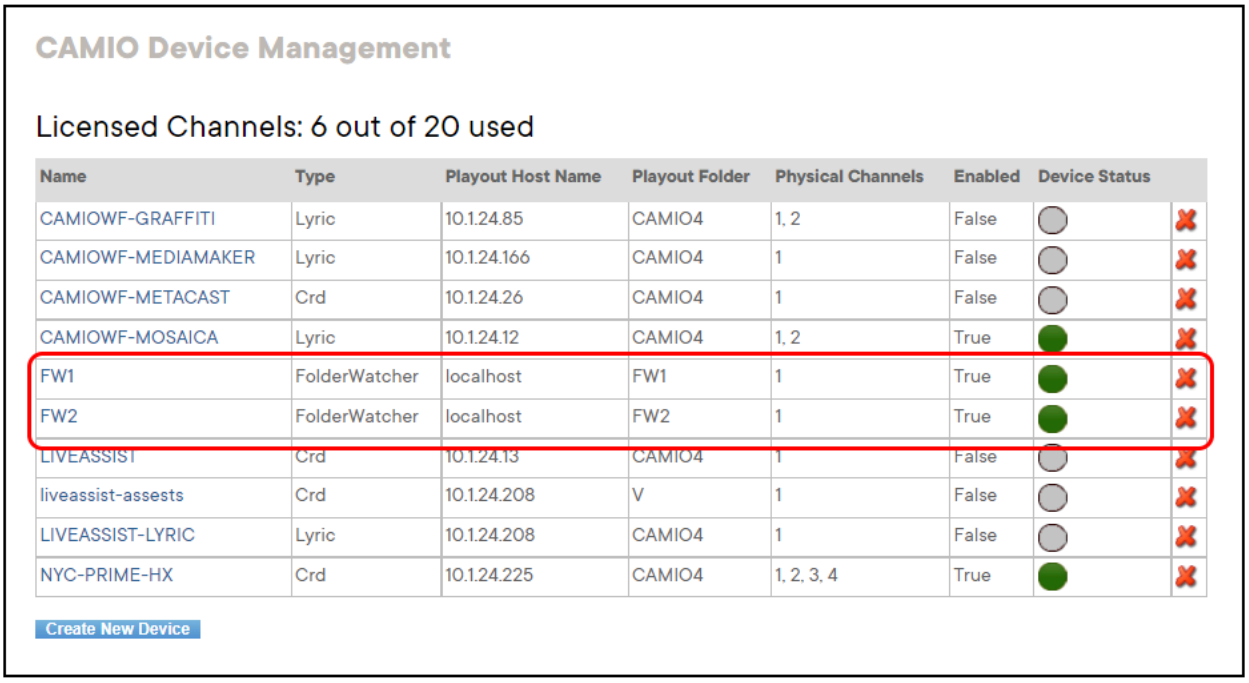
Administration

The Administration and Configuration sections are used to set up the various components of the CAMIO system.

Device

The **CAMIO Device Management** table displays current playout devices in use with the CAMIO system and the number of licensed channels. The total number of channels assigned cannot exceed the number of licensed channels.

Note that **FolderWatcher** channels do not count towards the total of licensed channels. Circled in red below. These are special playout channels that are used by the Media Engine's Folder Watcher feature. Folder Watcher setup information is available in this document **CAMIO Folder Watcher User Guide**



CAMIO Device Management

Licensed Channels: 6 out of 20 used

Name	Type	Playout Host Name	Playout Folder	Physical Channels	Enabled	Device Status	
CAMIOWF-GRAFFITI	Lyric	10.1.24.85	CAMIO4	1, 2	False		
CAMIOWF-MEDIAMAKER	Lyric	10.1.24.166	CAMIO4	1	False		
CAMIOWF-METACAST	Crd	10.1.24.26	CAMIO4	1	False		
CAMIOWF-MOSAICA	Lyric	10.1.24.12	CAMIO4	1, 2	True		
FW1	FolderWatcher	localhost	FW1	1	True		
FW2	FolderWatcher	localhost	FW2	1	True		
LIVEASSIST	Crd	10.1.24.13	CAMIO4	1	False		
liveassist-assests	Crd	10.1.24.208	V	1	False		
LIVEASSIST-LYRIC	Lyric	10.1.24.208	CAMIO4	1	False		
NYC-PRIME-HX	Crd	10.1.24.225	CAMIO4	1, 2, 3, 4	True		

Create New Device

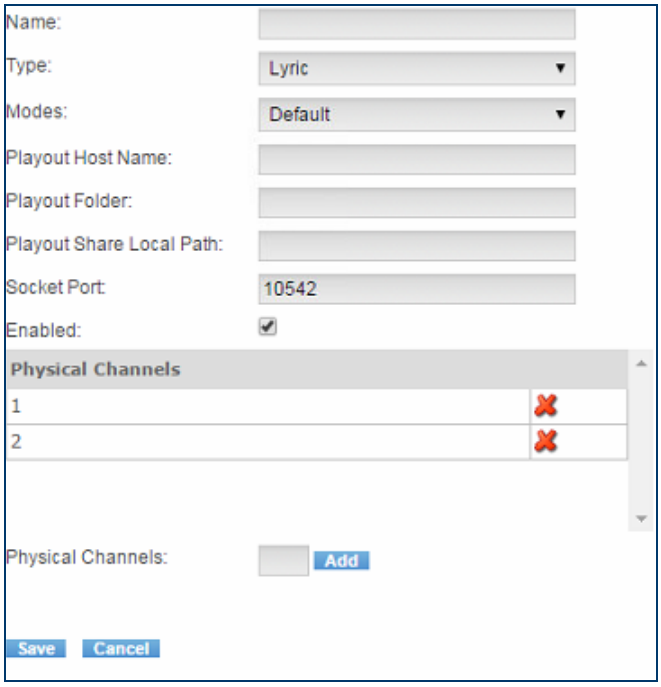
Each Playout device is added to a row with the following information.

- **Name:** The name specified for the device. The device **Name** is how the machine is referenced in the **Context** menu **Channel Assignment** fields.
- **Type:** Specifies the type of device that is used with the CAMIO system:
  - **GS2/CRD**
  - **Folder Watcher**

    - **Lyric**
    - **PowerClips**
- **Playout Host Name:** Specifies the hostname or IP address of the device.
- **Playout Folder:** The local network share of the playout folder that is used to copy over rundown content.
- **Physical Channels:** Specifies the number of physical channels available to the device and their names.
- **Enabled:** Specifies either **True** or **False** to determine whether or not the device is currently active. *It is important to disable any device that is not active, as not doing so may slow down CAMIO asset distribution and takes up a licensed channel.*
- **Device Status** – Specifies the status of live devices:
    - A green circle signifies that the device is ready for use.
    - A red circle signifies that access to the device is denied.
    - A yellow circle signifies TBD.
    - A grey circle signifies that the device is not enabled.
- **Delete:** Select the corresponding **Delete** icon  to delete the device. Devices cannot be deleted if they are being mapped in the **Context** menu. You must first delete all references to a device in **Context** mapping before you can delete the device.

To create a new device:

1. Click **Create New Device**. The following window displays.



2. Set the following specifications for the new device:

    - **Name:** Enter a user-friendly display name to easily identify the device.
    - **Type:** From the drop-down box, select the type of playout device. (e.g., GS2/CRD, Lyric, Media Maker or PowerClips) to create.
    - **Modes:** Defines the method with which assets are sent to the playout device. Defaults to **Default**. *Other **Modes** are used only in very specific circumstances, and should not be selected without direction from Chyron Support.*
    - **Playout Host Name:** Input the **Host Name** or **IP Address** of the playout device. In general, using IP addresses improves system performance by eliminating possible DNS lookup delays. IP addresses can be used only if all playout devices are configured for fixed IP addresses and are not using DHCP.
    - **Playout Folder:** Input the local network share of the playout folder, used by CAMIO to copy over **Running Order** content. Recommend using CAMIO4 as the playout folder share name.

- **Playout Share Local Path:** The local path of the playout folder on the playout device, which is required by PRIME and Lyric to locate and play out non-embedded assets. Recommend using **I:/CAMIO4** as the playout path.
- **Socket Port:** Enter the port number to be used to send the **MOS Running Order** to the playout device's CAMIO Rundown Endpoint and Viewer service. Defaults to **10542**. *This is changed only in special circumstances, as directed by Chyron Support.*
- **Enabled:** Check/uncheck this checkbox to enable/disable the device upon creation. *NOTE: It is extremely important that any playout devices that are not actively running playout software are disabled. A significant delay is introduced when CAMIO attempts to communicate with a playout device that is not active.*
- **Physical Channels:** A table showing the name and number of physical channels is displayed.
  - To add another physical channel, use the text box below to input the desired name for the physical channel that is to be created, and then click the **Add** button.
  - To remove a physical channel, click the corresponding **Delete** icon .

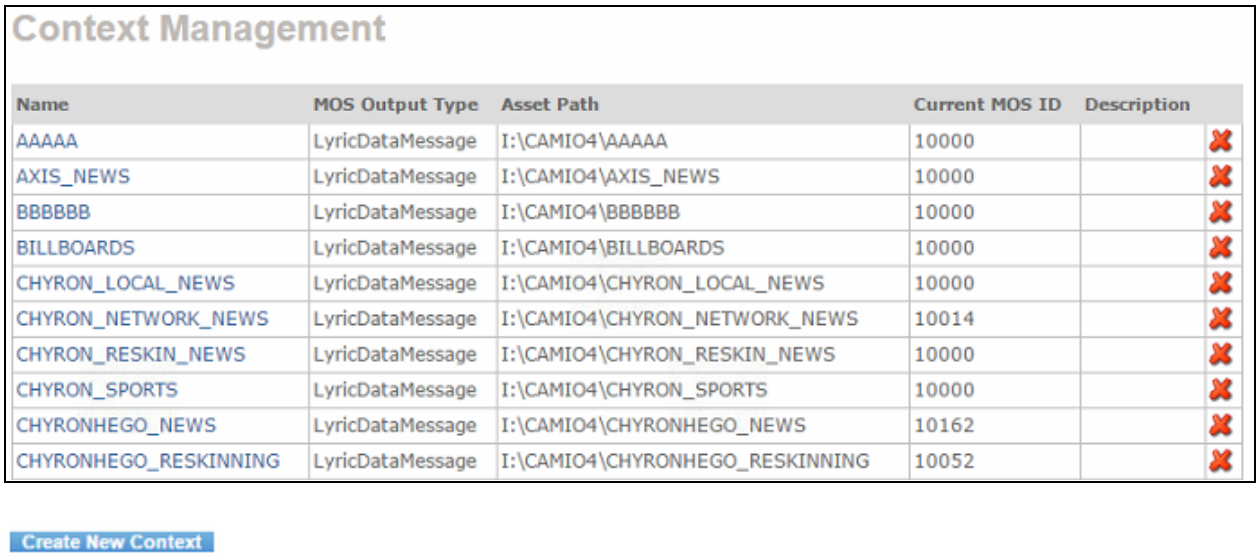
Note that when selecting Type = Folder Watcher the Playout Hostname will be automatically set to Localhost and the Mode will be set to Master Share.

Context

One of the functions of CAMIO is as an Asset Management system. It stores graphics templates, images and videos, along with descriptive metadata that makes these easier to find. Assets in CAMIO are stored in groups called 'contexts'. A context is usually a group of assets that is used on a show or group of shows, but it can be used in many other ways. Contexts are created to organize these templates and assign specific playback hardware channels using the AdminTool Contexts menu.

Contexts are available from the drop-down menu in the templates and images tabs of LUCI. Contexts are generally created to separate distinct styles (i.e., morning news and evening news looks), but can also be used to group content available to specific individuals such as weather and sport Contexts.

Selecting **Contexts** displays the following:

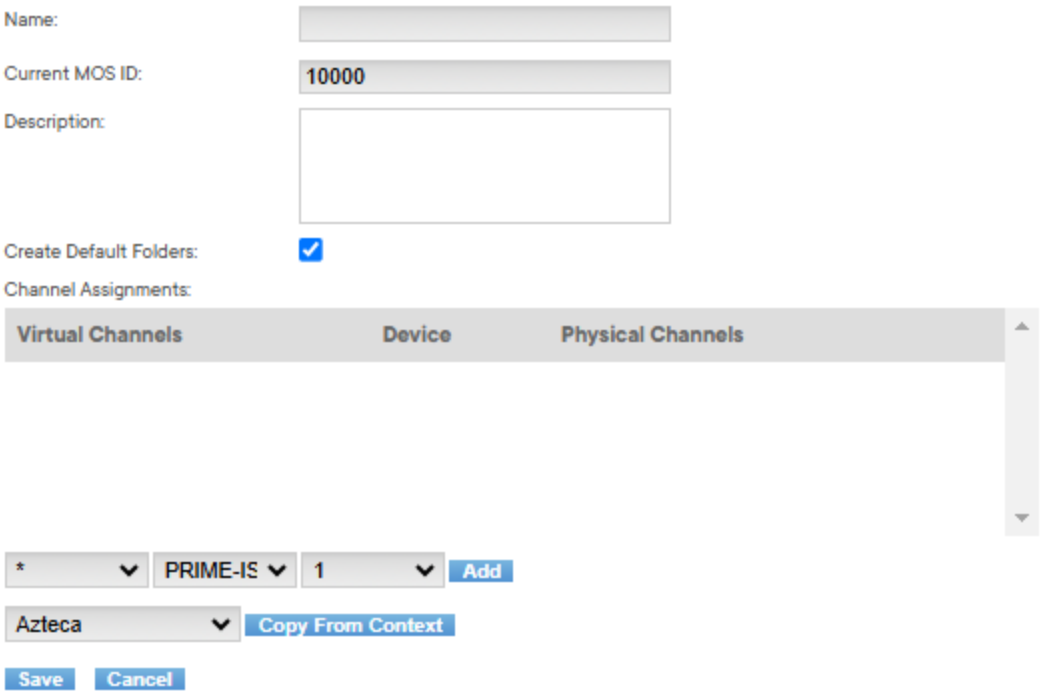


The table displays a list of the existing contexts and information about them:

- **Name** – How the context is referred to in the CAMIO system.
- **MOS Output Type** - The only option available is LyricDataMessage.
- **Asset Path** - The hard drive location of the context. This is typically i:\camio4\contextname and should not be changed.
- **Current MOS ID** – Every time a new MOS Object is generated, it is automatically assigned the value of the Current MOS ID + 1. This is automatically reflected in the Current MOS ID field.
- **Description** – Any user-entered notes/description about the context.

- **Delete** – Click the corresponding red X to delete the context. A context cannot be deleted if it has any active MOS objects, which will be true in many cases.

In order to create a new context, select the **Create New Context** option. The following window displays:



You then may specify information pertaining to the context that is to be created.

- **Name** - Enter a name for the new context. The context name is used as a "Directory Namespace." The context name must begin with a letter and may include underscore characters and a single dash, but no spaces. You cannot change the context name after the context is saved.

- **Current MOS ID** – The value of the Current MOS ID is automatically initialized to 10000, but can be changed to start at an arbitrary value. Before changing this value, note that when the completed messages are sent to the output device, they are sent to a folder, with the same name as the context, in the path set up using the Device Manager. Since the created message and template message are sent to the same folder, it is recommended that the current message number be set to a value higher than any of the template message numbers; so that they are not overwritten by created MOS object messages. The Current MOS ID is specified only on initial setup of a context. Once the initial setup is submitted, then you can no longer change this number. This is done to prevent the unintended overwrite of existing MOS objects.

- **Description** – Any information may be entered into this field to serve as notes or information pertaining to the context.

- **Create Default Folders** - selecting this option will automatically create the following folders in the Context:

    - Scenes
    - Images
    - Clips

- **Channel Assignments** – Each content must have channel assignments that map virtual channels (selected in LUCI) to physical channels on playout devices. Before any settings can be entered, playout devices must first be configured in the Device settings of the Admin Tools. Once the playout device is configured:

    - Select the virtual channel.

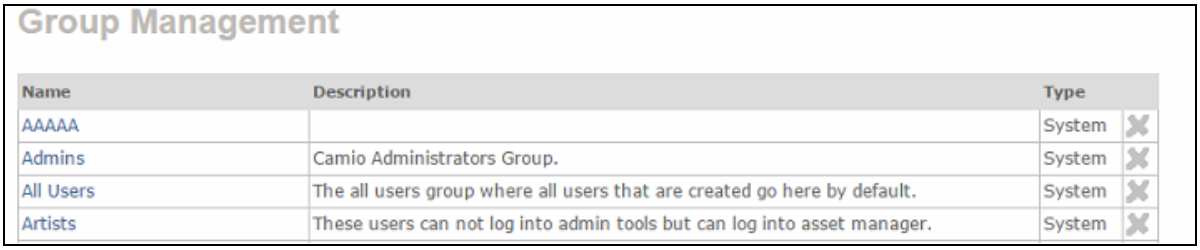
    - Select a configured playout device.

    - Select the physical output channel. One virtual channel can be mapped to multiple output devices, but to only one channel per device.

- **Copy From Context** - Channel assignments can be copied from an existing context to speed up context creation and reduce errors.

Groups

One of the features of CAMIO is the ability to manage user permissions from a central location using the Admin Tool. The fundamental concept of user management in CAMIO is that users are assigned to Groups which are then given access to Contexts. The Admin Tools Group menu enables you to create, update and delete Groups.



The table displays the following information about the existing groups:

- **Name** – The name given to the Group.
- **Description** – A description about the Group as previously entered by the user.
- **Type** – Defaults to System. There are no other types used at this time.

In order to create a new group, click the **Create New Group** button. The following window displays:

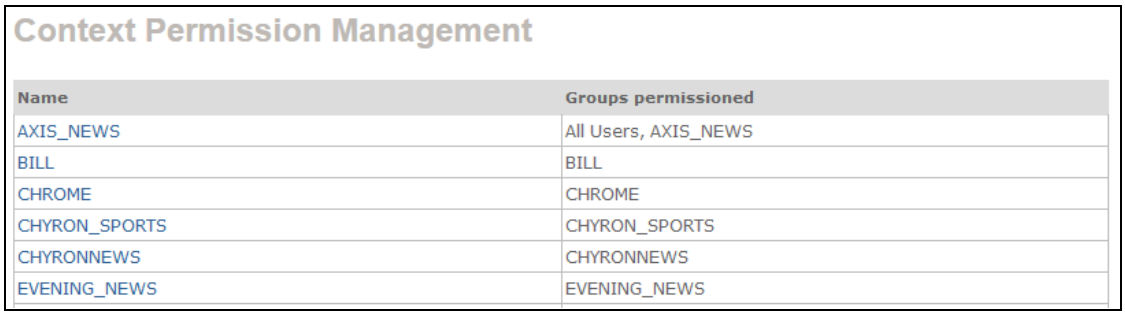
Specify the following information pertaining to the Group that is to be created.

- **Name** – Specifies the name of the Group.
- **Description** – Descriptive information or notes about the Group.
- **Users Assigned** – You have to add at least one user to the Group. From the drop-down box, click the Add button to add the user to the Group.

All Users Group - All users automatically become part of the All Users group and cannot be removed from the group.

Context Permission Management

Different Groups may be given access to different Contexts. The Context Permission Management page is where you specify Context Permission.



The Name column displays a list of all of the Contexts on the CAMIO system. The corresponding Groups Permissioned column lists the Groups that are allowed access to the Context.

To edit which Groups are permissioned to a context:

- Click the name of the Context for which you would like to change permissions. The following window displays:

The Context window displays the following information:

- Name of the Context
- A list of the names of the Groups that are currently allowed to access the Context.

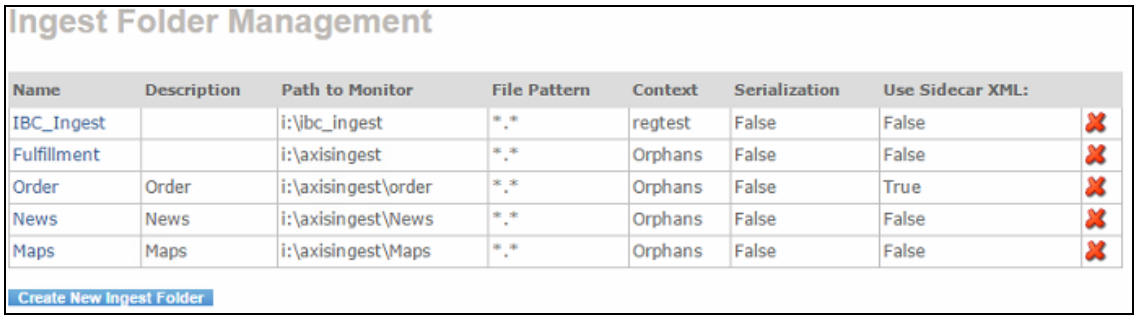
To add a Group:

1. From the drop-down menu, select the Group to which you would like to grant access.
2. Once the Group is specified, click Add, and then Save, to ensure that the Group is added.

All Users Group - All users automatically become part of the All Users group and cannot be removed from it. If limiting access to a context is not a concern, then it is convenient to assign the 'All User' group to that context.

Ingest Folders

CAMIO offers a quick ingest method to upload objects directly into Asset Manager specified Context both locally and remotely when they are placed into a folder configured to ingest objects. CAMIO continuously monitors these folders and ingest objects placed into them, and deliver them to the CAMIO Context that is mapped to the ingest folder.



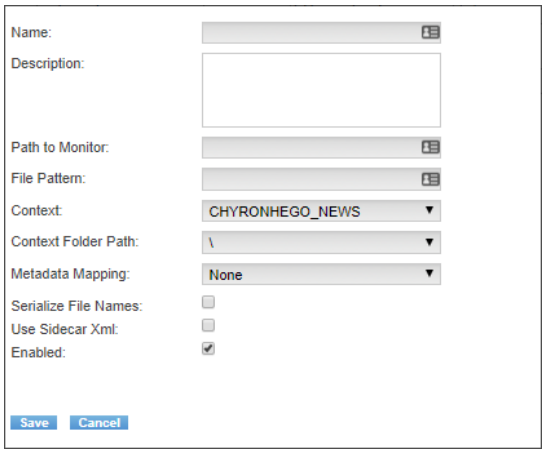
The Ingest Folder Management window displays previously created Ingest Folders and their parameters:

- **Name** – The name of the Ingest Folder.
- **Description** – Some descriptive words about the Ingest Folder.
- **Path to Monitor** – The system location of the Ingest Folder.
- **File Pattern** – The File pattern of the Ingest Folder, i.e., the file mask that determines which files to process. For example, **.jpg* specifies that the Ingest folder will process only jpg files. Note that *.* specifies that the Ingest folder will process all files.
- **Context** – The Context to which the objects that are ingested are delivered.

- **Serialization** – Whether or not the file names will have automatically created unique tags.
- **Use Sidecar XML** – Whether or not the ingested files have metadata sidecars.

To create a new Ingest Folder:

1. Click the **Create New Ingest Folder** button. The following window displays:



2. Specify the following pertaining to the new Ingest folder:

   - **Name** – The name of the folder that CAMIO is to monitor.
   - **Description** – Descriptive information about the folder.
   - **Path to Monitor** – The path to the folder that is to be monitored.
   - **File Pattern** – Enter a file pattern in the format *<file name>.<extension>*. File Pattern specifies the file mask that determines which files to process. For example, **.jpg* specifies that the Ingest folder will process only jpg files, i.e., *c:\CAMIO\Ingest_Folder_Images*.jpg* will process only jpg files. Note that *.* specifies that the Ingest folder will process all files.
   - **Context** – From the drop-down box, specify the Context to which the objects are to be delivered.
   - **Context Folder Path** – From the drop-down box, specify to which folder in the Context the objects are to be delivered.
   - **Metadata Mapping** – Select a metadata mapping rule that will be applied to assets ingested by this folder.
   - **Serialize File Names** – Enabling this option will create unique tags for the file names in order to avoid inadvertent overwriting. NOTE: When enabled, you are prohibited from performing Upload Replace via the ingest folder, as a file name match will never be made.
   - **Sidecar XML** – When enabled, the ingested files hold metadata sidecars. NOTE: The name of the sidecar file must be the same as the file being ingested with the extension of XML. ALSO NOTE: When enabled, no image will be ingested unless it has a corresponding sidecar XML file. Likewise, no XML file will be ingested without a corresponding image file.

BEST PRACTICE: It is recommended to place the ingest folder in the I: drive of the CAMIO server if possible. Avoid using mapped drives and network shares as they can be slow and unreliable. If a remote machine is sending assets to CAMIO via an ingest folder, then it is preferred to share the i:\ folder to the remote process rather than sharing a remote folder to CAMIO.

AXIS Fulfillment Folders - Ingest Folders in CAMIO 4.x replace both the Fulfillment Folder and Hot Sync folders of CAMIO 3.x. If the incoming asset is a 'deficient asset' which was ordered through LUCI (i.e., from AXIS News, Maps or Order) then the asset will be delivered to the root of the context belonging to the LUCI template that ordered it. If the incoming asset is not a deficient asset, then it will be ingested into the context folder defined above in the Context and Context Folder Path settings. This context is typically named 'Orphans', to highlight that these assets were delivered incorrectly.

User Administration

User administration specifies user access to the CAMIO server. You can create, update and delete users, add or remove users from Groups, and grant users access to specified Contexts. Special users can be granted administrative and/or asset management roles. LUCI configuration settings are defined here.

There are two main classes of users: CAMIO Users and LUCI Users.

LUCI Users - These are reporters, producers and other users that use LUCI and the newsroom system to create and edit MOS Objects and rundowns.

- LUCI users do not require a password.
- The LUCI username is usually provided to LUCI by the newsroom system login.
- A LUCI user is automatically created whenever someone logs into LUCI with a new username.
- By default, all LUCI users are in the All User group, and can be assigned to special groups in order to control access to certain contexts.

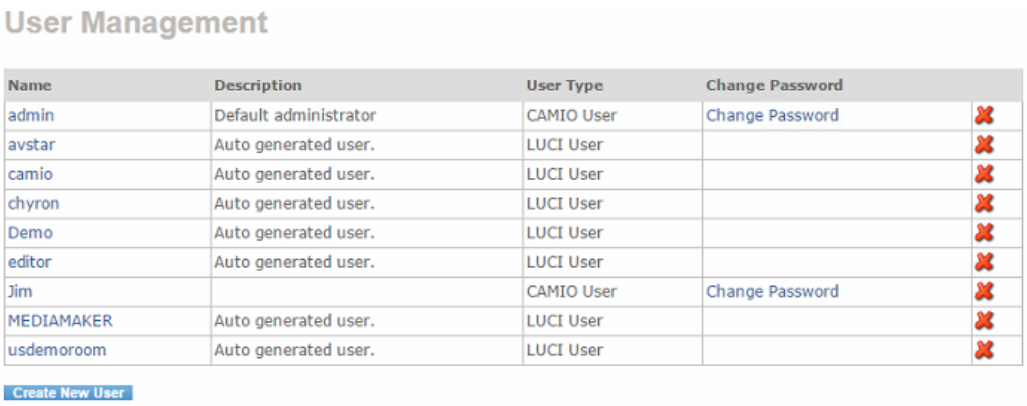
CAMIO Users - This category involves Administrators and Artists.

- **Administrators** can log in to the Admin Tools UI and have complete control of all CAMIO configuration. Administrators are CAMIO users that have been assigned to the Admin group. There is a default administrator login: **admin password: admin** that ships with every CAMIO. It is possible to change the admin password, and to create new admin users.
    - In order to create a new CAMIO Admin User:

        - Select “CAMIO User” in the “Type” drop-down box.
        - Enter and verify a user password.
        - Select “Admins” from the Member of Group drop-down, add it to the user and click “Save.”
- **Artists** can log into Asset Manager and create assets, metadata, folder structure and replication in a multi-CAMIO network environment. Admins also have Artist privilege.
    - In order to create a new CAMIO Artist User:
        - Select “CAMIO User” in the “Type” drop-down box.
        - Enter and verify a user password.
        - Select “Artist” from the Member of Group drop-down, add it to the user and click “Save.”

A note about passwords - Passwords are entered by an admin user and there is no mechanism in CAMIO to recover lost passwords. Lost passwords can be changed only by an admin user. If the password is lost for the only admin user, then please contact Chyron Support for help to reset the admin user password.

A note about HubDrive user permissions - CAMIO administrators automatically get Administrator privilege in the HubDrive system. CAMIO Artists automatically get Artist privilege in HubDrive. All other CAMIO users have read-only privilege in HubDrive. See the Hub Drive CAMIO Setup Manual for more information.



The User Management window displays previously created Users and their parameters:

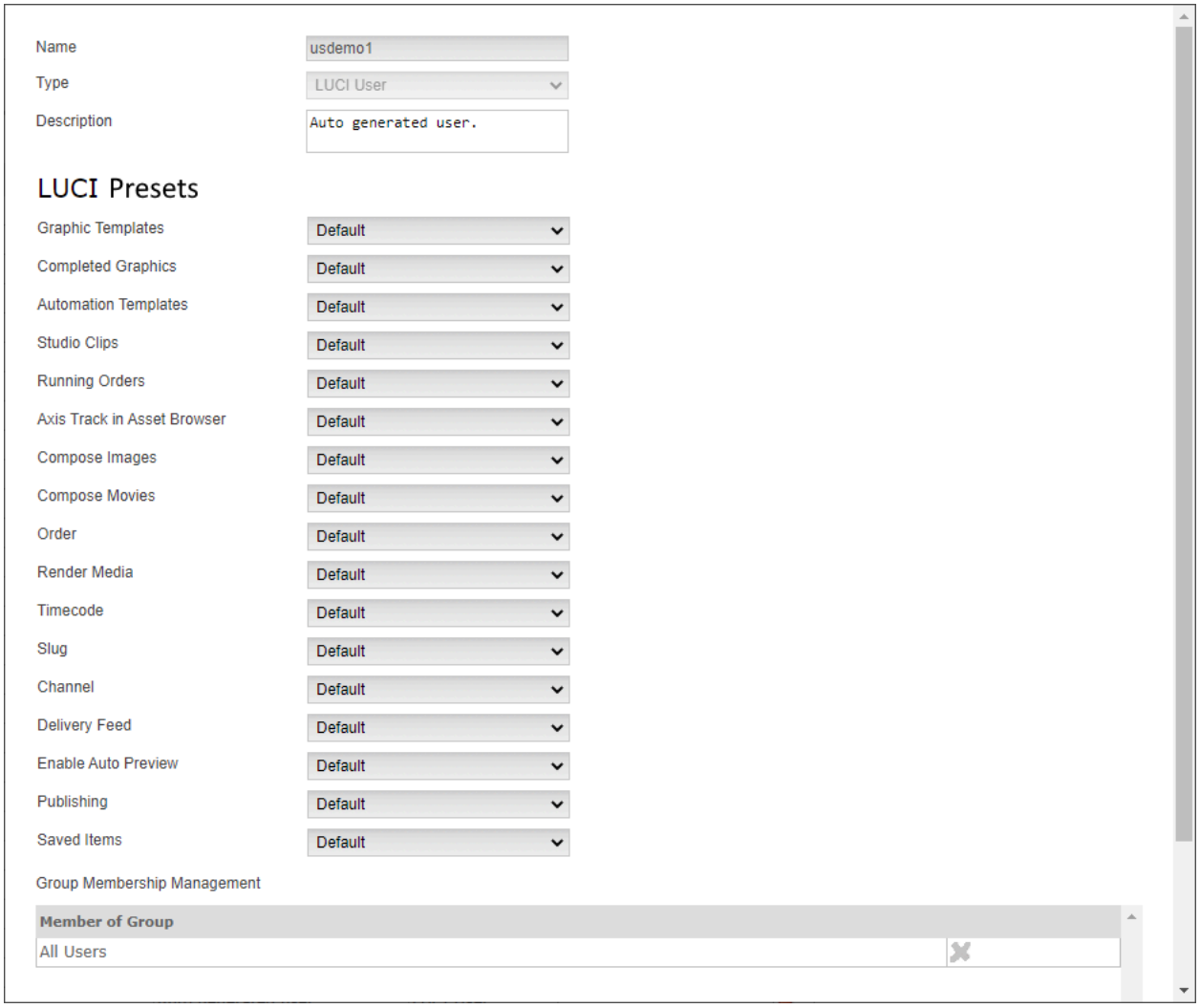
- **Name** – The unique name given to the User.
- **Description** – A description about the User.
- **User Type** – Specifies whether the user will access LUCI (as a Producer) or CAMIO (as an Administrator or Artist).
- **Change Password** – If a password is enabled, then clicking Change Password will allow a CAMIO user to create a new password. LUCI Users do not have a password.

