COMMSCOPE®

SkyVision Ad Decision Service Release 3.0

Software Guide, Standard Revision 1

November 2021

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Revision history

Revision	Date	Summary
1	November 2021	

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ADS 3.0 preface

The Ad Decision Service (ADS) 3.0 Software Guide is intended for CommScope technicians who install and configure ad insertion systems. System owners may also use the configuration interface under the direction of CommScope Technical Support.

The CommScope Ad Decision Service integrates with third party advertising insertion systems to manage and distribute schedule information and content.

System requirements

The ADS may be installed on the CommScope ad insertion headquarters (HQ) server. The HQ must operate on a virtual server platform running the Red Hat Enterprise Linux 7.9 operating system.

The CommScope ad insertion system must be running SkyVision 5.0.

ADS 3.0 supported VM server

ADS 3.0 can run in a virtual machine environment server running the RedHat Enterprise Linux 7.9 operating system.

The following are specifications for a VM server (HQ ASK server also running SkyVision).

Resource or partition	VM Minimal Specsifications	Units
Number of cores	6	cores
RAM size	24	GB
part/boot/efi	200	MB
pat/boot	512	MB
logvol swap	30,000	MB
logvol /	10,240	MB
logvol /var	6,144	MB
logvol /usr	30,000	MB
logvol /u01	100,000	MB
logvol /u02	30,000	MB
logvol /raid -	60,000	MB

ADS 3.0 documentation

The ADS 3.0 software release documentation consists of the following:

- ADS 3.0 Customer Release Update
- ADS 3.0 Software Guide
- ADS 3.0 install_instructions.txt file

These documents contain cross references to related information in the following SkyVision 5.0 documentation:

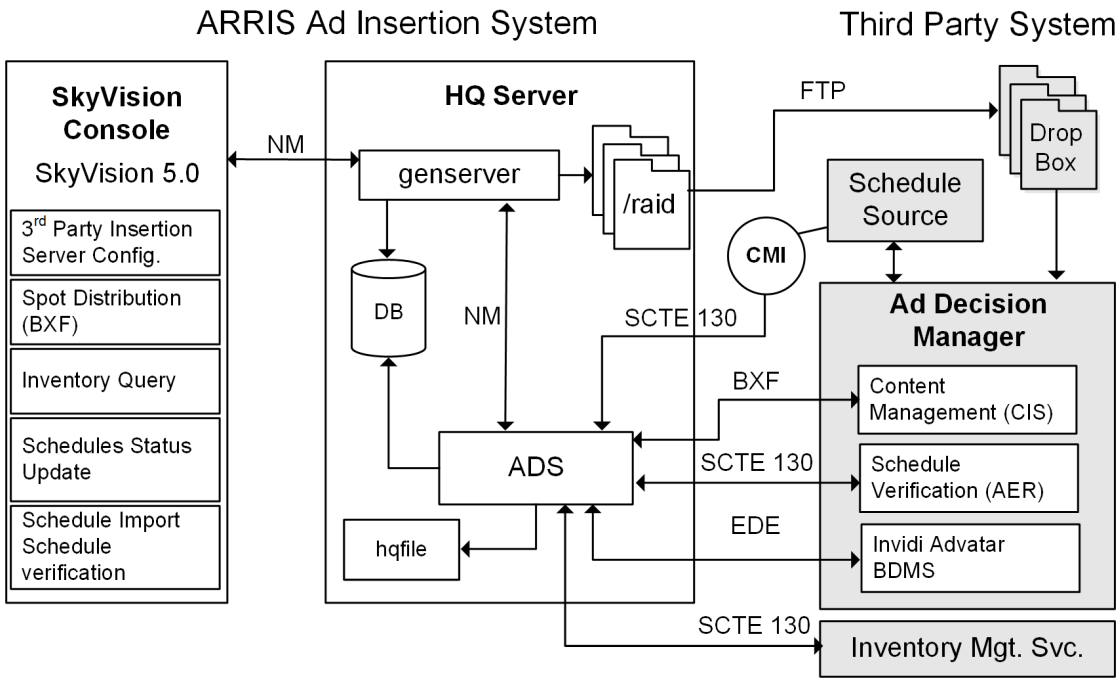
- SkyVision 5.0 Configuration Manual
- SkyVision 5.0 User Guide
- SkyVision 5.0 Customer Release Update

The ADS 3.0 install_instructions.txt file is part of the software release package. All ADS 3.0 and SkyVision 5.0 documentation is delivered with the software. CommScope recommends installing the PDF files in a known location on the ADS/SkyVision server for easy access.

Documentation is also available from CommScope Technical Services.

Introduction

The Ad Decision Service enables a CommScope ad insertion system to work with third party advertising components to coordinate schedule information and provide content to support regional and national advertising campaigns in an advanced advertising system.



The ADS program runs on the ARRIS ad insertion headquarters (HQ) server. The ADS receives messages from the third-party Ad Decision Manager (ADM) requesting schedule information. The ADS receives a *PlacementRequest* message asking for ad insertion schedule information for a stated time period on a specific channel. The ADS then sends a *PlacementResponse* message with the requested schedule for the specified channel to cover the specified time period.

Messages concerning spot transfer between the SkyVision HQ and the ADM are sent using the Broadcast Exchange Format (BXF). The content files, and their associated metadata files, are transferred using the File Transfer Protocol (FTP). Spots and content transfer metadata files are sent to the ADM *DropBox*.

The ADM Content Information Service (CIS) verifies that the spots and spot metadata are received. When the content is prepared and ready for play, a *ContentNotification* message is sent to the ADS. The ADS notifies the HQ and the SkyVision Console is able to update the RAID view with new content data. Spots flagged red as missing have the flag removed. The Operations Queue shows the content distribution operation has completed.

The ADM sends a *PlacementStatusNotification* message to the ADS with the final status of a spot. That message is in the SCTE 130 format. The spot play status is then recorded in an hqfile which SkyVision uses to create verification files.

For a third party system equipped with an Invidi Advatar Business Data Management System, ADS prepares a *RequiredContentNotification* (RCN) message that contains schedule data for the regions (zones) covered by the Invidi system. The RCN is delivered over the web via the External Data Exchange interface, and enables the Invidi system to manage content availability. Ad plays are triggered by *PlacementRequest* messages.

Note: The RCN client's TCP connection has been enhanced to include a timeout limit. The default timeout is 15 minutes.

For a third party system equipped with an Inventory Management Service (BIMS), ADS prepares an *InventoryNotificationRequest* message that asks the IMS server for inventory data for the upcoming day or days. An IMS provides a listing of avails and who owns them. ADS and SkyVision must perform a type of schedule merge operation to determine if schedule data is available for the inventory avails.

ADS operations

ADS operations revolve around schedule information sharing, spot distribution, and spot play verification.

Schedule information sharing

SkyVision receives and stores in its database schedules from the usual Traffic and Billing sources that include schedule information for the ADM system.

The ADM system sends a *PlacementRequest* asking for schedule information for each channel the system covers. The ADS sends a *PlacementResponse* that specifies spots to play at specified times throughout the requested time period.

Be aware that the DirecTVADM requests schedule information from 06:00:00AM to 05:59:59AM. Advertising insertion schedules from traffic and billing systems run from 00:00:00 to 23:59:59.

ADS can support a schedule with a window that is open across the day demarcation. If you have a schedule with a window that is open from 23:45 to 01:15, the ADS merging capability supports it. Essentially, ADS performs two analytical passes on schedules to deal with a window that straddles midnight. The first pass handles events before midnight, and the second pass handles events after midnight. Merging is based on expected time. Merge results will always be consistent.
An advanced advertising system using an Invidi Advatar BDMS can have scheduled content information delivered for a range of days based on system configuration

Invidi Support

A Required Content Notification (RCN) message is not a schedule file, but a listing of all content that is required for play through the Invidi system. This list acts as a prior notification that an Invidi system operator can use to make sure that all scheduled content will be available in time for the content to play.

Note that *PlacementResponse* messages still trigger actual spot plays.

In order for an ADS server to support an Invidi system, three things are required:

- A headend insertion server with the BXF file transfer method must be configured in SkyVision
- ADS must be configured to support RCN messages and the Invidi BDMS client
- A valid zone_region map file that associates Invidi regions with SkyVision zones. The file is called the *ZoneRegionMap_<machinename>.xml* where <machinename> indicates the actual server name. The *ZoneRegionMap_<machinename>.xml* file is stored at:`/usr/viis/ads/etc`

ZoneRegionMap Details

A valid ZoneRegionMap file must conform to these rules:

- All zones must be configured in SkyVision.
- Any particular zone can only appear in one region.
- A region may contain multiple zones.
- Not all zones need to be included in regions; a zone may not appear in any region.
- A region must have at least one zone.

The ZoneRegionMap file must conform to the format shown in this example:

```
<!DOCTYPE ZonesToRegionMap SYSTEM "ArrisiRcn.DTD">
<ZonesToRegionMap version="3" date="2010-06-10">
   <ZoneToRegion zone="DTV" regionCode="R01" regionName="Denver"/>
   <ZoneToRegion zone="DSW" regionCode="R01" regionName="Denver"/>
   <ZoneToRegion zone="WDL" regionCode="R01" regionName="Denver"/>
   <ZoneToRegion zone="Z02" regionCode="R01" regionName="Denver"/>
   <ZoneToRegion zone="Z01" regionCode="" regionName=""/>
   <ZoneToRegion zone="DEN" regionCode="R02" regionName="New York"/>
   <ZoneToRegion zone="SFO" regionCode="R02" regionName=" New York"/>
   <ZoneToRegion zone="CHI" regionCode="R01" regionName=" Denver"/>
   <ZoneToRegion zone="BOS" regionCode="R03" regionName=" Portland"/>
   <ZoneToRegion zone="DET" regionCode="R03" regionName=" Portland"/>
   <ZoneToRegion zone="LAX" regionCode="R02" regionName=" New York"/>
   <ZoneToRegion zone="ATL" regionCode="R04" regionName=" Chicago"/>
   <ZoneToRegion zone="SEA" regionCode="R04" regionName=" Chicago"/>
   <ZoneToRegion zone="DAL" regionCode="R04" regionName=" Chicago"/>
</ZonesToRegionMap>
```

In the above example, notice that the zones ATL, SEA, and DAL are included in the “Chicago” region.

The .DTD file enables ADS to verify that the manually created ZonesToRegionMap file is correctly formatting.

Support for an Inventory Management Service

ADS includes support for a third party Inventory Management Service (IMS). Four fields have been added to the ADS Config tool ADSConfig screen to facilitate IMS support.

When ADS sends an *InventoryNotificationRequest* to the IMS, it will wait a configured amount of minutes for an acknowledgment. If no acknowledgment is received before the Timeout period, ADS re-sends the request.

ADS sends an *InventoryNotificationRequest* for each network that may be included in the IMS inventory. If there are 20 such networks, ADS sends 20 *InventoryNotification Request* messages to the IMS. If the IMS acknowledges all 20 requests, ADS waits for the inventory data. If the IMS does not send back 20 acknowledgments, ADS re-sends any requests that were not acknowledged. ADS continues to re-send unacknowledged requests up until 24 hours have elapsed. Thereafter, ADS sends requests for the new day.

When the IMS acknowledges the request, ADS then waits for the inventory (schedule) information. When the inventory data is received, ADS responds to PlacementRequests with PlacementResponses that contain schedule information that conforms to the inventory.

Content Management

The CommScope ad insertion system is a content source for the ADM system.

Content arrives at the SkyVision HQ. When an ADM system requires content from the CommScope system, SkyVision performs an inventory check to determine if the content is available, or must be encoded.

When the content is available, SkyVision's *genserver* pushes the content and content transfer metadata via ftp to the ADM drop box. The ADM CIS then pulls the content from the drop box directory. Content transfer metadata describing the spot ID, duration, and content origin is written to an xml file that is sent to the ADM CIS to facilitate tracking content transfer.

Content transfer is monitored carefully to ensure the content is received by the ADM system and prepared properly for spot play. If the ADM does not send a *ContentNotification* message within a defined time interval, then SkyVision flags the operation yellow in the Operations queue indicating the operation has completed with a warning. If the *ContentNotification* message reports an error, then the ADS flags the operation red in the Operations Queue. The SkyVision RAID view flags any missing spots.

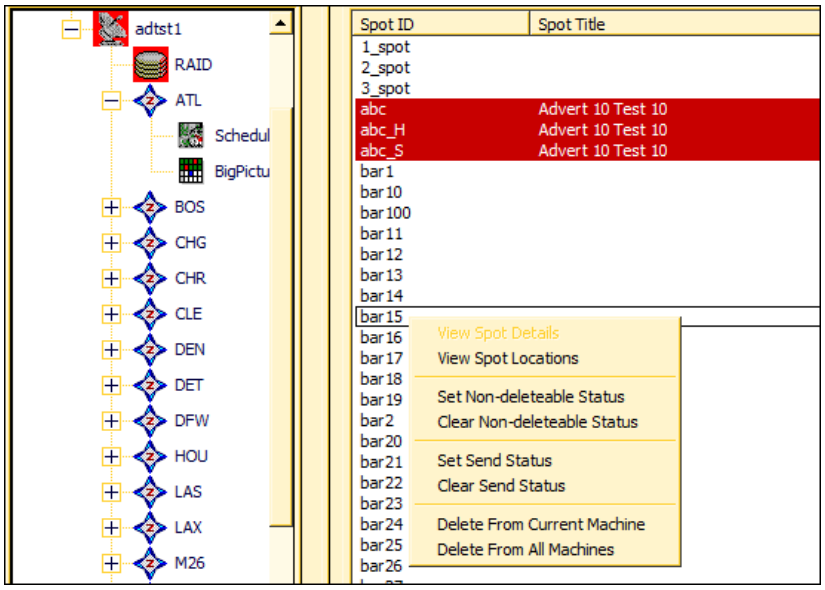
Content Delay

Content transferred to an ADM may require a multi-step preparation process. When ADS sends the content, there are two components: a .mpg file, and a .xml file. The content transfer is 57% complete when the .mpg file is received. The transfer is 75% complete when the .xml file is received on the drop box. The transfer is 100% complete when the post-transfer processing is finished. That processing may require more time than SkyVision allows before the operation timeout duration is exceeded.

To prevent an unfinished operation from being flagged as failed, ADS includes a feature called Content Distribution Delay. This is a configuration option that is set in the Client Machine Configuration screen, as detailed in Chapter 3. The ContentDistTimeout setting enables SkyVision and ADS to regard a content distribution operation that takes longer than SkyVision's operation timeout period to not be failed, but to be marked as "Pending". This allows more time for the content distribution operation to complete, and precludes prematurely re-queuing the same operation.

Spot purge

ADS supports spot deletion from the SkyVision RAID view:



Selecting a spot in the RAID view (or a range of spots), and right-clicking for the pop-up menu reveals the **DeleteFrom...** options.

Notice that the View Spot Details option is not active in the dialog as CommScope systems do not have visibility into the BXF headend server to support retrieval of that information.

See also the SkyVision 5.0 User Guide, Chapter 3: Content.

ADS installation and configuration

The CommScope Ad Decision Service has its own configuration tool with a graphical user interface. This chapter describes how to use the configuration tool to set up the ADS for operation with the ad insertion system, an ADM system, a system using an Invidi BDMS system, and a system using DirecTV Inventory Management Service.

Also covered are configuration steps that can not be performed in the ADS configuration tool.

ADS 3.0 installation

Customers may perform an ADS 3.0 installation by following the steps in the ADS-3.0.0 readme.txt file available in the software package on Flexera.

Configuration process summary

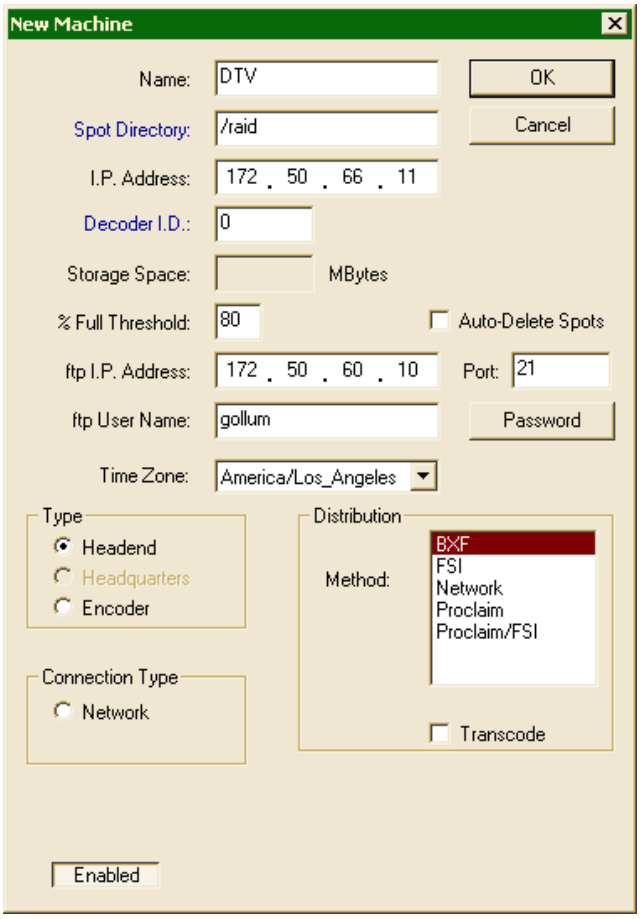
This section lists the order in which ADS 3.0 must be configured.

1. Perform SkyVision Console configuration for the new ADS “machine” and traffic and billing directory, and set up Zones and Channels.
2. Access the HQ file system and make sure user gollum can read and write to the T&B directory.
3. Access and launch the ADS Config tool via VNC. Configure Servers and Clients, then transfer the new configuration file to the ADS server. Close ADS Config tool.
4. Restart ADS.

Perform SkyVision Console configuration

The SkyVision Console is used to add a new ADM headend and ADS traffic and billing information, as well as Zones and Networks for the ADM headend. This enables SkyVision to identify the ADM and interact with it.

1. Access the SkyVision Console as an administrator.
2. Open the **Configuration Options** screen, click the **Machines/Zones/Networks** tab, then click **New Machine**.

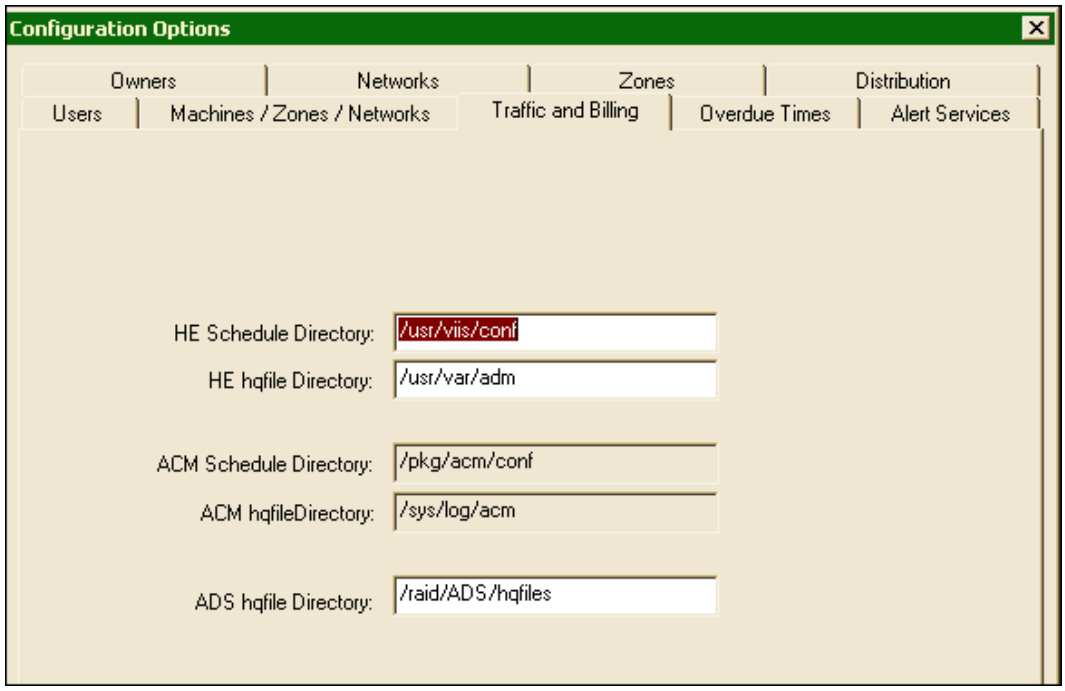


3. In the New Machine configuration screen complete the following fields:

Name	must be the name of the ADM server that will also be displayed in the ADS configuration tool.
Spot Directory	specifies the Drop Box directory on the ADM system to which SkyVision will deliver spots.
IP Address	is the same as that of the CIS_SOAP service for the ADM server. This IP would be supplied by a site network administrator.
Decoder ID	will be left blank
%Full Threshold	can be any value (typically between 80-90). The Auto-Delete Spots feature does not apply to a headend with the BXF distribution method.
FTP IP Address	must be the IP for the destination of content (the ADM server or a “drop box”). Port defaults to 21, but can be changed as needed for site requirements.
FTP User Name	must be set to the FTP user name on the drop box.