To edit an existing User, double-click the name of the User.

To delete a User, simply click the red X. NOTE: You can delete an Admin User only if you are logged on the Admin Tool with an Admin User other than the one that you would like to delete.

To create a new User:

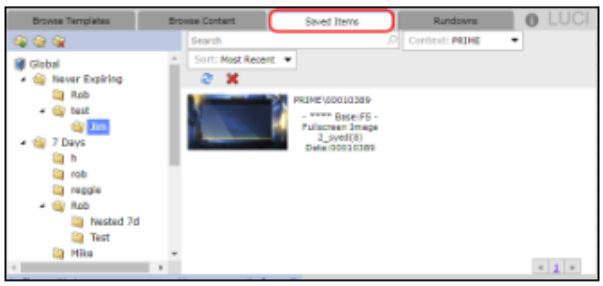
1. Select the **Create New User** button. The following window is displays:



2. Specify the following information pertaining to the new User.
    - **Name** – Input a unique name to assign to the User.
    - **Type** – From the Type drop-down box, specify whether the User will be a CAMIO User or a LUCI user.
    - **Description** – Input descriptive words or information about the User.
    - **Group Membership Management** – Use the drop-down box to add the User to desired Groups.

LUCI Configuration Settings Overview - There are two sets of configuration settings: one for legacy ActiveX LUCI, and one for the new HTML5 LUCI. There are more features in HTML5 LUCI. In each case, it is possible to show the tab, hide the feature or default to the LUCI User Default Configuration setting, which is described below. Note that all of these features can be enabled and disabled for individual users.

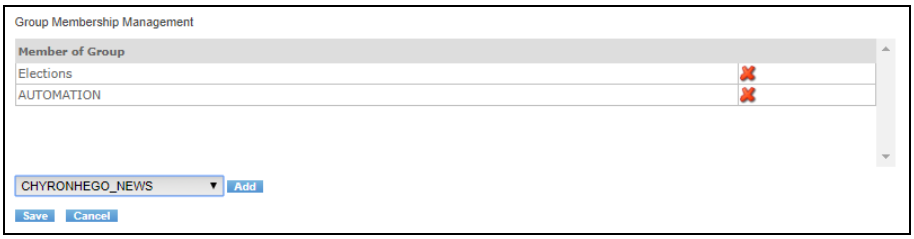
- **Graphics Templates** – Shows or hides the Graphics Templates browser.
- **Completed Graphics** – Shows or hides the Completed Graphics browser.
- **Automation Templates** – Shows or hides the Automation Templates browser.
- **Studio Clips** – Shows or hides the Clip Asset browser.
- **Running Orders** - Displays or hides the **Running Order** browser.
- **AXIS Track in Asset Browser**– Displays or hides the AXIS Track asset browser (requires that AXIS Interface is configured and that the user has an AXIS login).
- **Compose Images** – Shows or hides Image Compositor feature.
- **Compose Movies** - Shows or hides the LUCI Clipper feature.
- **Order** - Displays or Hides the AXIS Order window (requires that AXIS Interface is configured and that the user has an AXIS Order login).
- **Time Code** – Displays or hides the Time Code tool in the lower right corner for adjusting graphics in and out points in supported newsroom automation systems or for display in the CAMIO Rundown Endpoint and Viewer.
- **Slug** - Displays or hides the slug text entry tool.
- **Channel** - Displays or hides the channel assignment tool.
- **Delivery Feed** - Displays or hides the AXIS delivery feed status.
- **Enable Auto Preview** - Enables or disables the Auto-Preview feature in LUCI.
- **Publishing** - This feature is not available as of CAMIO 4.6.
- **Saved Items** - Enables or disables the LUCI Saved Items feature from being displayed. This hides both the Saved Items tab and the Save Items button on the action toolbar.



Group Membership Management

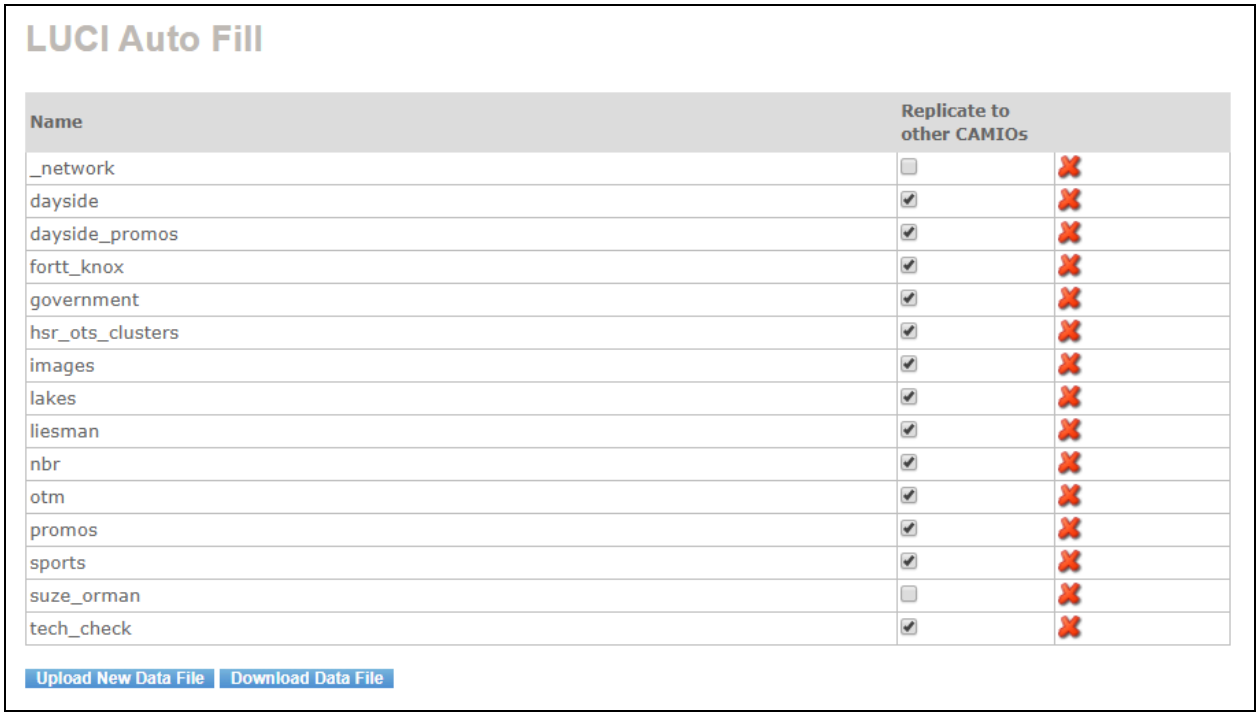
Users can be added to groups for the purpose of controlling access to certain content.

- Admin group is reserved for administrators and requires a user of Type = CAMIO User which has a password. Admin group users have access to CAMIO Admin Tools and Asset Manager UIs.
- Artists group is reserved for the art department and requires a user of Type = CAMIO User which has a password. Artist group users have access to the CAMIO Asset Manager UI.



LUCI Auto Fill

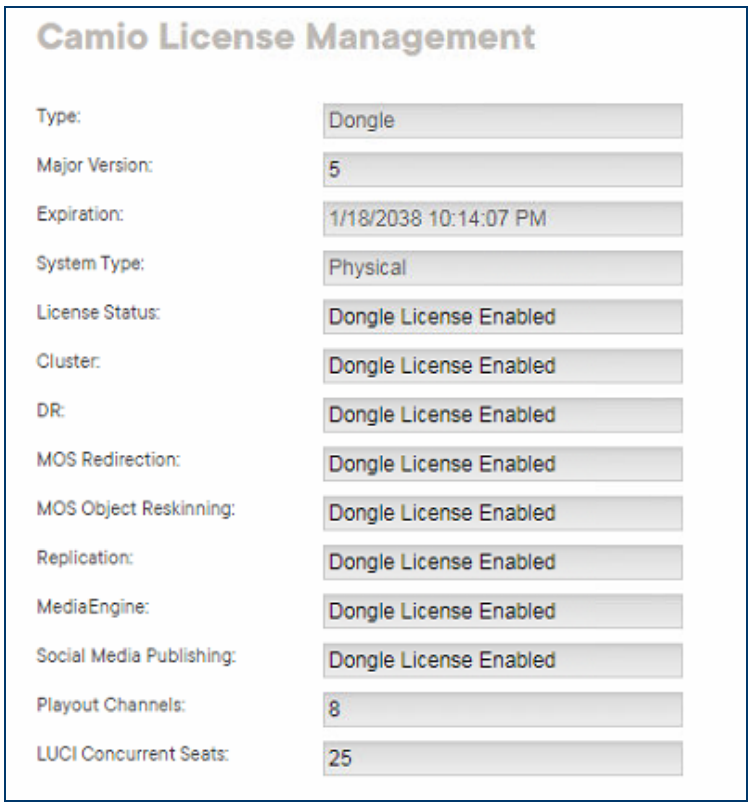
LUCI AutoFill enables quick update of template content with predetermined text and images. Data is formatted in a text file format and uploaded to the LUCI AutoFill Web Interface. See Appendix A for more information.



- **Upload New Data File** – Allows the user to upload a new data file in the form of a text file format.
- **Download Data File** – Allows the user to download an already uploaded data file.
- **Replicate to other CAMIOs** - Select whether this Autofill Group should be replicated to other CAMIOs configured in the Replication Management section.

License

CAMIO employs a hardware license dongle that enables the operation of CAMIO and optional features. The **License** tab displays the **CAMIO License Management** window.



The **CAMIO License Management** window displays the following license settings:

- **Type:** The type of licensing that is used for the current CAMIO system.
- **Major Version:** Major version of CAMIO that can be run under this license.
- **Expiration:** The expiration date of the current license.
- **License Status:** Displays whether or not the current license is enabled or disabled.
- **Cluster:** Enables running CAMIO in a cluster configuration.
- **DR:** Enables running CAMIO in a DR configuration.
- **MOS Redirection:** Enables the MOS Redirection feature.
- **MOS Object Reskinning:** Enables MOS Reskinning and PRIME Styles Reskinning feature.
- **Replication:** Enables the Replication feature.
- **Media Engine:** Enables the Media Engine feature.
- **Social Media Publishing:** This feature is not currently supported.
- **Playout Channels:** Licenses the maximum number of playout changes that can be

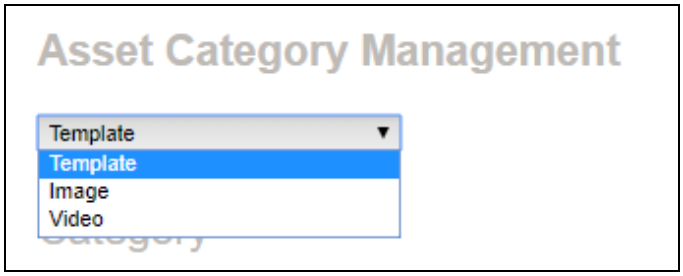
enabled.

- **LUCI Concurrent Seats:** Licenses the maximum number of concurrent LUCI users.

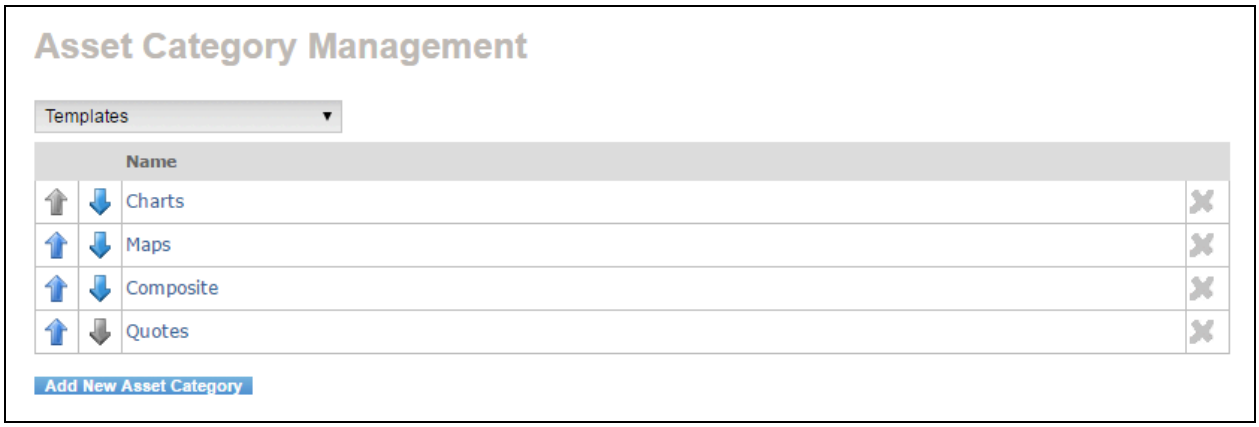
Asset Categories

The **Asset Category Management** section allows you to create or modify different classifications under which assets are to be filed. This makes it easier to search or filter for assets depending on the application. **Asset Types** are used in **Asset Manager** and **LUCI (HTML5 version)**.

Separate Asset Categories exist for Templates, Images and Videos.



Asset Categories are listed in the order in which they are displayed in the Asset Manager and LUCI UIs.



To change display order:

- Click the Up and Down Arrows.

To delete an Asset Category:

- Click the corresponding red “X” button.

Asset Categories cannot be deleted once they have been assigned to an asset.

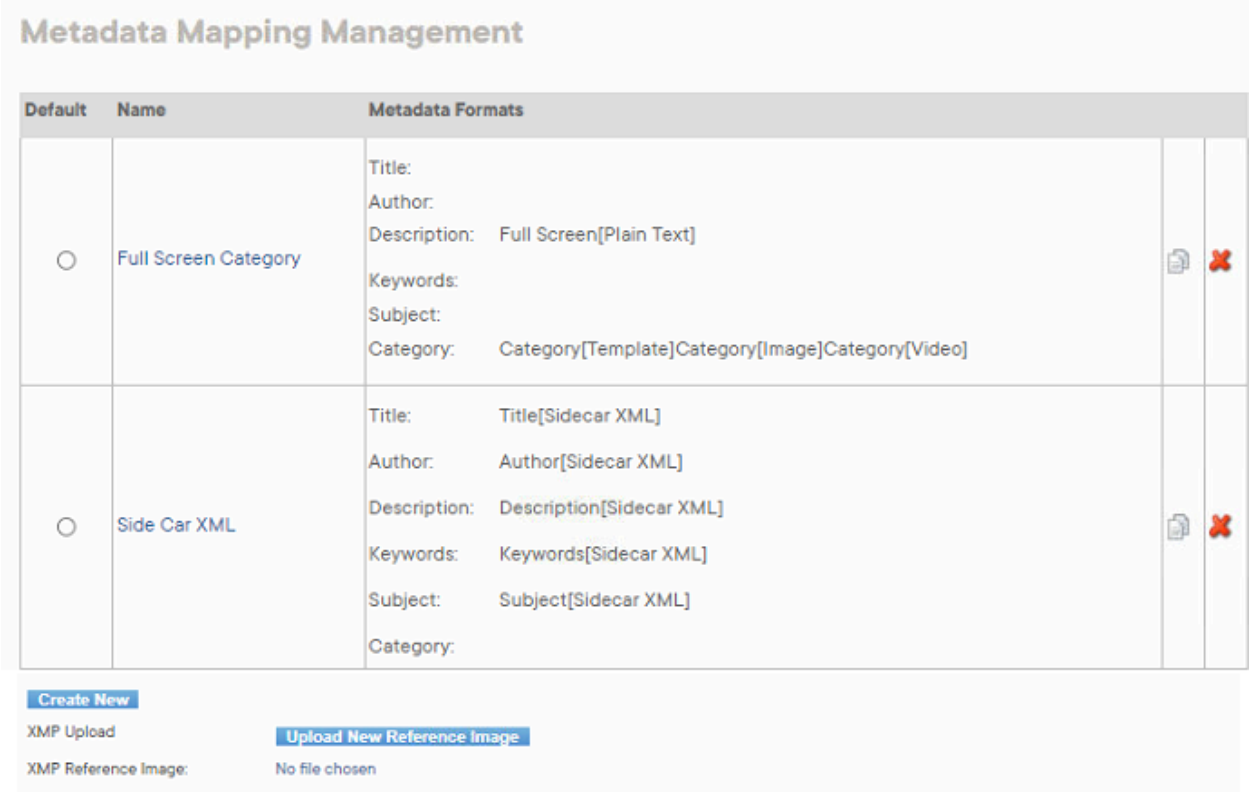
To create a new Asset Category:

1. Click the Add New Asset Category Button. The following window is displayed.

2. Enter the name of the new Asset Category in the text field, and then click the Save button to create the new Asset Type. The new Asset Category displays in the Asset Category Management table.

Metadata Mapping Management

Metadata Mapping refers to rules for automatically creating CAMIO asset metadata when an asset is ingested. The CAMIO asset metadata is as follows: Title, Author, Description, Keywords, Subject, and Category. Metadata Mapping rules are assigned to ingest folders so that the metadata can be automatically generated when the asset is ingested.



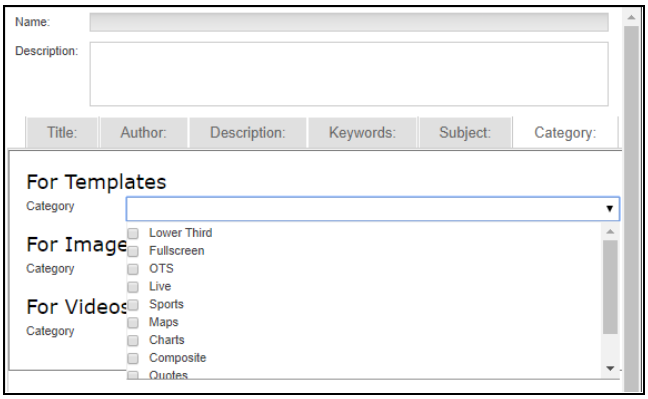
Create New - Title, Author, Description, Keywords, Subject metadata can be created using the following rules.

- File Attribute - File properties such as filename, extension, datestamp.
- Plain Text - Any free form text value.
- Sidecar XML - Metadata is extracted from information in the sidecar XML ingested with the asset. Sidecar XML is primarily used when assets are delivered by AXIS.
- XMP Metadata - In the case of images, metadata can be extracted from XMP embedded in the file. A reference XMP file is needed to predefine what XMP data is expected.

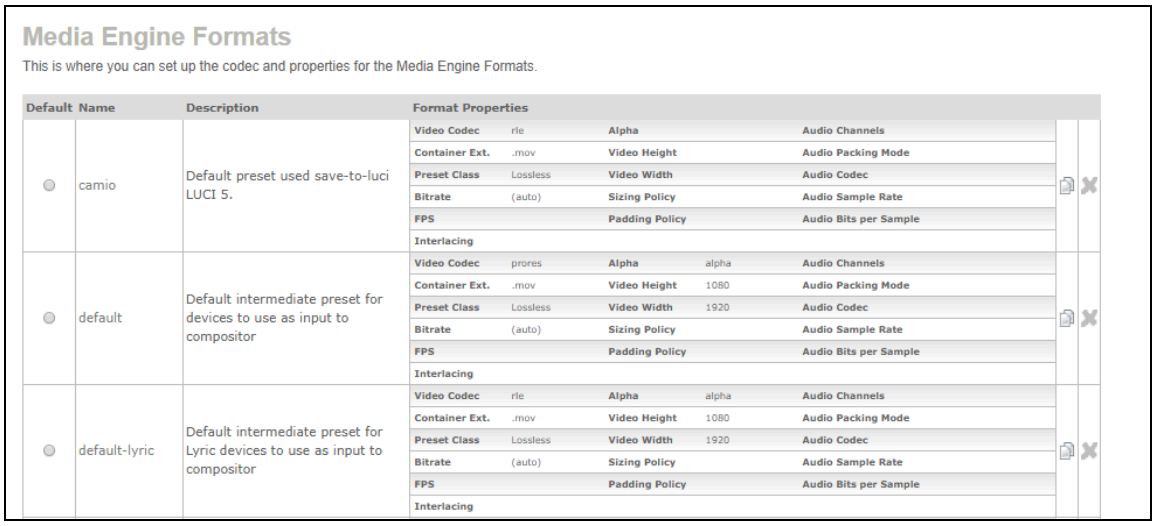
XMP Upload - Upload dialog for uploading the XMP reference Image.

XMP Reference Image - Displays filename of the XMP reference image once it has been uploaded.

Categories - Category metadata is unique in that it has to use category values that already exist in CAMIO. A given Metadata Mapping Rule assigns one or more values of Category based on the Asset type using a multi-select drop-down



Media Engine Formats

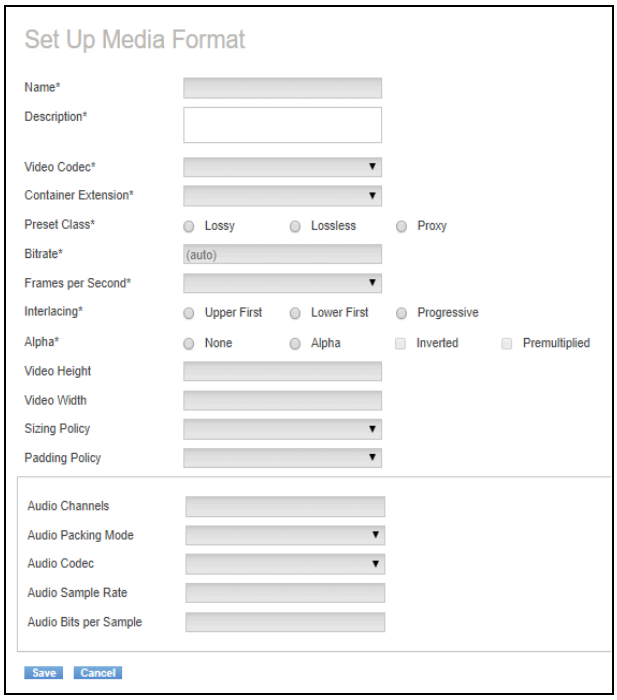


This user interface allows copies, edits and deletes of movie and image file formats. Note that some formats are not editable or deletable, as you can tell by the greyed out delete icon.

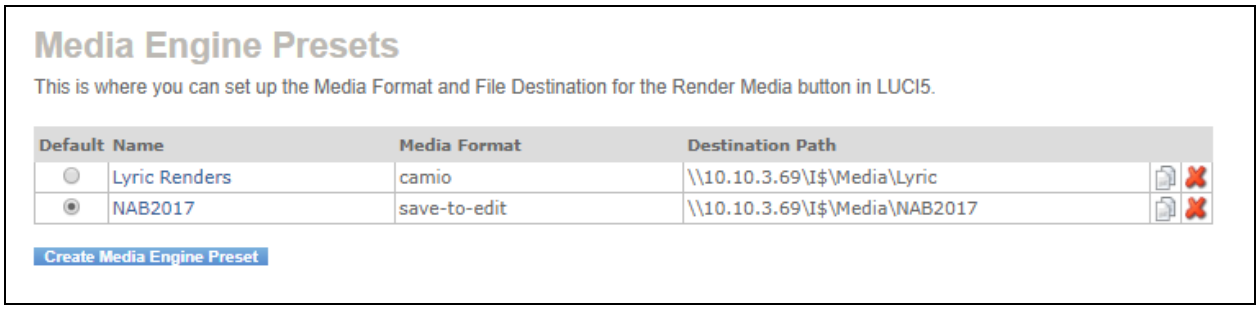
Click the copy icon to copy an existing format, edit it and save it as new.

Click the delete icon to delete an existing format.

Click the Default radio button to select the default Media Engine Format.



Media Engine Presets



Create Media Engine Preset - Click the **Create Media Engine Preset** button to open the dialog to create a new destination from scratch.

 - Click the copy icon to copy an existing destination, edit it and save as new.

 - Click the delete icon to delete an existing destination.

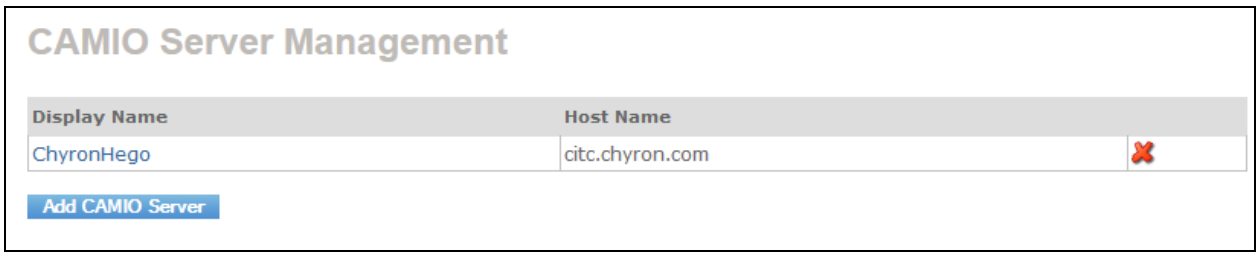
 - Click the Default radio button to select the default destination.

Replication

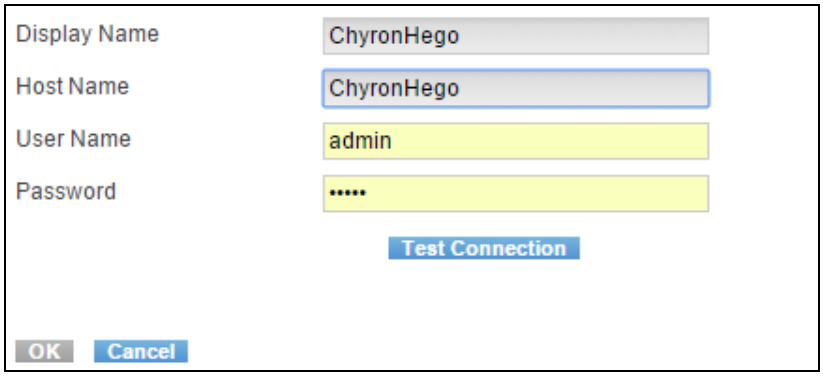
Replication is a powerful tool for distributing assets between multiple CAMIO Servers in a station group. Replication copies assets from one folder (or subfolders) on one CAMIO to a folder or subfolders on another CAMIO. This tool is often used in a station group to distribute assets from a hub art department out to other stations on the network.

Replication – CAMIO Server Management

The CAMIO Server Management tab allows the user to specify which CAMIO Servers are to be used in replication and test the connection to them.



In order to add a new CAMIO Server, click the Add CAMIO Server button. The following window is displayed.



- **Display Name** – Enter a name that will be used to refer to the server.
- **Host Name** – Enter the hostname or IP of the host that is to be connected to.
- **Username & Password** – Enter an administrative username and password that can be used to access the remote CAMIO server.

After inputting all the required information, click the Test Connection button to test the connection to the remote server. Once the connection is verified, click the OK button to add the new CAMIO Server.

In order to edit existing CAMIO servers, click the display name of the server located on the

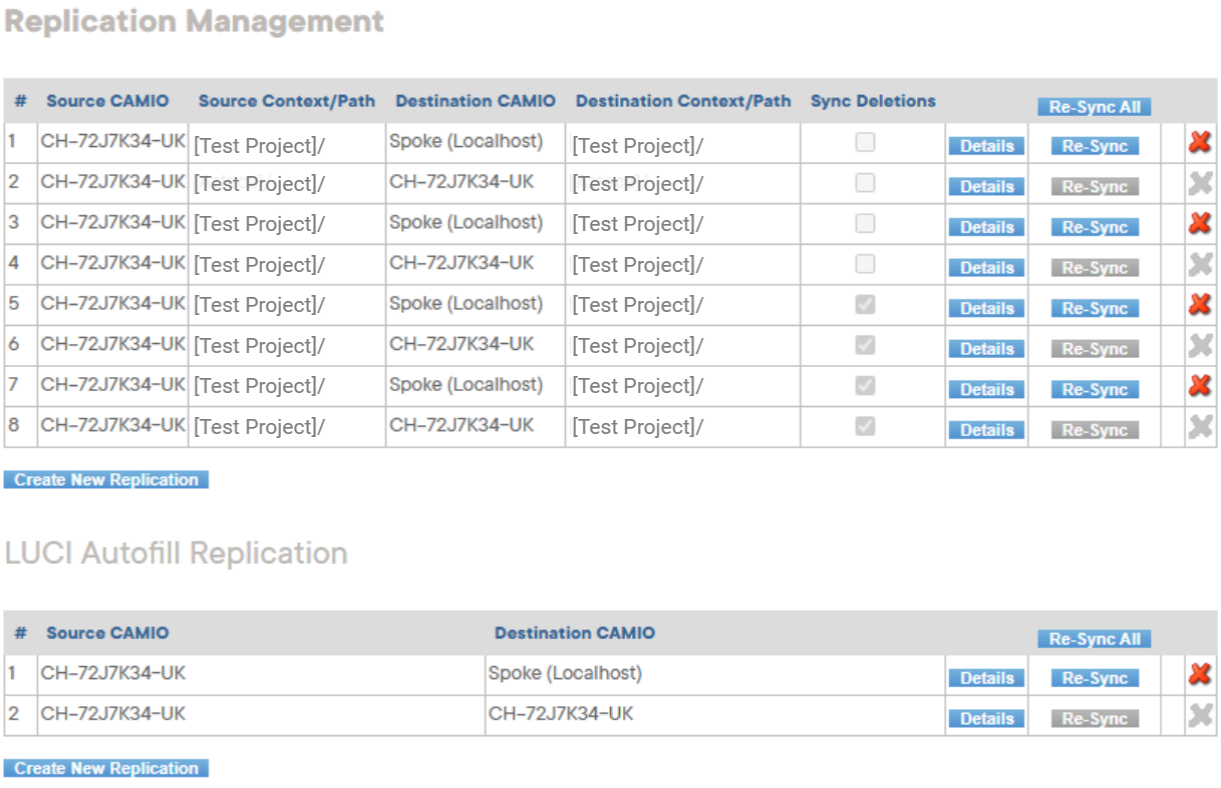
CAMIO Server management page.

Replication Management

The Replication Management tab allows users to create replications between CAMIO Servers in a station group network. There are two types of replication; Asset Replication and LUCI Autofill Replication

Asset Replication - copies all assets and their metadata from the Source CAMIO/Context/Path to the Destination CAMIO/Context/Path. Any change in the Source will be sent to the Destination. Replication never deletes assets from the destination folder, but may overwrite them with a new copy

LUCI Autofill Replication - copies LUCI Autofill table from the Source CAMIO to the Destination CAMIO. Individual autofill groups can have replication enabled and disabled, as shown in the LUCI Autofill section.



Replication is configured using the CAMIO Admin Tools, not the Asset Manager. The destination CAMIO gets a list of assets to download from port 80 on the source CAMIO. On the

Replication Management tab, a table is displayed that shows all previously created replications and their parameters.

Details button shows the status of replication processes with a list of files in the queue.

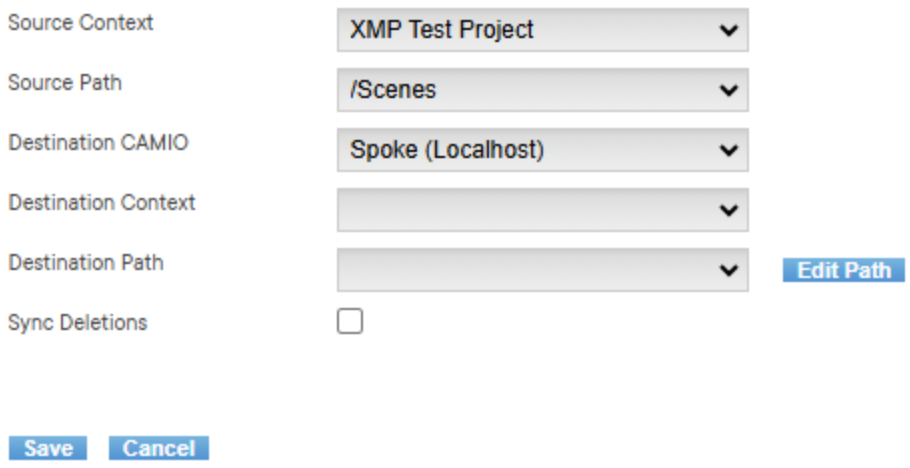
Resync button will replicate all content in the source folder to the destination folder "re-syncing" them.

Sorting the lists of replications and LUCI autofills can be done by clicking on the column headings - once to sort A-Z and again to sort Z-A.

Re-sync All button will resync all replications across all CAMIOs in the group. This can be done for either Replications or LUCI Autofills.

Replications cannot be edited. In order to change a replication, it must be deleted and a new one created. The Replication Management page shows replications for which this CAMIO is a source and for which it is a destination. Note that replications can only be re-synced and deleted from the source CAMIO.

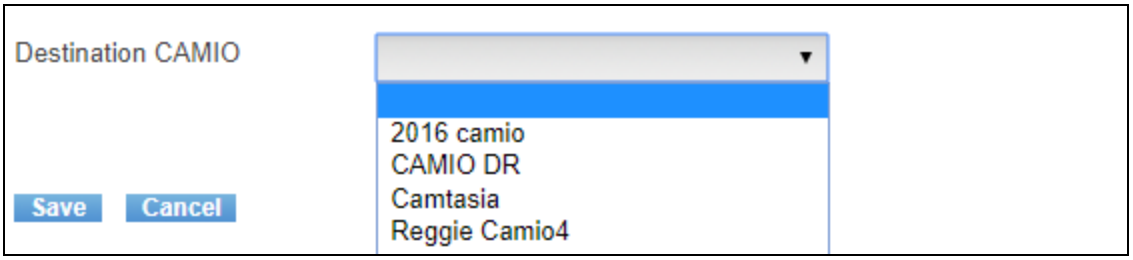
In order to create a new Asset Replication, click the Create New Replication button. The following window is displayed.



- **Source Context** – Specify the context from which the files are to be replicated.
- **Source Path** – Specify the path in the context from which the files are to be replicated.
- **Destination CAMIO** – Select which CAMIO Server the replicated files are to be delivered to.
- **Destination Context** – Select the new context that the replicated files are to be delivered to.

- **Destination Path** – Select the path of the context in which the files are to be delivered to.
- **Sync Deletions** - When the Sync Deletions option is set to true in the Replication Management page, then deletions made on the Hub CAMIO are also be made on the spoke CAMIOs.

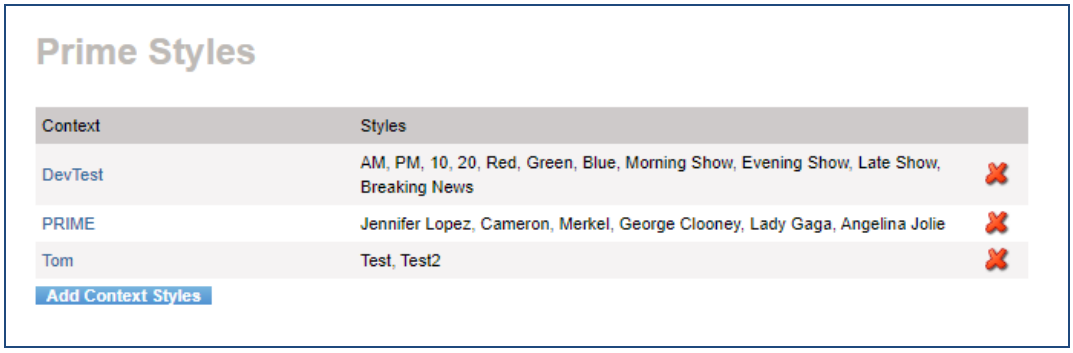
In order to create a new LUCI Autofill Replication, all that is needed is the name of the destination CAMIO.



PRIME Styles

CAMIO 4.9 onwards support PRIME Styles functionality. Requires compatible PRIME software and content employing the Styles feature.

This section defines a list of PRIME Styles per context which will be displayed in LUCI drop-down and embedded in the MOS Object for preview and playback. Style value assigned to a PRIME MOS Object can be displayed in **mosAbstract** and ISQ Viewer playlist using **%y**.



Add Context Styles - select from a list of contexts in the drop-down to add Styles.

- Styles can be deleted by clicking the red X. Deleting a style from a context will not affect MOS objects previously created. copied from another context.
- Styles will be displayed in LUCI in the order they are placed in the list. Drag/drop the styles to rearrange the order.
- **Copy from Context** - Styles can be copied from an existing context to speed up context creation and reduce errors. Only contexts which have styles defined will be shown in the drop-down.

Edit existing context styles - click the context name to open the edit dialog to make any

changes to the context styles.

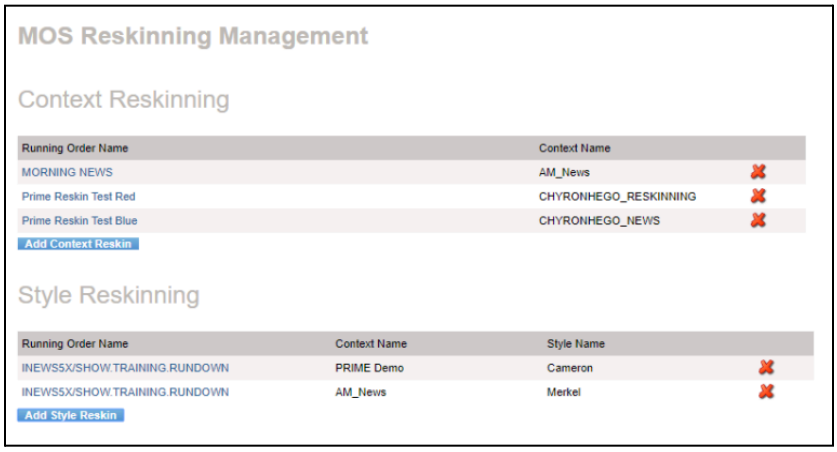
MOS Reskinning Management

CAMIO MOS Reskinning provides the ability to copy already prepared MOS objects from one **Running Order**, drop them into another **Running Order** and have the 'look' of the MOS objects automatically take on a different look, while retaining the replaceable data.

There are two types of reskinning processes available; **Context Reskinning** and **Style Reskinning** that work differently but give similar results. Context Reskinning works with Lyric and PRIME templates. Style based reskinning works with PRIME graphics only. The theory and operation of Context and Style Reskinning is described in a different document.

The CAMIO Administrator must define the reskinning rules as follows.

- Reskinning rules are assigned to a MOS rundown.
- A rundown must be MOS active for CAMIO to see the **MOS Objects** and replace them
- CAMIO will detect which items need to be reskinned and attempt to reskin them
- If possible, a new **MOS Object** will be created and a **mosItemReplace** message will be sent to the newsroom system to replace the original item with the reskinned item.
- It is possible to create both Context and Style Reskinning rules but not in the same **Running Order**.



Context Reskinning

Context Reskinning requires that you have at least two contexts with matching templates, ie., they have the same filename and same names for replaceable text, image and movie fields.

- Select preferred Contexts for a given rundown. Rundown must be MOS active to show up in the drop-down.
- Copying a story from another rundown will trigger the reskinning operation.
- Any MOS object that is not from the preferred context will be replaced by CAMIO if a matching template exists.
- The rundown needs to be MOS active to make the reskinning happen.

Style Reskinning

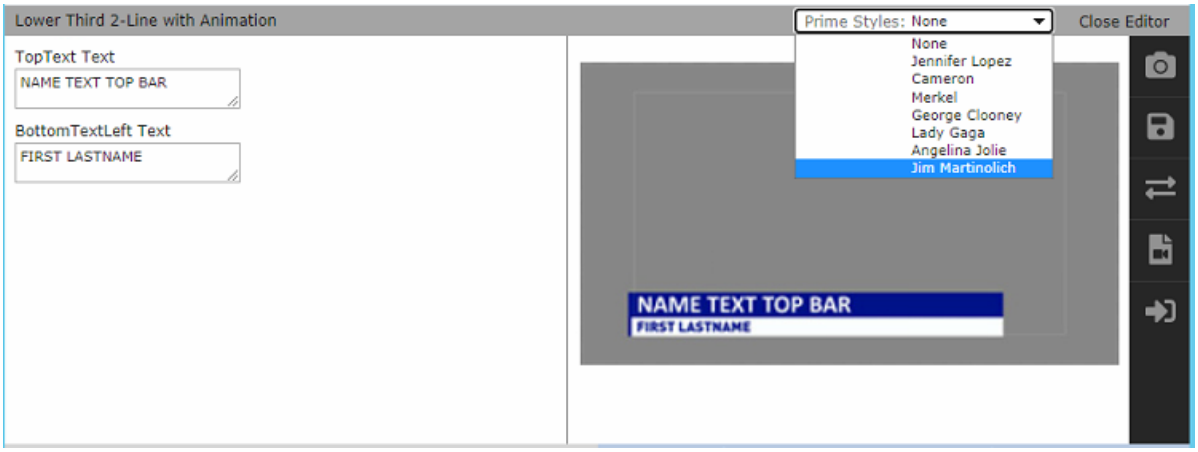
Style Reskinning only works with PRIME scenes that have two or more style values built in.

- Select preferred Style per Context for a given rundown.
- Copying a story from another rundown will trigger the reskinning operation.
- Any MOS object in the given context that is not in the preferred style will be replaced by CAMIO.
- It is possible to create multiple style reskinning rules in the same rundown, one per context.
- Note: cannot apply Context Reskinning and Style Reskinning to the same rundown.
- Like with Context Reskinning, the rundown needs to be MOS active to make the reskinning happen.

PRIME Styles

Create a list of Style names and bind them to a context. These style names will then be visible in the LUCI Style selector drop-down when a PRIME template of the given context is being edited. The PRIME Scene must be designed to use the style value or it will be ignored.

Styles shown in the LUCI drop-down for **Context = PRIME**.

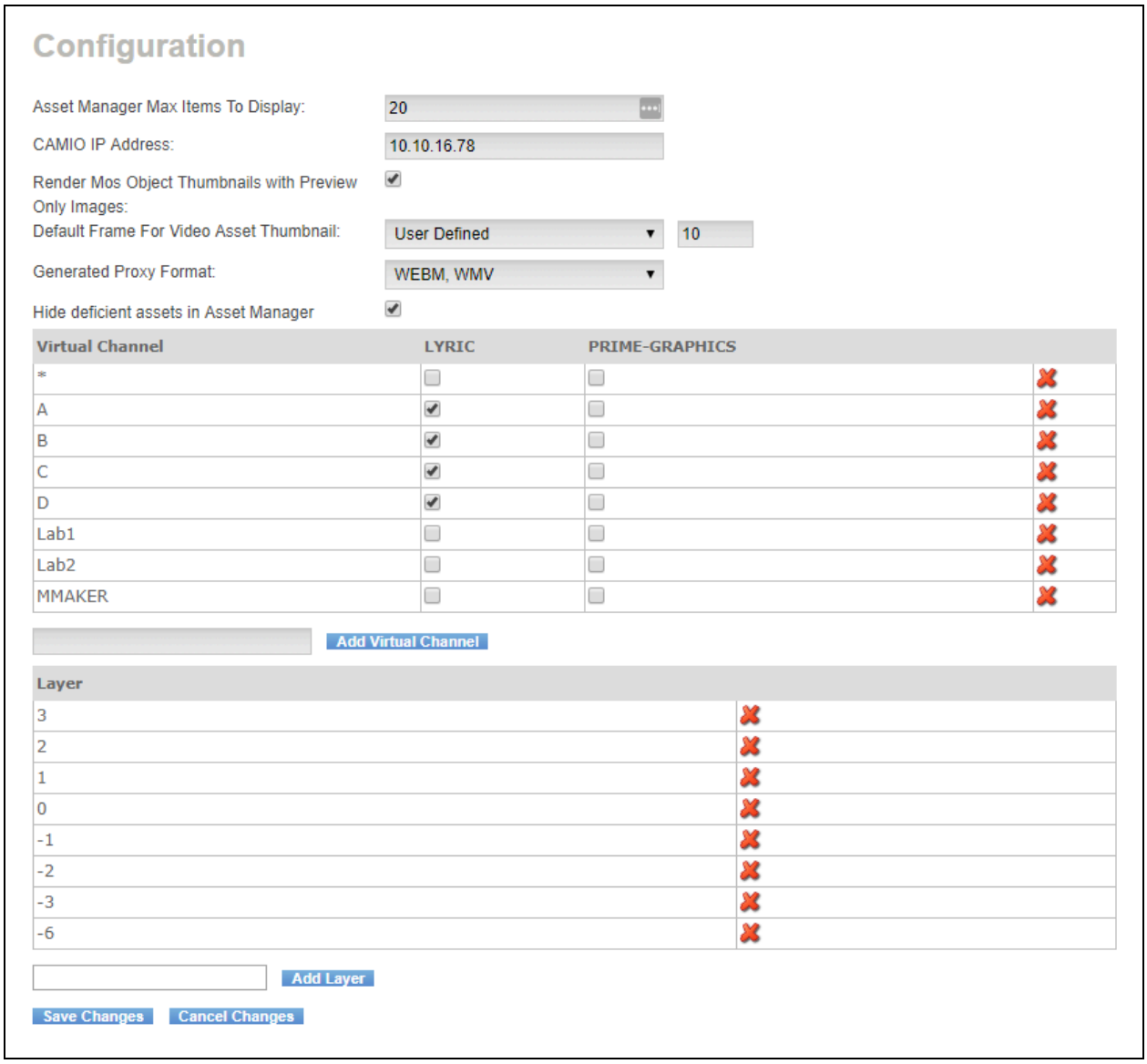


Add Context Styles

Configuration

CAMIO Configuration

Selecting **CAMIO Configuration** exposes the options shown below

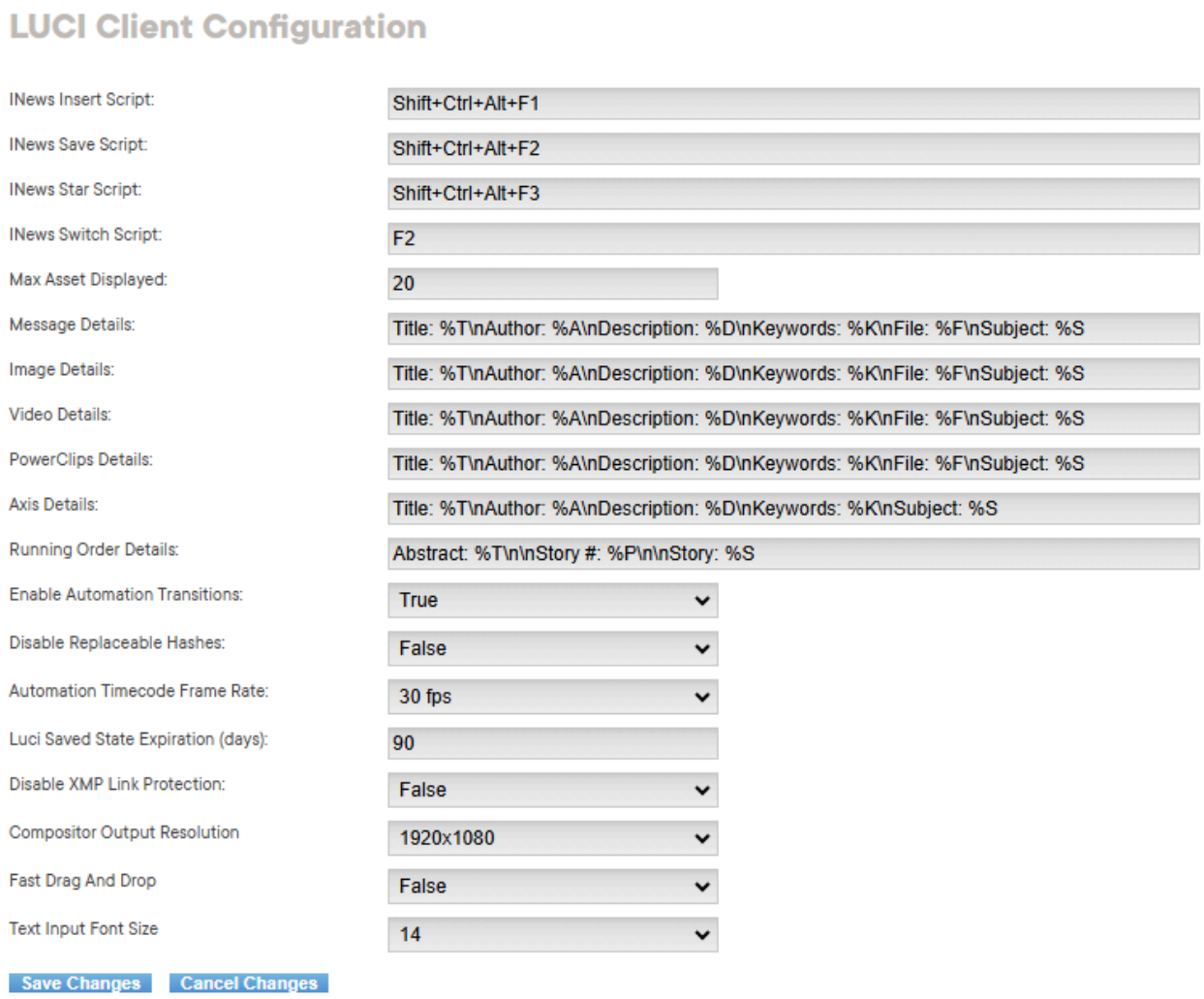


- **Asset Manager Max Items to Display** – Specifies the maximum number of items to be displayed per page (defaults to 20).
- **CAMIO IP Address** – Specifies the IP Address of the CAMIO system.

- **Render MOS Object Thumbnails with Preview Only Images** - Graphics templates used by CAMIO often have preview only images built in. These images are displayed in the preview but will not play to air. The option selects whether the Preview Only images are rendered into the LUCI and CAMIO Rundown Endpoint and Viewer thumbnails.
- **Default Frame for Video Asset Thumbnail -** Choose between First Frame, Last Frame or User Defined to specify which frame should be used for the video asset thumbnail. This value can be overridden on an asset by asset basis.
- **Generated Proxy Format** - Proxy files are generated for preview in Asset Manager and LUCI. LUCI4 requires WMV format, LUCI5 requires WEBM format. If unsure, then select both.
- **Hide Deficient Assets in Asset Manager** - Deficient assets are images and movies which were ordered from AXIS services (usually Order) and not yet been delivered. They are displayed as a deficient asset icon. These can clutter the Asset Manager display and checking this box will hide them in Asset Manager.
- **Virtual Channels** – Display the current Virtual Channels and control which channel is displayed by template type.
    - Click the corresponding red “X” to delete a virtual channel.
    - To add a new Virtual Channel, enter the desired name of the virtual channel into the text field and then click Add Virtual Channel.
    - Template Channel Mappings - Checkbox grid selects which Virtual Channels are visible in LUCI and Asset Manager when using a given template type.
    - In this example, Lyric templates will only display channels *, A, B and C as options.
      PRIME Clip Templates will only display CLIPS1, CLIPS2, CLIPS3 and CLIPS4.
      PRIME Graphics Templates will only display CG1, CG2, CG3 and CG4.
      If there are no checkboxes checked for a particular template type, then all Virtual Ch. will be displayed. In this example, a LyricX template will display all 12 channel options.
- **Layers** - applies to PRIME scenes only. Layer values must be positive and negative integers. Higher value layers display over lower value layers on the same output channel.
    - Add Layer - Enter an integer value in the text box and click Add Layer button to create a new layer.

LUCI Configuration

Selecting **LUCI Configuration** exposes the options shown below.



General Settings

- **iNews Insert, Save, Start and Switch Scripts -** The first four settings shown are for iNews only and will not be displayed if other newsroom systems are selected in the MOS Configuration.
- **Max Asset Displayed –** Specifies the maximum number of assets displayed visible per page in LUCI.
- **Message Details –** Format of the Message Details shown in LUCI. Asset formatting identifiers are shown in the table below.
- **Image Details –** Format of the Image Details shown in LUCI.
- **Video Details –** Format of the Video Details shown in LUCI.
- **PowerClips Details –** Format of the PowerClips Details shown in LUCI.
- **AXIS Details –** Format of the AXIS Details shown in LUCI.
- **Running Order Details –** Format of the **Running Order Details** shown in LUCI.
- **Enable Automation Transitions** - used in special circumstances. This option displays a drop-down list of automation transitions to be selected by the LUCI user. The automation transition becomes metadata saved to the MOS Object and read by some news automation systems to enable special features. The text in the drop-down list is defined in the Automation Transition Configuration section below.
- **Disable Replaceable Hashes -** used in special circumstances as directed by Chyron support. This option disables the use of hashes to uniquely identify replaceable assets. This may be necessary when very large movie files are used as replaceable assets.
- **Automation Timecode Frame Rate** - Configures the frame rate used by the In and Duration time code tools in LUCI. When set to 30 fps, the frame count will only roll up to 29 then add one to the second count. Selectable values are 25, 30, 50 and 60 fps.
- **LUCI Saved State Expiration** - LUCI feature. There is a clean up script to delete old Saved States that have expired. This setting changes the expiration days since the last time a given user saved a state on a given workstation (IP Address).
- **Disable XMP Link Protection** - default to False.
  When set to ***False*** the following happens:
  - The chain-link button in LUCI will be enabled
  - The Data-bound fields will not be editable when the chain-link symbol is linked
  - The Data-bound fields will be editable when the chain-link symbol is unlinked

  When set to ***True*** the following happens:
  - The chain-link button in LUCI will be disabled, but still shown for Data-bound fields
  - The Data-bound fields will be editable always
- **Compositor Output Resolution** - default to 1920x1080. To set the generated images' output resolution to 1920x1080 or 1280x720.
- **Fast Drag and Drop** - default to False. To display the Drag and Drop option immediately in LUCI when creating a new graphic.

Warning: this option may ask for extra resources to the MOS Management service as constantly updating the graphic's related MOS object values.

- **Text Input Font Size** - The font size used in LUCI can be changed.. The default is 14pt.

MOS Configuration

Selecting **MOS Configuration** exposes the options shown below. These settings affect MOS communication with the newsroom computer system.

Important Note: this section describes the needed settings assuming that the playout control is handled by Chyron ISQ application. In the case where an external Automation system is used such as Vizrt Mosart, Ross OverDrive, Avid Command, Sony ELC etc changes may apply. Please consult your Chyron representative for more information.

On the MOS Configuration page, the following settings are displayed. Note that these settings may be case sensitive so it is recommended to always use capitals.

- **MOS Server Type –** Select the Newsroom Computer System type (ENPS, Dalet, iNEWS, etc.), from the **Server Type** drop-down box.
- **MOS Version** - Select MOS Protocol version 2.6 or 2.8.5. Contact Chyron support.
- **MOS ID –** Enter the MOS ID of the CAMIO server to be used in MOS protocol communication with the newsroom computer system .
- **NSC ID -** Enter the NCS ID of the Newsroom Computer System used in MOS protocol communication.
- **NCS Server Name –** Enter the Hostname or IP Address of the NCS Server, or the iNews Gateway in the case of an iNews system.
- **Backup NCS Server –** Enter the Hostname of the IP Address of the backup NCS Server, if applicable. .
- **Heartbeat Interval -** Enter the desired heartbeat interval in seconds. Should normally be set to 0 which disables heartbeats. Contact Chyron support for more information.
- **MOS Abstract –** Specifies the format for the MOS Abstract as shown in the newsroom computer system. Formatting commands for MOS Abstract and Object Slug are shown in Appendix.
- **Slug –** Specifies the format for the Object Slug defined in the MOS Object metadata.
- **Default In/Out Time** - These values can be defaulted to non-zero in cases where an automation system requires it e.g. Ross Overdrive going into Manual mode with zero values. The default values will be visible in LUCI.
- **Force Edit New –** If set to true, a new MOS Object ID will always be created when an existing MOS Object is edited. If set to false, then when a MOS Object is edited in LUCI and saved, the user is prompted with the option of saving the object under the original MOS ID, or creating a new one.
- **roChannel Override –** Not in use at this time.

- **Socket Persistence –** Specifies if the socket connection initiated by CAMIO with the NCS server is kept active. Selecting **True** maintains the socket connection.
- **MOS Object Lifetime –** MOS Objects are stored in cache for x number of days after the last them they were used in a rundown. The object is then deleted from cache. The default value is 90 days.
- **Listening MOS Lower Port** - This is the port CAMIO opens to receive ro messages from the NCS. It defaults to 10540 and should not be changed without a specific reason. Some MOS installations use non-standard ports.
- **Listening MOS Upper Port** - This is the port CAMIO opens to receive MOS object messages from the NCS. It defaults to 10541 and should not be changed without a specific reason. Some MOS installations use non-standard ports.
- **Sending MOS Lower Port** - This is the port CAMIO connects to on the NCS to send ro messages. It defaults to 10540 and should not be changed without a specific reason. Some MOS installations use non-standard ports.
- **Sending MOS Upper Port** - This is the port CAMIO connects to on the NCS to send MOS object messages. It defaults to 10541 and should not be changed without a specific reason. Some MOS installations use non-standard ports.