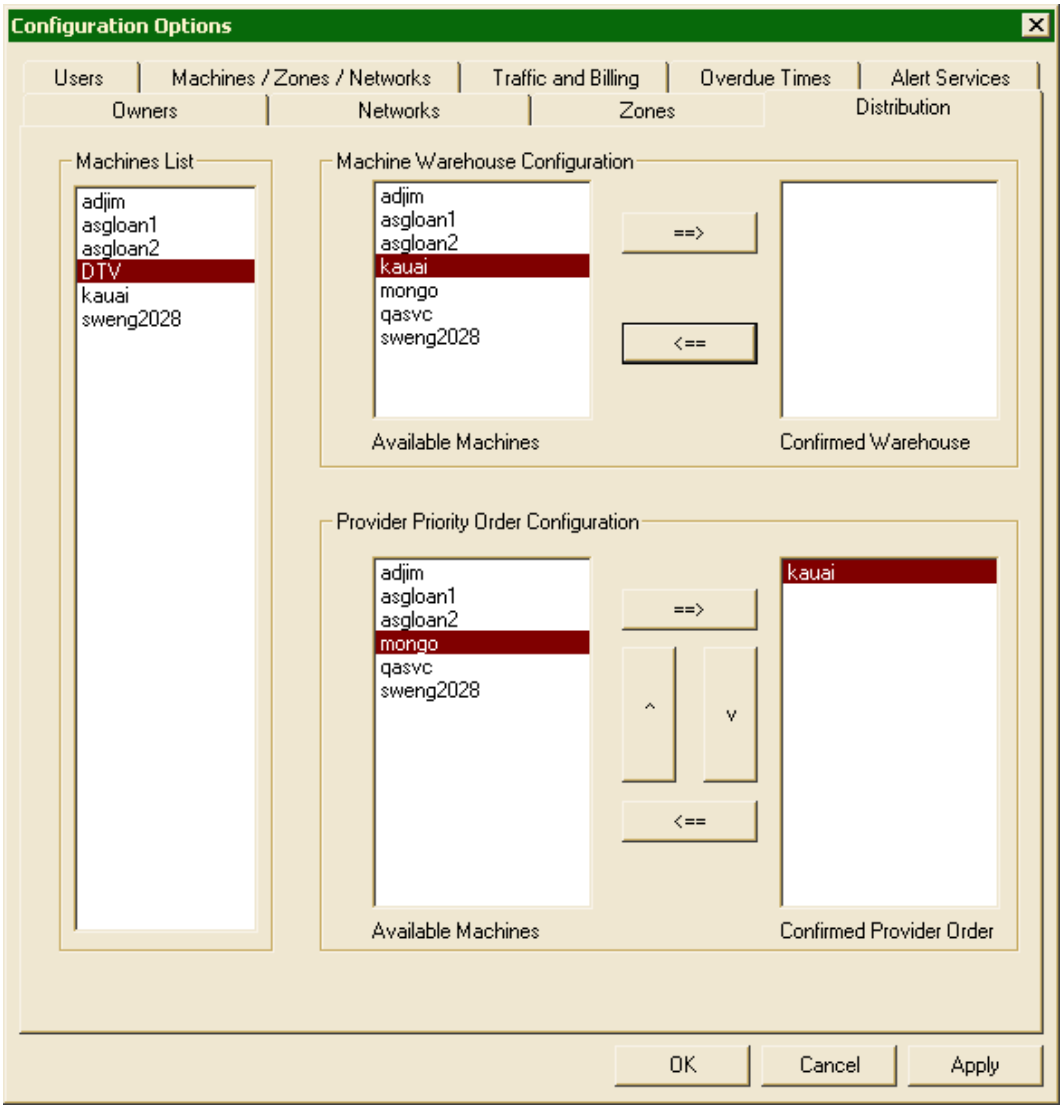
Time Zone	is the time zone for the ADM server.
Type	headend
Connector	network
Distribution	BXF
Transcode	may be checked if required by the site.

4. When the configuration fields are complete, click **OK**.
5. Click the **Traffic and Billing** tab.



6. The Traffic and Billing configuration screen contains a field to support the ADS. The **ADS hqfile Directory** specifies the directory into which ADS deposits spot play status data that is used to create verifications for the ADM system.

   The ADS hqfile and its access permissions are created by ADS automatically.
7. Return to the **Machines/Zones/Networks** tab to enter the **Zones** for the ADS "headend." Entering Zones is the same procedure used for any other SkyVision headend server. Refer to the SkyVision 5.0 Configuration Manual, Chapter 3: Machines/Zones/Networks for details.
8. When all Zones have been entered, use the **Networks** tab to enter all **Networks** for the ADS Zones. Use the same procedure for entering Networks as you would for any other headend insertion server. Refer to the SkyVision 5.0 Configuration Manual, Chapter 3: Machines/Zones/Networks for details.
9. Access the **Configuration Options Distribution** tab. Make sure that the ADM headend is provided by the HQ server only. See the illustration below.



In the above illustration, the HQ server is Kauai. The ADM headend is the DTV machine.

When you have completed the distribution configuration, you have completed the SkyVision Console configuration tasks.

10. Click **Apply** to save any change, or OK to accept the current configuration.

ADS Configuration

The ADS configuration tool is accessed by using the VNC software application to access the Linux server.

The configuration tool obtains a baseline of system configuration data from the ADS to pre-populate some of the configuration screen fields.

Access ADS Config application

Access the ADS server using a third-party application such VNC. Prior to launching VNC, you must verify that VNC is running on the HQ server.

Note: This section describes accessing the ADS Config user interface. However, some system administrators prefer to edit the ADSConfig.xml file directly that is located at: /usr/viis/ads/etc/ADSConfig,xml.

1. Prior to first using VNC you must verify that VNC is running on the HQ server.
   a. On a Linux system, open a command line session and log onto the server as **gollum**.
   b. Verify that VNC is running on the server typing: **ps ax | grep vnc**

      ```
      32428 ? S 0:00 Xvnc :1 -desktop hood.lab.c-cor.com:1
      (root) -httpd /usr/share/vnc/classes -auth /root/.Xauthority -geometry
      1024x768
      depth 16 -rfbwait 30000 -rfbauth /root/.vnc/passwd -rfbport 5901
      -pn
      ```

2. If VNC is not running, simply type the following command:

   vncserver <server ip>

   In the above, <server ip> shows where you enter the server's actual IP address.
3. Open a terminal window as root and login to an SSH session as gollum@< HQ server IP>. address..
4. If you have not already done so, enable the gollum user to open the ADS configuration tool by invoking the following command:

   xhost +
5. Launch the ADS Config user interface application by invoking **ads config**..
6. In the VNC Authentication pop-up, enter the server name and the server password.

   ads config

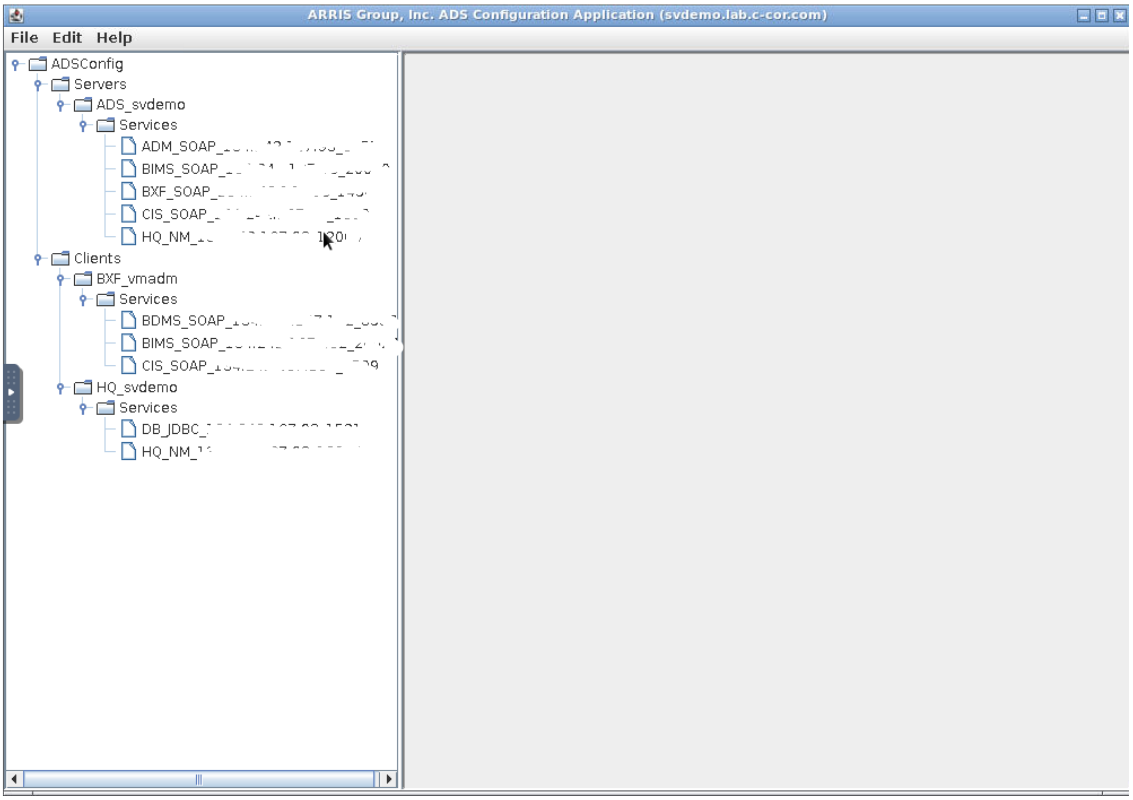
   Note: To see the ads command usage, in the command line session type: **ads**.

   ```
   ads start|stop|status|config|cmap|version
   ```

   - Invoking *ads start* will start or stop and start ADS if it was already running.
   - Invoking *ads stop* halts the ads application.
   - Invoking *ads status* displays a brief ADS process message.

- Invoking *ads cmap* displays a Channel Map Configuration main page. See *Channel Map Configuration* (page 30) for more information.
- Invoking ads version displays the release version numbers.

The ADS Configuration Application is displayed.



ADS Config

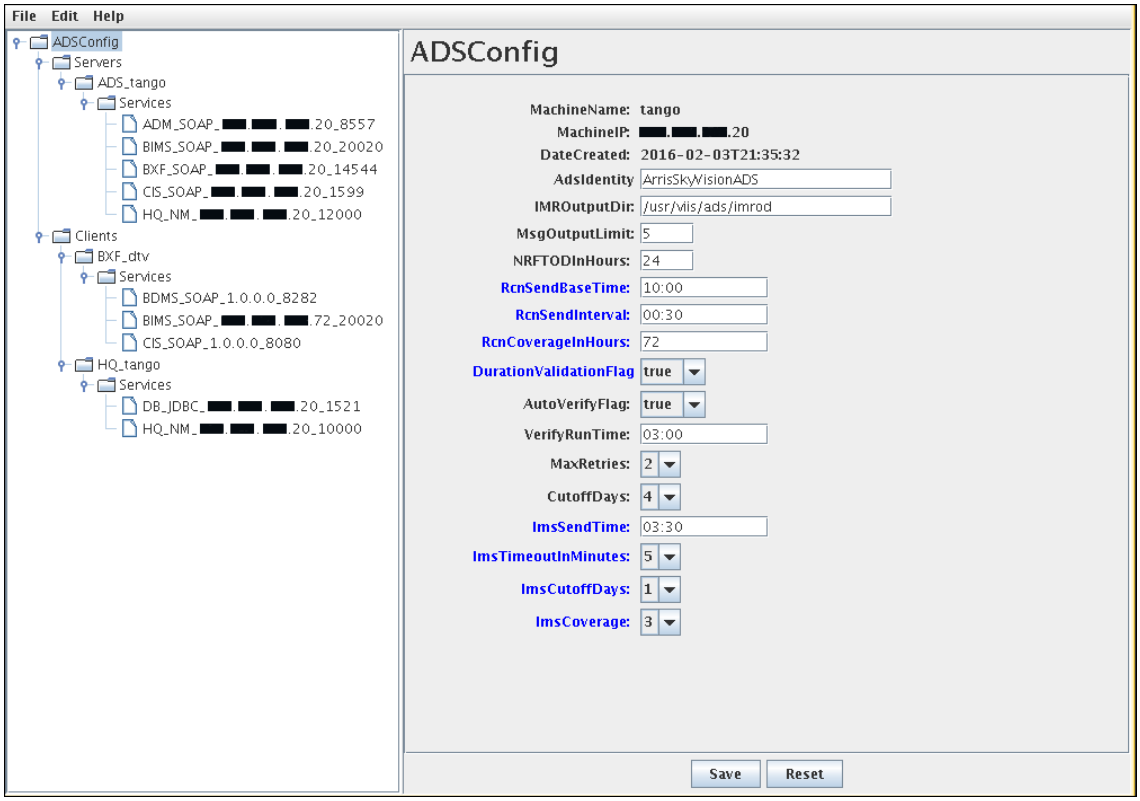
The ADS Configuration Application presents a system tree on the left panel, and a working panel on the right. The system tree is expanded to show the auto-populated Services and Clients.

In the current release of ADS, there can be only one Server. In the screen below, the Server is ADS_cash. The name is from the SkyVision HQ server.

The Services list displays all services that ADS clients, such as the ADM, can expect to be supplied data by the ADS. The standard, required Services are:

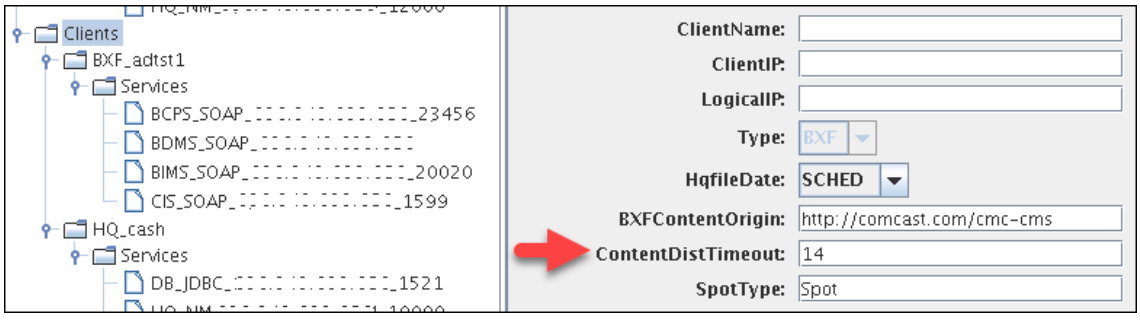
- ADM_SOAP_<IPaddress_port> this is the protocol used to communicate with web-based applications. SOAP is the 'Simple Object Access Protocol'.
- BXF_SOAP_<IPaddress_port> For future use.
- CIS_SOAP_<IPaddress_port> Content Information Service (CIS) enables the ADM CIS to communicate with the ADS.
- HQ_NM_<IPaddress_port> Is the headquarters Network Messaging protocol service that enables the HQ genserver to talk to ADS.

From the system tree of the ADS configuration application, click ADSConfig to see the ADSConfig screen:



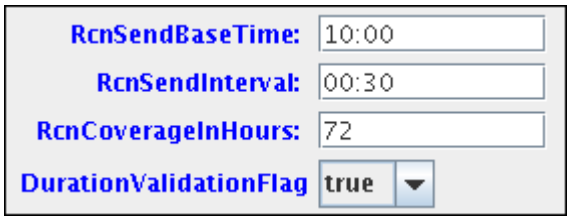
Note that the MachineName, MachineIP, and DateCreated information are read-only. The system configuration options are as follows:

- Adsidentity - enables input of a unique identifier string to include in SCTE-130 messages to help distinguish between several system participants. This string may be alpha-numeric and a maximum of 20 characters. No entry causes the ArrisADS string to not be used.
- IMROutputDir - used to define the directory to store Inventory Match Report messages.
- MsgOutputLimit - allows you to specify the maximum message size in megabytes that will be allowed to be output. Enter 0 for no limit. The maximum is 99.
- NRFTODInHours - No Retry For Time Out Distribution enables you to specify a delay in hours from 1 - 24 that a content distribution operation will not be allowed to be requeued. This is needed to allow third-party content preparation to proceed beyond the ADS content distribution timeout period (an option on the Client Machine Configuration screen shown below).



If an ADS content distribution operation succeeds in sending the content to the third-party content receiver, but the content preparation takes longer than the ADS content distribution operation timeout, the No Retry For Time Out Distribution delay prevents SkyVision from requeuing the distribution operation for the defined period. The SkyVision operation timeout is 15 minutes, so you would set the ContentDistTimeout to 14 minutes, as shown in the above illustration.

The ADSConfig screen enables you to specify if the ADS will be supporting an Invidi system. The Invidi-related fields are:

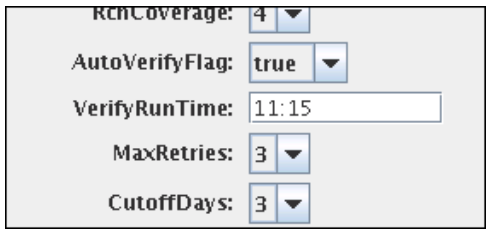


- RcnSendBaseTime - enter the starting hour and minute in the format HH:MM. This defines the earliest time each day that the RCN message(s) will be sent to the Invidi system. Used to compute when the system will start work on RCN messages.
- RcnSendInterval - define in minutes the time interval between transmission of RCN messages. Minimum is 30 minutes and maximum is 24 hours.
- RcnCoverageInHours - enter the number of hours for which the ADS retrieves SkyVision schedules as input data to compute RCN unique assets. The range is from 001-999. If the number of hours of coverage results in multiple days of coverage, Invidi will receive an RCN for each separate day.

  Note: If you select 0 to send the RCN today, be sure that you have imported schedules prior to the defined send time. ADS can only send schedule data that is currently in the database.

  DurationValidationFlag - set to true or false. When set to true spot durations must be divisible by 15. Refer to Appendix B for RCN use cases.

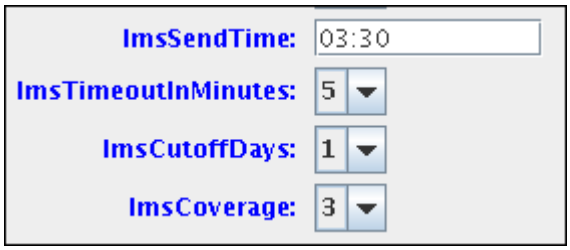
  Note: Verification data from Invidi systems is typically delayed by some number of days. The delay is a configuration setting in the Invidi system. The next four ADS Configuration fields allow you to define AutoVerification operations that take into account the time delay.



- AutoVerifyFlag - Set to True if you want to run AutoVerify operations.
- VerifyRunTime - Enter the time of day that you want ADS to automatically initiate SkyVision verification operations. In the illustration, the time is set to 06:30.
- MaxRetries - Use the pick-list to specify the number of retry attempts SkyVision will initiate. 3, 4, or 5 retries are recommended. Beyond that may delay a possible error message that should be reported earlier.

- CutOffDays - Use the pick list to specify the number of days into the past for which you want ADS to run auto-verification. CommScope recommends 4 days.

The ADSConfig screen facilitates support for a system that includes integration with an Inventory Management Service (IMS). There are four IMS settings configured on the ADSConfig screen:



- ImsSendTime - is used to define the time of day that the ADS will send an Inventory Notification Request (INR) message to the IMS server. Enter the time in 24 hour format, such as 23:30.
- ImsTimeoutInMinutes - use the pick list to define the number of minutes (1-5) that the ADS will wait to receive an Inventory Notification Request Acknowledgement message. If no acknowledgement is received before the timeout, ADS resends the INR message. For example: if this value is set to 5 (the default), the resend operation continues every 5 minutes until an acknowledgement is received, or until a new day begins.
- ImsCutoffDays - is used to specify the number of days from the present for which ADS will not request inventory data. Use the pick list to select from the valid range (0-7). Entering 0 tells ADS to ask for inventory data from the present onward. Entering 1 or greater means ADS will request data for that many days into the future. Default is 7.

  CAUTION: If the ImsCutoffDays is set to 5, and you currently only have inventory data for 2 days, you will not get inventory data for the next two days. The Cutoff setting tells ADS to ask for inventory starting five days from today. Any days between the present and 5 days in the future will not be requested.
- ImsCoverage - allows you to define the number of days (1-7) for which the ADS will ask for inventory information. The default is 3.

For the IMS settings to function, you must also define a BIMS client.

Be sure to Save your configuration changes. The settings are held in memory until you perform a File Transfer.

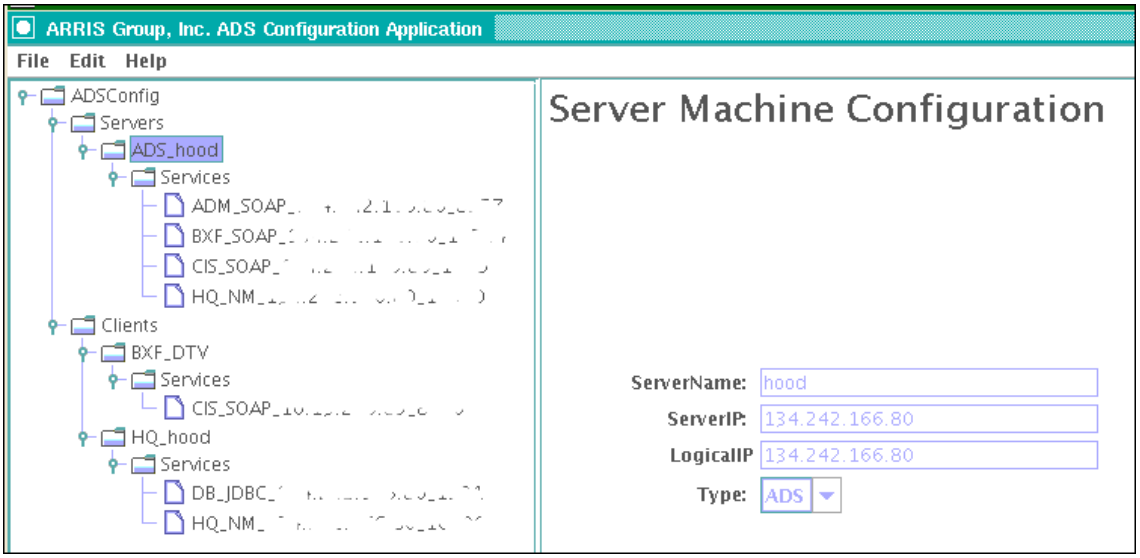
Note: Your new configuration will not be active until you perform the File Transfer, and restart ADS.

Server and Services

The Servers section of the system tree displays the name of the Server and its Services. On first access to the ADS Configuration tool, only the standard, required Services are displayed.

1. In the system tree, click the **Servers** icon.

   The Server Machine Configuration screen is displayed.

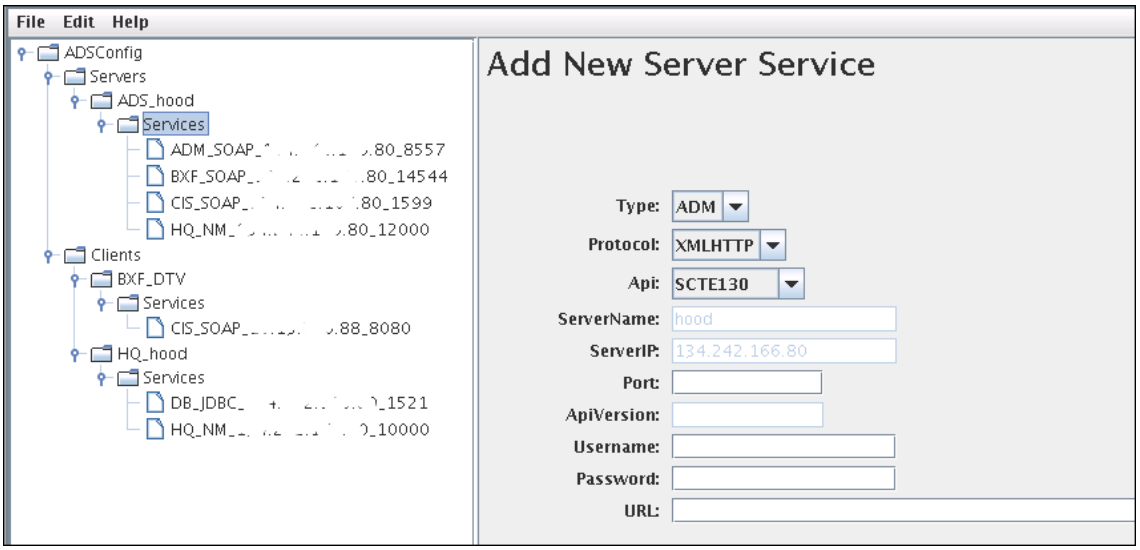


Because there can only be one Server, the configuration fields are in display-only mode. The Logical IP is used to enable ADS to communicate with a Service that may have multiple IP addresses.

The Servers section displays services provided to the ADM client.

2. From the system tree, click the **Services** Icon.

   The Add New Server Service screen is displayed.



A new Server Service may be added, such as adding an nABLE ADM service. The configuration fields for a new service are all available except the ServerName, and ServerIP.

- Type: specifies the type of Service.
- Protocol: specifies the communication protocol the Service will use.
- Api: specifies the application interface standard.
- ServerName and Server IP are from the Server and can not be edited.
- Port: the port over which this Service will operate.

- ApiVersion: shows current API version and cannot be edited.
- Username, Password, and URL are not needed for this example.

Note: The Username field accepts the @ symbol to allow a domain name to be placed after the user name. The Username field accepts up to a maximum of 255 characters.

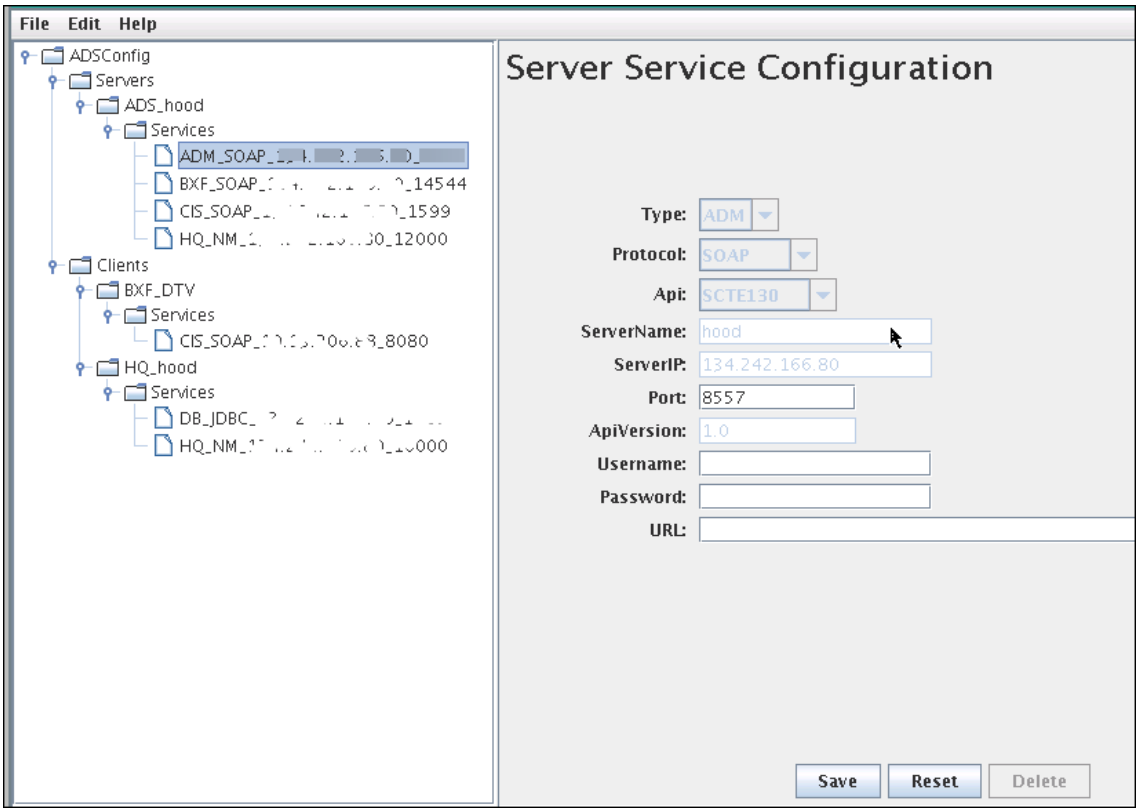
3. If you add a new Service, click **New**. The Service is then displayed in the system tree.

   The existing Services enable only limited editing capability as shown in the next illustration.

   Note: For the HQ_NM Service, the HQ_NM Port, must match the port defined for this service in the skyvision .xml file:

   `ads_port="12000"`

   The default ADS port is 12000.



   Notice that an existing Service configuration screen does not allow editing of the Type, Protocol, Api, ServerName, ServerIP, and ApiVersion fields. These are required, basic services ADS needs to function properly. The protected fields prevent inadvertent edits.

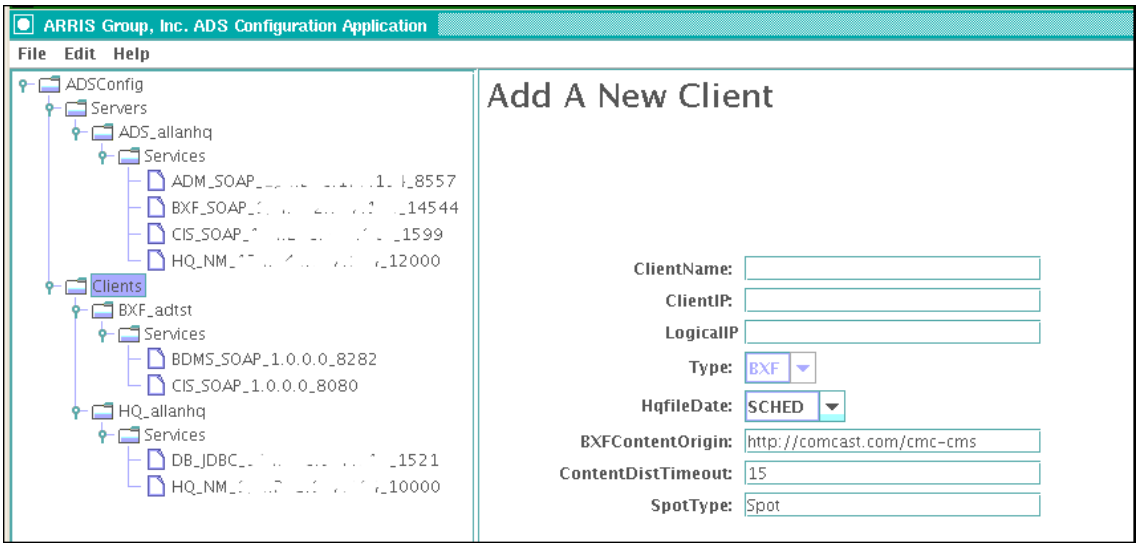
   The Port, Username, Password, and path fields can be edited as site requirements dictate.

Client configuration

Client services are services the ADS will demand from the ADM server, the HQ server, SkyVision, an Invidi system, and an Inventory Management Service if that is part of the

overall system. There are two standard Clients that have required Services: the BXF-DTV and HQ clients.

1. From the system tree, click the **Clients** icon to display the Add A New Client screen.

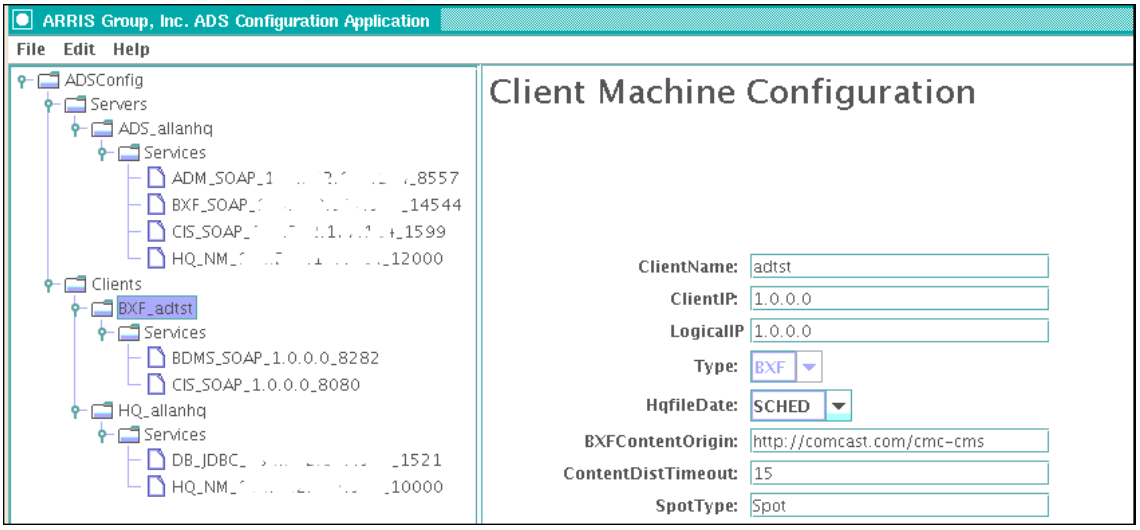


A new Client configuration screen enables you to edit all but two of the fields.

- ClientName can be edited. For the required Clients, this field is always editable to allow for site-specific component names. The name must be the name of the ADM server.
- ClientIP is also a field you can edit as needed. Enter the IP for the ADM server.
- Logical IP is the IP address of the machine that is the source for content notification messages.
- Type must be BXF and can not be edited.
- HQfileDate determines which hqfile will record data for a window that spans midnight. Data can be recorded in the hqfile for the date on which the event played (PLAY), or the hqfile for the date on which the event was scheduled (SCHED).
- BXFContentOrigin: enter the URL of the ADM server. For example; http://comcast.con/cmc-cms
- ContentDistTimeout: set in minutes. This is the amount of time a content transfer will run before timing out. Must be less than the setting in the skyvision.xml file. Valid range is 1-99 minutes. Default is 15. See also *Content Delay* (page 11).
- SpotType: can be Spot, Commercial, or any valid alpha-numeric string. The field will turn red if the character limit is exceeded.

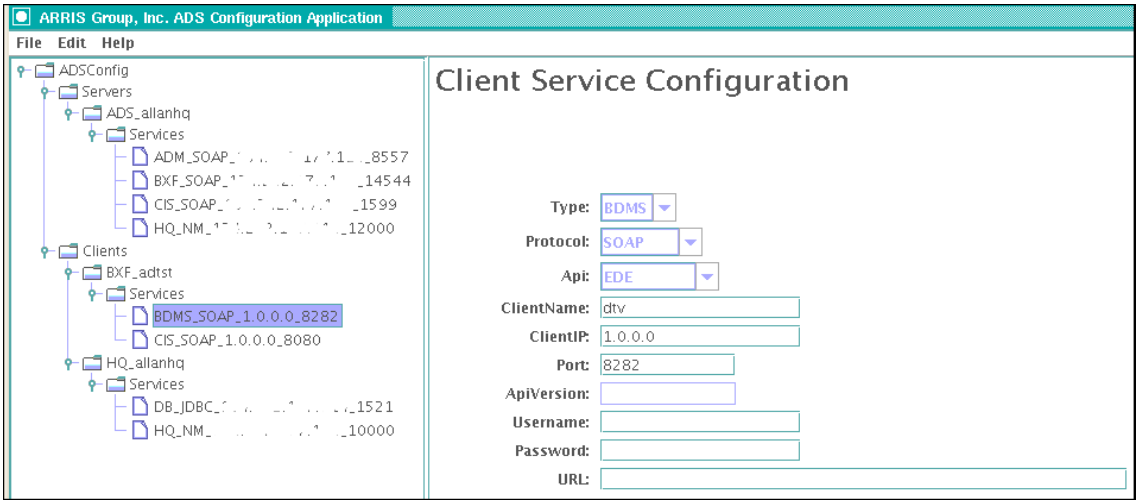
If you were to add a new Client, once all fields were completed, you would click New.

2. Click the **BXF_<machinename>** icon.



The ClientName and ClientIP must match the machine name and IP entered in the SkyVision Console for the ADM headend.

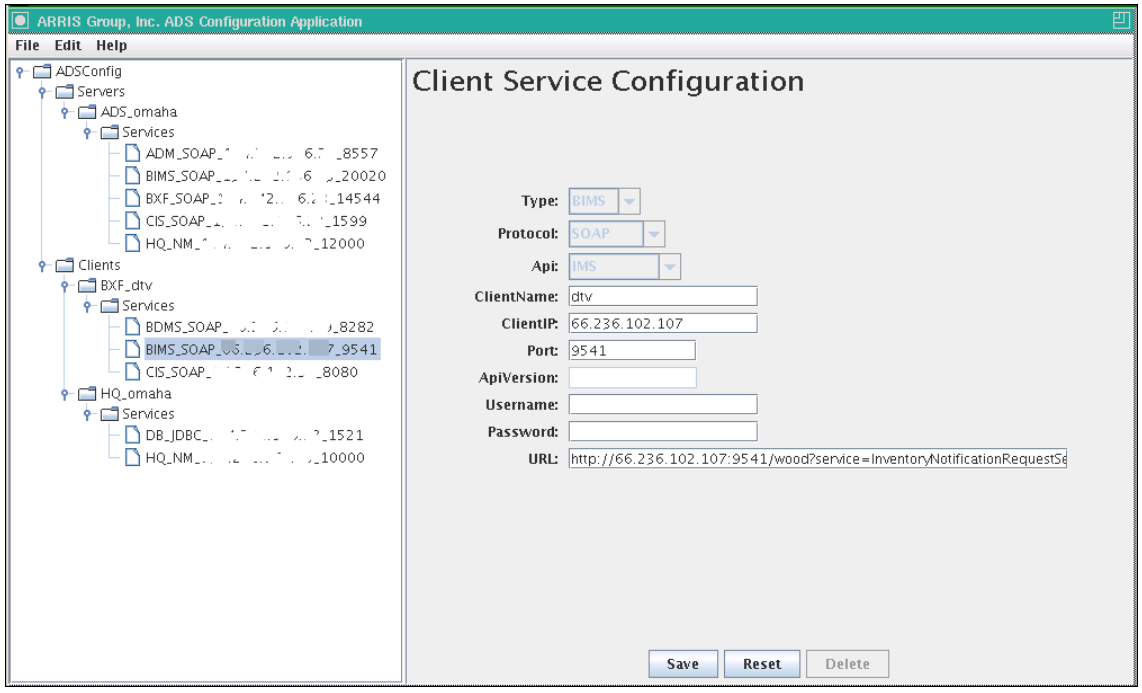
3. Click the **BDMS_SOAP_<IPAddress_port>** icon.