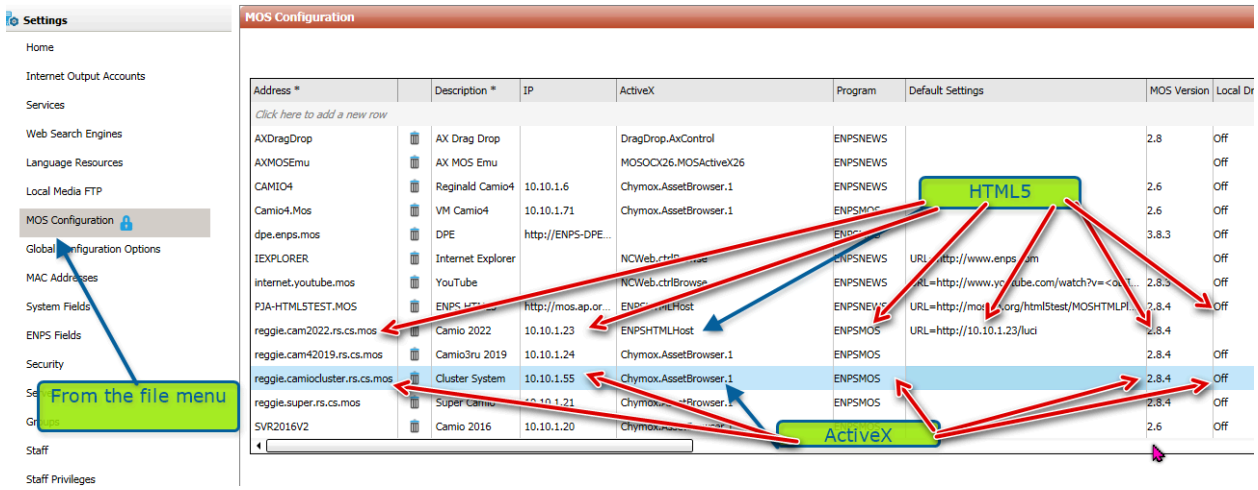
Settings for ENPS 8 or 9

Note: the ENPS side of the configuration should be handled by AP or the customer

On ENPS side

Open the ENPS System Maintenance application, go to MOS Configuration, add a new row and enter the following settings:

- **Address**: CAMIO MOS ID
- **Description**: a user friendly name that will displayed to users, e.g. ‘CAMIO’
- **IP**: CAMIO server or DR/Cluster virtual IP
- **ActiveX**: ‘Chymox.AssetBrowser.1’ (ActiveX) or ‘ENPSHTMLHost’ (HTML5)
- **Program**: ‘ENPSMOS’
- **Default Settings**: nothing (ActiveX) or ‘URL=http(s)://<CAMIO IP>/luci/’ (HTML5)
- **MOS Version**: ‘2.8.4’
- **Local DragDrop**: ‘Off’
- All other settings can be left as default

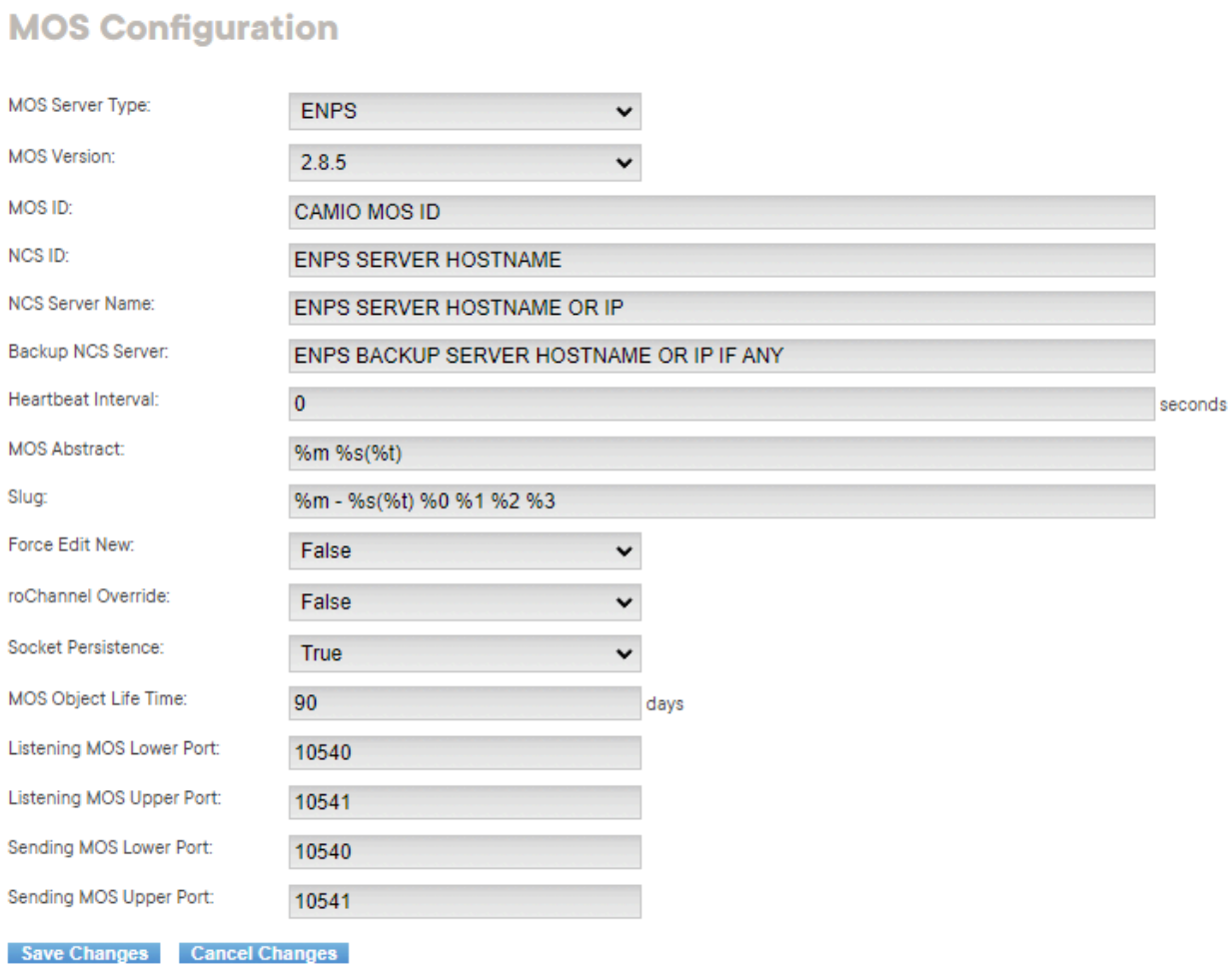


CAMIO MOS Settings in ENPS System Maintenance

On CAMIO side

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: ENPS
- **MOS Version**: 2.8.5
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: ENPS Server Hostname
- **NCS Server Name**: ENPS Server hostname or IP
- **Backup NCS Server**: ENPS Backup Server hostname or IP if applicable
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



ENPS MOS Settings in CAMIO Admin

Settings for iNews

Note: the iNews side of the configuration should be handled by Avid or the customer

On iNews side

MOS Gateway

Note: If Avid Command is used for the Playout Automation of Prime, most likely the iNews MOS Gateway would not be needed as iNews would directly transmit the Rundown to Command with its own protocol, while CAMIO will push to Prime every created MOS Object, thus ready to be played.

In C:\Program Files (x86)\Avid\iNEWS MOS Gateway edit the mosconfig.xml file to add a new <mosDevice> with its children elements under <listDevices>. The <mosDevice> is as follow, with the mandatory values to update in red and optional in black:

```
<mosDevice>
        <!-- The names element contains the mapping of the MOS's mosID value to -->
        <!-- an NRCS device name, as well as the network name of the MOS. -->
        <names>
                <mos>CAMIO MOS ID</mos>
                <amcp>INEWS ALIAS</amcp>
                <network>CAMIO HOSTNAME OR IP</network>
        </names>
        <!-- Running order channel maps -->
        <roChannels>
                <roChannel>
                        <iNewsChannel>A</iNewsChannel>
                        <MosDevChannel>A</MosDevChannel>
                </roChannel>
                <roChannel>
                        <iNewsChannel>B</iNewsChannel>
                        <MosDevChannel>B</MosDevChannel>
                </roChannel>
        </roChannels>
        <!-- Maps a NRCS Running Order Name to a more readable MOS roSlug. -->
        <!-- A NRCS Running Order Name is the NRCS server name plus the -->
        <!-- running order's complete queue path. If a mapping doesn't exist -->
        <!-- then the NRCS Running Order Name is used for the MOS roSlug. -->
        <roSlugMaps>
                <roSlugMap>
                        <iNewsRunningOrderName>INEWS_SERVER/SHOW.7AM.RUNDOWN</iNewsR
                        unningOrderName>
                        <MOSroSlug>7AM</MOSroSlug>
                </roSlugMap>
        </roSlugMaps>
        <!-- The handlesEmptyStories element specifies whether this device accepts -->
        <!-- a roStoryInsert message that contains no item. -->
        <handlesEmptyStories>YES</handlesEmptyStories>
        <!-- The handlesRoStoryMoveMultiple element specifies whether this device supports -->
        <!-- the roStoryMoveMultiple message. The router defaults to YES. -->
        <!-- Valid settings are YES or NO -->
        <handlesRoStoryMoveMultiple>NO</handlesRoStoryMoveMultiple>
        <!-- The handlesRoItemLevelCommands element specifies whether this device supports -->
        <!-- roItemInsert, roItemDelete and roItemReplace. The router defaults to YES. -->
        <!-- Valid settings are YES or NO -->
        <handlesRoItemLevelCommands>NO</handlesRoItemLevelCommands> SET YES FOR MOS 2.8
```

```
<!-- If YES then the stories page number from NRCS is prepended to the story -->
<prependPageNumber>YES</prependPageNumber>
<!-- The character seperator used between the page number and the story slug.-->
<prependSeparator>@</prependSeparator>
<!-- The character string which is used in place of an empty page number.-->
<prependStringForEmptyPageNumber>##</prependStringForEmptyPageNumber>
<!-- When set to NO, all MOS items in the rundown will be contained within -->
<!-- the roCreate message.  When set to YES, a blank roCreate message is sent -->
<!-- and all MOS items in the rundown will be added using roStoryInsert -->
<!-- messages.  The recommended setting is NO unless it is absolutely required. -->
<sendRoCreateOnStartLoad>NO</sendRoCreateOnStartLoad>
<handlesSpecMosReqAll>YES</handlesSpecMosReqAll>
<!-- The statusTranslations element defines the status strings that correspond -->
<!-- to the various NRCS status codes. This allows the MOS Gateway to translate -->
<!-- the roItemStatus messages received from a MOS into status codes that NRCS -->
<!-- can recognize and display. -->
<!-- Should we ignore the item status in roAck messages? -->
<!-- Valid settings are YES or NO, default is NO -->
<ignoreItemStatusInRoAck>NO</ignoreItemStatusInRoAck>
<!-- Does this device expect the MOS 2.8 version of roListAll -->
<!-- Valid settings are YES or NO, default is NO -->
<handlesRoListAll28>NO</handlesRoListAll28> SET YES FOR MOS 2.8
<!-- Does this device handle roStorySend messages? -->
<!-- The handlesRoStorySend element specifies whether this device supports -->
<!-- sending storys via roStorySend. The router defaults to NO. -->
<!-- Valid settings are YES or NO -->
<handlesRoStorySend>NO</handlesRoStorySend>
<!-- The handlesRoStorySendNSMLX element specifies whether this device supports -->
<!-- sending the NSMLX via the roStorySend mosExternalMetadata payload. The router defaults
to NO. -->
<!-- Valid settings are YES or NO -->
<handlesRoStorySendNSMLX>NO</handlesRoStorySendNSMLX>
<!-- The retry timeout in seconds for this device. -->
<!-- Set to 0 if you do not want to have retries -->
<!-- Valid values: 0 - 214748647 -->
<!-- Default is 0 -->
<retryTimeout>0</retryTimeout>
<statusTranslations>
        <statusUnknown>UNKNOWN</statusUnknown>
        <statusUnavailable>NOT READY</statusUnavailable>
        <statusUnavailable>DELETED</statusUnavailable>
        <statusAvailable>READY</statusAvailable>
        <statusAvailable>NEW</statusAvailable>
        <statusCued>CUED</statusCued>
        <statusPlaying>PLAY</statusPlaying>
        <statusPaused>PAUSE</statusPaused>
```

```
            <statusStopped>STOP</statusStopped>
            <statusTensionReleased></statusTensionReleased>
            <statusPlayRequested></statusPlayRequested>
            <statusRewinding></statusRewinding>
        </statusTranslations>
        <mosObjReplication>
            <trigger>manual</trigger>
            <replicationTime>12:31:15 PM</replicationTime>
            <clearQueue>true</clearQueue>
            <path>mos.mosdevicename</path>
            <mosItemBrowserProgID></mosItemBrowserProgID>
            <mosItemEditorProgID></mosItemEditorProgID>
        </mosObjReplication>
        <!-- Valid settings are YES or NO -->
        <AllowMosObjCreate>NO</AllowMosObjCreate>
</mosDevice>
```

Device Names

xml tag	description	current
<mos>	The mosID of the MOS device	CAMIO MOS ID
<amcp>	The iNews AMCP name for the device	INEWS ALIAS
<network>	Network (host) name for the device (note: an ip address is not valid)	CAMIO HOSTNAME OR IP

Device Settings

xml tag	description	default	current
<handlesEmptyStories>	Handles Empty Stories	(default:YES):	YES
<handlesRoStoryMoveMultiple>	Handles roStoryMoveMultiple	(default:YES):	NO
<handlesRoItemLevelCommands>	Handles roItemLevelCommands	(default:YES):	NO
<handlesRoStorySend>	Handles roStorySend	(default:NO):	NO
<handlesRoStorySendNSMLX>	Handles roStorySend with NSMLX embedded in the mosExternalMetadata payload	(default:NO):	NO
<handlesRoListAll28>	Handles the 2.8 version of roListAll	(default:NO):	NO
<ignoreItemStatusInRoAck>	Ignore item status in roAck	(default:NO):	NO
<sendRoCreateOnStartLoad>	Send roCreate on a AMCP start load	(default:NO):	NO
<retryTimeout>	Retry timeout in seconds, 0 means disabled, range 1 - 214748647	(default:0):	0
<prependPageNumber>	Prepend page number		YES
<prependSeparator>	Prepend seperator		@
<prependStringForEmptyPageNumber>	Prepend string for empty page number		##
<AllowMosObjCreate>	Forward mosObjCreate request to device	(default:NO):	NO

Running order channel maps:

- **iNews Channel:** A **maps to device channel:** A
- **iNews Channel:** B **maps to device channel:** B

Running order name maps

- **iNews running order name:** INEWS_SERVER/SHOW.7AM.RUNDOWN **maps to device running order name:** 7AM

HTML view of the mosconfig.xml

iNews Server

Host Table (/etc/hosts): enter the IP/Hostname for the CAMIO and the iNews MOS Gateway servers

iNews Client with Administrator privileges

- **SYSTEM.MOS-MAP** – sets the MOS ID and AMCP ID

  TABLE-START DeviceTable
  <CAMIO MOS ID> <CAMIO INEWS ALIAS> <CHANNEL> <CHANNEL> …
  TABLE-END
  Example:
  TABLE-START DeviceTable
  CAMIO CG40 A B C D
  TABLE-END

- **SYSTEM.MAP** - sets the Gateway and iNews Alias per Rundown.

  show.<QUEUE>.rundown <event dir> <composite> <group> <off time>
  mossvr <INEWS MOS GATEWAY HOSTNAME> <backup server> <CAWS form>
  mos <CAMIO INEWS ALIAS> <devices for redirection>

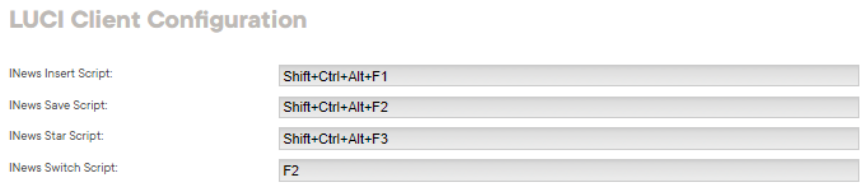
  <event dir> (optional): Event list directory. See iNews documentation for details.
  <composite> (optional): Composite list queue. See iNews documentation for details.
  <group> (optional): to set Security groups. See iNews documentation for details.
  <off time> (optional): the time the show's monitor server turns itself off. See iNews documentation for details.
  <backup Server> (optional): for secondary MOS Gateways
  <CAWS form> (optional): for ControlAir workstations, not used here
  <devices for redirection> (optional): for MOS Redirection use

  Example of minimal working configuration:
  show.training.rundown - - - -
  mossvr MOSGW - -
  mos CG40 -

- **SYSTEM.KEYBOARDS.<Users Keyboard(s)>** - Shortcuts for Insert/Replace from LUCI (**LUCI Container only**)

@{shift{ctrl{alt{f1}}}}~{alt s n c} ;chyron
@{shift{ctrl{alt{f2}}}}~{alt s n c} ;chyron
@{shift{ctrl{alt{f3}}}}~{alt s n c} ;chyron

Note: ***Alt->S->N->C*** is the keyboard sequence to trigger the ***Story > Import from Plugin > ChyronHego Luci*** action in iNews, it may differ depending on the iNews version and language.
Shift+Ctrl+Alt+F1/F2/F3 refers to the usual settings in ***Camio Admin > Configuration > LUCI Configuration***, to be adapted if different:



Use of the iNews HTML5 Plugin with LUCI

HTML5 Plugin is available since iNews 8 and can be used in replacement of the LUCI Container. It is configured using a story in the queue **SYSTEM.HTML-PLUGINS** within an iNews Client with admin privileges, with the following content as parameters:

URL = http(s)://<CAMIO IP or hostname>/luci?noinsertreplace=true
mosItemBrowserProgID=Chymox.AssetBrowser.1
mosItemEditorProgID=Chymox.AssetBrowser.1
mosItemPlayerProgID=Chymox.AssetBrowser.1

Note: as ActiveX takes precedence over HTML5 for the same ProgID, it is necessary to uninstall the LUCI Container application if present on the workstations running iNews Client.

Enabling Developer Tools:

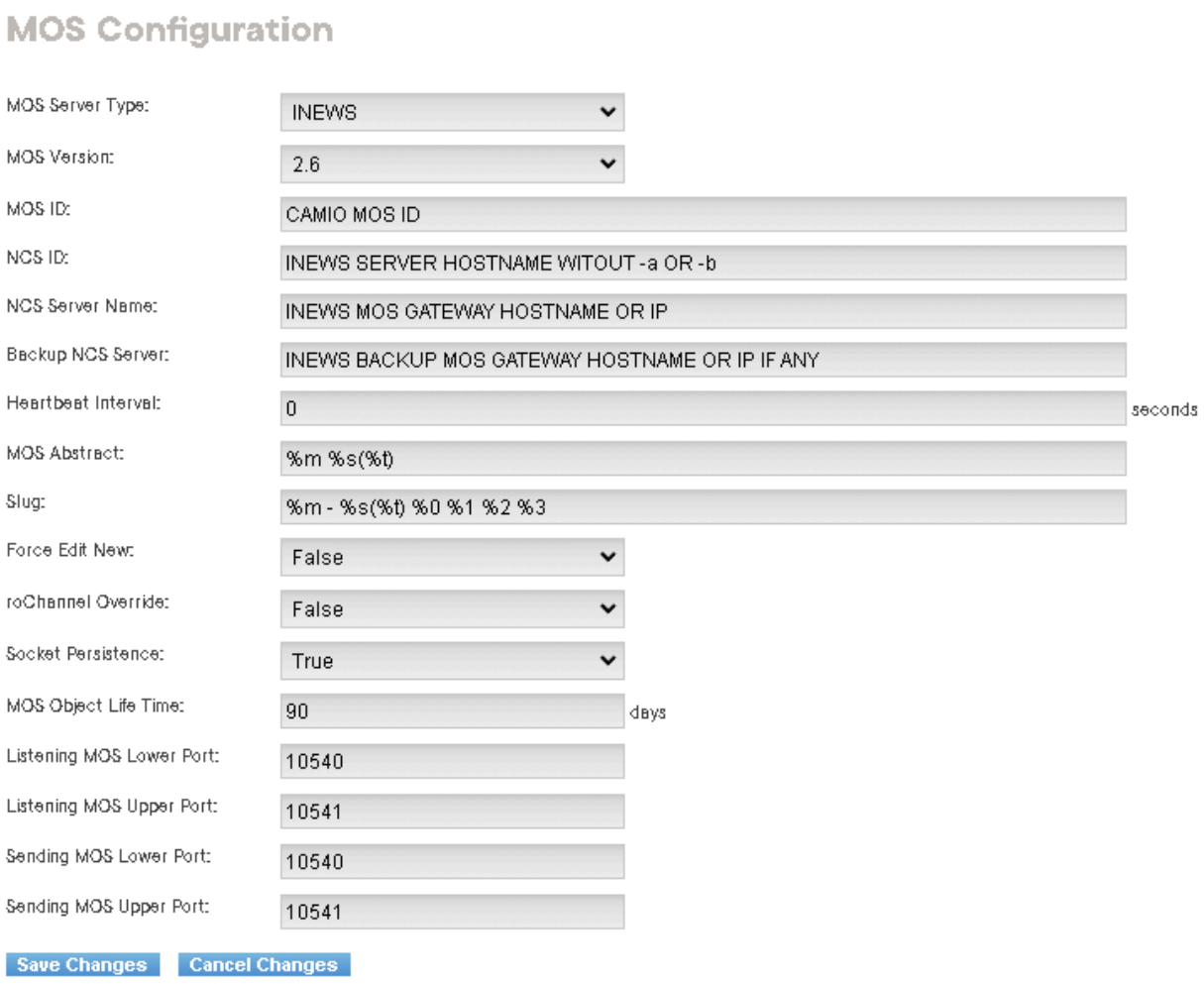
- Open the Windows registry editor.
- Navigate to: Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Environment
- If not present, add the registry key UseChromiumRemoteDebug (DWORD).
- Set the registry key to a value of 1 to enable access to the Developer Tools. Note: setting the registry key to a value of zero or removing it will disable access to the Developer Tools.
- Access to Developer Tools: Open Google Chrome web browser. While the plugin is

active inside iNEWS Workstation, navigate to the URL: http://localhost:8088/

On CAMIO side

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: INEWS
- **MOS Version**: 2.6 or 2.8.5 (see MOS Gateway configuration)
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: iNews Server Hostname without -a or -b
- **NCS Server Name**: iNews MOS Gateway hostname or IP
- **Backup NCS Server**: iNews Backup MOS Gateway hostname or IP if applicable
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



iNews MOS Settings in CAMIO Admin

Settings for iNews with Command automation

Note: the iNews side of the configuration should be handled by Avid or the customer

If Avid Command is used for the Playout Automation of Prime, most likely the iNews MOS Gateway would not be needed as iNews would directly transmit the Rundown to Command with its own protocol, while CAMIO will push to Prime every created MOS Object, thus ready to be played.

On iNews side

iNews Client with Administrator privileges

- **SYSTEM.MOS-MAP** – sets the MOS ID and AMCP ID

TABLE-START DeviceTable
<CAMIO MOS ID> <CAMIO INEWS ALIAS>
TABLE-END

Example:
TABLE-START DeviceTable
CAMIO CG40
TABLE-END

- **SYSTEM.MAP** - sets the Gateway and iNews Alias per Rundown.

  show.<QUEUE>.rundown <event dir> <composite> <group> <off time>
  wnasvr <COMMAND HOSTNAME> <backup server> <CAWS form>
  cg <CAMIO INEWS ALIAS> <alias name> <default channel> <style> <validate style YES/NO>

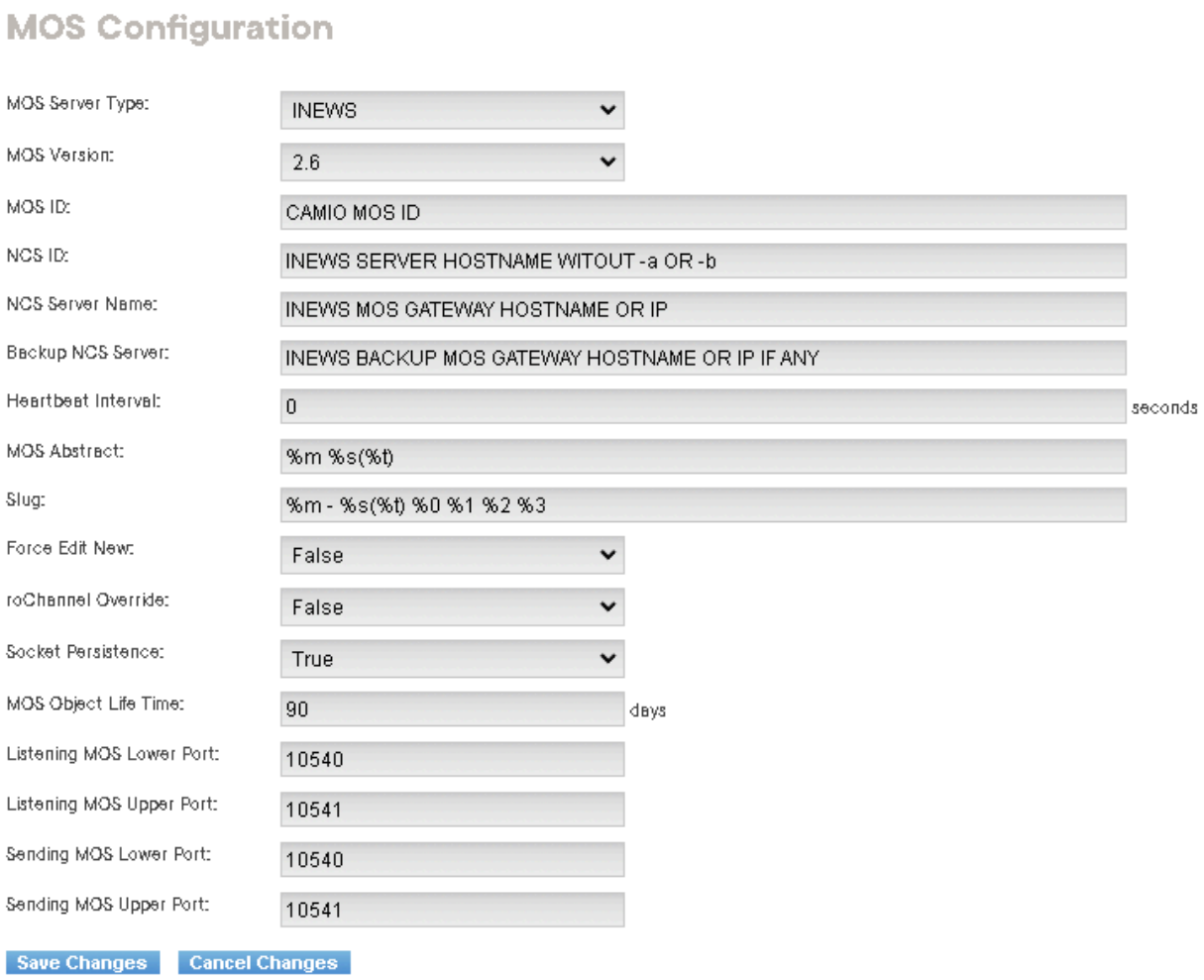
  <event dir> (optional): Event list directory. See iNews documentation for details.
  <composite> (optional): Composite list queue. See iNews documentation for details.
  <group> (optional): to set Security groups. See iNews documentation for details.
  <off time> (optional): the time the show's monitor server turns itself off. See iNews documentation for details.
  <backup Server> (optional): for secondary MOS Gateways
  <CAWS form> (optional): for ControlAir workstations, not used here
  <alias name> (optional): not used
  <default channel> (mandatory): to specify the default channel assigned if the production cue does not have one explicitly defined.
  <style> (optional): Style used on the playout device
  <validate style YES/NO> (optional): when set to NO, the monitor server in iNEWS will not validate style names before sending CG data to Command. This allows the loading of CG items to the Command playlist before they exist in Command's inventory. If left blank, the default, which is YES, is used.

  Example of minimal working configuration:
  show.training.rundown - - - -
  wnasvr CMD01 - -
  cg CG40 - A NEWS NO

On CAMIO side

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: INEWS Command
- **MOS Version**: 2.6 or 2.8.5 (not important in such case)
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: iNews Server Hostname without -a or -b
- **NCS Server Name**: (can be left empty in such case)
- **Backup NCS Server**: (can be left empty in such case)
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



iNews MOS Settings in CAMIO Admin

Note - Some versions of iNews have introduced issues with the CAMIO MOS Server Types

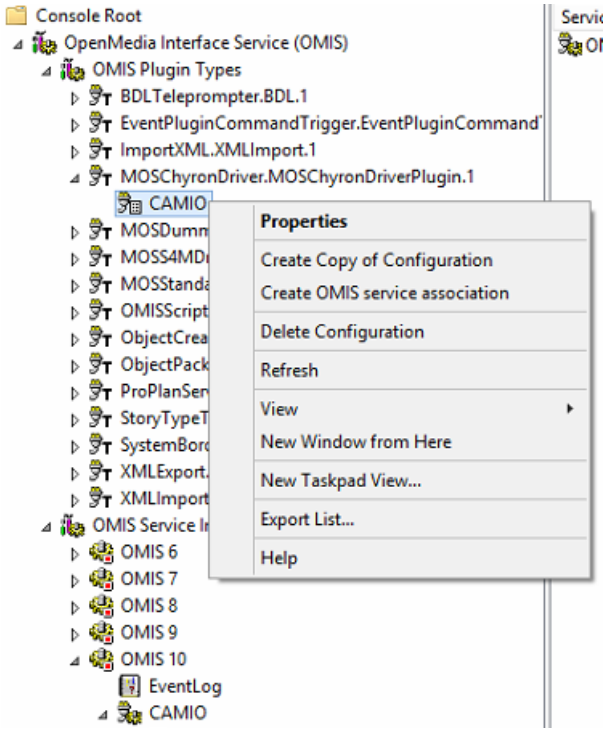
- CAMIO 5.4.5 INEWS 9+ mode does not work with iNews9. Select the INEWS option instead.

Settings for OpenMedia

Note: the OpenMedia side of the configuration should be handled by CGI or the customer

On OpenMedia side

Open the OMIS.msc, go to OMIS Service Instances and stop the service running CAMIO Plugin. Then in OMIS Plugin Types select the Chyron Plugin, right-click on its sub element and select Properties.



OpenMedia OMIS Application

Enter the following settings:

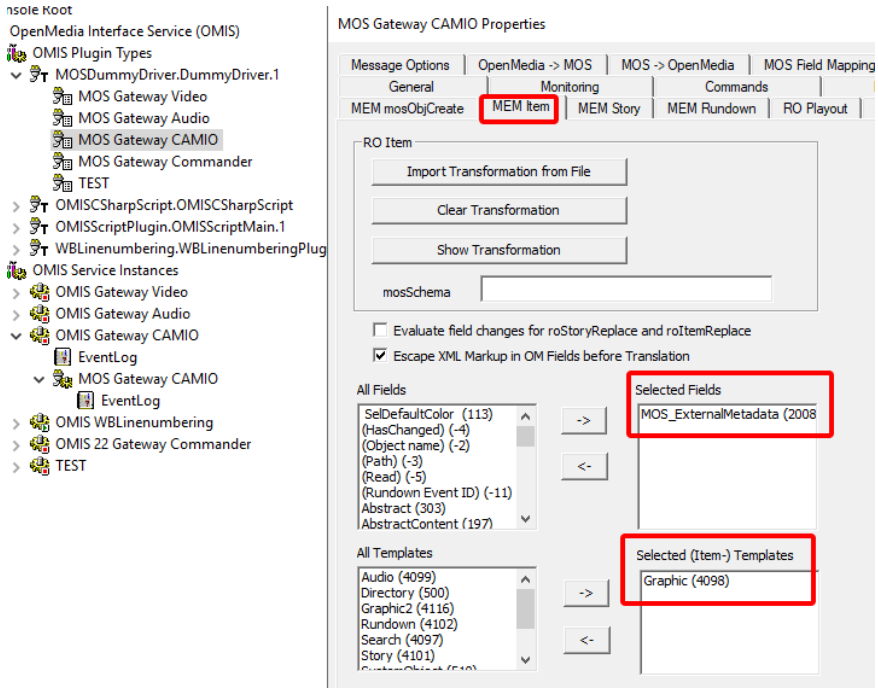
- **General > Plug-in Name**: “CAMIO”
- **MOS Device > MOSID**: CAMIO MOS ID

- **MOS Device > MOSRevision**: 2.84
- **MOS Device > Hostname**: CAMIO Server Hostname or IP

Extra settings might need to be added/modified depending on the customer's environment, to be done with a representative from OpenMedia.

Note: when loading a Rundown for Playout, the graphic items' MosExternalMetadata should be transmitted and with a particular XML structure that can be parsed by Camio.