- Note that the client Type, Protocol and Api are auto-populated for the Invidi system settings.
- The BDMS_SOAP client service enables you to define the ClientName, ClientIP, and Port for the Invidi system.
- The ApiVersion is auto-populated.
- The Username, Password and URL are entered if required for connecting to the client.

Note: The Username field accepts the @ symbol to allow a domain name to be placed after the user name. The Username field accepts up to a maximum of 255 characters.

4. If your system includes an Inventory Management Service, click the **BIMS_SOAP_<IPaddress_port>** icon.



In the Client Service Configuration screen complete the following fields:

- The ClientName will be the name of the IMS server.
- The ClientIP must be the IP address for the IMS server.
- The Port must be the port number on the IMS server that is listening for ADS messages.
- The URL specifies where the ADS will send InventoryRequestNotification messages.

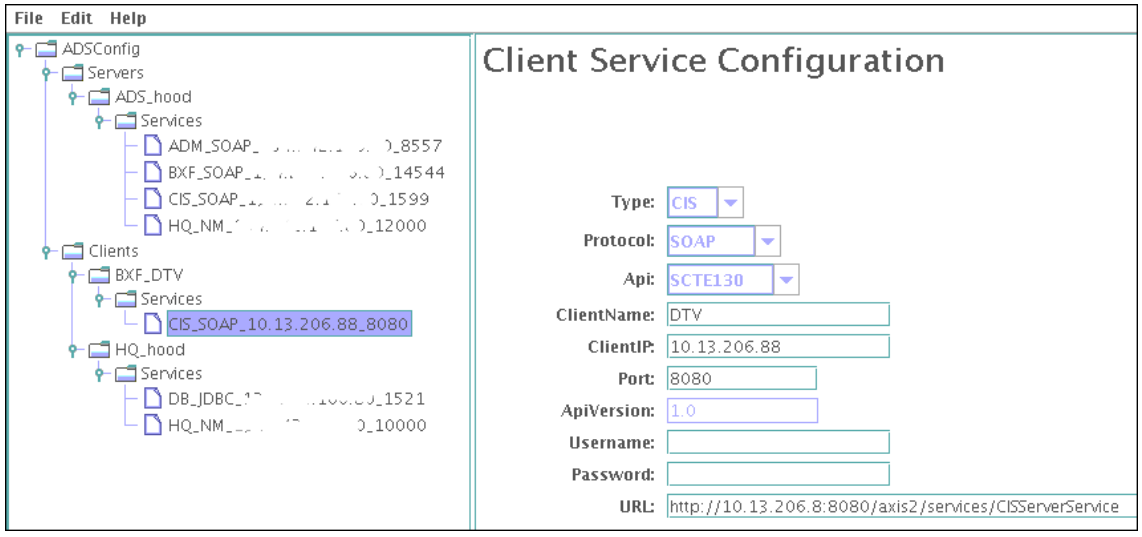
Click **Save**.

See also *Configure a Channel Map* (page 30).

5. Click the **CIS_SOAP_<IPaddress_port>** icon. (CIS is Content Information Service.)

   The BXF client will always have a Service for CIS_SOAP_<IPaddress_port>. This client service allows ADS to communicate with the ADM for the purpose of content management.

   Since this is a standard Service, the fields get auto-populated.



Notice that the top three fields can not be edited.

The ClientName, ClientIP, and Port require site-specific data.

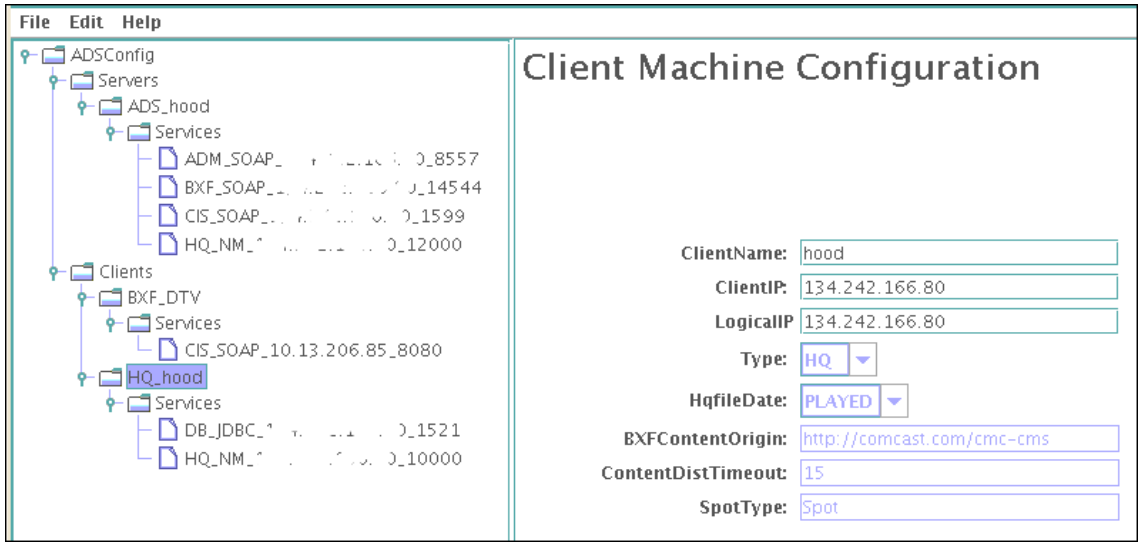
The ApiVersion is auto-populated.

The Username and Password are entered if required for connecting to the client.

The URL path is completed as required for connection with client.

6. Click the **HQ_<name>** client icon.

   The HQ_<name> client is required. This is the ARRIS HQ that must communicate with the ADS and the ADM server.

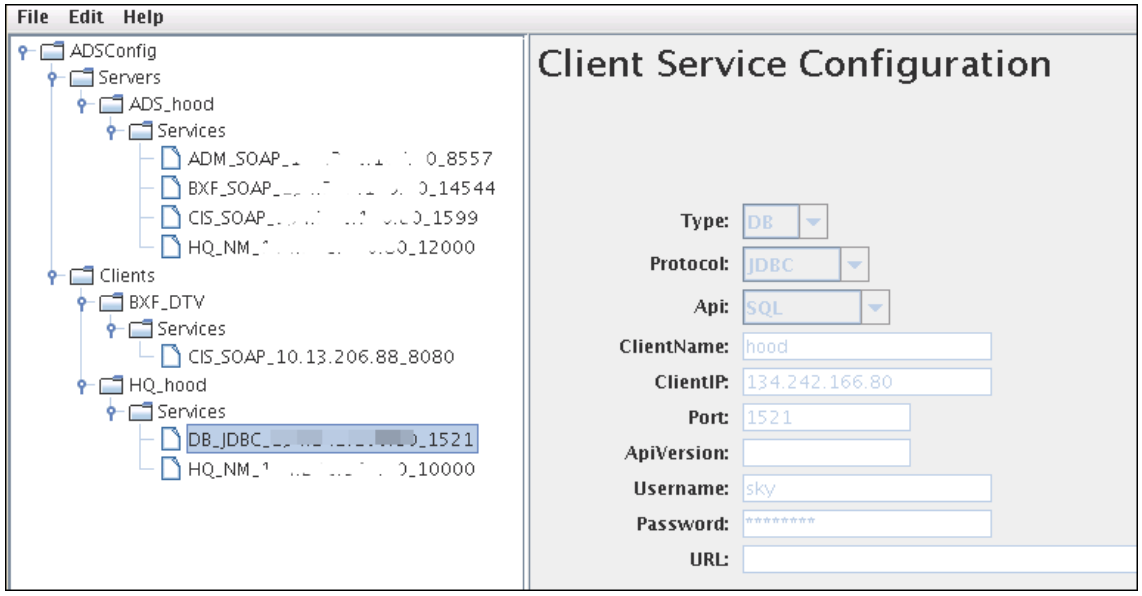


You must manually enter the Client Name, ClientIP, and LogicalIP for the HQ server. Those are the only fields that can be edited.

7. Click the **DB_JDBC_<IPaddress_port>** icon.

   This is the client service for the HQ Oracle database.

   The ClientName and IP are for the HQ server.



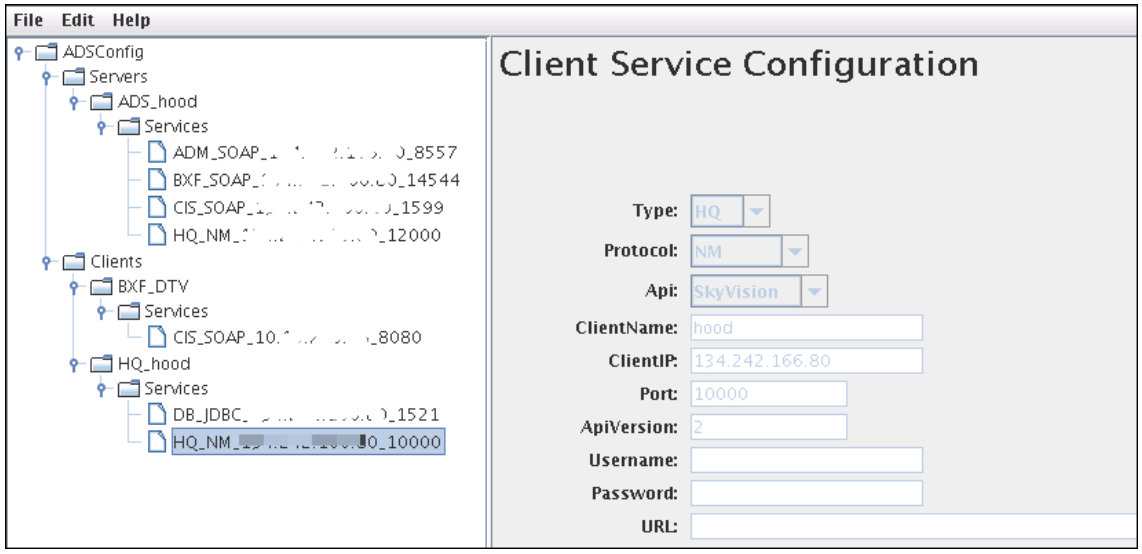
By default, the DB port is 1521. Do not edit unless the default DB port is changed.

Username and Password are required for connection with the Oracle Database.

The path can be left blank for this service.

8. Click the **HQ_NM_<IPaddress_port>** icon.

   This is the HQ server's Network Messages server. This allows ADS to communicate with the genserver.



The ClientName, IP, must match those of the HQ server.

Port is the port on which the genserver is running.

The remaining fields are not required for this service.

9. **Save** your configuration edits.

Optional BCPS service

ADS supports the capability of deleting content from a BXF headend server using the SkyVision RAID view to identify content and send a deletion request. This feature must be configured in the ADS configuration tool.

The BCPS service needs to be configured with the following parameters:

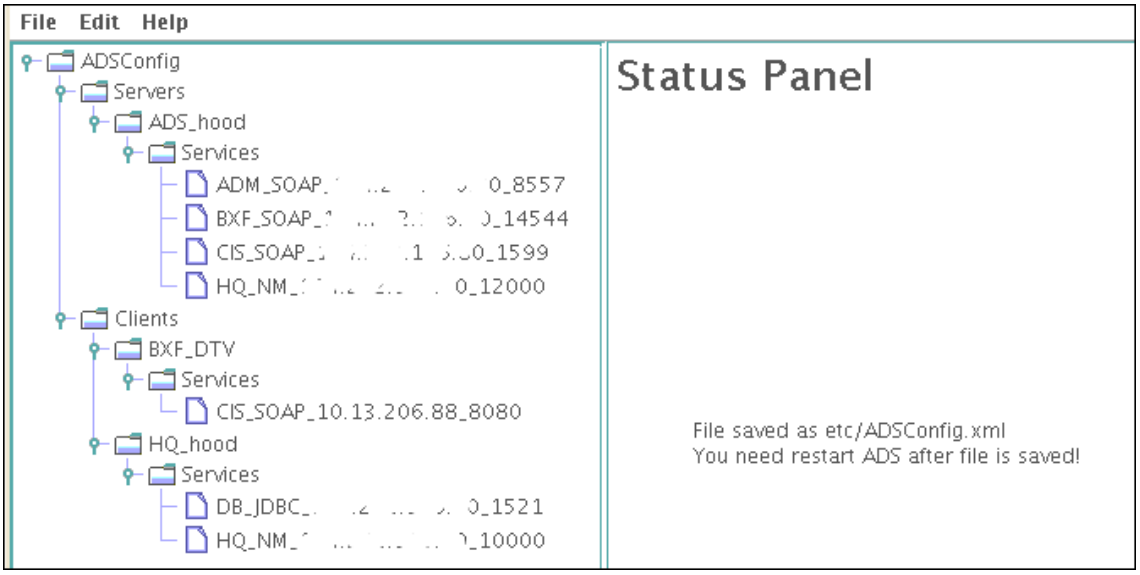
Configuration option	Value
Machine	Name of machine providing the service (from drop-down list)
Type	BCPS
Protocol	SOAP
API	CPS
Port	As supplied by the system administrator
Port	As needed by local system requirements
API Version	Selected from drop-down list
Username	Specify as required for connecting to the client
Password	
URL	

ADS Config upload

When you have made any ADS configuration edits, you must upload the new configuration to the server.

1. From the menu bar, click **File>File Transfer**.

The File transfer process displays a reminder message as shown below:



CAUTION: The Status Panel reminds you that the ADS Configuration application is not a dynamic re-configuration. You must restart ADS to enable the system to enact the new configuration settings.

2. Once the configuration is uploaded, stop and start ADS for the new configuration to take effect. From a command line prompt on the HQ server, login as **gollum** and type:

   ads start (stops a running instance and restarts it)

   When ADS starts, your new configuration will be active.

Exit ADS Config

To exit the ADS Configuration tool, from the File menu, select **Exit**.

In the command line session, type **`exit`** to close the X11 connection and dismiss the window.

Configure a Channel Map

If your system includes an Inventory Management Service, you must prepare a channel map that enables coordination between SkyVision networks and the IMS network codes. It is possible that all networks will not be needed in the channel map. Your inventory provider can provide a list of the networks that must be included in the channel map.

Creating a channel map is done through the ADS **cmap** user interface.

1. To access the **cmap** user interface, open a command line session on the ADS server and login as **`gollum`**.
2. At the command prompt, type **`ads cmap`**.

   The Channel Map Config Main Page is displayed:

```
-------------------- Channel Map Config Main Page --------------------------------
up  - Update Existing ChannelCode from SkyVision Channel Map
de  - Delete Existing ChannelCode from SkyVision Channel Map
in  - Insert New ChannelCode into SkyVision Channel Map
ds  - Display Existing SkyVision Channel Map
ls  - List Non-Configured SkyVision Networks
q   - Quit
----------------------------------------------------------------------------
```

The cmap configuration tool options are invoked by typing the abbreviation in the left column.

3. To create the initial channel map, first view the list of available SkyVision Networks. Type **`ls`**.

   The cmap tool displays a list of SkyVision networks by network name and ID number that have not been configured in the channel map.
4. Refer to the IMS listing of networks and network codes to insert the needed networks and codes into the channel map. Type **`in`**.
5. The cmap tool prompts you for the network ID number. Type the ID number from the available networks list and press **ENTER**.
6. The cmap tool next prompts you for the IMS network code. Type in the IMS network code and press **ENTER**.

   Repeat steps 4-6 for each network that must be included in the channel map.

   Edits made to the channel map are entered into the SkyVision database as they are made. The cmap tool will not allow duplicate entries and includes error checking to detect invalid entries.
7. When you have completed the channel map, to leave the tool from the main menu, type **`q`**.

   When you quit the cmap session, the channel map is written to the system database.

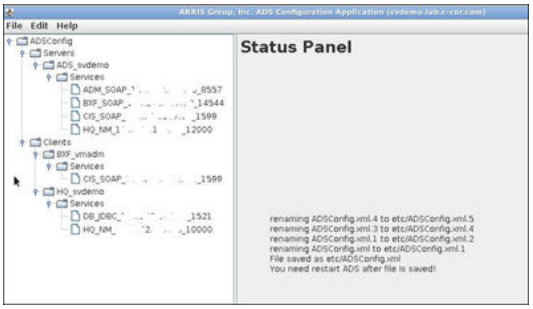
   If necessary, an existing channel map may be edited by re-accessing the cmap tool and typing **`up`** to update the channel map.
8. Log out of the command line session.

Regional Sports Network configuration

ADS support for the Regional Sports Network requires the following configuration changes. Since the Regional Sports Network supplies all inventory, the required configuration omits IMS Server and Client settings. The ADS server supporting the RSN network must be a dedicated server.

1. Access the ADS Config tool.
2. From the list of Services, remove the BOMS_SOAP service.
3. From the list of Clients, remove the BIMS_SOAP client.

   The ADS configuration should look like this:



4. Upload the new configuration.
5. Run **`ads start`**.
6. Monitor ADS operations to verify that the system is performing as expected.

SKADS Manager

SKADS Manager is a graphical user interface tool that enables you to predict the outcome of merging SkyVision schedules with an inventory of avails provided by a third-party system. This allows you to take corrective action before the actual merge is needed. The Content Status feature further aids in monitoring content availability and content operations.

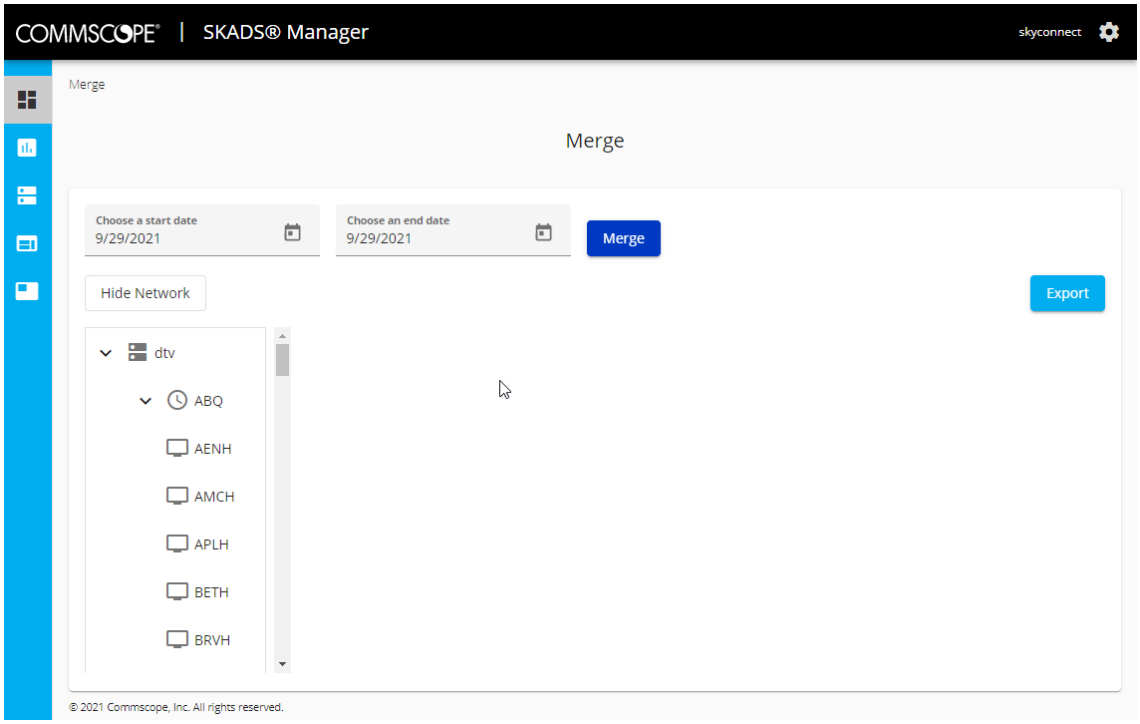
Access SKADS Manager

SKADS Manager has a web-based user interface. Simply open a web browser such as Chrome and point it to the ADS server's IP address. When the login screen displays, enter your user ID and password, and click Login.

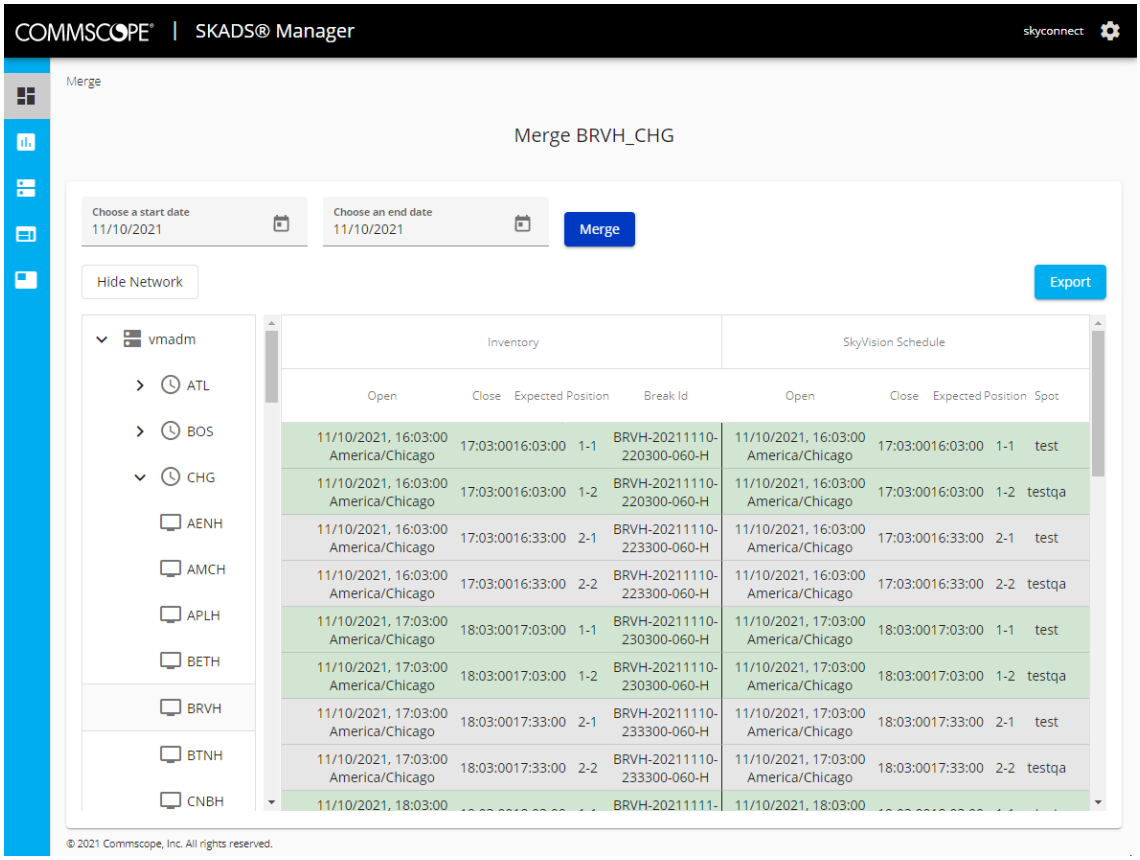
SKADS Manager User Interface Introduction

This section introduces the main components of the SKADS Manager user interface. Each component is described in greater detail in following sections.

When you first login to SKADS Manager, the **Merge** page is displayed.



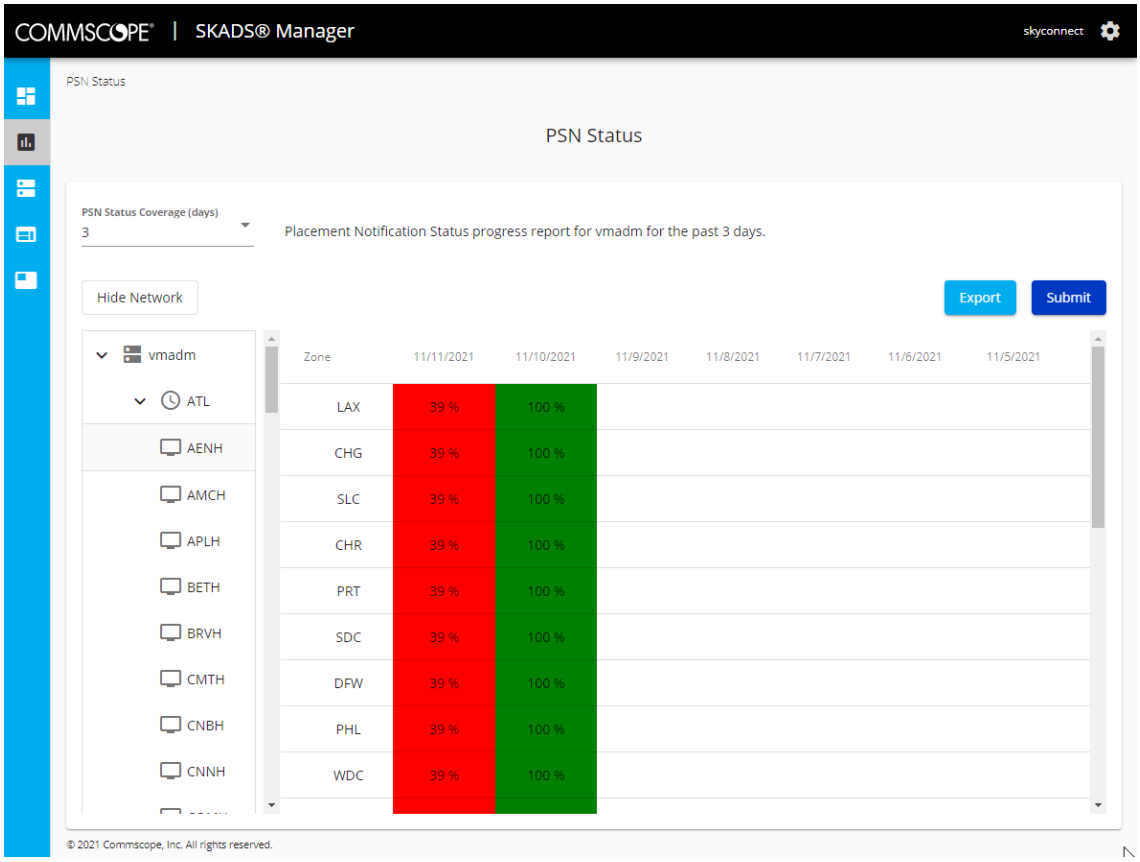
The Merge page enables you to view a merge prediction for a selected network, along with controls to specify the desired date range for the merge prediction.



By default, SKADS Manager displays merge data on screen. The Export button enables merge data to be exported as a CSV file. The Merge and Export buttons toggle between these two operational modes.

PSN Status

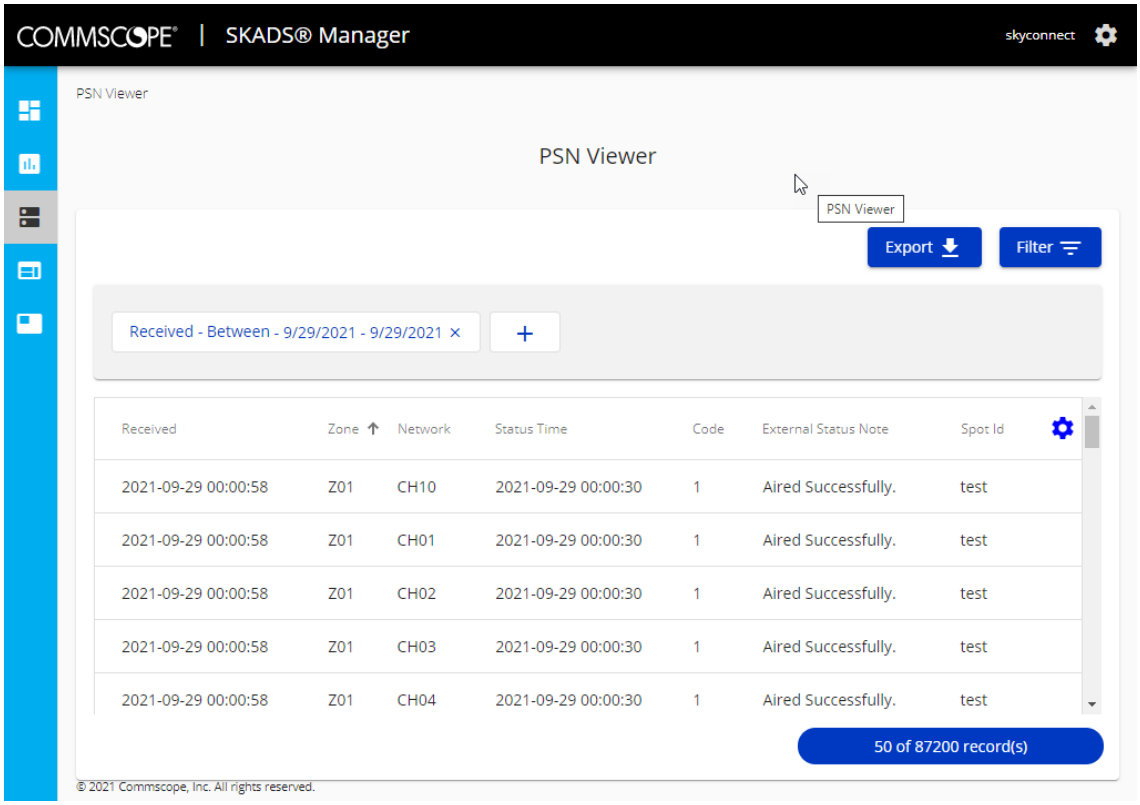
The PSN Status screen facilitates monitoring the number of Placement Status Notification (PSN) responses ADS has received for a given zone over a specified period of time.



The number of dated columns across the top can be specified by the operator from the pick list. However, the number of days' worth of schedule data is also determined by what data is currently available in the database. Displayed data can be exported to a csv file.

PSN Viewer

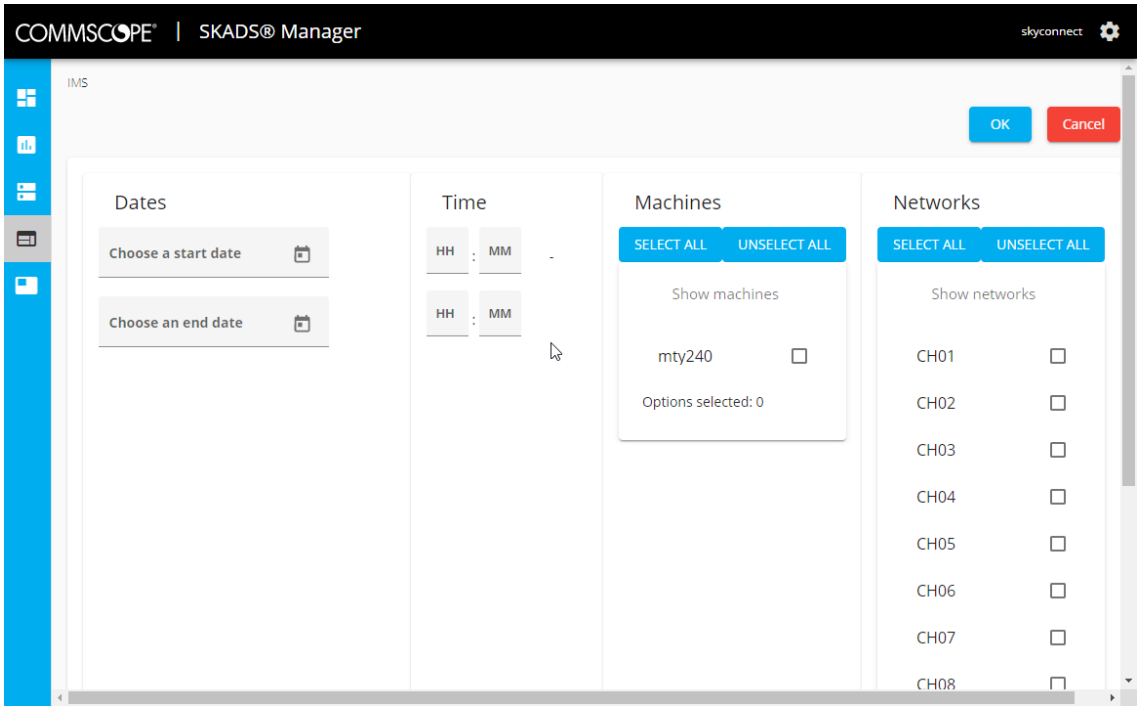
The PSN Viewer screen displays a record of every PSN that comes into the system to facilitate system monitoring and troubleshooting. The PSN Viewer controls can be configured to show only those PSN messages which were unsuccessful. Display data can be filtered and sorted to produce a useful report that can be viewed and exported.



PSN messages are used to generate verification files for traffic and billing. If there are unsuccessful PSN messages, these indicate spots that did not play successfully.

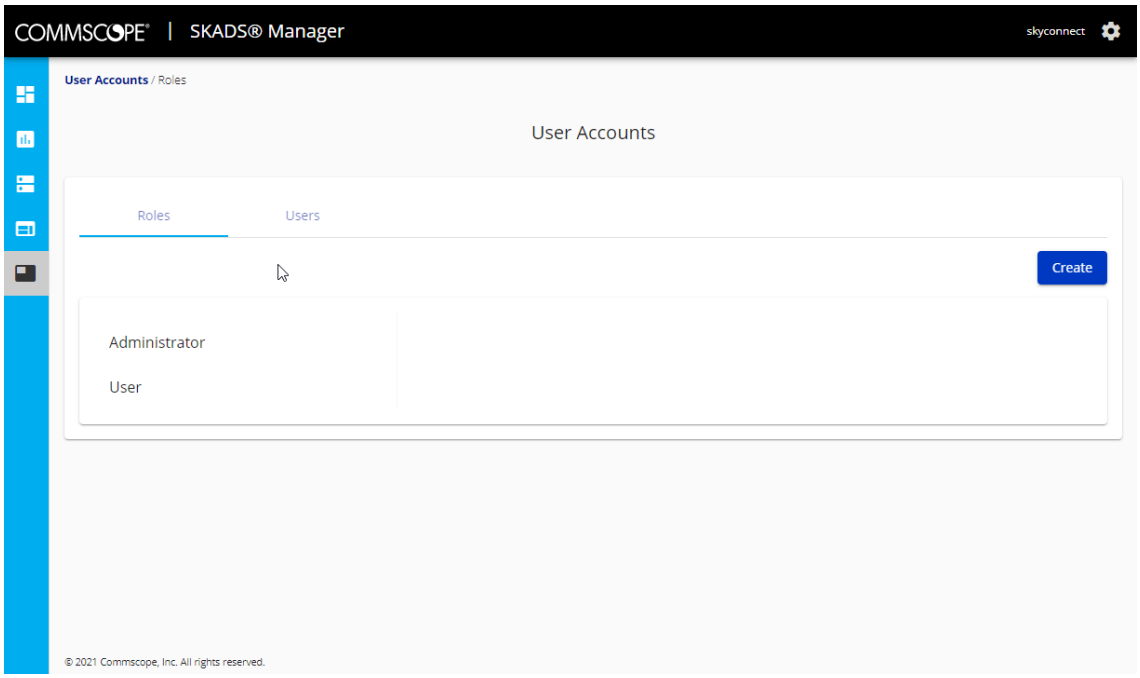
IMS

The IMS screen enables you to send inventory requests to the Inventory Management System for a specified date and time range for specified Machines, Zones and Networks.



User Accounts

The User Accounts screen enables a system administrator to create and edit system user accounts.



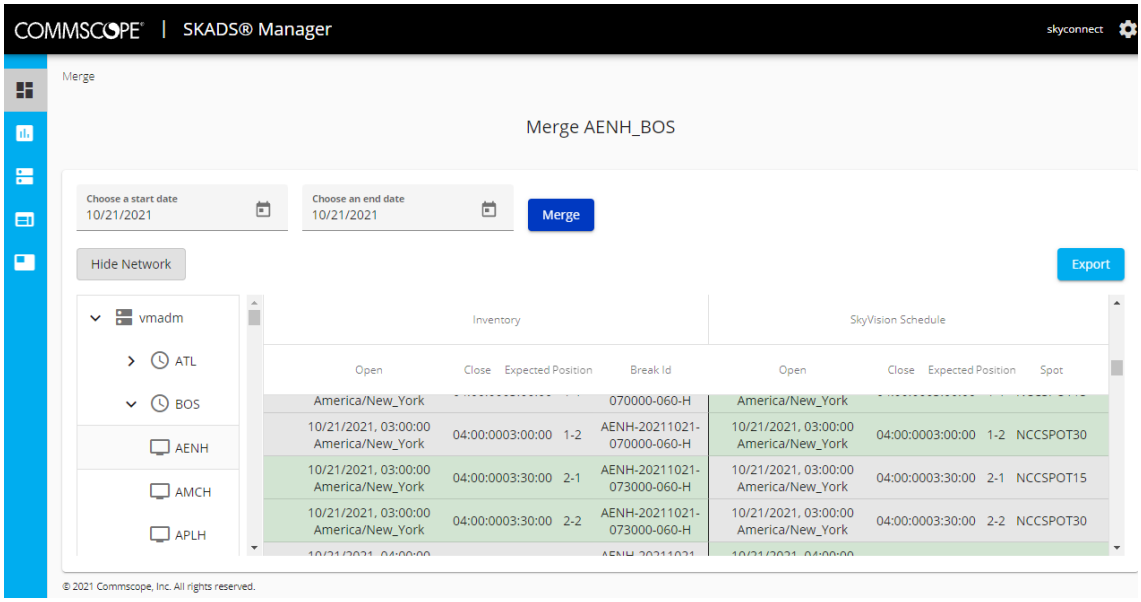
An administrator may also create new roles, such as a user roll that has read-only permission for system monitoring purposes.

Refer to the following sections for detailed descriptions of the user interface screen features and capabilities.

Using the Merge screen

Note: When you access the Merge screen, it is possible that there may be no inventory data available for a selected zone and network (channel) if the daily inventory request has not been sent to the ADM. If your user role includes permissions for the IMS screen, you can manually send an inventory request. This is particularly useful if new inventory (ad content) has been received since the daily inventory data operation ran. For more details, refer to *Using the IMS screen* (page 49).

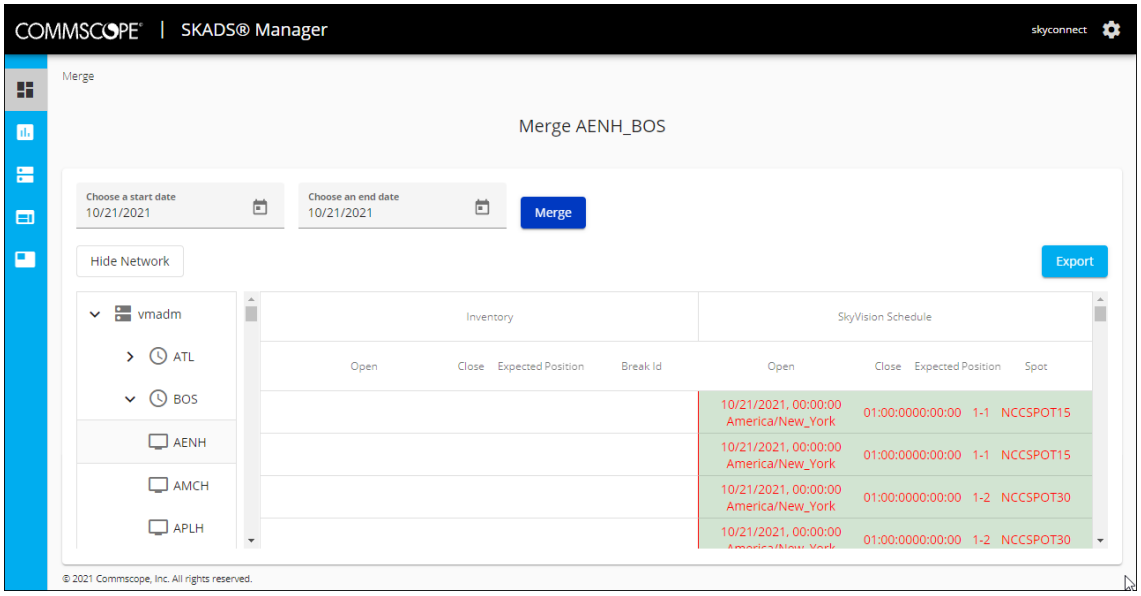
When you select a zone and a network, double-click the Network name and SKADS Manager displays a merge prediction for that network during the time specified by the data range controls. The IMS avail data is displayed on the left of the main screen, while SkyVision schedule is displayed on the right.