- To enable the export of the MosExternalMetadata data, set the OMIS plugin as follow:



OMIS Settings for exporting MEM Item

- The expected structure by CAMIO and ISQ with important element is as follow:

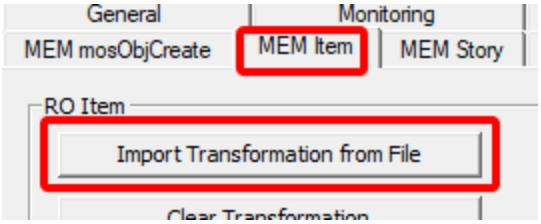
```
…
<mosExternalMetadata>
        <mosScope>PLAYLIST</mosScope>
        <mosSchema>http://ncsA4.com/mos/supported_schemas/NCSAXML2.08</mosSchema>
        <mosPayload>
                <createdBy>...</createdBy>
                <subtype>...</subtype>
                <subtypeid>...</subtypeid>
                <ObjectDetails>
                        ...
                </ObjectDetails>
                <dataMessage>
```

```
                    ...
                    <properties>
                        ...
                    </properties>
                </dataMessage>
            </mosPayload>
</mosExternalMetadata>
...
```

To achieve this, the following XSL can be used (and modified) if needed:

```
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
xmlns:cg="http://www.mosprotocol.com/charactergenerator_parameters"
xmlns:vbs="urn:schemas-sqlxml-org:vbs" xmlns:msxsl="urn:schemas-microsoft-com:xslt"
xmlns:user="http://ann.com/annspace" version="2.0">
        <xsl:output method="xml" omit-xml-declaration="yes" />
        <xsl:template match="/">
        <xsl:apply-templates
select="OM_RECORD/OM_OBJECT/OM_HEADER/OM_FIELD/OM_STRING/mosPayload/node()"/>
    </xsl:template>
                <xsl:template match="mosPayload/node()">
              <xsl:copy>
          <xsl:apply-templates select="@*|node()"/>
      </xsl:copy>
    </xsl:template>
            <xsl:template match="@*|node()">
      <xsl:copy>
         <xsl:apply-templates select="@*|node()"/>
      </xsl:copy>
   </xsl:template>
</xsl:stylesheet>
```

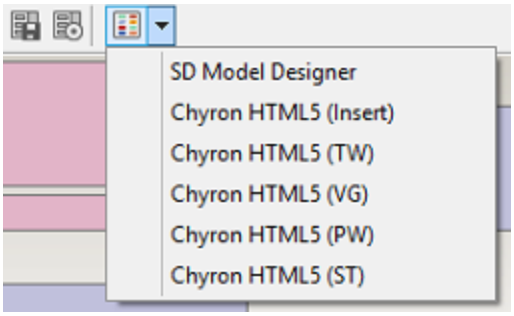
To be saved as a .xsl file and added into the OMIS plugin here:



XSL Transformation for MEM Item

Under **C:\inetpub\wwwroot\ExternalTools\ChyronWrapper** should be located the HTML pages for loading LUCI within the OpenMedia client. They contain the following variable declarations that need to be modified:

- var DEVICE_URL = "http(s)://<CAMIO Hostname or IP>/luci";
- var NCS_ID = "OpenMedia NCS ID";
- var MOS_ID = "CAMIO MOS ID";

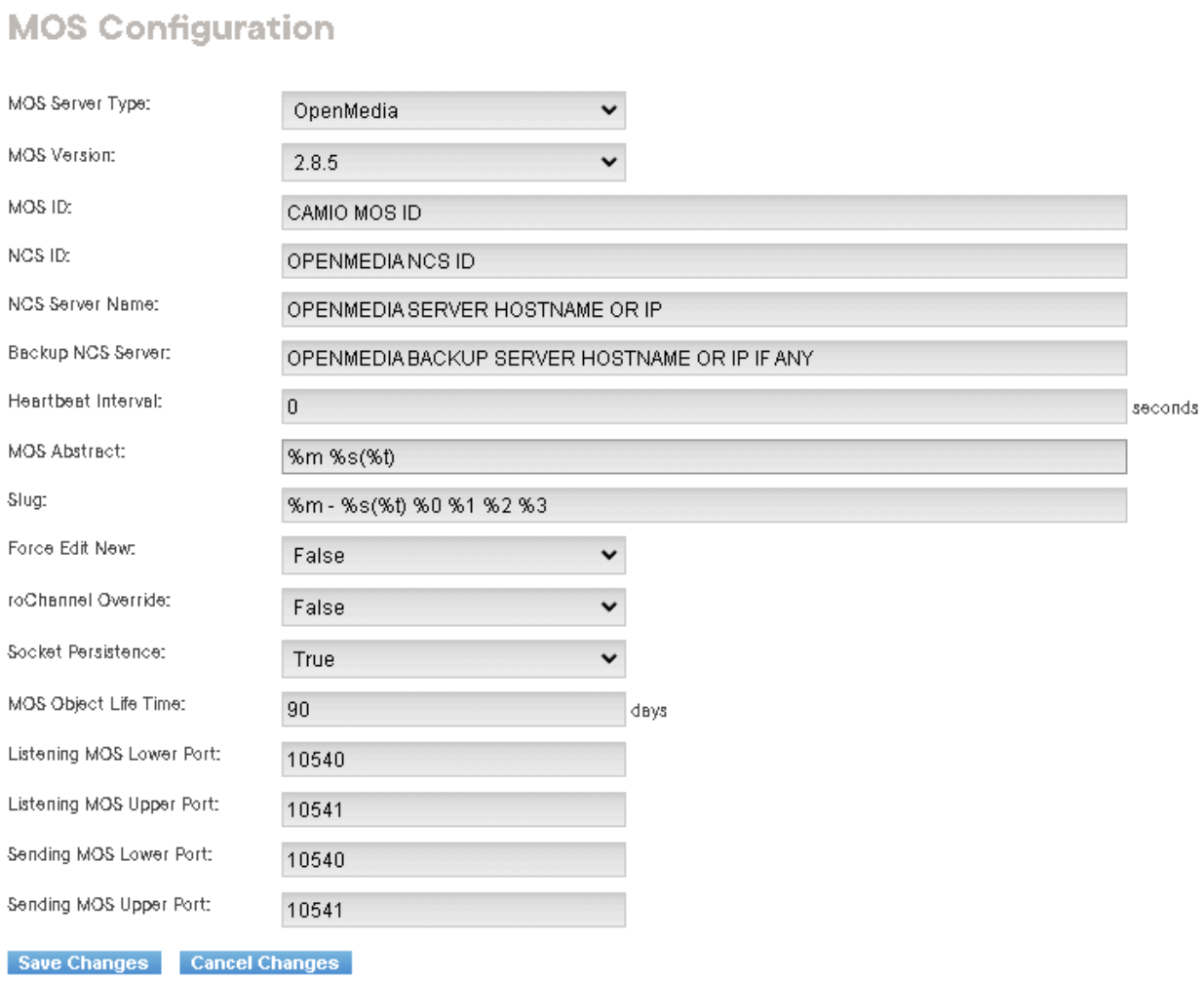


HTML plugins in OpenMedia Client

On CAMIO side

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: OpenMedia
- **MOS Version**: 2.8.5
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: OpenMedia NCS ID
- **NCS Server Name**: OpenMedia Server hostname or IP
- **Backup NCS Server**: OpenMedia Backup Server hostname or IP if applicable
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



OpenMedia MOS Settings in CAMIO Admin

Settings for Octopus

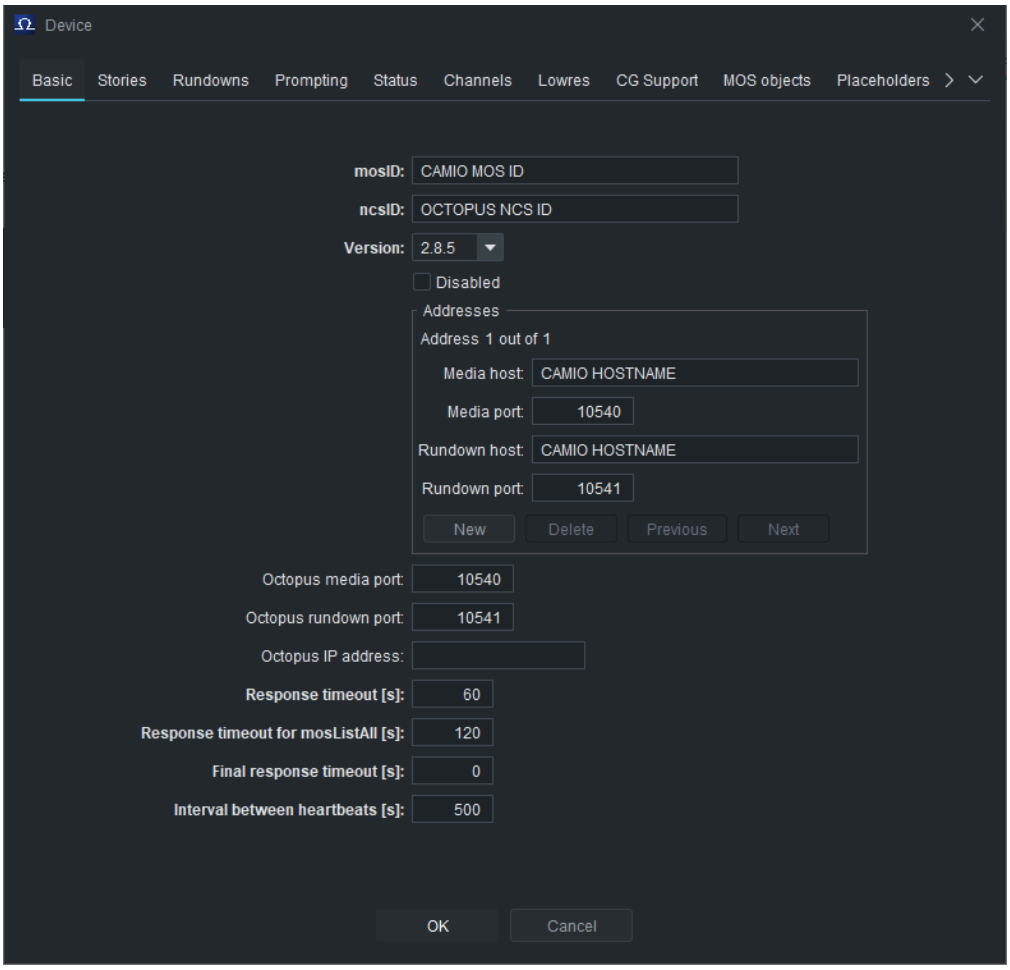
Note: the Octopus side of the configuration should be handled by Dalet or the customer

On Octopus side

Open the Octopus Client with Administrator privileges, under ***Administration > MOS Devices > Devices*** create a new Device with at minimum the following settings:

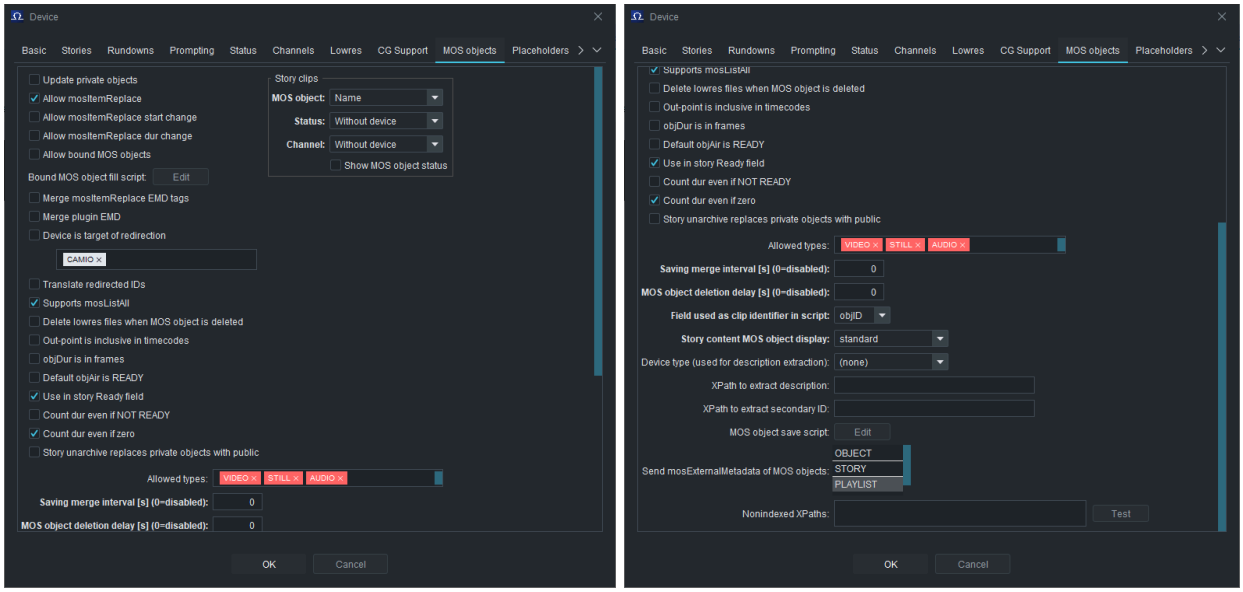
- **Basic Tab:**
  - **mosID:** CAMIO MOS ID
  - **ncsID:** Octopus NCS ID
  - **Version:** 2.8.5

- **Media Host**: CAMIO hostname
- **Media Port**: 10540 (unless specific configuration)
- **Rundown Host**: CAMIO hostname
- **Rundown Port**: 10540 (unless specific configuration)



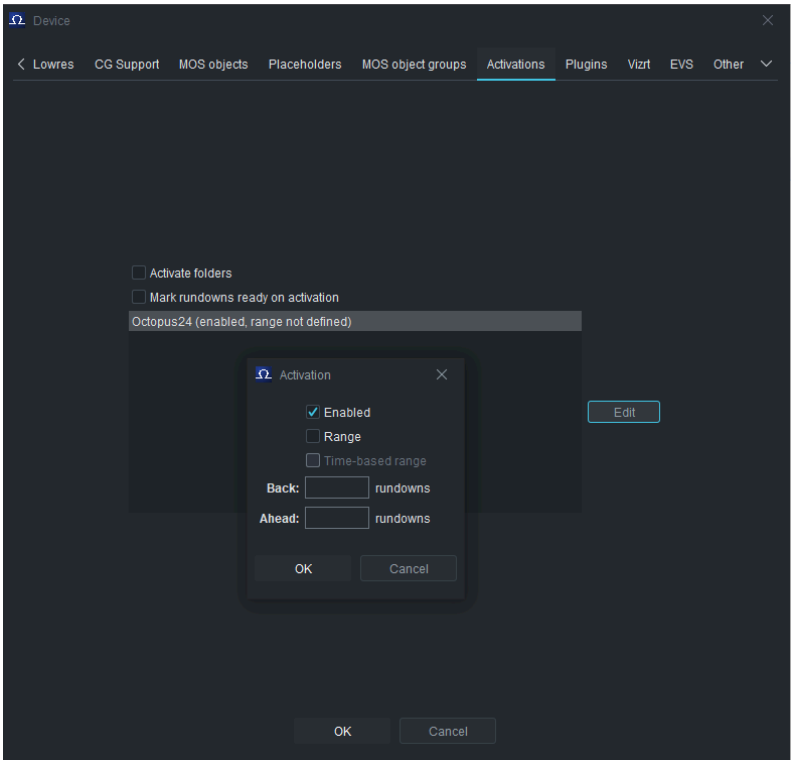
Basic Tab

- **MOS objects Tab:**
  - **Allow mosItemReplace:** checked
  - **Send mosExternaleMetadata of MOS objects:** PLAYLIST



MOS objects Tab

- **Activations Tab:**
  - Edit the listed Rundown Plan(s), check **Enabled** and optionally add a **Range**



Activations Tab

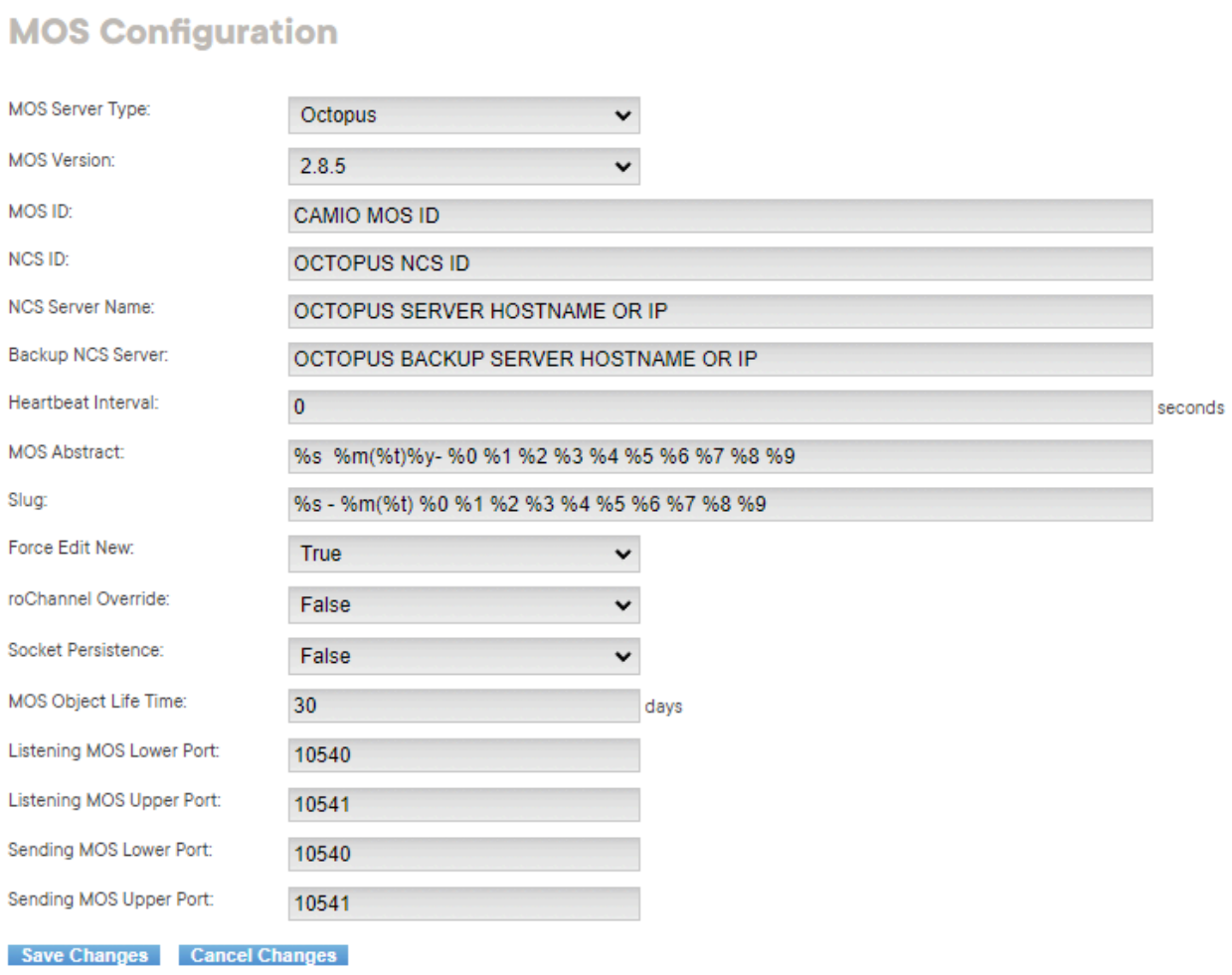
- **Plugins Tab:** click **Add** to open the new Plugin window and enter the following:
  - **Short name:** enter a user friendly name for the plugin, e.g. 'LUCI'
  - **Long name:** enter a description for the plugin, e.g. 'LUCI HTML PLUGIN'
  - **Width:** plugin window width, e.g. '1024'
  - **Height:** plugin window height, e.g. '768'
  - **Type:** Browser
  - **Version:** 2.8_Web
  - **Platform:** Chrome (CEF)
  - **Implementation:** LUCI URL: http(s)://<Camio hostname>/luci

Plugin Window

On CAMIO side

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: Octopus
- **MOS Version**: 2.8.5
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: Dalet NCS ID
- **NCS Server Name**: Octopus Server hostname or IP
- **Backup NCS Server**: any secondary Octopus Server hostname or IP
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



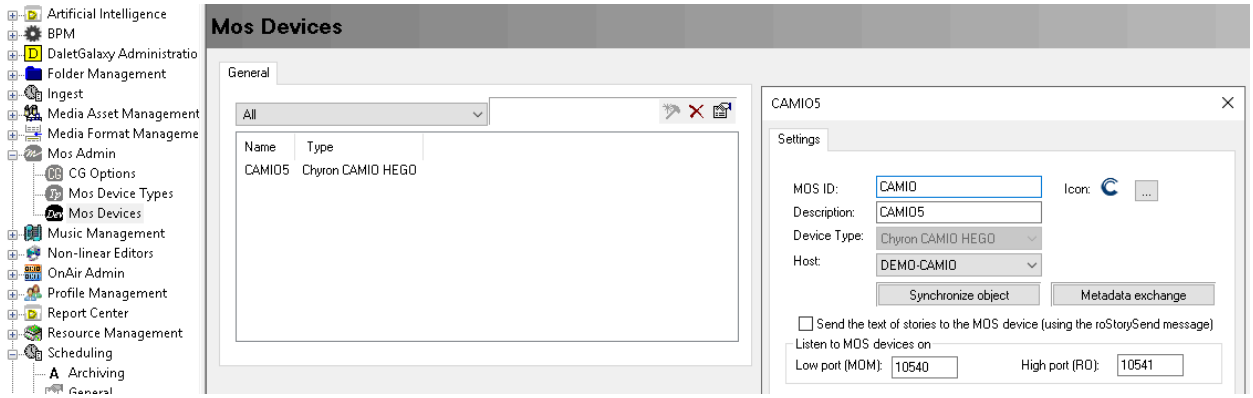
Settings for Dalet Galaxy

Note: the Dalet side of the configuration should be handled by Dalet or the customer

On Dalet Galaxy side

Open the Dalet Admin tool, under ***Mos Admin > Mos Devices*** there should be a device of type '**Chyron CAMIO HEGO**' with at minimum the following settings:

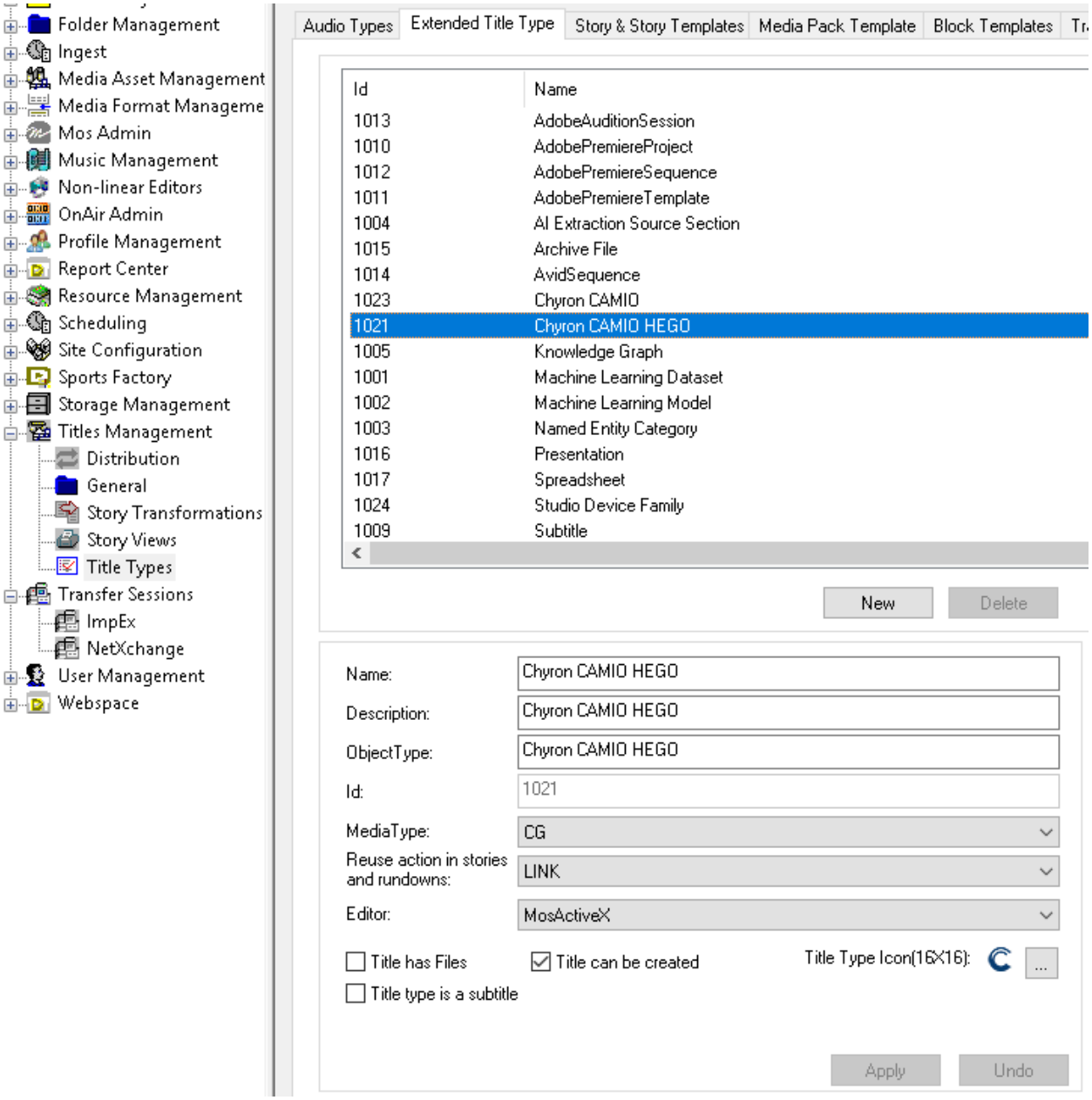
- **MOS ID**: CAMIO MOS ID
- **Host**: CAMIO hostname
- **Low Port**: 10540 (unless specific configuration)
- **High Port**: 10541 (unless specific configuration)



CAMIO MOS Device in Dalet Admin

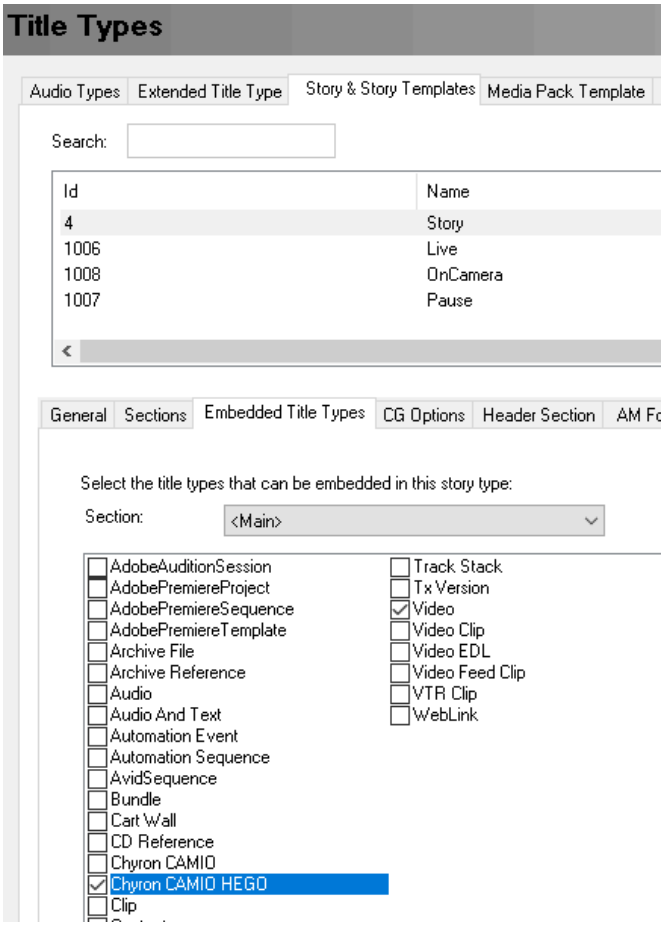
In ***Title Management > Title Types > Extended Title Type*** there should be a '**Chyron CAMIO HEGO**' title type with the following settings:

- **MediaType**: CG
- **Reuse action in stories and rundowns**: LINK
- **Editor**: MosActiveX
- **Title can be created**: Yes
- **Title Type Icon**: if needed, add Chyron logo there



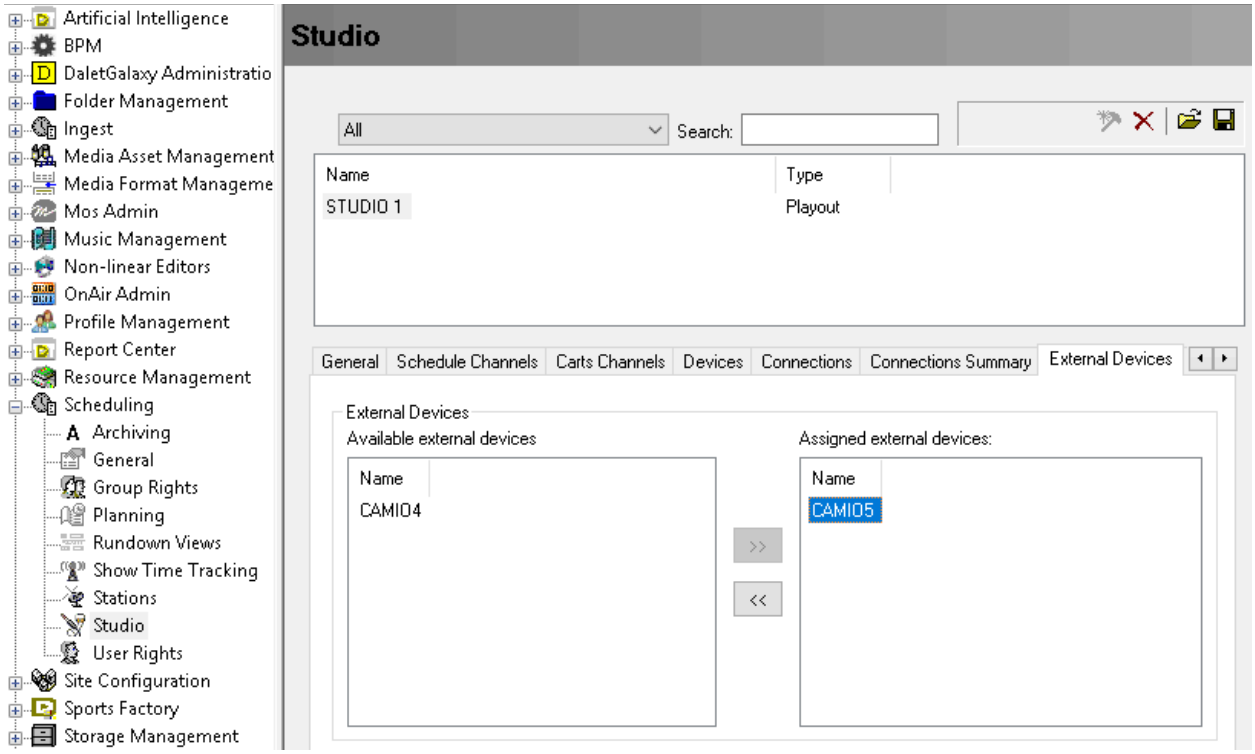
Title Types in Dalet Admin

Still in ***Title Types*** under ***Story & Story Templates***, select the Story Types where Chyron graphics should be used and add the corresponding **Chyron CAMIO HEGO** Title Type in ***Embedded Title Types***.