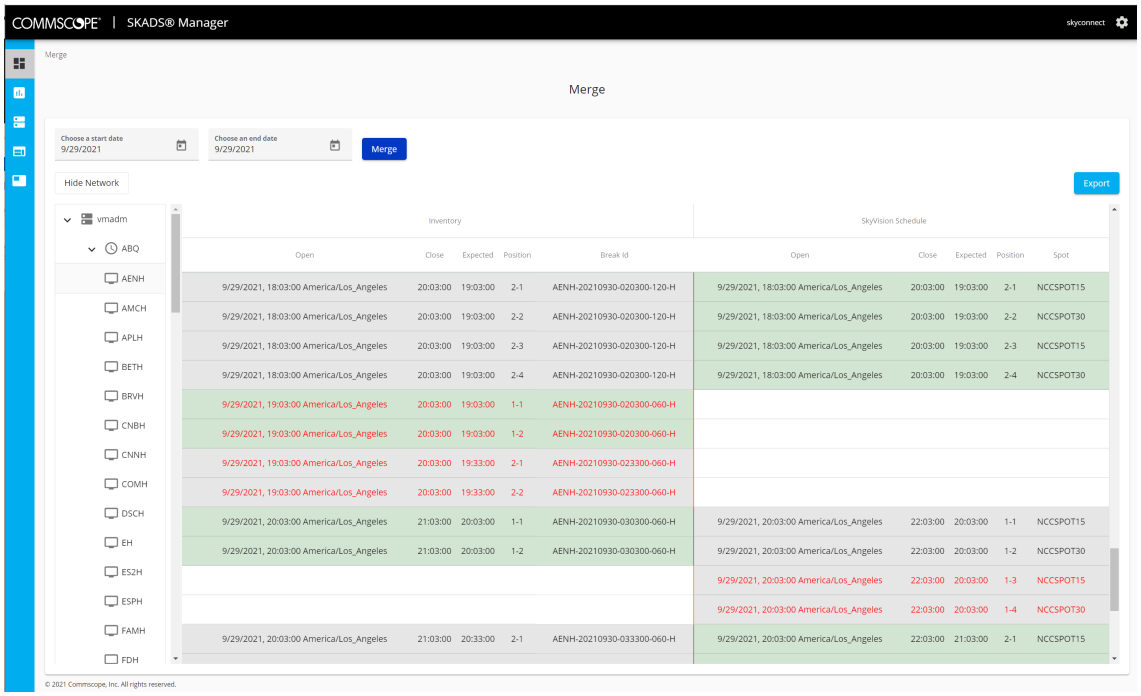
The width of your browser window may cause the display to wrap data on two lines as shown above. Make the browser window wider to see unwrapped data display. You can also use the Hide Network button to collapse that part of the display.

By default, the SKADS Manager displays merge data on screen. The Export button enables merge data to be exported to MS Excel. The Merge and Export buttons toggle between these two operational modes.

When there is a problem in the merge prediction, such as no inventory for an available ad break, the merge screen highlights the rows in red as shown below:



If the merge detects instance where spots are available but the schedule has no corresponding event for them, the merge shows that error as shown below:



To determine if missing inventory is now available, use the IMS screen to request the latest INR data for the zones and networks. Then return to the Merge screen an run a fresh merge to see if the missing inventory is now available. If inventory is still missing, you may be able to coordinate further with the content provider to avoid missed ad insertion opportunities.

Understanding Merge operations

The Merge screen is used to predict the results for a merge of a SkyVision schedule with the IMS content for a specified date and time range. This enables a system user to discover potential problems and take corrective action.

The SKADS Manager merge operation applies two rules to determine how the SkyVision schedule data and the IMS inventory data will cooperate.

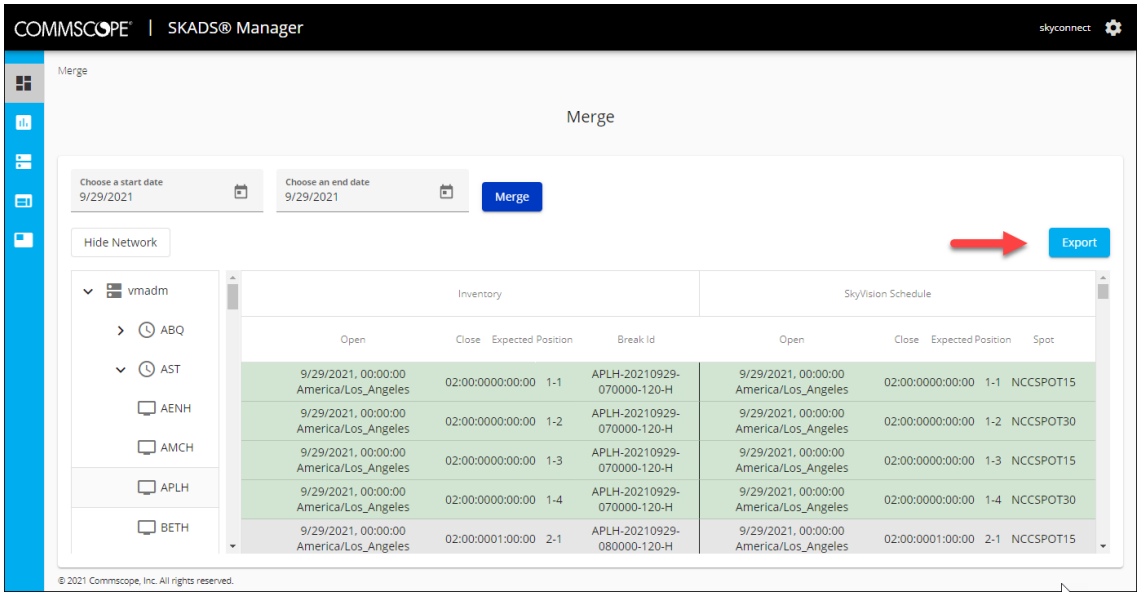
The Sequential Rule says that as long as the SkyVision scheduled spots are within inventory avail window-frames, all the scheduled spots will be merged into inventory as adequate allocations to accommodate the spots, and spots will be placed into inventory in the order they are listed in the schedule.

The Best-fit Rule says that the SkyVision scheduled spots that fall outside of inventory window-frames will not be merged. Scheduled spots will therefore not be played outside of SkyVision scheduled windows.

See also *Chapter 5: Inventory/Schedule merge rules* (page 59).

Export a report

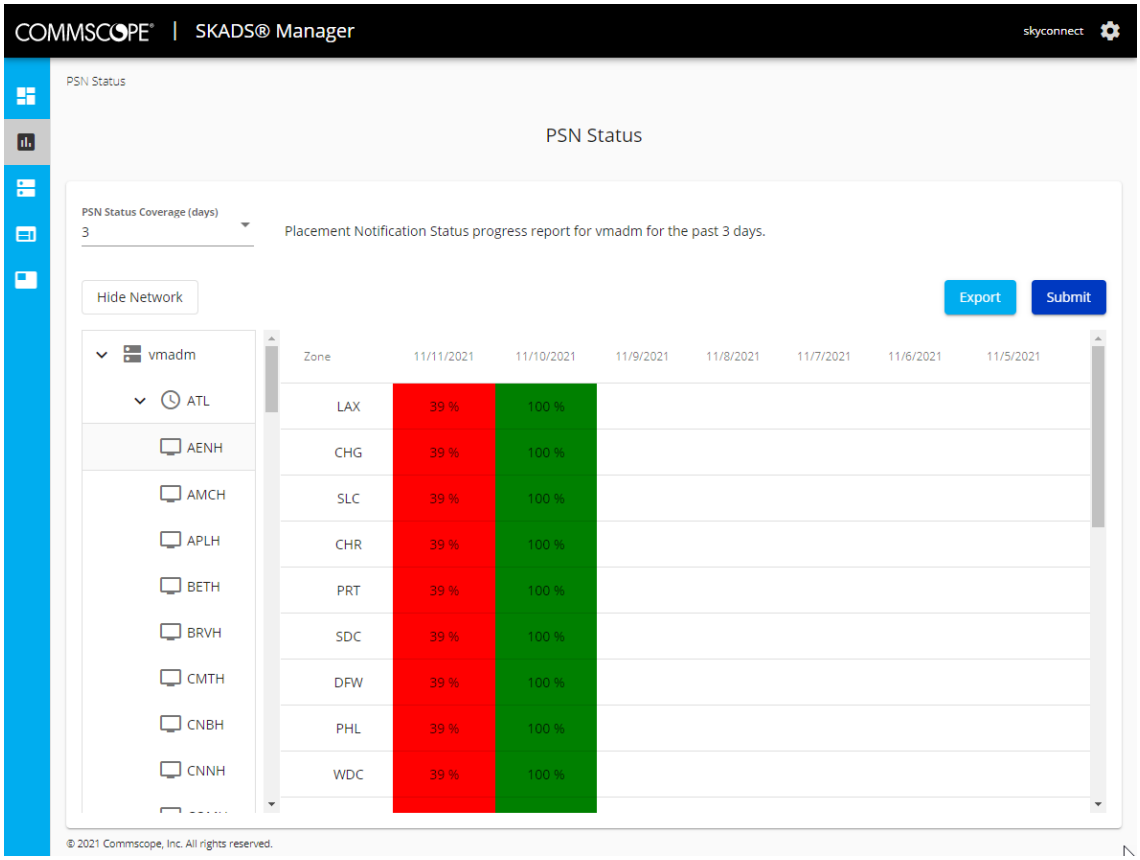
On the Merge screen, the Export button exports the currently displayed merge data to Microsoft Excel.



When you click the Export button, a new window is generated for Excel. From that window you can sort the data, or print, etc.

Understanding PSN Status

The PSN Status screen enables you to monitor the number of Placement Status Notification (PSN) responses ADS has received for a given zone over a specified period of time.



The number of dated columns varies depending upon the specified date range. The number of days' worth of schedule data is also determined by the data currently available in the database.

Automated data purge

The number of days for which data is available depends upon the configuration setting governing the number of days of data retained in the SkyVision database. By default, data is automatically purged after three days. However, this setting can be changed in gollum's crontab by a CommScope Technical Support engineer.

Color codes

The PSN Status color codes vary with the percentage of PSN responses ADS has received from Invidi.

- Green indicates a percentage over 95%
- Yellow indicates a percentage between 90-95%
- Orange means that the percentage is between 71-89%

- Red means that the PSN response rate 70% or lower

The table cells show the actual percentage for that network for the chosen Zone and headend.

The Zone column may be sorted by ascending or descending order by clicking on the column header.

Snapshot in time

The PSN Status display is a database snapshot in time. When an operator clicks the Submit button, ADS queries the database and presents the data for that moment. The display is not dynamic. It only updates when the Submit button is pressed.

In addition, the data is always displayed based on the current schedule data in the database. When schedule data changes, the PSN Status will also change based on the current schedule data.

How PSN Status is calculated

The ADS PSN Status is calculated by taking the number of scheduled events per zone and dividing that by the number of PSNs by zone.

For example, if there are 100 events in the schedule for a zone, and the number of PSN responses is 57, then the PSN Status is 57%.

PSN Status does not address success

The PSN Status data does not indicate whether Placement Status Notifications are reporting successful spot plays. The PSN Status only shows the percentage of PSNs received by ADS. Tracking success or failure of spot plays for verifications is performed by a third party traffic and billing system.

However, you can get success and failure data from the PSN Viewer as described in the following section.

PSN Status Codes

Here is the complete list of PSN status codes:

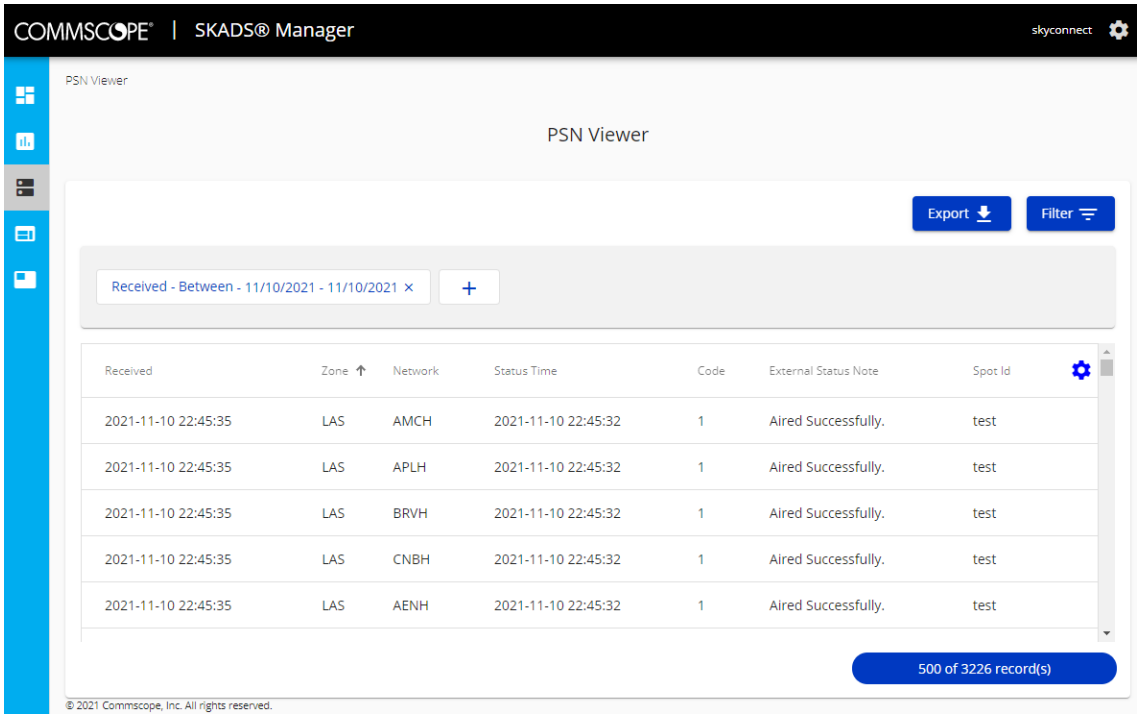
Code Number	Description
1	Aired Successfully
2	Generic Failed to Air
4	Failed, Bypass On
5	Failed, Logging Turned Off
6	Failed, Bad Video
8	Failed, User Abort
9	Failed, Inserter Abort
10	Failed, Device Not Ready

Code Number	Description
12	Failed, Unknown Error
13	Failed, Time Out
14	Failed, Device Time Out
15	Failed, System Error
16	Failed, Operator Error
17	Failed, Inserter Busy
18	Failed, Insertion Conflict
19	Failed, Directory Error
20	Failed, No Ad Copy in Inserter
21	Failed, Cued Late
22	Failed, Channel Collision
23	Failed, No Cue in Window
99	Failed, Placement Dropped

Using the PSN Viewer

The PSN Viewer displays a record of every PSN that comes into the system to facilitate system monitoring and troubleshooting. The PSN Viewer filtering capability can be configured to show data sorted by any of the column headings and in different combinations. For example, you could sort by PSN messages which were unsuccessful on a given date for a given zone.

The image below shows all successful PSN messages received for a specified date:

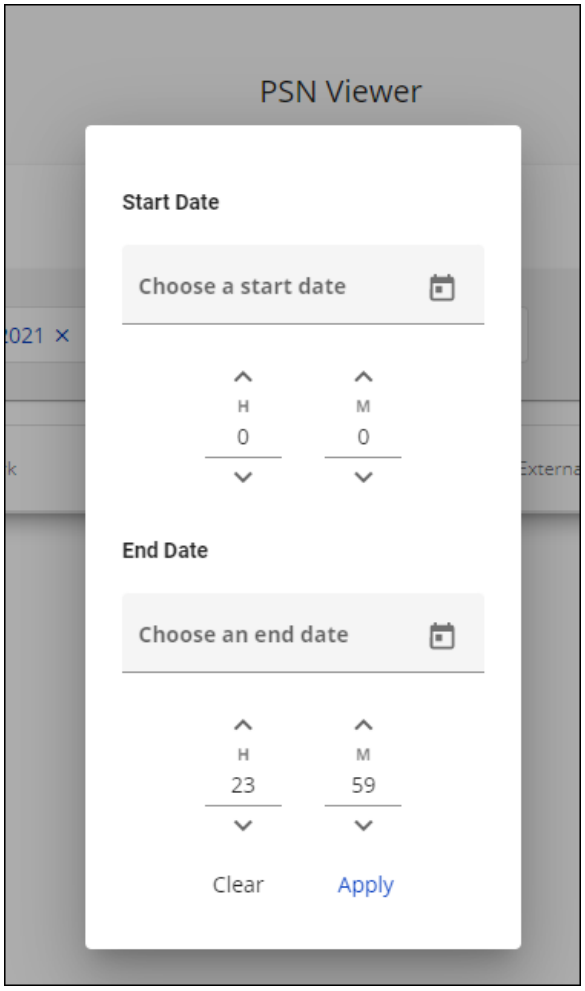


The PSN messages are used to generate verification files for traffic and billing. Unsuccessful PSN messages indicate spots that did not play successfully.

The PSN Viewer includes a number of features that enhance monitoring and troubleshooting. The default display shows you PSN activity for today.

Date Selector

Use the Date Selector to define the date range for PSN data display.



In the PSN Viewer screen, click the **+** sign and select Received to see the Date range selector.

- Use the calendar widget to define the date range.
- Use the **Start** and **End time selectors** to specify the hours desired and click Apply.

The PSN Viewer retrieves the data and displays it under the specified columns.

Use the **Settings** menu to select the display columns.

Use the Items per page control to select how many table rows to display.

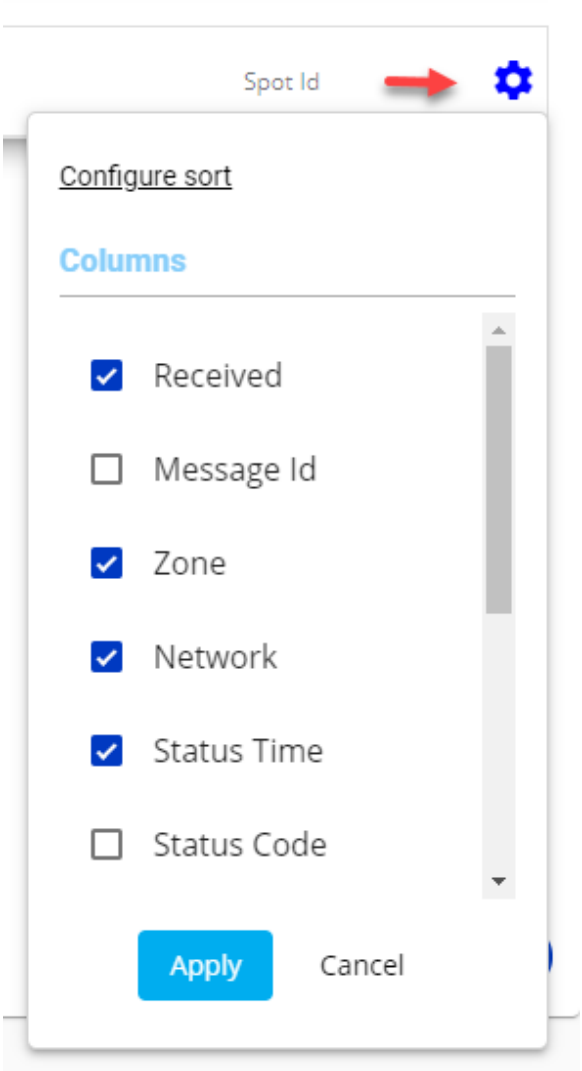
Note: You can arrange the data columns in any desired order. Select a column header and drag it to reposition.

Column display

By default, not all available columns are displayed. This makes the display less dense and enables faster processing times. Columns that are not displayed by default can be displayed as needed, such as aiding in troubleshooting.

To undisplayed columns, follow these steps:

- Click the **Settings** icon at the right of the display columns to see the list of available columns.

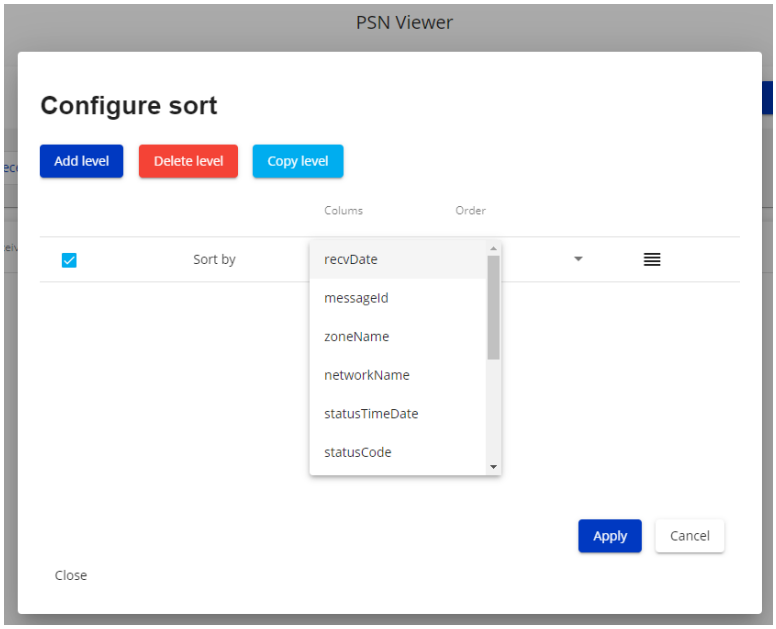


- From the available columns list, select the undisplayed columns of interest and click **Apply**.

  Displaying the Tracing and Message ID information when you need it gives you more data to use when you have to identify a particular PSN with an unsuccessful status code.

Configure sort

This option enables you to add data presentation sort parameters for PSN data display, such as sort by received date:



- From the **Settings** menu  , select **Configure sort**.
- In the Configure sort dialog box, select the **Sort by** row, then click the column arrow to see the list of available columns. If you select recvDate, PSN data will be sorted by and displayed by received date only.
- Select the arrow in the **Order** column to specify ascending or descending order for data display.
- To add another column to use as a secondary sort parameter, click **Add level**. A new row is displayed called **Then by** which means that data will be sorted first by received date, then by message Id, for example. Use the **Order** arrow to select ascending or descending order for the secondary sort parameter.
- The **Copy level** feature enables you to repeat a sort row in the output.

  Note: When you copy or delete a sort row, be sure to have only the row or rows selected that you want to copy or delete.

  Before you click Apply to see your sorted data, be sure that all rows that you want to see are selected.
- When you have selected all desired columns by which PSN data will be display, click **Apply**.

The PSN Viewer prepares a new PSN data list and displays the data as specified.

Export and Filter buttons

The Export button enables you to export your displayed data to a CSV file.

The Filter button toggle on/off display of any data filter selections.

See also *Filter strings* (page 48).

Filter strings

The PSN Viewer includes an array of data filter strings that enable you to search for PSN data with combinations of filters.

PSN Viewer columns and their available filter strings

Column header	Filter String(s)	Description
Received Status time	Start Date/End Date	Specify a start date and time and an end date and time.
Zone Network Code Spot ID Message ID Status Code Traffic ID Spot Type Tracking	■ Less than ■ Greater than ■ Less than or equal ■ Greater than or equal ■ Between inclusive ■ Not equal ■ Starts with ■ Not ends with ■ Contains ■ Not contains ■ In set ■ Not in set ■ Is null ■ Is not null ■ Exact match ■ matches other	■ ... a numeric value ■ ... a numeric value ■ ... a numeric value ■ ... a numeric value ■ ... numeric values ■ ... string or number ■ ... string or number ■ ... string or number ■ ... string or number ■ ... string or number ■ ... numeric values ■ ... numeric values ■ string may be empty ■ may not be empty ■ ... string or number ■ ... string or number
External Status Note	none	Displays Code text message

The filter strings can be used individually, or in combinations. Filter strings may act for alphanumeric and numeric data alike as shown in the above table.

The filter string Code - Not in Set 1, 99 means: do not display PSN records with status codes of 1 (successful) or 99 (failed, placement dropped). This is the default filter for the Code column. For the full list see PSN Status Codes on page 48.

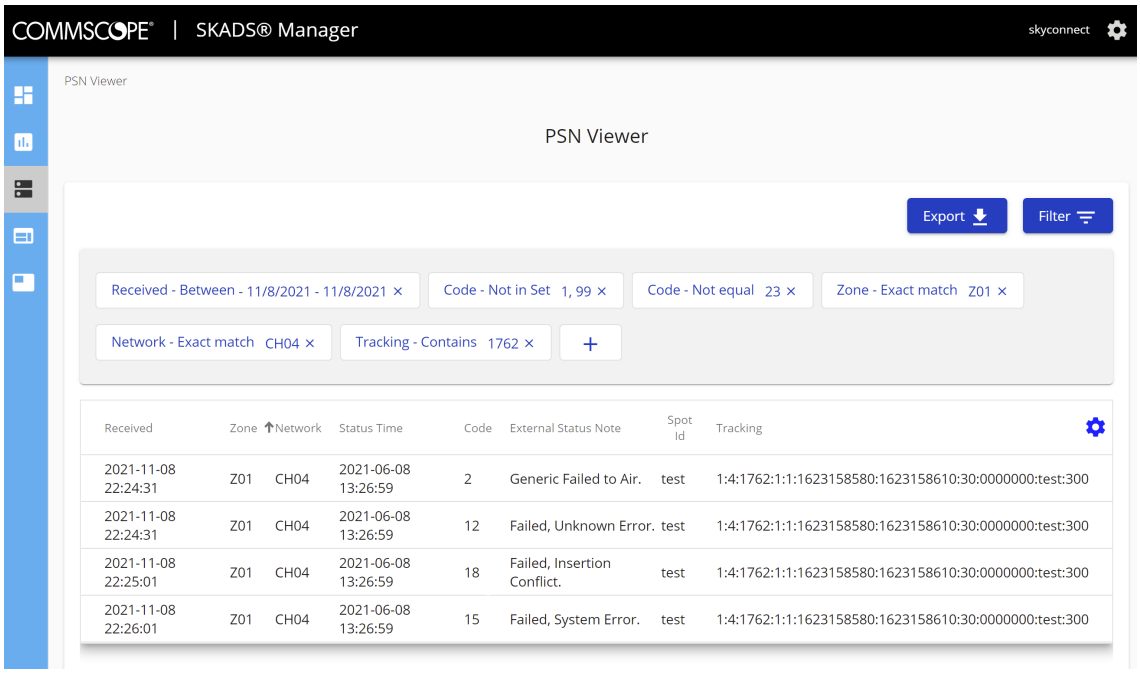
The Exact match string means find data elements that match the specified string exactly. For example, if you entered Exact match in the field for the Message ID column followed by b23n, the result would be only a Message ID of b23n (if it existed). The result would not show any Message IDs that contained the characters b23n.

To get all Message IDs that include the characters b23n, you would enter the filter string contains b23n.

For more information, refer to *PSN Status Codes* (page 42)

Using multiple filters example:

The first step in using a complex filter is to set the PSN Viewer Column display to match the columns of data that your search will display. In the example below, the Columns were selected as described in *Using the PSN Viewer* (page 43). It does not matter what order you specify the columns. The column display order is fixed.



Use the Filter button to display or hide filter settings.

Once you have the PSN Viewer columns selected, you add the filter elements using the **+** button. Use the drop-down list to select the column and the filter operator, such as Code Not equal 23, then click **Apply**.

Note: You can only set a filter for a column that is displayed. If you want to set a filter and don't see the column for it, use the settings menu to toggle on that column's display.

Once you have all column filters set and applied, the PSN Viewer displays any matching records.

You can then export the filter results if desired by clicking the **Export** button.

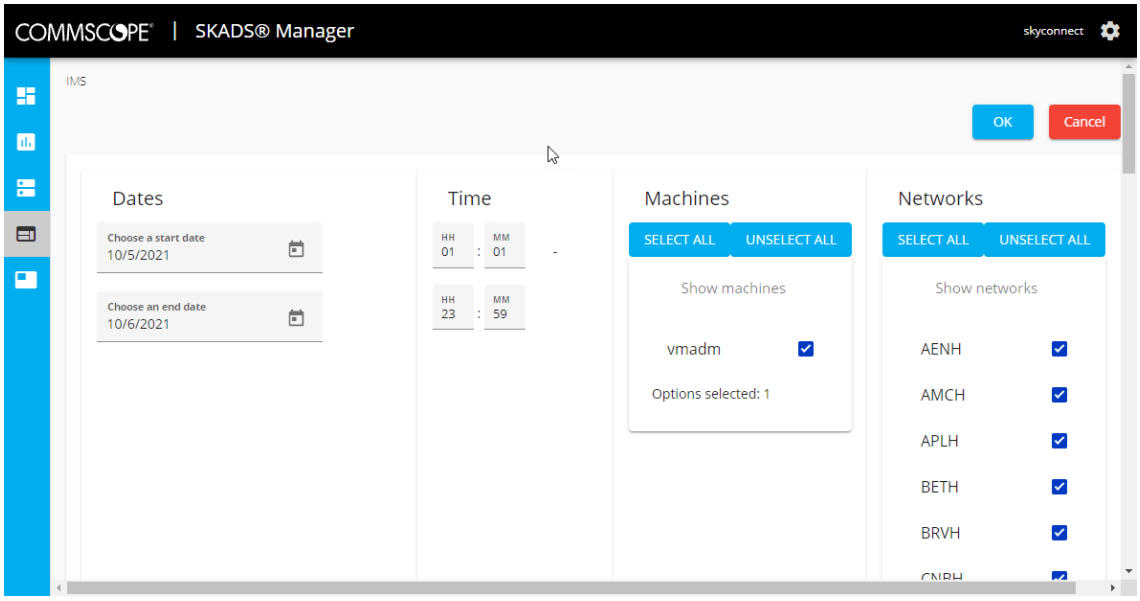
Using the IMS screen

The IMS screen enables you to send Inventory Notification Request (INR) messages. This is a manual operation that supplements the automatic daily operation.

Note: Access to the IMS screen is restricted by user role. If a user's role does not include the IMS permission, the user will not see the IMS screen option in the navigation panel. For more information, refer to *Create a Role* (page 51).

Once each day the ADS communicates with the ADM to receive the full day's inventory data and then match it to the schedule data obtained from SkyVision and the third party Traffic

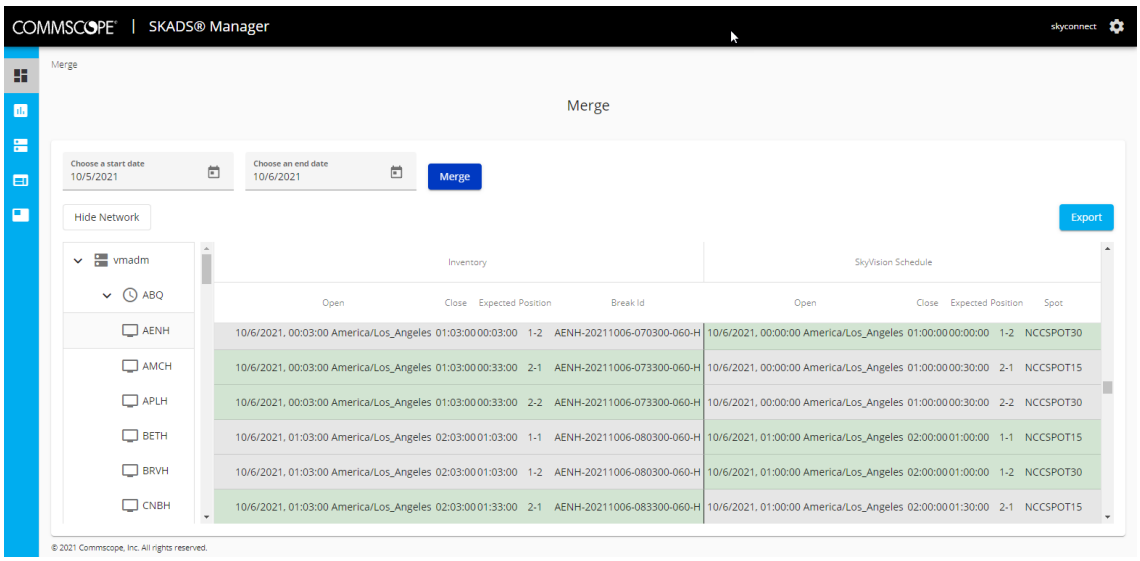
and Billing system. But if a schedule change occurs, or if inventory was not available at the time of the daily operation, the IMS screen enables a system user to request fresh inventory data for specific dates, times, machines and networks. Then a fresh merge prediction can be run to verify that the missing inventory is now on hand.



The IMS screen populates system machine names, zones and networks that is obtained from the SkyVision database. In the above illustration, the operator is requesting INR data for a single machine, zone and network for the entire day.

When you specify the INR data and click OK, the system informs you that the INR message was sent. Wait a few seconds to allow the ADS to receive the requested Inventory Notification.

Thereafter, use the Merge screen to verify that the inventory Notification is received. Access the Merge window and confirm that the inventory information requested for the specified time is loaded.



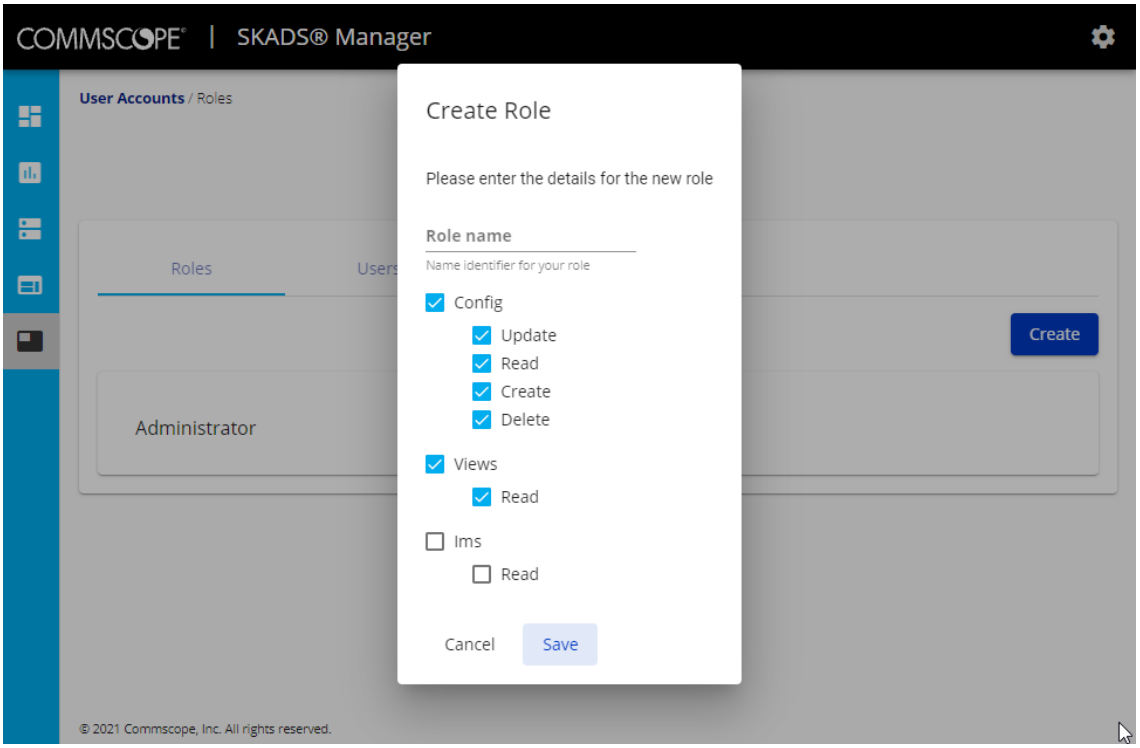
ADS user accounts

The User Accounts tab allows an Administrator user to create and manage user accounts and assign them roles. An Administrator may also define new roles.

Create a Role

Only a system administrator can create, edit or delete a user role. Roles must be created before user accounts because a user account must have a role assigned.

1. Log into **SKADS Manager** as an administrator.
2. Select the **User Accounts** tab.



3. Select the **Roles** tab and click **Create**.
4. Enter a name for the role and use the check boxes to assign permissions.

   Note: The Create Role screen includes the ability to grant or not grant permission for that role to see the IMS screen. If a role does not include the IMS permission, the IMS screen option is not displayed in the user interface for a user with that role.

5. When the role is configured, click **Save**.

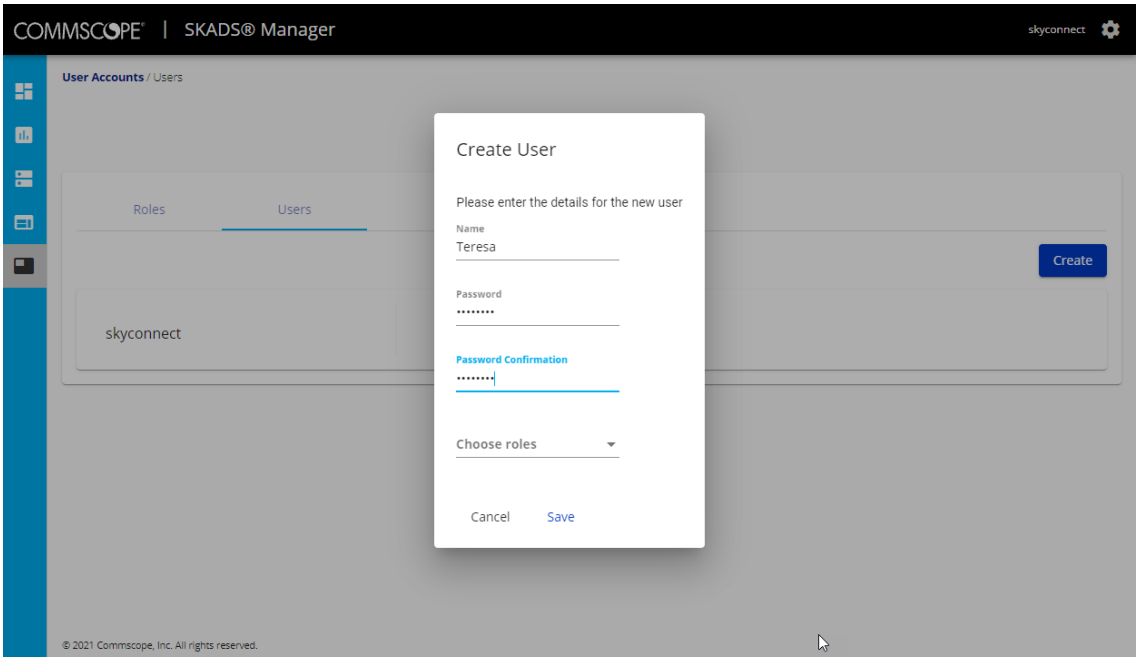
   The new role is displayed in the user interface and is available for use.

   CAUTION: There is no safeguard against deleting the Administrator role, but if you do without having another user defined with full permissions, you will have to contact CommScope Technical Support to restore an Administrator role.

Create new user account

To create a new user account, follow these steps:

1. Log into SKADS Manager as an Administrator user.
2. Click the **User Accounts** tab and click **Create**.



3. In the **Create User** screen, complete the data entry fields for Name, Password, and Password Confirm. All fields are required.
4. Assign a role to the new user account. From the **Roles** drop-down list, select the desired role.
5. Click **Save**.

   The new user is added to the Users list.