Embedded Title Types in Dalet Admin

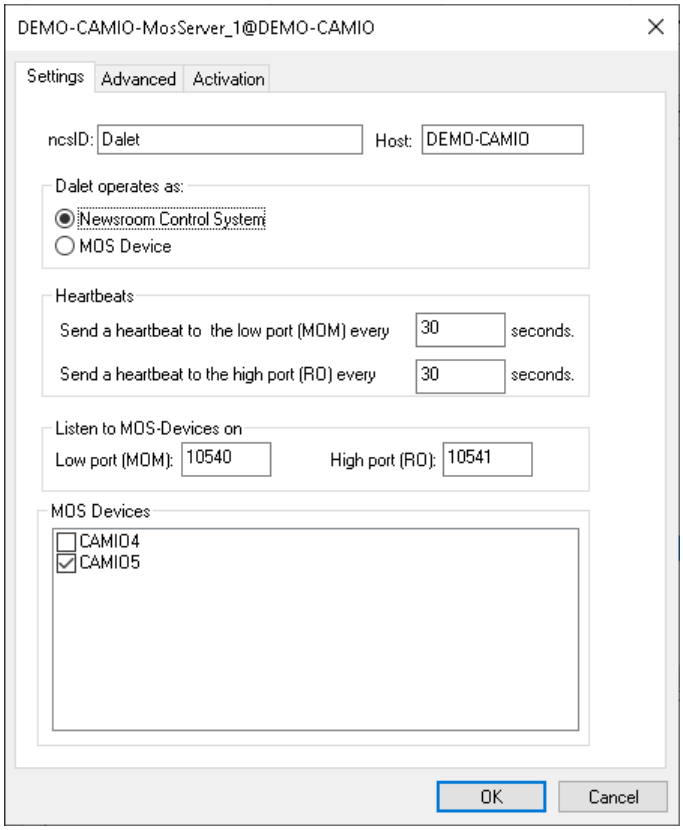
In ***Scheduling > Studio***, select the ***Studio*** where Chyron graphics will be used, select the ***External Devices*** tab and add the corresponding **CAMIO MOS Device**



External Devices in Dalet Admin

In ***Site Configuration > Inventory > Application Servers***, double-click on the **MosServer** application and check the following minimum settings:

- **ncsID**: Dalet NCS ID that will be set in CAMIO MOS settings
- **Dalet operates as**: Newsroom Control System
- **Low port**: 10540 (unless specific configuration)
- **High port**: 10541 (unless specific configuration)
- **MOS Devices**: CAMIO MOS Devices selected

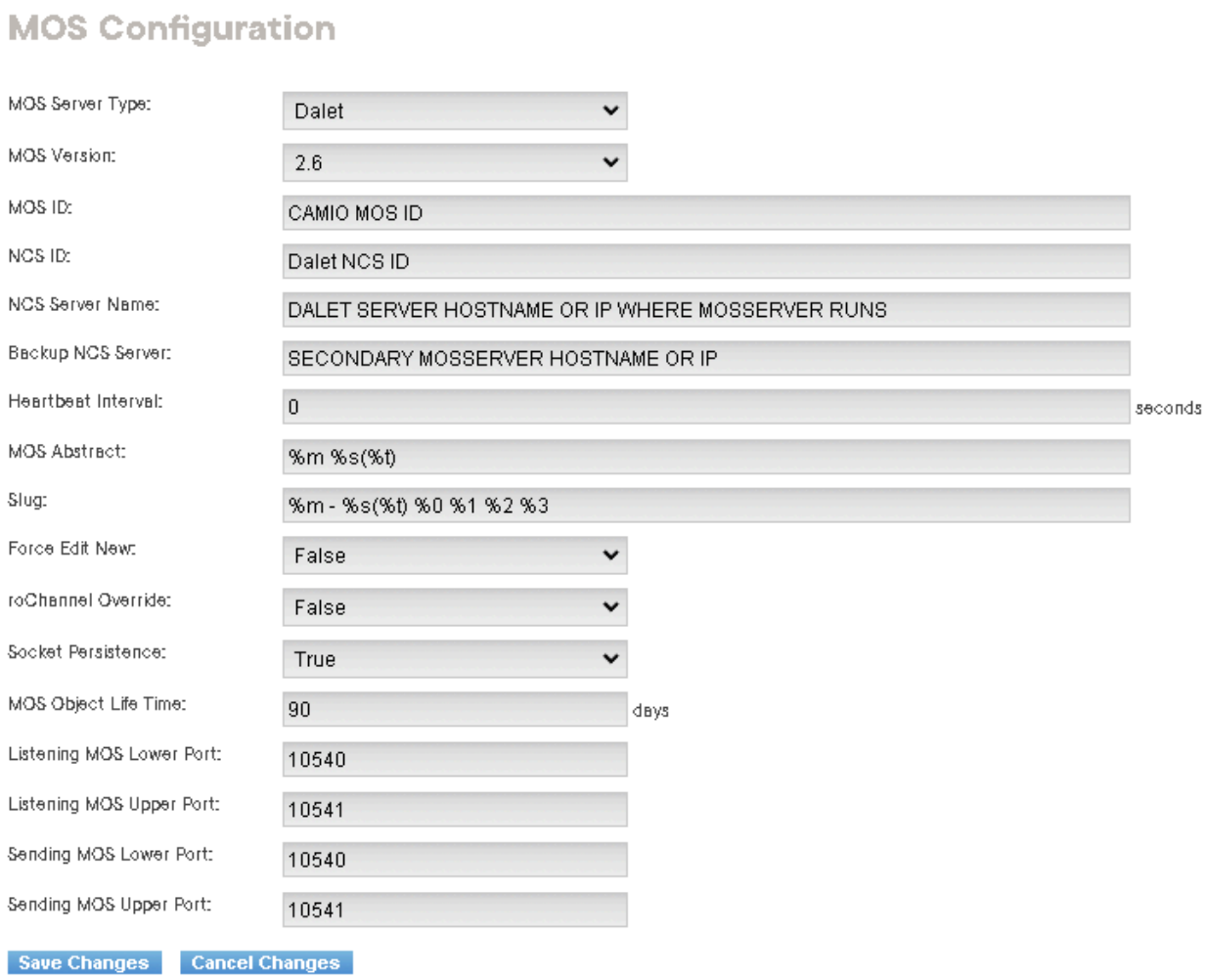


MosServer in Dalet Admin

On CAMIO side

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: Dalet
- **MOS Version**: 2.6
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: Dalet NCS ID
- **NCS Server Name**: Dalet Server hostname or IP where the MosServer is located
- **Backup NCS Server**: any secondary Dalet MosServer hostname or IP
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



Dalet MOS Settings in CAMIO Admin

Settings for Ross Inception

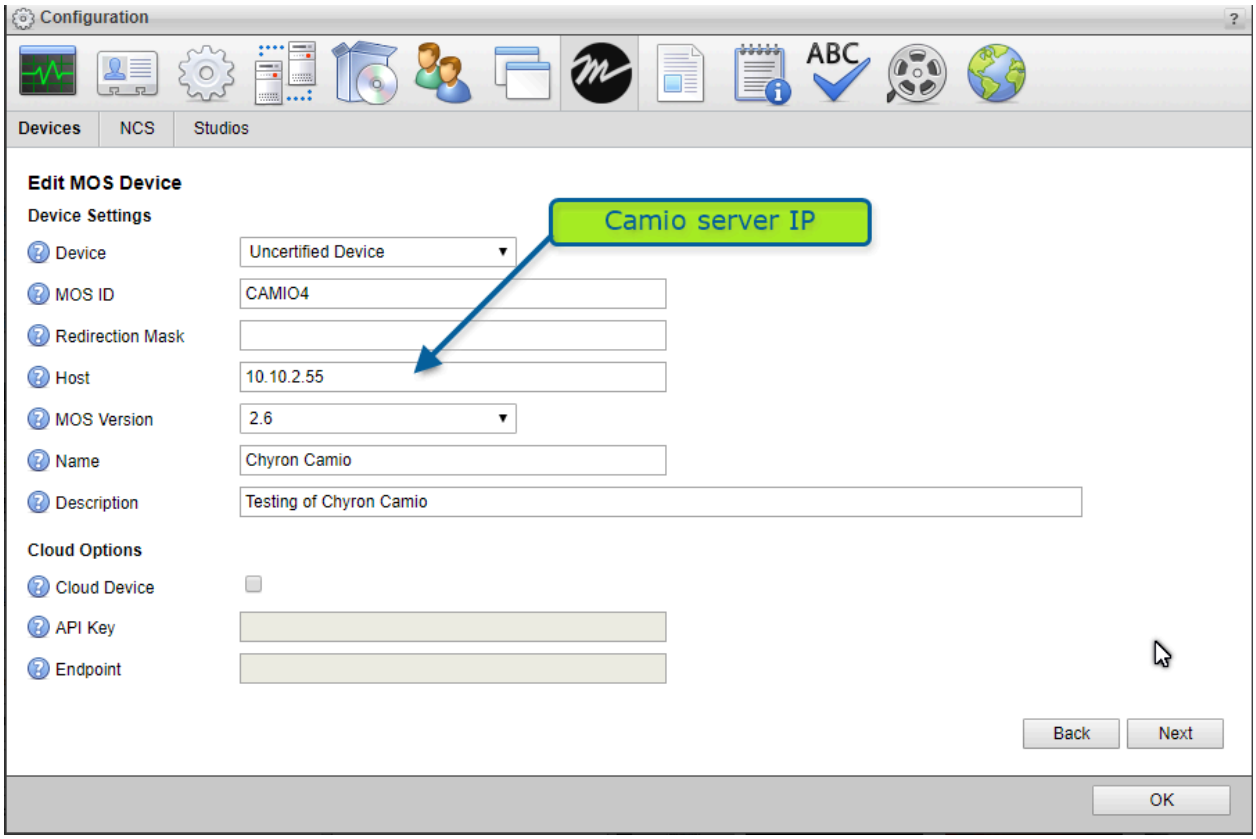
Note: the Inception side of the configuration should be handled by Ross or the customer

On Inception side

Open Inception Configuration tool, under ***MOS > Devices*** create a new Device with at minimum the following settings:

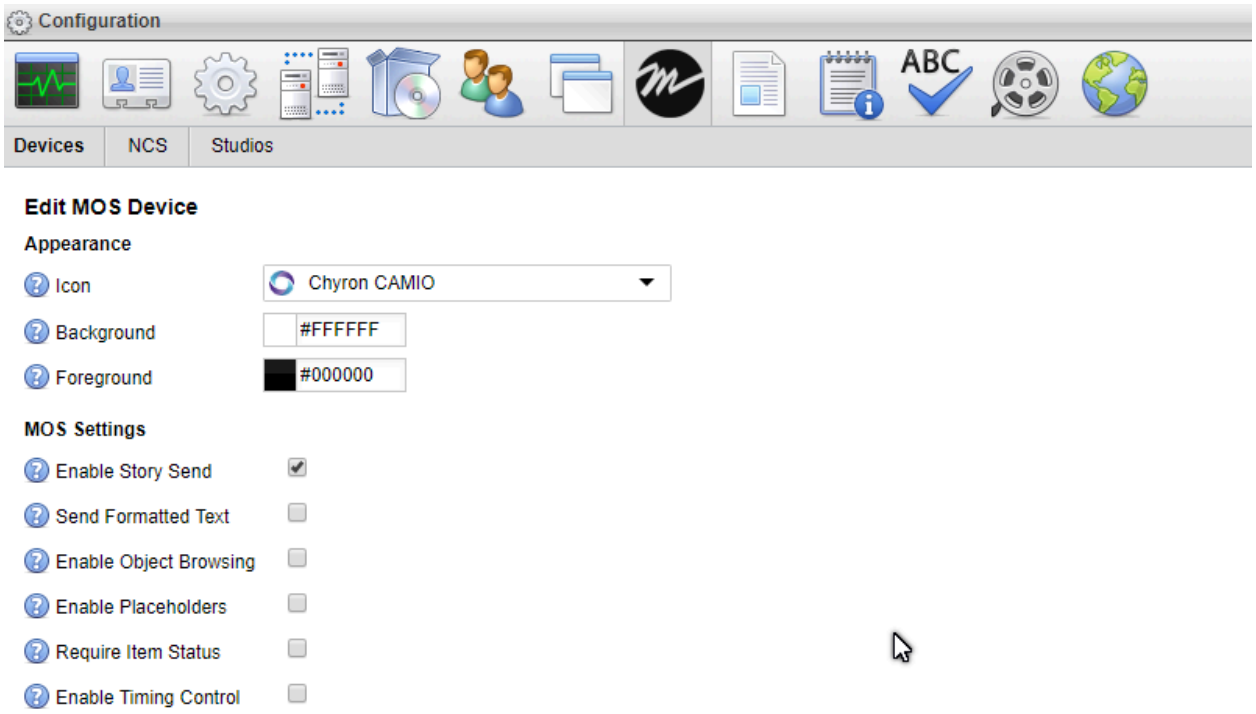
- **Device Settings:**
  - **MOS ID:** CAMIO MOS ID
  - **Host:** CAMIO Hostname or IP
  - **MOS Version:** 2.6 or 2.8.5 (preferred)

- **Name**: CAMIO (or any other user friendly)



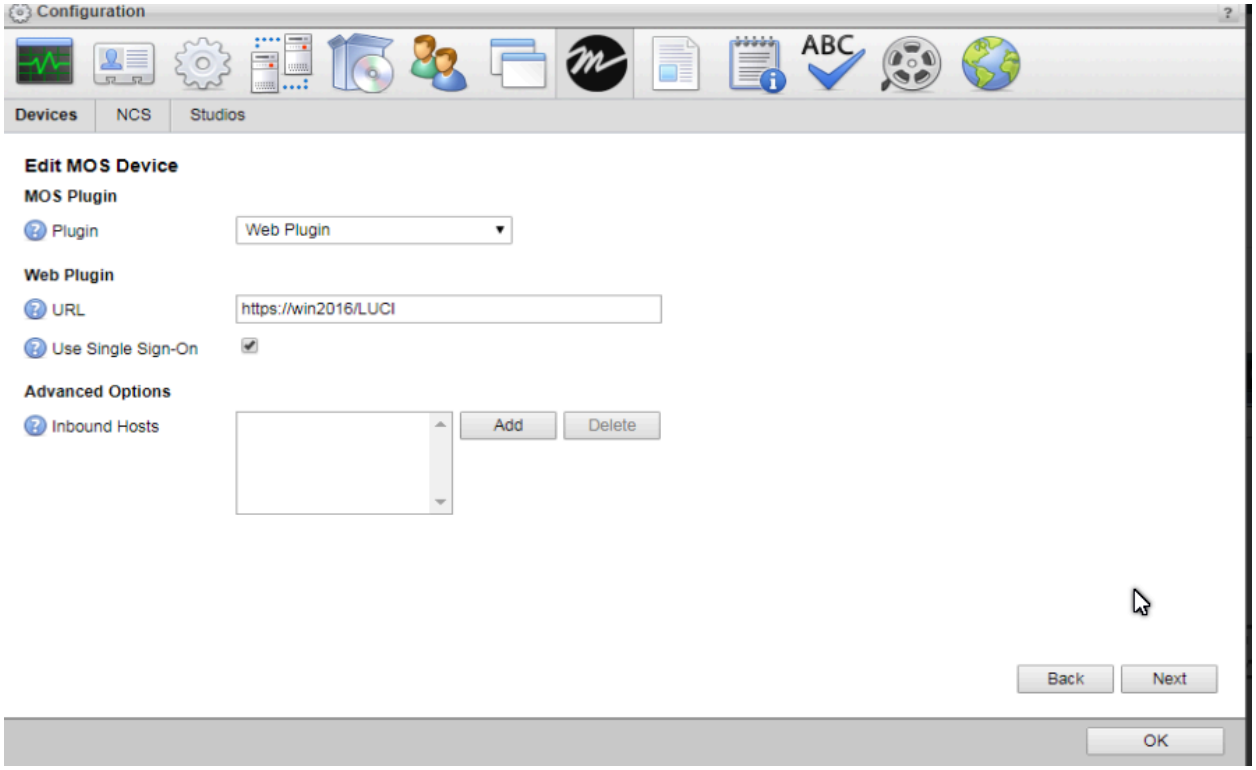
Device Settings

- **Appearance:**
  - **Icon:** add a Chyron icon
- **MOS Settings:**
  - None



Appearance and MOS Settings

- **MOS Plugin:** Web Plugin
- **Web Plugin:**
  - **URL:** https://<CAMIO Hostname>/luci
  - **Use Single Sign-On:** Yes



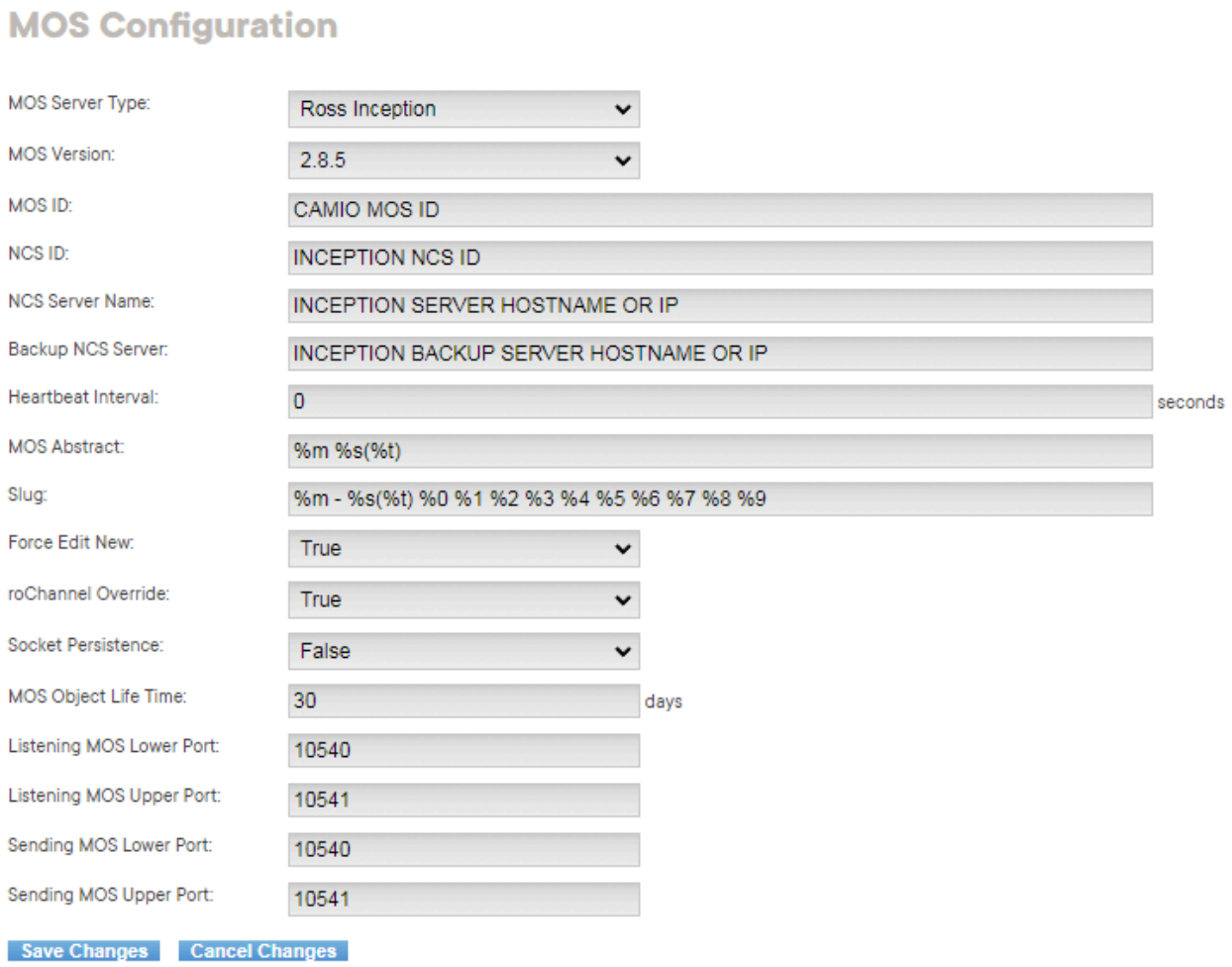
MOS Plugin and Web Plugin

On CAMIO side

Note: CAMIO has to be installed with LUCI in HTTPS mode.

Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: Ross Inception (iRB as alternative)
- **MOS Version**: 2.6 or 2.8.5 (preferred)
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: Inception NCS ID
- **NCS Server Name**: Inception Server hostname or IP
- **Backup NCS Server**: any secondary Inception Server hostname or IP
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



Ross Inception MOS Settings in CAMIO Admin

Settings for 7Mountains Dina

Note: the Dina side of the configuration should be handled by 7Mountains or the customer

On Dina side

The LUCI plugin integration is managed by Dina representatives. It should be set as **HTTPS**.

The 7M MOS Gateway acts as a middleware between Dina and CAMIO, to be installed on a server within the same subnet of the CAMIO system, preferably on a separate machine. More information about the 7M MOS Gateway here.

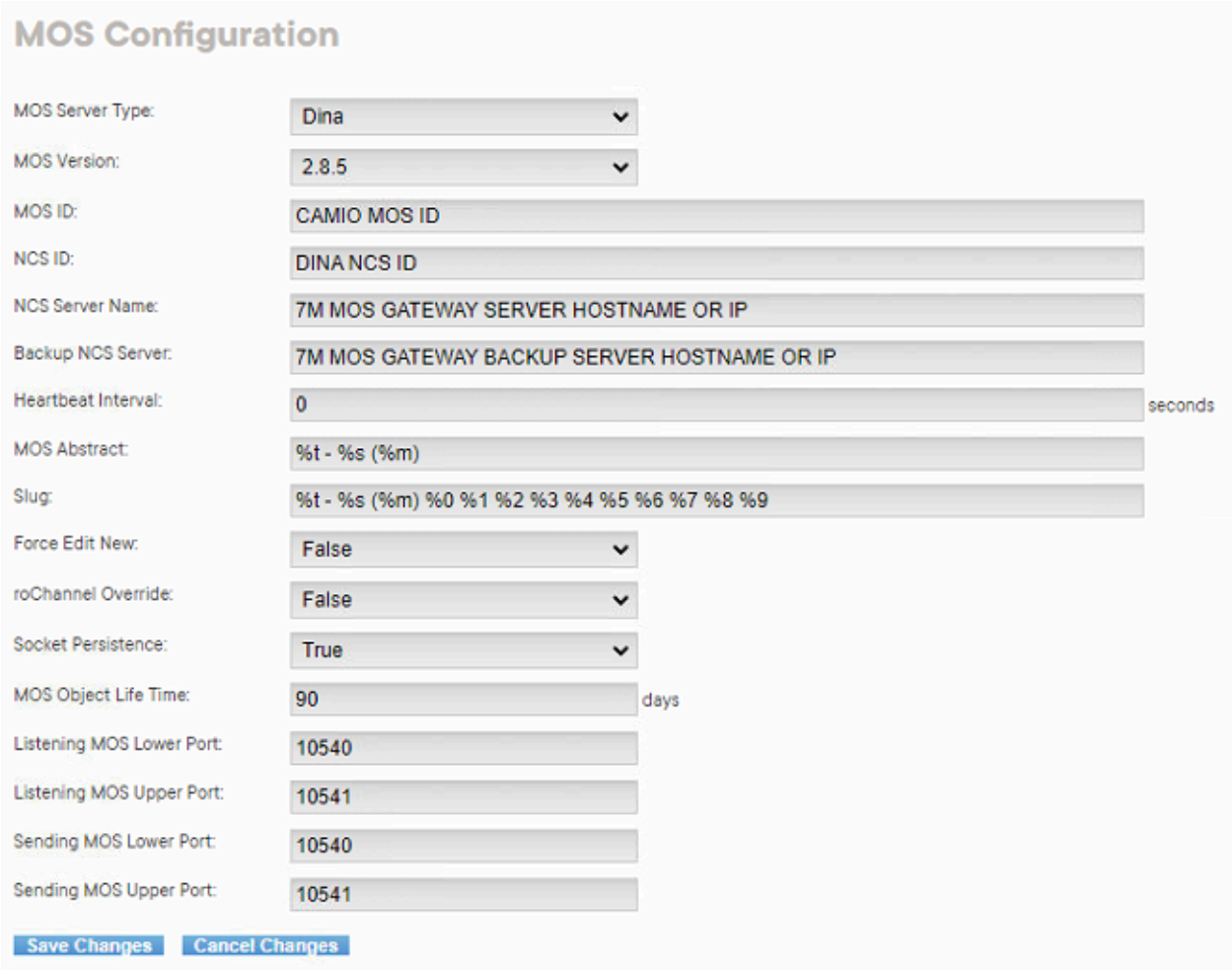
The MOS section of the 7M MOS Gateway prod.json configuration file should be set as follow:

```
"mos": {
   "ncsID": "DINA NCS ID",
   "lowerPort": 10540,
   "heartbeatInterval": 60,
   "messageIdFilename": "./messageId.data",
   "media": {
    "secondaryGraphics": "replace",
    "useProviderMosObject": false
   },
   "storyContent": {
    "roElementAction": true,
    "roStorySend": false
   },
   "sendMessageDelay": 50,
   "brackets": {
    "ignoreText": "[]",
    "explanatoryText": "()",
    "presenterInstruction": "{}",
    "packageText": "<>",
    "defaultText": ""
   },
   "prompter": {
    "templateText": "#name"
   },
   "clients": [
    {
     "ipAddress": "CAMIO IP",
     "lowerPort": 10540,
     "mosId": "CAMIO MOS ID",
     "autoConnect": true,
     "reconnectInterval": 10,
     "allowedMosObjects": [“CAMIO MOS ID”],
     "timeFormat": "utc",
     "decimalMarker": ".",
     "storyContent": {
        "roElementAction": true,
        "roStorySend": false
     }
    }
   ]
  }
```

On CAMIO side

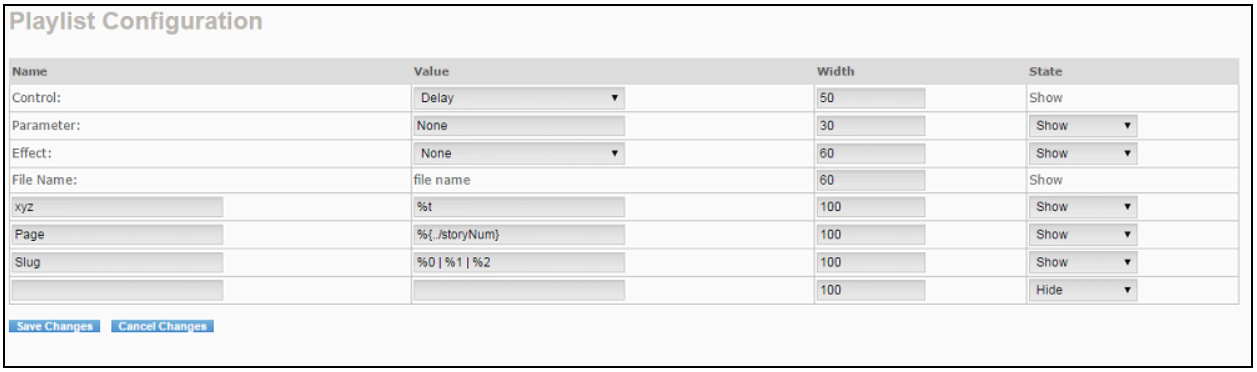
Open the CAMIO Admin page, go to Configuration > MOS Configuration and enter the following minimum settings:

- **MOS Server Type**: Dina
- **MOS Version**: 2.8.5
- **MOS ID**: CAMIO MOS ID
- **NCS ID**: Dina NCS ID
- **NCS Server Name**: 7M MOS Gateway Server hostname or IP
- **Backup NCS Server**: 7M MOS Gateway Backup Server hostname or IP if applicable
- **MOS Abstract** (advised but not mandatory value): '%m %s(%t)'
- **Slug** (advised but not mandatory value): '%m - %s(%t) %0 %1 %2 %3 %4 %5 %6 %7 %8 %9'
- All other settings can be left as default



Playlist Configuration

Selecting **Playlist Configuration** exposes the options shown below. These settings affect the display of playlist data in the legacy Lyric playlist and some effect on what gets sent to ISQ. The four Blank Fields at the end of the list can be used in configuring the CAMIO Rundown Endpoint and Viewer display. See the CAMIO Rundown Endpoint and Viewer manual for more information



On the Playlist Configuration page, the following settings are displayed:

- **Control -** Specifies the default Playlist Control. The Control determines the trigger that sends the message to Air.
- **Parameter -** Specifies the default Playlist Parameter for the specified Control. For example, if a delay is specified, the Parameter value could be 00:00:00:15, indicating that there should be a half-second delay before the message plays to Air. Not all Controls have an accompanying Parameter.
- **Effect -** Specifies the default effect to be applied to the messages in the Playlist when they play to Air. This is a legacy feature no longer supported.
- **File Name –** This is a read-only field that can be displayed in the Playlist. It identifies the file name and file path of the message.
- **Additional Fields** - the four blank fields can be used to display a rich selection of additional information in both the Lyric playlist and the CAMIO Rundown Endpoint and Viewer. The information that can be displayed follows the metadata formatting rules shown in the Table below. Commonly used fields are:
    - **Slug** field is most commonly used and maps to the Description field in the CAMIO Rundown Endpoint and Viewer.
    - **Page** is used to display the story slug or page number in Lyric Playlist and in

some versions of the CAMIO Rundown Endpoint and Viewer.

In all instances, the Width column specifies the width, in pixels, of the column on the Lyric Playlist displaying the specified information. The State column specifies whether the column will be shown or hidden.

FileSync Configuration

FileSync is a Dropbox-style folder synchronization system used to distribute graphics content to playout devices on the CAMIO network. It is important to understand the difference between the assets managed by CAMIO and the assets managed by FileSync.

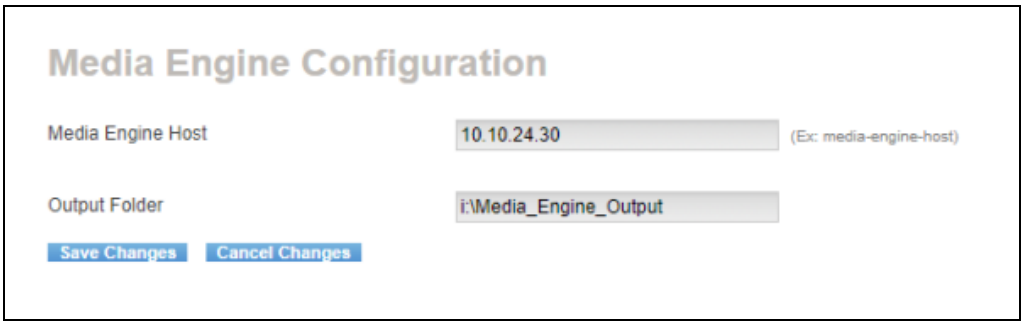
CAMIO Managed Assets - CAMIO manages the graphics templates, replaceable images and replaceable movie files. The producer uses these files to create MOS objects, using the MOS Plugin LUCI. CAMIO distributes these assets and the MOS Objects to playout devices that are mapped to a context in the device channel mapping.

FileSync Managed Assets - Lyric, PRIME and other graphics systems have many files required to play back a graphic. These can be graphics templates (as opposed to CAMIO templates) clip files, image files, etc. These are not the assets visible in LUCI, but are the graphics required to play the base message. These files are usually in a folder structure called the project files or package files.

HubDrive installation, configuration and operation is covered in a separate document: CAMIO Filesync User Guide.

Media Engine Configuration

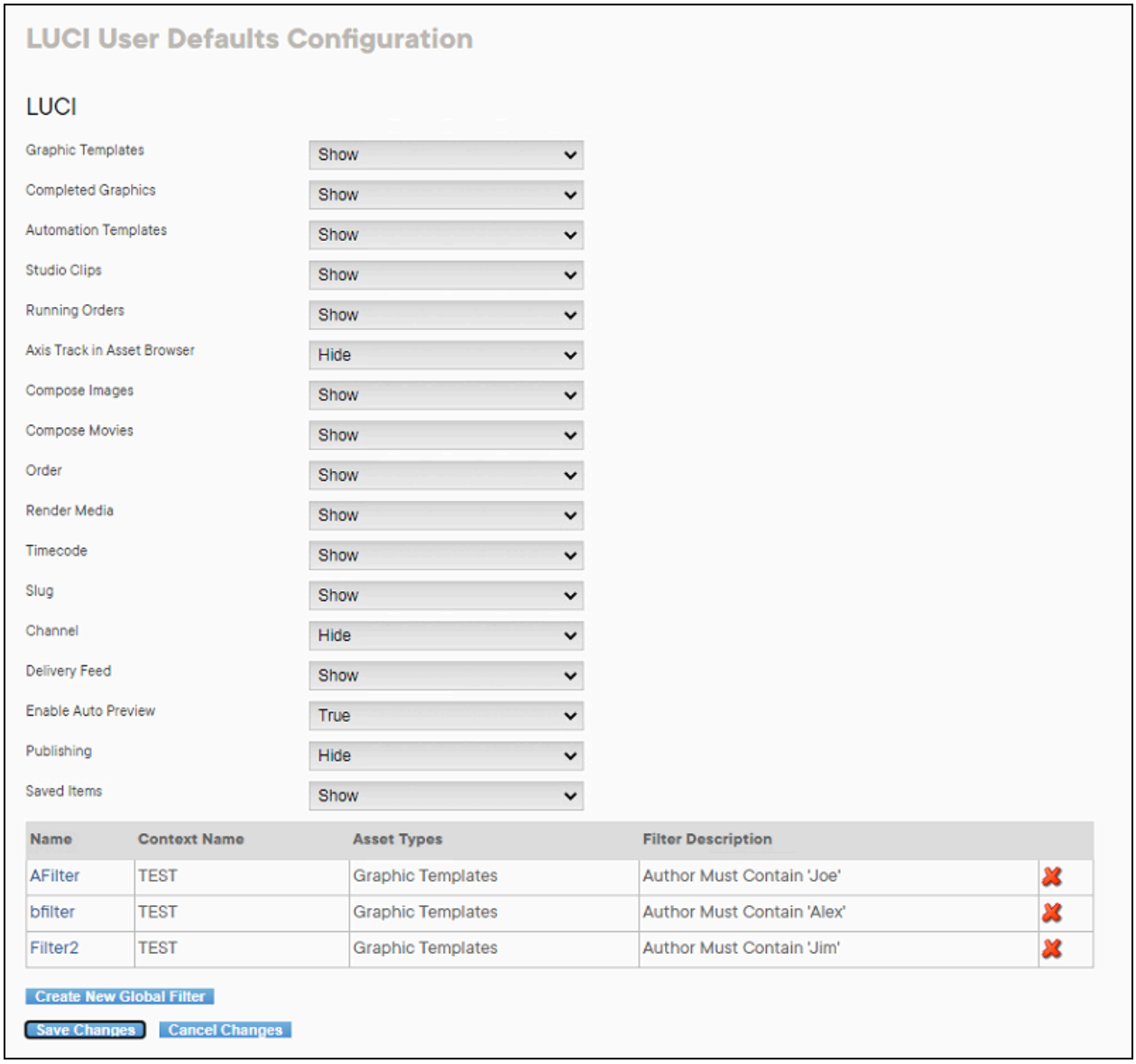
Enter the IP address of the Media Engine host which is the CAMIO server itself. So the IP address of the CAMIO server should be entered.



The Output Folder is a temporary folder for the Save to LUCI feature in the Render Media workflow. It should be defined on the i drive of the CAMIO Server. If this folder is not on the CAMIO server itself it must be entered as a network share file path (such as //10.10.24.31/Media_Engine_Output), and the folder must be shared to CAMIO.

LUCI User Defaults Configuration

This section allows users to specify the default configuration used in the LUCI User Settings shown above. Selecting **LUCI User Defaults Configuration** exposes the options shown below.

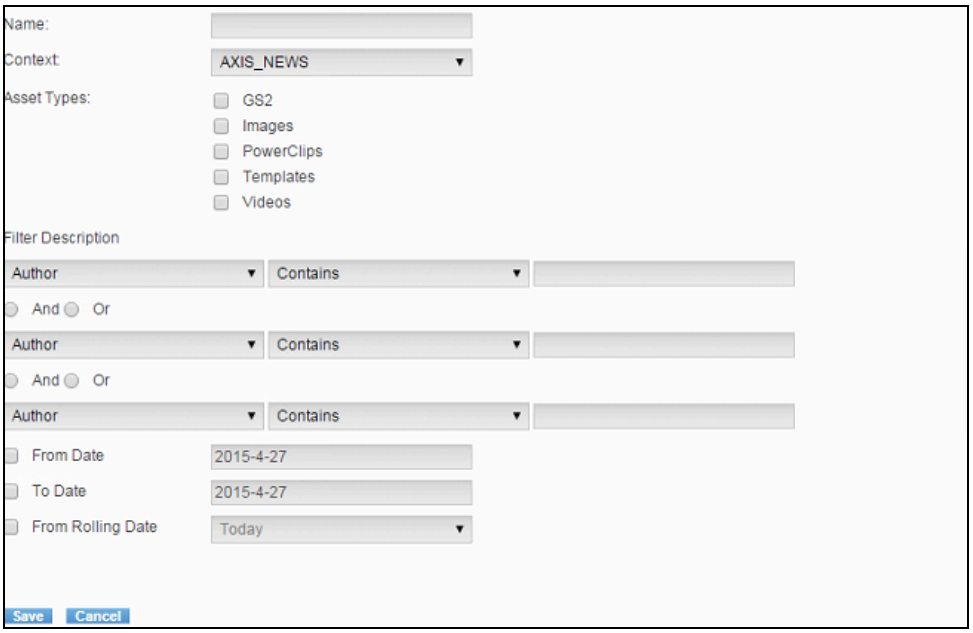


- **Graphics Templates** - Display or hide the Graphics Templates selection under the Browse Templates Tab.
- **Completed Graphics** - Display or hide the Complete Graphics selection under the Browse Templates Tab.
- **Automation Templates** - Display or hide the Automation selection under the Browse Templates Tab. .
- **Studio Clips** - Display or hide Studio Clips selection under the Browse Templates Tab. .
- **Running Orders** - Display or hide the **Running Order** drop-down box and the ability to view **Running Orders**.
- **AXIS Track in Asset Browser** - Display or hide AXIS Track assets in the Asset Browser. Applies to user with AXIS Track accounts only.
- **Compose Images** - Display or hide the Image Compositing tool.
- **Compose Movies** - Display or hide the Movie Compose tool. This feature is not yet available.panel
- **Order –** Display or hide AXIS Track assets in the Asset Browser. Applies to users with AXIS Order accounts only.
- **Render Media** - Display or hide the Render Media button in the right side panel.
- **Timecode** -Display or hide the timecode In, Duration and Out controls.
- **Slug** - Display or hide the Slug field for additional text entry to describe the MOS object graphics.
- **Channel** - Display or hide the virtual channels display and selection tool.
- **Delivery Feed** - Display or hide the delivery status of assets from the AXIS system. Applies to users with AXIS accounts only.
- **Enable Auto Preview** - Enables/disables the auto-preview feature where a preview is automatically generated in LUCI whenever there is a change to the replaceable values
- **Animate Preview** - Add something here
    - Creates a 5-second animated preview in LUCI
- **Publishing** - Display or hide the Publishing button in the right side panel. This feature is not yet available.
- **Saved Items** - Display or hide the Save Items feature. This includes the Save Item button on the right side panel and the Saved Items tab along the top row.

Global Filters

Global Filter Table – This table displays the **Name, Context Name, Asset Types** and **Filter Description** of previously created global filters.

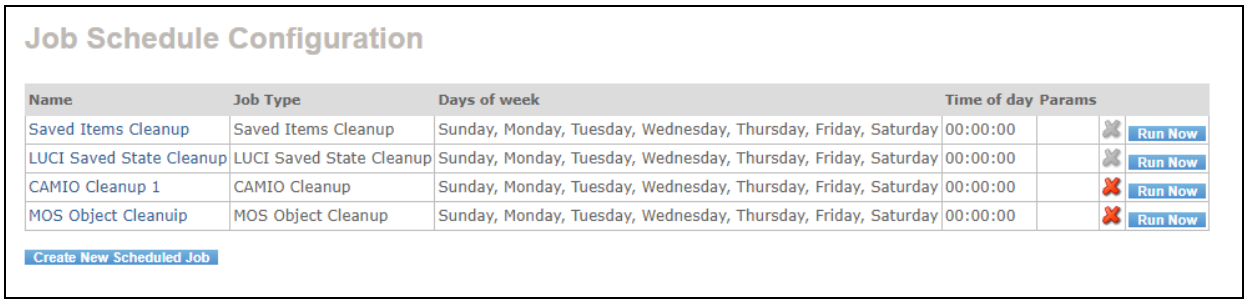
Create New Global Filter - opens a new window in order to determine the parameters of the desired filter.



- **Name –** Determine the name of the new global filter.
- **Context –** Use the drop-down menu to determine which Context is to be filtered.
- **Asset Types –** Check the type of Assets that are to be filtered.
- **Filter Description –** the left-hand drop-down box is used to determine the parameters of the filter (**Author, Description, Keywords, Subject or Title**). The middle drop-down box is used to determine whether the filter will **Contain** or **Doesn't Contain** a string that is specified in the text box on the right.
- **And/Or –** Selecting **And** will instruct the filter to also include the following separate filter description along with the previous one. Selecting **Or** will instruct the filter to include the following separate filter if the previous one does not yield any results.
- **From Date –** Allows the user to specify a date where the filter is to begin searching.
- **To Date –** Allows the user to specify a date where the filter is to end searching.
- **From Rolling Date –** Allows the user to determine a continually updating date from which the filter is to search (**Today, Last 2 Days, Last 4 Days, Last Week, Last Month, Last 6 Months, Last Year)**.

Job Schedule Configuration

Selecting **Job Schedule Configuration** exposes the options shown below. There are currently eight different jobs that may be run. The jobs can be run manually by pressing the Run Now button or they will run at a scheduled time.



Daily MOS Object Cleanup Jobs

One of the following three jobs is typically run daily to clean up old MOS Objects from CAMIO device cache and playout devices. These perform slightly different tasks. Only one of these three jobs should be run. Please contact Chyron support for assistance in selecting which cleanup job will be run.

- **Device Cleanup** deletes all MOS Objects and associated assets which are no longer being used by active rundowns from the playout folders of all playout devices. This prevents these folders from getting full over time, which can lead to performance issues.It also removed the MOS Objects from a list of active objects monitored by CAMIO, which reduces the load on CAMIO's MOS Object management service. This cleanup job is most often recommended
- **CAMIO Cleanup** removes unused MOS Objects from the list of active objects monitored by CAMIO. But, it does not delete the inactive MOS Objects and associated assets from the playout devices. This job is typically used when the newsroom system does not have a **MOS Gateway** or does not publish an active rundown. It is necessary in this case to manually delete old assets to keep the playout folder from getting too large.
- **Device Synchronize** does a further check for and deletes all files in the CAMIO4 directory of playout devices which are not needed by active MOS Objects. For instance, it will delete Lyric files which were placed there by a manual operator.

Mandatory Cleanup Jobs

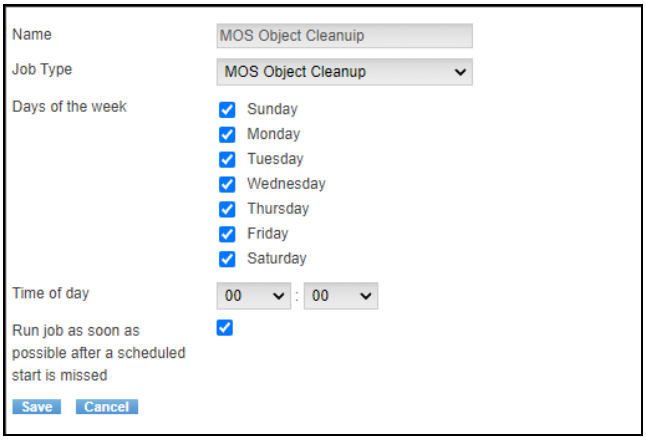
These jobs must be run daily but the time of day can be configured as desired.

- **Saved Items Cleanup** - Removes Saved Items from the Saved Items folders after they have expired. For instance, if an item was added to Saved Items at 4PM on Tuesday with a 24 hour life, it will expire at 4PM on Wednesday and will be deleted the next time the script is run, i.e. 2AM Thursday. An item that is removed from Saved Items will not immediately be deleted from cache. That is up to the MOS Object Cleanup script, depending on how that is configured.
- **LUCI Saved State Cleanup** - Cleans up LUCI Saved States which have expired. The expiration defaults to 90 days and can be changed in Admin Tools > LUCI Client Configuration.

Other Cleanup Jobs

- **Saved Items Cleanup -** This script removes Saved Items from the Saved Items folders after they have expired. For instance, if an item was added to Saved Items at 4PM on Tuesday with a 24 hour life, it will expire at 4PM on Wednesday and will be deleted the next time the script is run, i.e. 2AM Thursday. An item that is removed from Saved Items will not immediately be deleted from cache. That is up to the MOS Object Cleanup script, depending on how that is configured. NOTE: The Saved Item Cleanup script is automatically added to Job Schedule to be run every day at midnight. The time of day can be changed but the script cannot be deleted.
- **MOS Object Cleanup** deletes all MOS Objects from the cache which have not been used for more than X number of days. X is specified in Admin Tools > MOS Configuration > MOS Object Lifetime and defaults to 90 days.
- **Cache Rollover -** This job is for clients who wish to regularly delete all existing MOS Objects and restart the MOS ID numbering from scratch. If this is run, all existing MOS Objects in older stories and rundowns will be lost.
- **Asset Cleanup** deletes Assets in a specific Context and subfolders or subfolder that are older than X days.

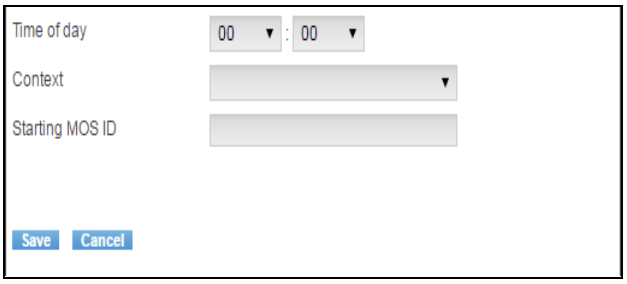
Create New Scheduled Job



Selecting **Create New Scheduled Job** will open a new window that will allow the user to create/schedule a new job. Two Job Types, Saved Items Cleanup and LUCI Saved State Cleanup are created by default and cannot be created or deleted through this dialog.

- **Name –** Enter the desired name for the job in the text box.
- **Job Type –** Specify the action that is to be performed (**Device Cleanup, Device Synchronize** or **MOS Object Cleanup, CAMIO Cleanup, Cache Rollover, Asset Cleanup**).
- **Days of the Week –** Check the corresponding boxes in order to determine which days of the week the job is to be performed.
- **Time of Day –** Specify the time (24 hour clock) on which the job is to be performed.
- **Run as soon as possible after scheduled start is missed**
    - When checked, the job will run if the scheduled run time has passed that day. That could occur if the CAMIO was off during the scheduled run time, or if the job was newly created or enabled.
    - When not checked, the job will not run if the scheduled run time was missed that day.
    - This checkbox is checked by default when upgrading CAMIO or creating new jobs. This matches the operation of previous versions of CAMIO.

Two additional settings apply only to the Cache Rollover job.

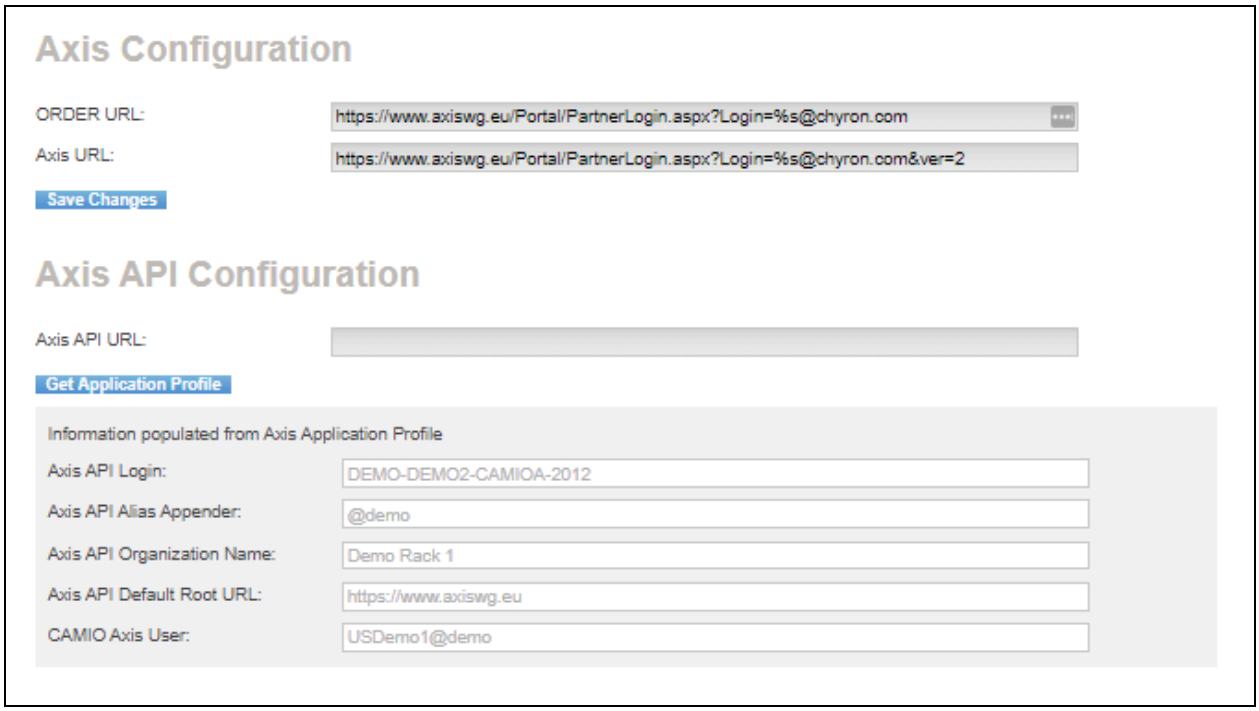


- **Context** - Each cache rollover job is applied only on one Context, which needs to be defined. It is possible to create multiple Cache Rollover jobs if you wish to roll over more than one context.

- **Starting MOS ID** specifies the numeric ID (i.e. 10000) to which CAMIO resets the counter for that context.

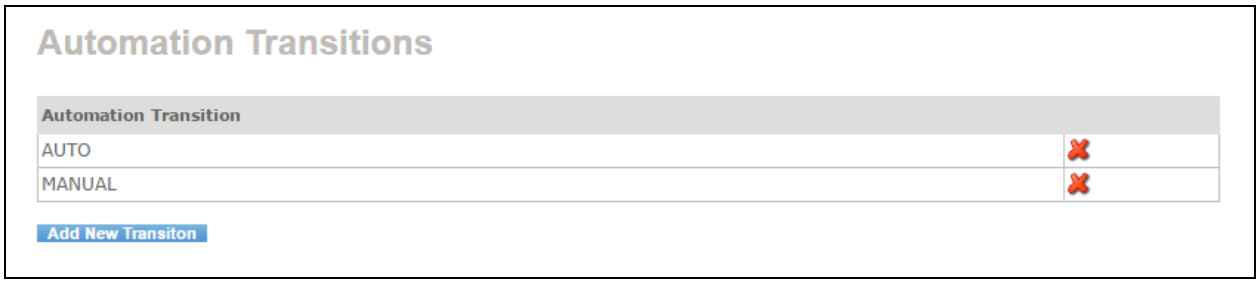
AXIS API

Several CAMIO features are integrated tightly with the AXIS World Graphics hosted web services. This requires setting up the following configuration dialog. Contact Chyron support for assistance.



Automation Transition Configuration

This feature is used in special circumstances and does not apply to most installations. Automation Commands are text strings entered into a list using the Add New Transition button. These commands are sent to the news automation system as metadata in the MOS Object.


Automation Transitions
Automation Transition
AUTO
MANUAL
Add New Transiton

CAMIO Redundant Architectures

CAMIO Cluster

CAMIO Cluster provides users with a high availability asset management/MOS solution with fully redundant servers. Automatic and immediate failover is initiated in the event of a hardware failure. CAMIO Cluster is based on Windows Failover Cluster Server with SQL Server. It provides a high reliability RAID assembly for media storage and full hardware redundancy.

PROS

- Fully automated, very fast failover with no user intervention required.
- Since primary and backup share the same RAID storage, the data is always up to date after a failover to the backup system.

CONS

- Entire system is co-located so this is not a true disaster recovery solution.
- The system does not automatically make backups of media files. Users should make regular backups to recover from potential data corruption cases.

Newsroom clients and playout systems do not require any changes during a failover. When properly configured with the user's SMTP mail server, CAMIO Cluster can send an email notification of failure events.

CAMIO Cluster Server or VM Specifications

CAMIO Cluster Server requires two CAMIO physical or VM servers configured as a MSSQL SQL Cluster with a common virtual IP, and a shared NAS/SAN Storage. In the case of VMs, it is recommended that the CAMIO VM server pairs are installed on separate VM hosts for redundancy.

CAMIO Cluster Server requires two CAMIO servers configured as a MSSQL SQL Cluster with a common virtual IP.

Hardware Servers (x2)

- 1 RU Chassis for hardware

- GigE port
- Xeon 8 cores at 3.0 GHZ or above, with 32 GB RAM
- Hard Drive C = 500 GB minimum (Internal system drive)

OR VM Servers (x2)

- VMWare preferred
- GigE port
- 8 Cores / 16 Threads @ 3.00 GHz or above, with 32 GB RAM
- Hard Drive C = 200 GB minimum (Internal system drive)
- It is recommended that CAMIO VM server pairs be installed on separate VM hosts for redundancy

Operating System

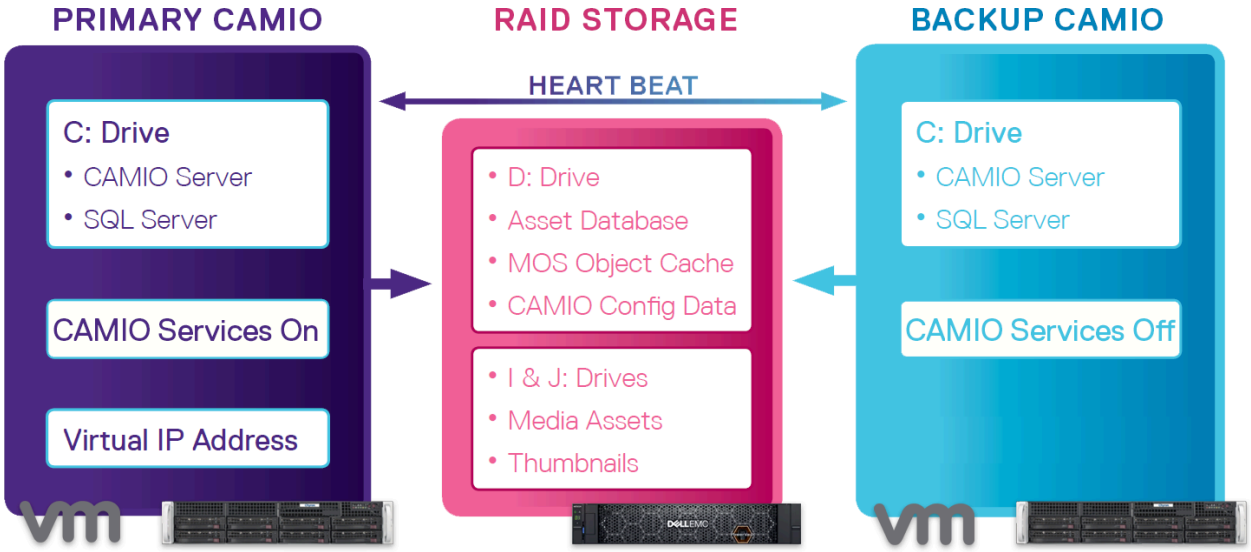
- Windows 2019 or 2022 Standard Edition
- SQL Server 2019 Standard Edition
- Configure Windows and SQL per Chyron commissioning instructions

Shared Storage System

- Suggested Storage: Dell ME5012 Storage Array
- Dual Redundant 10G iSCSI required (2 per CAMIO server)
- D, I, Q drives required, J is optional
- Recommended drive config:
    - D = 500GB minimum (used for Database and CAMIO cache)
    - I = 3TB minimum (used for Media storage)
    - J = 3TB minimum (used for Hub Drive storage)
    - Q = 4GB (quorum drive needed for MS Windows Clustering only)

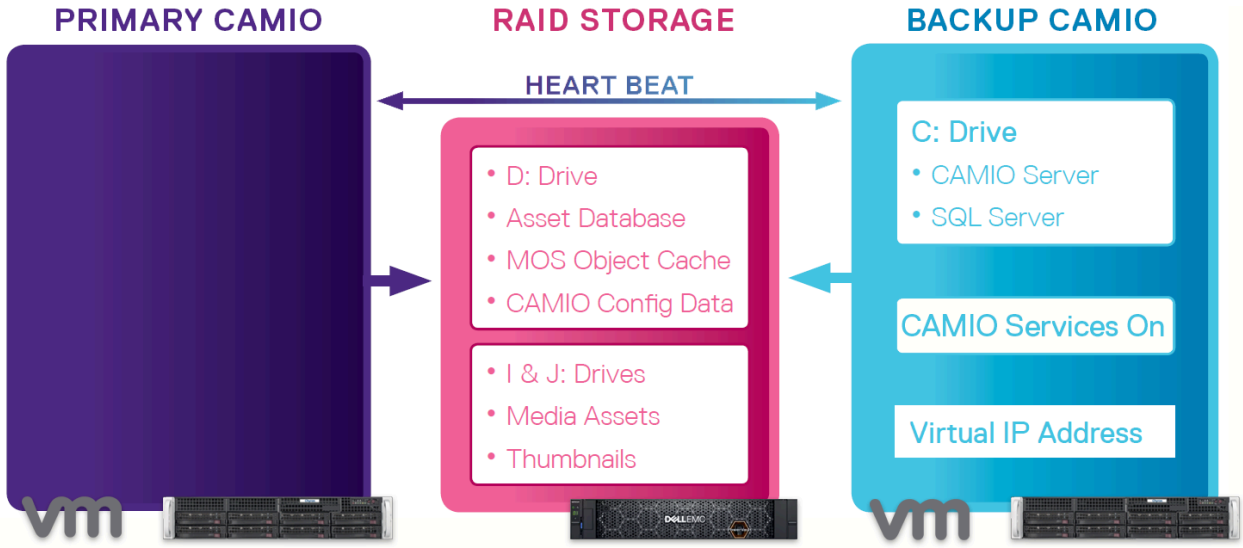
Redundancy Capabilities

During Normal Operation



Database, configuration and production files are stored on the Shared Storage that is reachable by the 2 CAMIO Nodes, however only the Primary CAMIO is active through its running Windows Services.

After Failover due to an issue on the Primary CAMIO

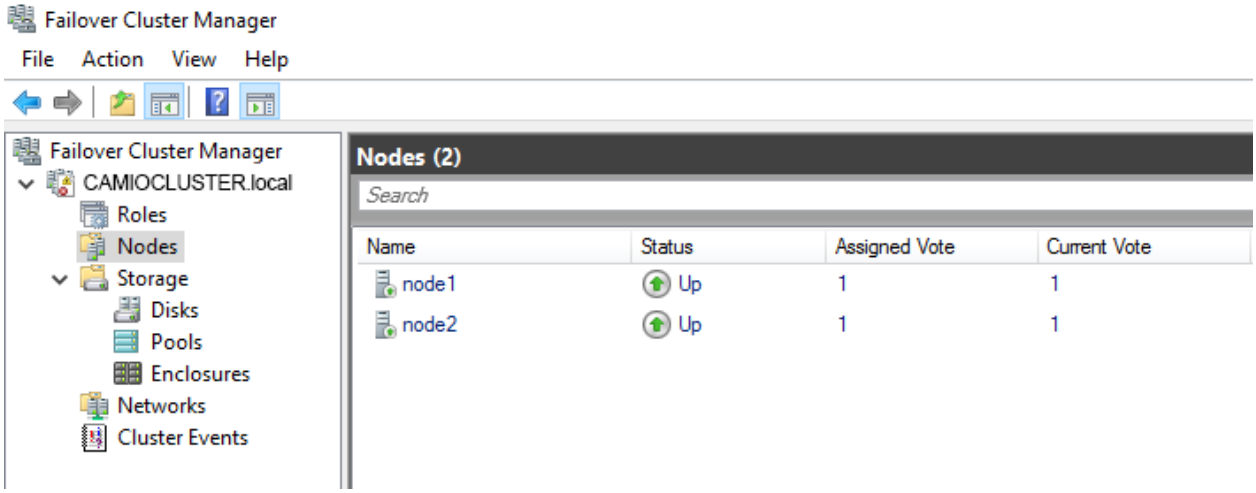


If the Primary CAMIO Node is unreachable or having some failure at the infrastructure or application level, Microsoft Failover Cluster operates an automatic failover to the Backup CAMIO Node by assigning the Virtual IP Address and starting the SQL Server and CAMIO Services.