Delete user account

Deleting a user account is a straight-forward process:

1. Log into the SKADS Manager user interface as an Administrator user.
2. Select the **User Accounts** tab.
3. Select **Users**, then select the user account to be deleted.

   The user's assigned role is displayed.
4. Click **Delete**.

   You are prompted to confirm the deletion. Click **Delete**.

   The selected user account is deleted.

PSN Status API

The PSN Status API is an alternate method to access and display run rates and PSN status data. While the PSN Status screen in the SKADS Manager user interface displays the same data, the PSN Status API provides a method for accessing that data as text which can then be used for a variety of purposes, such as automating verification data.

The PlacementStatusNotification (PSN) Status API provides run rates per zone for the current day and previous days. This is accomplished by using "endpoints" that specify the data and time range and the specific zone of interest.

The number of previous days that these endpoints provide depends on several factors, including API parameters used and ADS/SkyVision configuration.

Each of these endpoints can return run rates for up to nine days for all zones. However, SkyVision and ADS need to be configured to keep past schedules for up to eight prior days for the endpoint to return accurate data for nine days. By default, ADS/SkyVision only keeps past schedules for up to three days. the default limits return of accurate data for up to four days. CommScope Technical Support can assist in changing the default to eight days.

These endpoints use Query nomenclature (?&) to filter for zones and days.

Using the PSN Status API is a simple process:

- Obtain an authentication token with the endpoint “/api/v1/sso/token-auth”
- Include the token in a check of the machine ID for the server from which you want API data. Use the endpoint “/api/v1/machine/fetchall/:order”
- Include the token and the machine ID in your API call
- View the resulting data

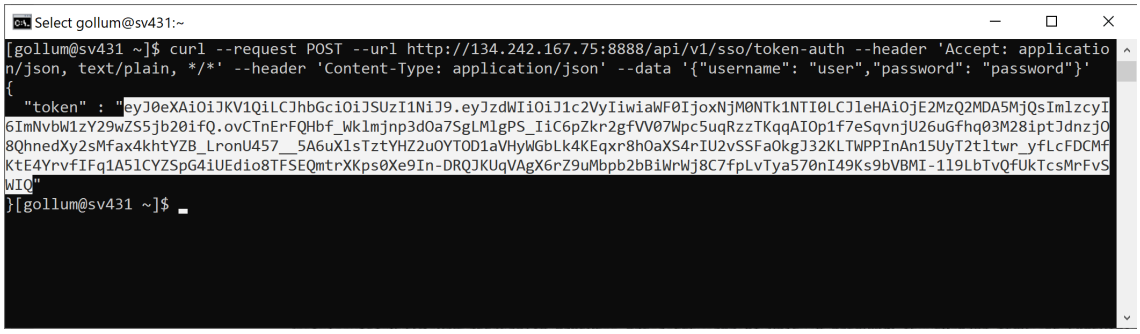
Obtain an authentication token

An authentication token is required to get a valid response from the API. The "/sso/token-auth" endpoint provides the token when the correct user and password are used.

There are several methods available to request an authentication token. Three examples are:

- cURL
- Insomnia
- Postman

in the below illustration from a terminal session where a user invokes cURL to obtain an authentication token:



You must include the entire auth token in your API data call as shown in Example 1 below.

Check machine ID

Unless you already know the machine IDs of the ADS servers in your system, you can run an API request to see a list of machine IDs. The “/api/v1/machine/fetchall/:order” endpoint returns a list of machines with the respective machine ID. The “order” parameter can display the list in ascending or descending order by invoking one of two values: "asc" or "desc".

As pictured above, the auth token is included in this request for machine IDs. Remember that in a BXF system the ADM server as a headend machine. Therefore we are interested in ID: 2, machineType: HE.

Send desired API call

Now that you have the auth token and the machine ID, you can use one of the following endpoints to obtain PSN data.

/api/v1/psn/percentages/:machineID

This endpoint returns PSN run rates per zone for nine days (by default) in date format. Queries can be used to only return specific zones and dates. Note that ADS/SkyVision need special configuration to return accurate data for the 5th date and prior.

This endpoint relies on the correct configuration of the ZoneRegionMap.xml file. If the file doesn’t exist, a 404 error will be returned when the “zone” query is used. If a zone that exists in ADS and SkyVision is not defined in this file, the zone filter may not work properly.

Required Parameters:

- Machine ID: The machine ID of the BXF Headend as assigned in the database.

The “/machine/fetchall/:order” endpoint returns a list of machines with its respective machine ID. The “order” parameter can take one of two values, "asc" or "desc".

Example of run rates by date and zone

```
http://hostname:8888/api/v1/psn/percentages/2?
zone=EXC&date=2021-06-30&date=2021-07-01
```

{

"2021-06-30":{

"EXC": 100

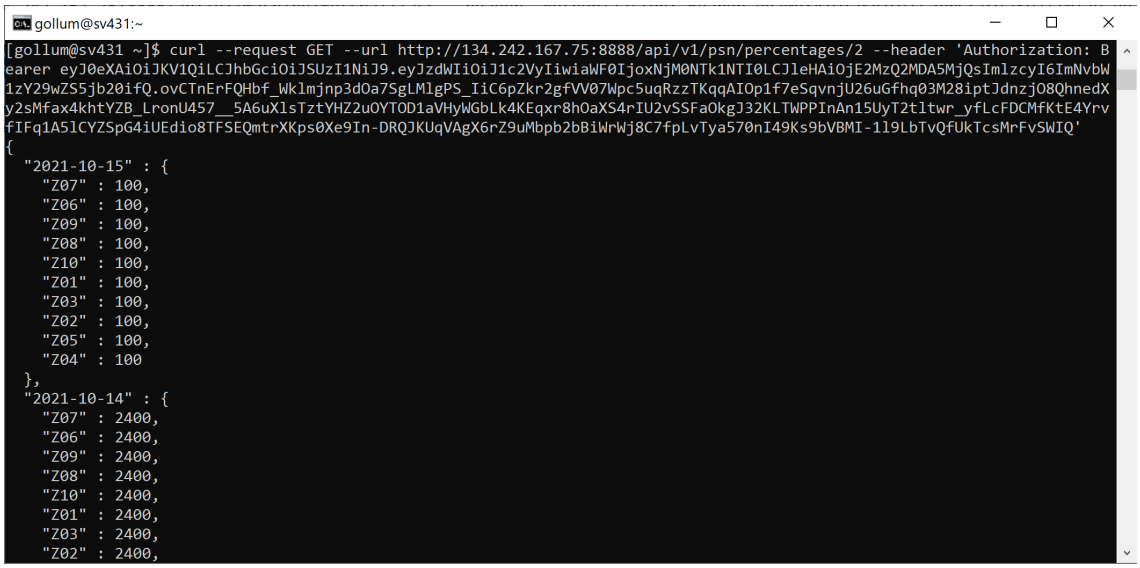
},

"2021-07-01":{

"EXC": 100

}

}



In the above illustration, the user has invoked cURL request including the auth token and machine ID for specified dates and zones.

/api/v1/psn/report/status/:cutoffDays/:machineID

This endpoint returns PSN run rates per zone for N days up to 9 days. Queries can be used to only return specific zones and days. Note that ADS and SkyVision need special configuration to return accurate data for the 5th date and prior.

Required Parameters:

- Cutoff Days: The number of days for which to get the PSN status report. It can only take on values from 0 to 9, zero being today, one being yesterday, and so on.
- Machine ID: The machine ID of the BXF Headend as assigned in the database.

  The “/machine/fetchall/:order” endpoint returns a list of machines with its respective machine ID. The “order” parameter can take on two values, "asc" or "desc".

Optional Query Parameters:

- zone: The zone name to filter by. Multiple zones can be entered (eg. ? zone=ABC&zone=DEF)
- day: The cutoff day number to filter by. Multiple days can be specified (eg. ? day=0&day=3)

Example of PSN data by zone for specified number of days

In the following API call, the user specifies desired zones AUG and ELD for today and yesterday:

http://hostname:8888/api/v1/psn/report/status/9/2?zone=AUG&zone=ELP&day=0&day=1

{

"0":{

"ELP": 62,

"AUG": 62

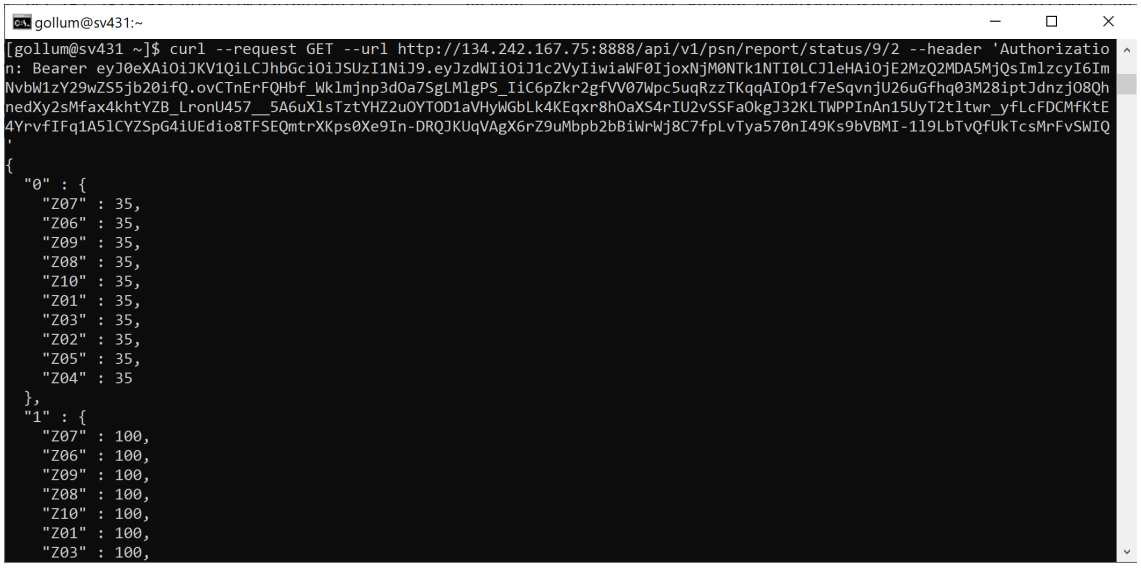
},

"ELP": 100,

"AUG": 100

}

}



In the above illustration, you can see that run rate percentages are returned by day and zone.

Inventory Match Report

The Inventory Match Report (IMR) feature enables an ADS operator to export Inventory Merge prediction data to facilitate merge management.

Two minutes after the last active SkyVision import operation, SKADS triggers creation of the Inventory Match Reports. A report is created for every Zone.

IMR files are created in xml format. IMR files are placed in the following directory by default:

/usr/viis/ads/imrod

The output directory can be changed, but it must be writable for the gollum user.

Report naming convention

The Inventory Match Report naming convention contains two dates as follows:

YYYYMMDD_XXXXXXXXXX_ZZZ.xml

YYYYMMDD = the date of the information in the file.

XXXXXXXXXX = the date in 'timet' format is the when the report file was created.

ZZZ is the zone name as defined in SkyVision.

An example file name would be 20120311_1330462151_T21.xml.

In such a file, the information date is March 11, 2012. That means that the merge date is for that date. The timet date is Tuesday, February 28th, 2012 at 12:49:11 PM. When you are logged onto a Unix system as the gollum user, you can convert the timet date to human format by invoking:

timet <timet string>

Report contents

An Inventory Match Report is created in xml format so that it can be viewed in a variety of ways including by a simple text editor. An xml file can be imported into a variety of tools to facilitate data manipulation and analysis.

Below is an example of a report section from the file 20120229_1330463087_T01.xml for Leap Day, 2012:

```
<InventoryMatchReport name="T01" date="2012-02-29"
createdDate="2012-02-28T13:04:47.0Z" triggeredBy="internal" inventoryMatchRate
="100" scheduleMatchRate="99">
  <Network name="CH48" inventoryMatchRate="100" scheduleMatchRate="100">
    <MergeResult>
      <InventoryAllocation breakId="2048-20120229-031500-060-H"
windowStart="2012-02-29T08:00:00" windowEnd="2012-02-29T0
9:00:00" windowPosition="1" spotPosition="1"/>
      <ScheduleBreak eventId="20258727" windowStart="2012-02-29T08:00:00"
windowEnd="2012-02-29T09:00:00" windowPosition=
"1" spotPosition="1"/>
    </MergeResult>
    <MergeResult>
      <InventoryAllocation breakId="2048-20120229-031500-060-H"
windowStart="2012-02-29T08:00:00" windowEnd="2012-02-29T0
9:00:00" windowPosition="1" spotPosition="2"/>
      <ScheduleBreak eventId="20258727" windowStart="2012-02-29T08:00:00"
windowEnd="2012-02-29T09:00:00" windowPosition=
"1" spotPosition="2"/>
    </MergeResult>
    <MergeResult>
      <InventoryAllocation breakId="2048-20120229-041500-060-H"
windowStart="2012-02-29T09:00:00" windowEnd="2012-02-29T1
0:00:00" windowPosition="1" spotPosition="1"/>
      <ScheduleBreak eventId="20258728" windowStart="2012-02-29T09:00:00"
windowEnd="2012-02-29T10:00:00" windowPosition=
"1" spotPosition="1"/>
   </MergeResult>
```

In the above example, the schedule match for Zone T01, Network CH48 predicts 100% matching between the inventory avails and the schedule data, as shown by the bolded **100** entries.

For every successful merge result section, there are two lines. The first line details the **inventory** data, and the second line details the **schedule** data.

The inventoryMatchRate reports the percentage of inventory avails for which there is matching schedule.

The scheduleMatchRate reports the percentage of schedule spots that we have for the inventory avails.

Inventory/Schedule merge rules

ADS supports placing multiple ads of varying lengths into an owner break, taking into consideration the break duration and the offsets, to properly place the ad into the designated position. Included is the ability to restrict ad content lengths to multiples of 15 seconds through an ON/OFF configuration option.

Unsuccessful Merge Rules

The following conditions will prevent a successful merge:

Rule 1: The break window open time is greater than the schedule's window close time, or the break window close time is less than the schedule's window open time.

Rule 2: The break expected time is greater than the schedule's window close time.

Rule 3: The break expected time is less than the schedule's window open time.

Expanded merge rules

There are four expanded merge rules.

Single Merge Unit (SMU) rule

Each event from SkyVision is considered to be an indivisible Single Merge Unit. Unfilled spots in the pod are prevented from further merging consideration.

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 60	S1
	S2 15	(S2 and S3 shall be marked as NOT FILL, and shall not be used for the next Inventory Break Allocation.)
	S3 15	

Perfect Duration Fit (PDF) rule

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 40	S1 and S2 merge.

Break Duration	Scheduled Event	Merge Result
	S2 15	
	S3 15	S3 gets PSN 0018 code (Splice Collision).

First Encounter (FE) rule

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 40	S1 and S2 merge.
	S2 15	
	S3 15	S3 gets PSN code 0018.
BRE2 70	S4 60	S4 merges.

Sequential merge (SM) rule

The merge takes spot position into consideration. The merge algorithm checks the accumulated scheduled spot duration (to be validated against the Inventory Duration Allocation) on each spot added until the PDF Rule can be applied.

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 30	S1 and S2 merge.
	S2 15	
	S3 30	S3 and S4 get PSN code 0018. (Splice Collision.)
	S4 15	

Use case studies

The following use case studies are cited to clarify the merge rules.

Use case 1

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 60	S1 merges.
	S2 15	S2 andS3 gets PSN code 0016 (Failed, operator error).
	S3 15	
BRE2 70	S4 60	S4 merges.
BRE3 60	S5 60	S5 merges.

Use case 2

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 90	No merge result. S1, S2, S3 get PSN code 0016.
	S2 30	
	S3 30	

Use case 3

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 30	S1 and S2 merge.
	S2 15	
	S3 30	S3 gets PSN code 0016.
	S4 15	S4 gets PSN code 0016.

Use case 4

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 15	S1, S2, S3 merge.
	S2 15	
	S3 15	

Use case 5

Break Duration	Scheduled Event	Merge Result
BRE1 60	S1 40	S1and S2 merge. S3 gets PSN code 0016 (Failed, operator error).
	S2 15	
BRE2 60	S3 30	S3 and S4 merge.
	S4 30	
BRE3 60	S5 05	S5 merges. S6 gets PSN code 0016.
	S6 60	

Content distribution messages

The content distribution status messages and codes that display in the SkyVision Operations Queue View are detailed in the table below for ease of reference:

Code	Description	Comments
001	Content Receipt	Acknowledgment Notification: Notify provider that content is received.
002	Metadata XML Failed	Notify provider that the Metadata XML does not meet the DTV standards or missing some required attributes.
003	Duplicate content	Notify provider of duplicate content (Spin Cycle Protection).
004	Video Header Check Failed	Notify provider when content have failed during Header check.
005	Inventory Creation Failed	Send notification as CMS could not create the inventory due to missing required attributes or targets.
006	Video Encoding Failed	Failed during encoding the video.
007	Duration Mismatch Error	Video duration does not match with the duration specified in the metadata.
008	Video Quality Check Failed	Failed during video QC.
009	Video Encryption Failed	Notify provider when video encryption failed in CMS.
010	Complete and Ready for Scheduling	Content is processed successfully in CMS.
011	Content is purged or deleted	Content is purged or deleted.

RCN use cases

The enhanced RequiredContentNotification (RCN) operations enable more frequent content messaging.

The following configuration attributes are set in the ADSConfig.xml file:

```
RcnSendIntervalInMinutes="240"
```

```
RcnSendBaseTime="15:20"
```

```
RcnCoverageInHours="12"
```

In this scenario, the RCN will execute at the following static times:

15:20

19:20

23:20

03:20

07:20

11:20

Each RCN is four hours apart (240 minute interval).

The start time is 15:20.

Each RCN covers up to 12 hours of time, but a fresh RCN arriving 4 hours after extends the 12 hours further into the future. In other words, the RCN at 15:20 could contain data to run until 0320 the folowing day, but the next RCN arriving at 19:20 takes over and extends the coverc time until 0720 the following day.

Note: If the operator restarts the ADS at 04:00, the ADS's next execution time shall be at 07:20 regardless of missing any previous execution times.

Daylight Saving Adjustment

During the Daylight Saving transition period, the interval hours might be readjusted as +1 or -1 for the time-slot depending upon which direction the clock is adjusted.

RCN coverage

The ADS relies on the RcnCoverageDay and the RcnStartDay configuration settings to compute the number of messages to be sent, such as one message per day of coverage. However, multiple RCN messages can be received in a day and the hours of coverage for each individual RCN message may vary, depending on the time of day of RCN execution.

For example:

Execution time: 4 pm Mountain

Hours of coverage: 72

This would result in four (4) RCN messages being sent.

- first message covers 17:00 Mountain to 23:59:59 Mountain
- second message covers midnight Mountain to 23:59:59 on the second day
- third message covers midnight Mountain to 23:59:59 on the third day
- fourth message covers midnight Mountain to 16:59:59 on the fourth day.

As each day elapses, the first message covers fewer hours and the last message covers more hours.

Contacts

Technical services

For technical support, you can contact us by phone, email, or on the web.

By telephone

The Technical Support Center may be reached at: 1-888-944-HELP (4357). Additional support numbers are located at: *Phone Support*.

On the web

Please visit *https://www.commscope.com/supportcenter/* and look for ARRIS support. The ARRIS Membership site gives you the ability to request access to numerous service and support tools once you are registered on that site.

One specific tool is Ask ARRIS, which is the Technical Support web portal. You will need to register for this tool using your support contract ID and email address. Ask ARRIS is located at: *https://ask.arris.com*.

There you will be able to access:

- Support Contact Information for all products
- Knowledge Base Information (also known as Solutions)
- User Documentation
- Current open support cases
- Ability to create a new support case (for technical support or repair and return)
- Training Webcast

By email

The Technical Support Center may also be reached by email. Email addresses for ARRIS products are located at: *Email Support*.

Technical training

For more information about our Global Knowledge Services Department and the programs we offer, email us at: *techtraining@commscope.com*.

Corporate Headquarters
CommScope · Hickory · North Carolina · 28602 · USA
T: 1-828-324-2200
www.commscope.com