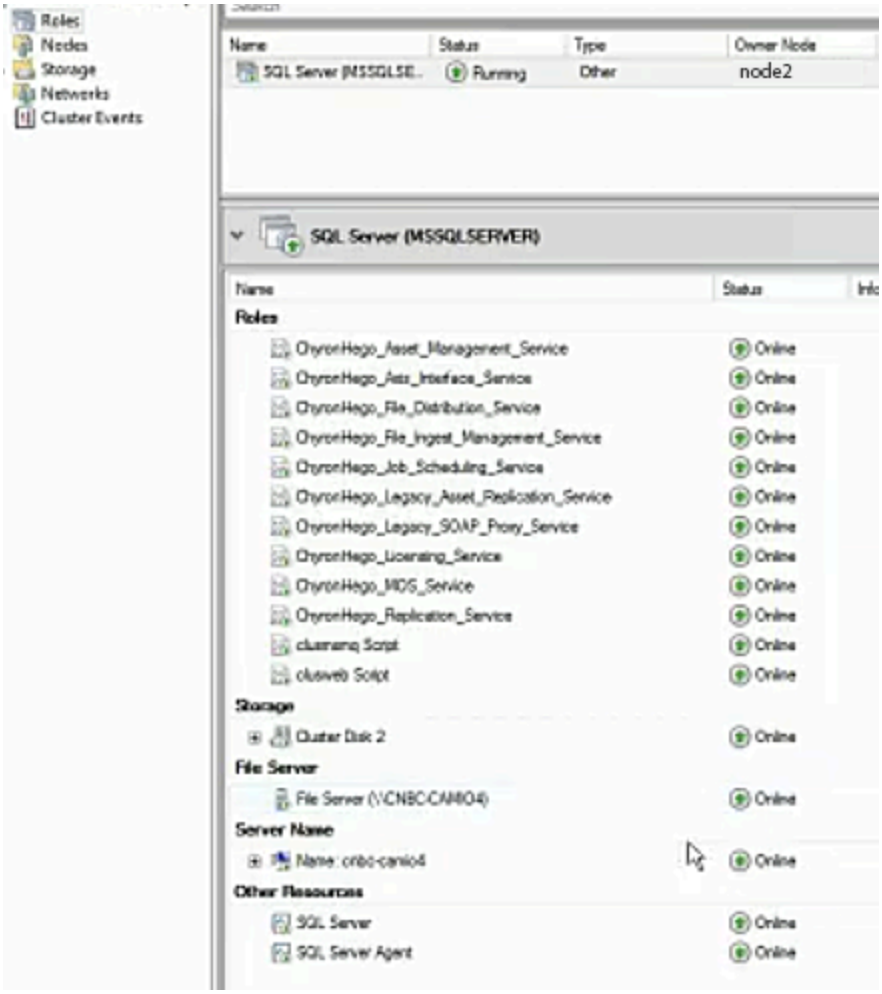
Failback Procedure

After recovery of CAMIO Node1, the Failback procedure, if configured, can be automated and run immediately or at specific time slots. However it has some risks and is preferred to be manual. To be executed during downtime hours to avoid impacting the production. To proceed,

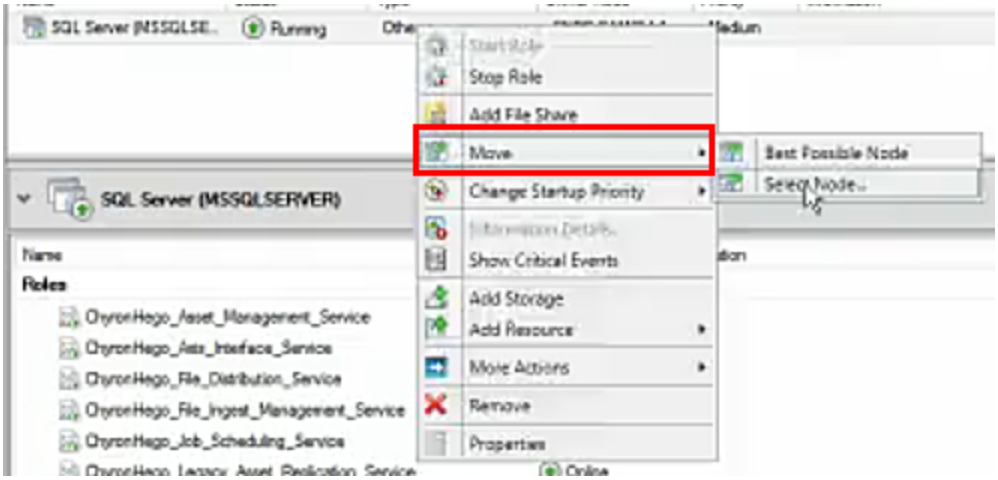
1. Connect to the CAMIO Node 2 (or Node 1 if correctly recovered) and launch the ***Failover Cluster Manager*** application
2. From the left panel, go to ***Nodes*** and check that CAMIO Node 1 is up and healthy



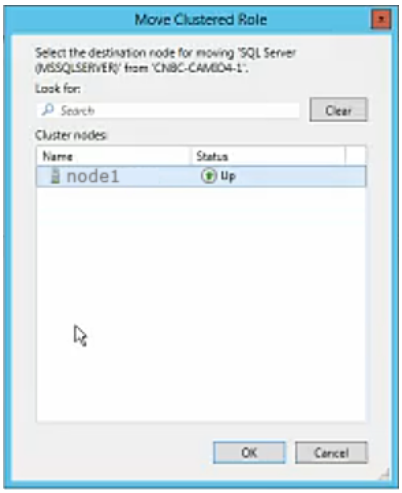
3. Once validated, go to ***Roles***. There should be one unique Role, responsible for managing all clustered Resources: the Cluster virtual IP address and Network Name, the Storage partitions used by SQL Server and CAMIO, and also the SQL Server and CAMIO Services:



4. Right-click on the ***Role*** and select ***Move > Select Node…***
   NOTE: **do not run this operation on specific Resources** of that Role (CAMIO Services, Storage File Server, SQL) as it may affect the whole system badly.



5. Then select the CAMIO Node 1



CAMIO DR

CAMIO DR is a new option for users who want to protect their data, but at an overall lower price. CAMIO DR is a warm standby backup system specifically designed for CAMIO servers. It performs regularly scheduled backups of the primary CAMIO's assets and databases.

In the event there is a failure of the primary system, a manual procedure is used to fail-over operation to the CAMIO DR system, restoring the system to the state of the last backup. After

repairing or replacing the primary system, a manual procedure is used to fail-back operation to the CAMIO primary system.

PROS

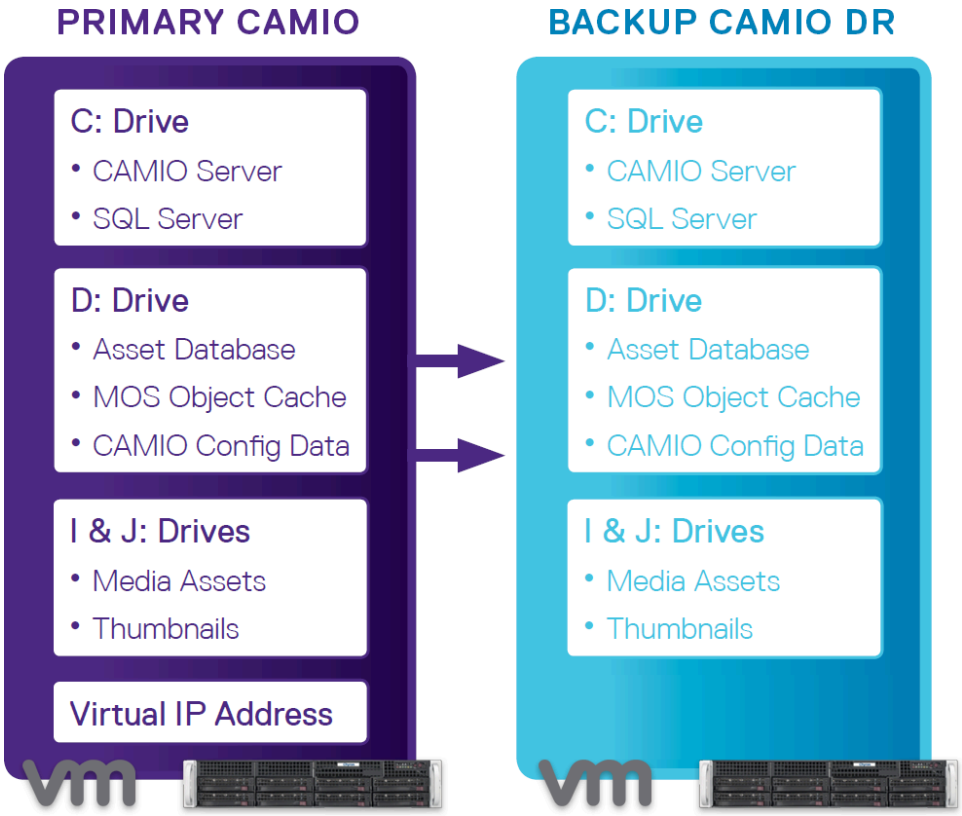
- Lower cost, especially if a CAMIO is already deployed at the user's site.
- The backup system can be remotely located (assuming fast LAN connection) for disaster recovery scenarios.
- System makes scheduled data backups, which could be restored in case of data corruption.

CONS

- Data is backed up on a schedule. After a failover, data will only be as current as the last backup.
- The failover procedure is manual, hence no high availability.

Redundancy Capabilities

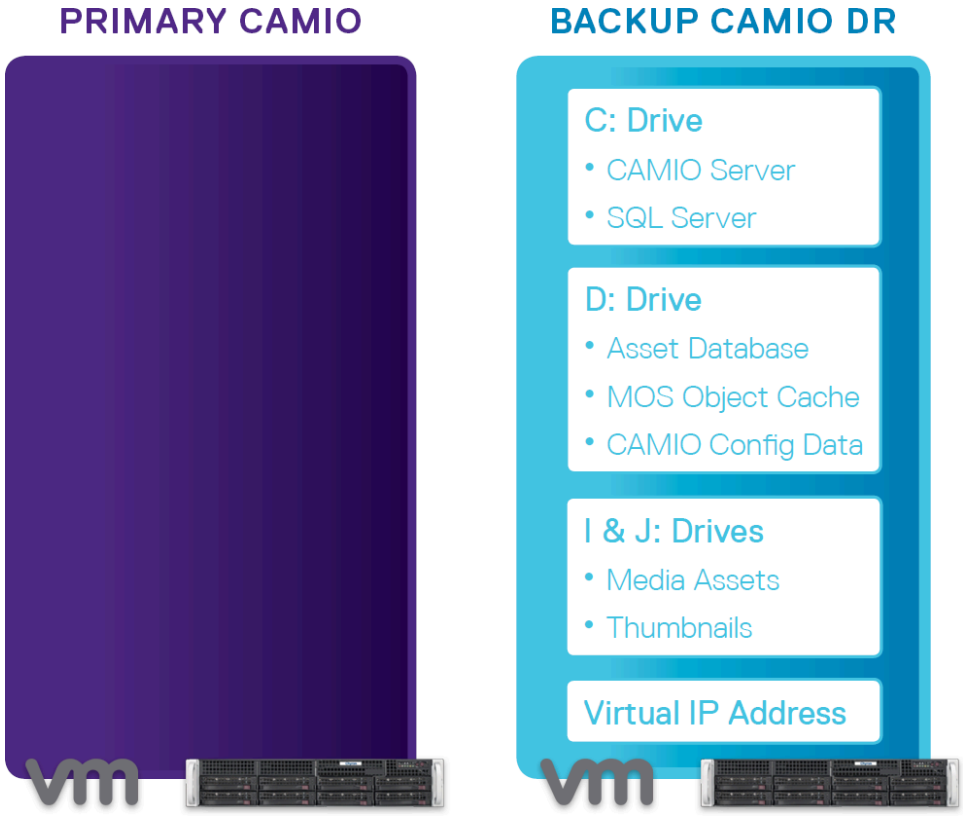
During Normal Operation



Database backups are periodically made on the Primary CAMIO Server and copied along with the content of the D, I and J Drives onto the Backup CAMIO DR Server, approximately every 5 minutes.

The Primary CAMIO Server's NIC is configured with an extra Virtual IP Address that is used as CAMIO main endpoint. The CAMIO Windows Services on the Primary Server are running while stopped on the Backup Server.

After Failover due to an issue on the Primary CAMIO



If the Primary CAMIO Server is unreachable or having some failure at the infrastructure or application level, an Administrator can run the Failover procedure from the Backup CAMIO DR using the DR Client application.

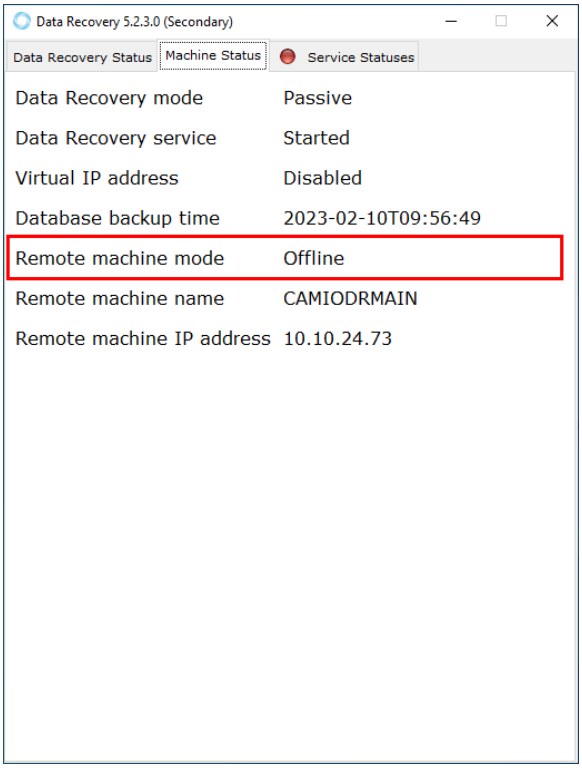
It will perform the following actions sequentially: restore the database using the last copied backup file, configure the Virtual IP Address on the NIC and start the CAMIO Windows Services.

Failover Procedure

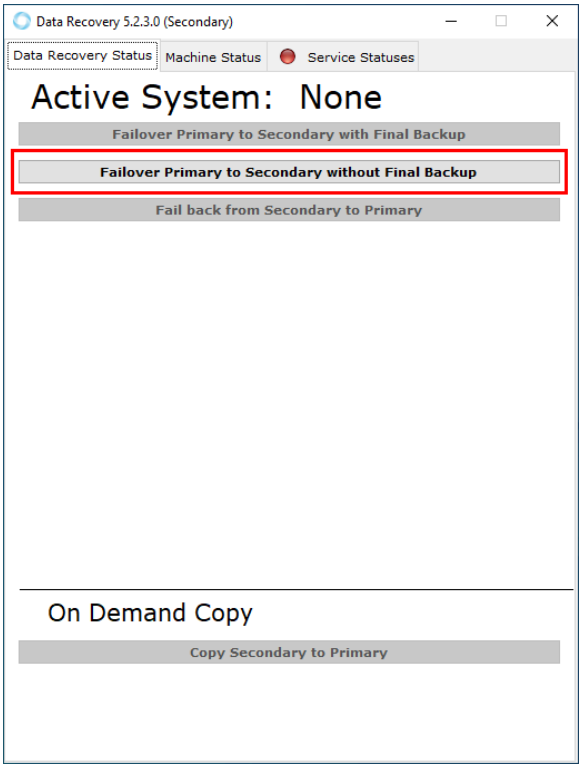
To execute the failover procedure in order to activate the Backup CAMIO DR Server, the Administrator should proceed with the following steps:

6. Connect to the Backup CAMIO DR Server and launch the ***DR Client*** application:

7. The ***Machine Status*** tab should confirm that the Primary CAMIO Server is unreachable (Remote Machine Mode = Offline):



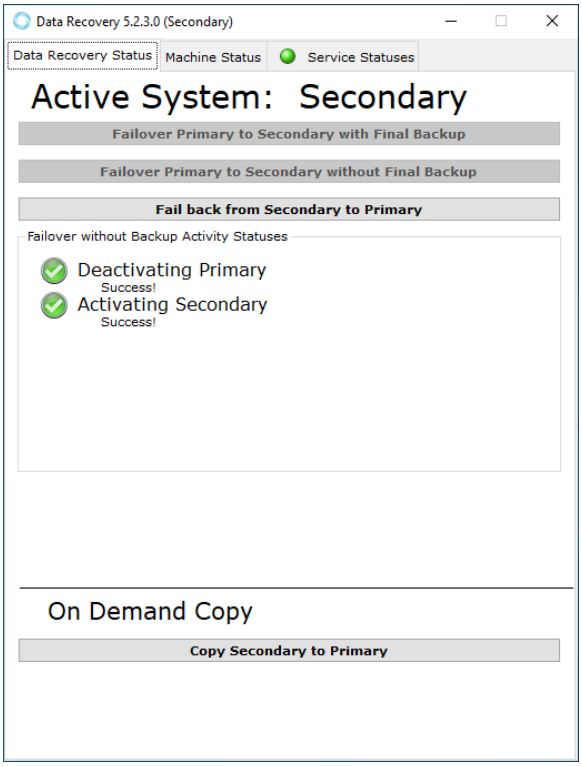
8. From the ***Data Recovery Status*** tab, run the **Failover Primary to Secondary without Final Backup** option:



This will perform the following actions:

- Checking again that the Primary CAMIO server is unreachable
- Enabling the Virtual IP Address by adding it into the main NIC Settings
- Restoring the last copied database backup
- Starting the IIS Web Server
- Starting all the CAMIO Services

The following messages are displayed when complete:

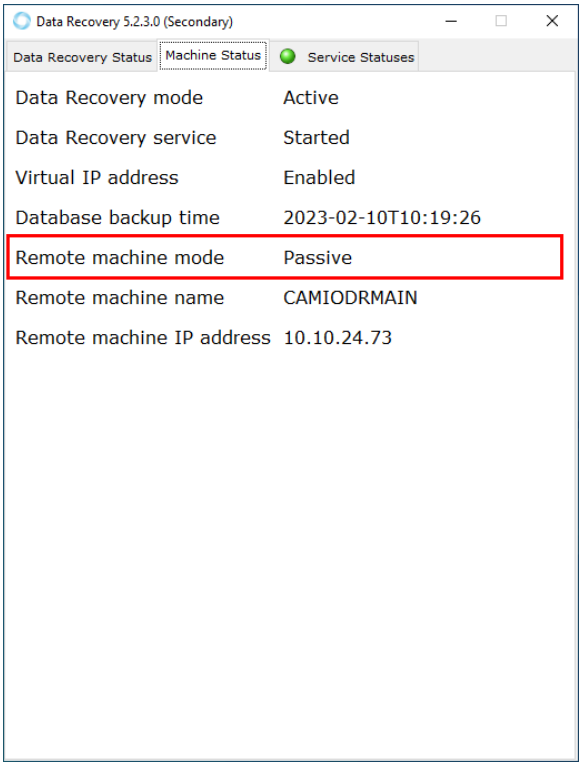


Failback Procedure

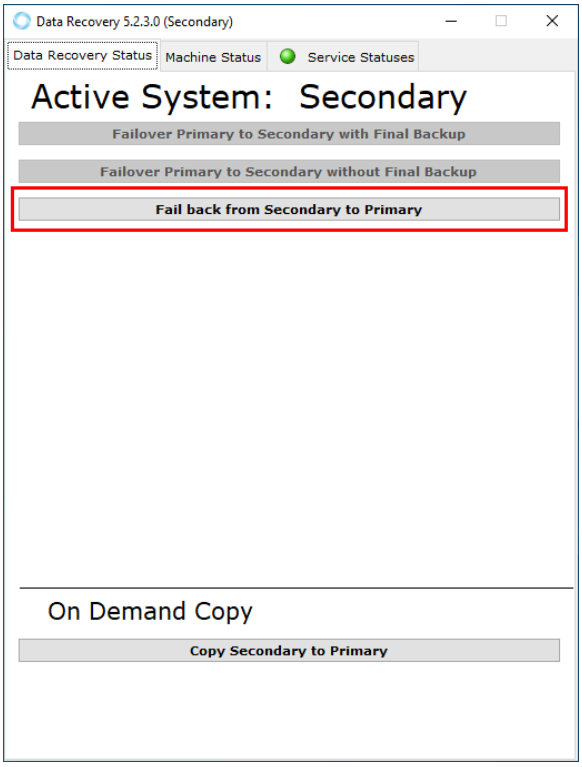
After recovery of the Primary CAMIO Server, the Administrator can run the Failback procedure as follow:

1. Connect to the Backup CAMIO DR Server and launch the ***DR Client*** application:

2. The ***Machine Status*** tab should confirm that the Primary CAMIO Server is back and inactive (Remote Machine Mode = Passive):



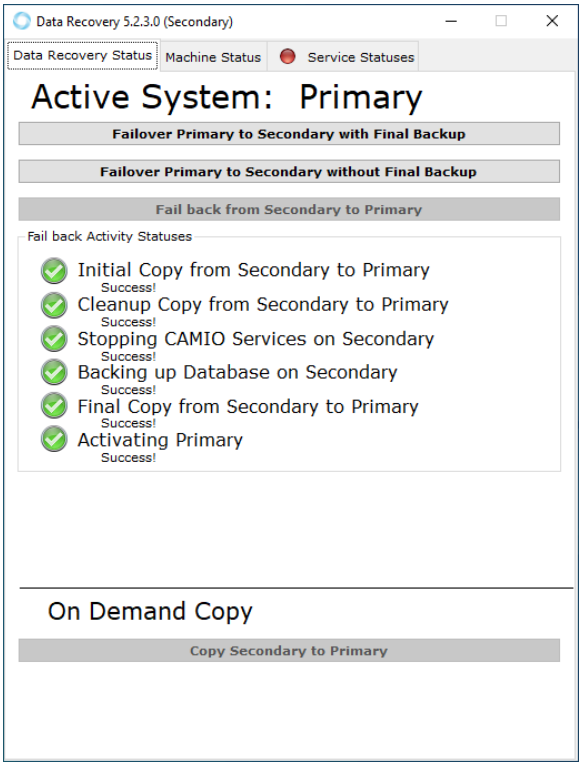
3. From the ***Data Recovery Status*** tab, run the **Fail back from Secondary to Primary** option:



This will perform the following actions:

- Copying the last database backup and files to the Primary server
- Stopping the IIS Web Server
- Stopping all the CAMIO Services
- Backuping the Database and copying it along with any newly updated file to the Primary server since the 1st copy
- Disabling the Virtual IP Address
- Enabling the Virtual IP Address on the Primary server by adding it into the main NIC Settings
- Restoring the last copied database backup on the Primary server
- Starting the IIS Web Server on the Primary server
- Starting all the CAMIO Services on the Primary server

The following messages are displayed when complete:


Data Recovery 5.2.3.0 (Secondary)
Data Recovery Status
Machine Status
Service Statuses
Active System: Primary
Failover Primary to Secondary with Final Backup
Failover Primary to Secondary without Final Backup
Fail back from Secondary to Primary
Fail back Activity Statuses
Initial Copy from Secondary to Primary
Success!
Cleanup Copy from Secondary to Primary
Success!
Stopping CAMIO Services on Secondary
Success!
Backing up Database on Secondary
Success!
Final Copy from Secondary to Primary
Success!
Activating Primary
Success!
On Demand Copy
Copy Secondary to Primary

Appendix A: LUCI AutoFill

What is LUCI AutoFill

LUCI AutoFill is a feature in CAMIO and LUCI that enables quick update of template content with predetermined text and images.

Data is formatted simply in a text file format and uploaded to the LUCI AutoFill Web Interface.

When Lyric messages are created for CAMIO the designer will name text and image templates in a particular manner. Before uploading to CAMIO the designer will select which group of data in the LUCI AutoFill bank should be available in the current template for the producers and LUCI users to select.

The LUCI user will select from a combo drop-down in the LUCI message editor that will automatically populate all related fields in the template with the associated content.

Formatting the Data

LUCI AutoFill uses a simple format. This can be created and saved in notepad where it is easy to see formatting. When creating the LUCI AutoFill Data File simply use forward slashes to separate the groups (or categories) of content.

```
us/government/senators/{txt:Sen. Richard Blumenthal},{txt:(D) Connecticut},{img:Richard Blumenthal }
us/government/senators/{txt:Sen. John McCain},{txt:(R) Arizona},{img:John McCain}
us/government/representatives/{txt:Rep. Jo Bonner},{txt:(R) Alabama},{img:Jo Bonner}
us/government/representatives/{txt:Rep. Bobby Bright},{txt:(D) Alabama},{img:Bobby Bright}
sports/baseball/yankees/{txt:A.J. Burnett}{txt:34}{txt:6'4"},{txt:230},{txt:Jan 3, 1977},{img:A.J. Burnett}
sports/baseball/yankees/{txt:Joba Chamberlain},{txt:62},{txt:6'2"},{txt:230},{txt:Sep 23, 1985},{img:Joba Chamberlain}
sports/baseball/mets/{txt:Manny Acosta}{txt:36}{txt:6'4"}{txt:170}{txt:May 1, 1981},{img:Manny Acosta}
sports/baseball/mets/{txt:Manuel Alvarez},{txt:5'11"},{txt:200},{txt:Dec 18, 1985},{img:Manuel Alvarez}
sports/nba/teams/{txt:Atlanta},{txt:Hawks},{img:Atlanta Hawks Logo},
sports/nba/teams/{txt:Boston},{txt:Celtics},{img:Boston Celtics Logo},
```

The above data shows formatting for 5 different groups of data.

- Senators - us/government/senators/
- Representatives - us/government/representatives/
- Yankees - sports/baseball/teams/yankees/
- Mets - sports/baseball/teams/mets/
- NBA Teams - sports/nba/teams/

The category of US has a subcategory of Government. Government has a subcategory of Senators and Representatives.

The category of Sports has subcategories of Baseball and NBA. Baseball has a subcategory of

Yankees or Mets. NBA has a subcategory of Teams.

The information that is input after the categories and the final forward slash, and in the curly braces, is the data that will populate the templates.

- To format information that will simply populate a text field in the template start with "{txt:" then continue with the desired text information closing with a "}" (e.g. {txt:Sen. Richard Blumenthal}).
- To format the reference to an image that should be used to populate a replaceable image in the template start with "{img:" then continue with the descriptive information that searched in the SUBJECT field of the CAMIO image assets and close with a "}" (e.g. {img:Richard Blumenthal}).

The first field in curly brace will be the field offered in the combo drop-down in LUCI. All subsequent data in curly brace will automatically populate additional text and image input fields in LUCI. Therefore it is required to use a descriptive field, such as a name for the above Government example, as the first curly brace field. **NOTE: This data can be created in a single or multiple files. "#" at the head of a row in the data file can be used for creator comments and will be commented out when the file is processed.**

Uploading and Managing LUCI AutoFill Data

Once the text file is complete it should be saved locally so it can be uploaded to CAMIO's LUCI Web Interface.

To navigate to the LUCI Web Interface navigate to http://[CAMIONAME]/luciautofill/ where [CAMIONAME] is the name or IP address of the CAMIO Server.

To upload a file:

- Click the Upload button.
- Browse to and select the stored .txt file.
- It is essential to preview the data to ensure that it is in a valid format. Red notations indicate invalid formatting.
- If the data is in a valid format click the Submit button.

To delete a category:

- Click the Delete button.
- Select the data group to be deleted.
- Click Delete Selected Group.

To backup the current CAMIO categories:

- Click the Download to File button.
- Click **Create Text File**.

- A popup will display an offer to open or save the text file. Select either save or open. **This backup will create a single file of all the uploaded categories.**

NOTE: To make changes to the data just modify/add/delete any line from the .txt file and re-upload.

Appendix B: MOS Object Metadata Format Strings

Format String	Data Element
%ad	The Duration for Automation (in timecode format) of a MOS Object
%as	The Start Time for Automation (in timecode format) of a MOS Object
%ae	The End Time for Automation (in timecode format) of a MOS Object
%am	Displays Automation Transition text string selected in LUCI.
%cd	Clip Duration of a clip object inserted into a Live Assist automation template. This is only displayed when used with a Live Assist automation template.
%m	The message number of the MOS Object
%t	The Filename of the Template which the MOS Object was created
%s	The exact Slug as entered by the user in the Slug input field in the LUCI
%o	The Object ID of the MOS Object
%g	The story Slug of the MOS Object
%c	Channel assignment of MOS Object
%y	Style assignment of PRIME MOS Object
%u	Pause Count (Lyric only)
%%	An explicit percent (%) character
%0	The first text field's text data in the MOS Object content
%1	The second text field's text data in the MOS Object content
%2	The third text field's text data in the MOS Object content

%3	The fourth text field's text data in the MOS Object content
%4	The fifth text field's text data in the MOS Object content
%5	The sixth text field's text data in the MOS Object content
%6	The seventh text field's text data in the MOS Object content
%7	The eighth text field's text data in the MOS Object content
%8	The ninth text field's text data in the MOS Object content
%9	The tenth text field's text data in the MOS Object content
%*	Same as "%0 %1 %2 %3 %4 %5 %6 %7 %8 %9"
%(### %.)	Repetitively emits the text content in between the opening and closing parentheses, once for each piece of text data in the MOS Object content, where the current iterative text data replaces the "%". For example, if the MOS Object's text data are as follows: Transit Strike Monday, November 24, 2003 City Hall Then the resulting text is as follows: ### Transit Strike ### Monday, November 24, 2003 ### City Hall
%.	Used in conjunction with %(). *See* %(### %.) *above*
%(%.)(15)	Similar to the above %(), but places a maximum iterative limit. In this example, the iterated text cannot exceed fifteen, even if there are sixteen or more pieces of text data in the MOS Object.
%{relative xpath notation}	The text content of the Running Order's MOS XML's <roCreate> tree's XML element specified by the relative xpath notation. The xpath notation is relative to the <item> element of the element tree. For example, to display the

	Story Number associated with the MOS Object item, the xpath notation would be: ../storyNum

Alternately, users can use a special XML formatting string designed to display all text, image and video fields.

Syntax: %(| %.)<*text*><image><video><filename>

- **%(I %.)** - This iterates through the following list of elements using pipe | as a separator. Any separator string can be used.
- **<text>** - content of all replaceable text fields
- **<image>** - title or filename of all replaceable image fields
- **<video>** - title or filename of all replaceable video fields
- **<filename>** - displays the filename of the image or video asset.
- **<title>** - displays the title of the image or video asset

'Filename' of the asset does not include the folder path, but does include the extension.
'Title' of the asset is defined in Asset Manager and defaults to the filename without the extension.

Examples:

%(/%.)<text> - displays the test content of all replaceable text fields separated by a forward slash '/'
%(|%.)<text><images><title> - displays the text content of all replaceable text fields and the title of all replaceable image fields separated by a pipe '|'
%**(#%.)<text><images><filename>** - displays the text content of all replaceable text fields and the filename of all replaceable image fields separated by a hash sign '#'

ABOUT US

Chyron is ushering in the next generation of storytelling in the digital age. Founded in 1966, the company pioneered broadcast titling and graphics systems. With a strong foundation built on over 50 years of innovation and efficiency, the name Chyron is synonymous with broadcast graphics. Chyron continues that legacy as a global leader focused on customer-centric broadcast solutions. Today, the company offers production professionals the industry's most comprehensive software portfolio for designing, sharing, and playing live graphics to air with ease. Chyron products are increasingly deployed to empower OTA & OTT workflows and deliver richer, more immersive experiences for audiences and sports fans in the arena, at home, or on the go.

CONTACT SALES

EMEA • North America • Latin America • Asia/Pacific
+1.631.845.2000 • sales@chyron.com

Chyron