Automated Dispatch System User Guide

ADS User Guide

November 15, 2023

Revision History

Date	Version	By	Description
11/15/23	1.6	CRH	Updated for ADS partial acceptance functionality update (Section 6).
3/30/23	1.5	CRH	Corrected the Query Tool instructions to show that users can retrieve data up to 90 days prior to the current day instead of 39 months.
3/2/23	1.4	HLC/CRH	Updated with Hybrid Resource 2B information related to BRQ025, BRQ446 and BRQ030
10/31/22	1.3	HLC	Updated with OSI ADS project changes for updating and overriding existing configurations and new instruction grid color scheme updates for start-ups, shutdowns and transitions
5/4/22	1.2	HLC	Added a tip box instructing to use inline and advance filters independently
02/02/21	1.1	CRH	Updated color coding descriptions for Valid column and Resource ID column (Sections 3 and 10)
11/04/20	1.0	GW	New User Guide for updated ADS

Revision 3/30/2023

Table of Contents

1 Introduction

- The objective of this document is to provide details on using and interpreting the information available on the Automated Dispatch System (ADS) user interface (UI). The ADS UI is based on a WebSDK platform.

- ADS displays commitment (start – up / shut down / transition) instructions, energy instructions, and ancillary services awards from the real-time market application. The energy instructions include, but are not limited to 5 (five) minute dispatch operating targets (DOT) from the Real Time Economic Dispatch (RTED), 10 minute contingency dispatch (RTCD), Exceptional Dispatch, and Hourly Intertie Instructions from the Hourly Scheduling Process (HASP).

  - *This document will touch on portions of the real time market timeline and processes, but will be limited to how data is displayed in ADS. Additional Information regarding dispatching rules, market operations, and procedures can be found in the Business Practice Manuals for Market Operations and Market Instruments, which can be downloaded on www.caiso.com >> Rules >> Business Practice Manuals.*

- The organization of this manual is as follows:

  - Section 1 is introductory material. Notably, it contains an overview of the purpose and intended use of the application.

  - Section 2 describes an introduction into logging into the application, as well as the basic functionality of the user interface used to navigate ADS.

  - Section 3 discusses an overview and functionality of each grid within the ADS application.

  - Section 4 discusses more advanced functionality, such as filtering and configuration of save sets and use of the query tool.

  - Section 5 expands on the Real Time tab.

  - Section 6 expands on the Hourly Pre-Dispatch tab.

  - Section 7 discusses the additional Options Menu and using each of those options.

  - Section 8 discusses troubleshooting steps for various issues that users may have experienced when logging into the ADS application.

  - Section 9 contains additional examples for advanced filtering, set up as user exercises to become familiarized with the filtering tool.

  - Section 10 contains a table of data column short descriptions.

  - Section 11 discusses other resources for additional information regarding ADS.

2 System Overview: Accessing and Navigating ADS

Accessing the ADS Application

- The ADS application is web-based application with role-based access via the CAISO Multiple Application Certificate (CMA) for authentication.
  - To access ADS, a user will need to work with their organization's User Access Administrator (UAA) – who administers the CMA certificate, as well as provisions access.
  - Access can be at the Scheduling Coordinator ID (SCID) level or setup for specific access for a set of resources through an Access Control List (ACL). For more information on this, please work with your UAA and refer to the Access Identity Management (AIM) User Guide.
  - Access can be read only (view of ADS dispatches) or read-write which provides capability to accept dispatches (hourly intertie dispatches, for example).
  - Accessible via the environment's Market Participant Portal
  - **Supported Browsers:** latest Chrome version or Microsoft Edge with Chromium 85.x

> **Tip! To view in Full Screen mode in Chrome,**
> Shortcut Key: hit **F11** on keyboard, OR click 3 dots in upper right hand side of Chrome Browser, navigate to row labeled Zoom and click the "square" icon
> **To exit Full Screen,** again hit F11 or click "X" when hovering in the middle of the display

- ADS Main Display: upon logging in, a main display will be shown with multiple data grids within the display which we call the Application Content area. At the top of the display, it contains a system dashboard, which has common navigation commands like previous/next page, refresh, stop loading, adjust Time Zone, and log out.

Figure 1

Icon	Description
	Back
	Forward
	Stop
	Refresh (Use this when loading a new profile)
	User Preferences (US Time Zone Change)
	Exit (can also **X** out of window in upper right corner of browser window). Using this button will close all open windows.

- There are certain components that are common to many displays in the Application Content area, including in the Resource Data Grid, and Instructions Grid.
- In the Resource Data, Instruction Grid, and other grids, the toolbar is found in the area outlined in red in Figure 2 below.
    - o May include filtering, navigating, and exporting options. It contains filters that allow the user to control the information displayed on the data grid portion of the display. The filter options is always at the upper edge of the grid. More detail on using these options are described in Section 4, Grid Filtering and

Figure 2

Icon	Description
	Restore Default Sort. It is possible to change the sort order of the contents of a tabular display by clicking on the title row. Clicking on the Restore Default Sort button restores the sort order to the default, that is, it removes any sorting that has been established by clicking on title rows.
	This is an advanced filter icon, allowing to only display data that matches the advanced filter criteria – utilized for when multiple filters need to be applied.
	Reset Advanced Filter (Clear all)
	This is an inline filter icon, allowing to only display data that matches the inline filter criteria. To close or reset, click on this icon again.
	This is used to export the contents of the data grid with the below options:
Export All Export Page Export Wizard	Export All – all data grid items in results Export Page – data on page view Export Wizard – will allow selection for excel or .csv

	This is a column select tool that will allow the user to add or remove columns from the grid. The default will always load when logging in.
	This button may be on some displays to allow the user to make some adjustments in Tabular grids. This is the 'Edit' icon used to edit a selected set of rows. Example: editing audio options in the **Configurations** tool.

- Data Grid: Each area under the navigation menu is a data grid. The available data grids are Batch, Messages, Resource Data, Trajectory Plot, and Instruction. These were previously known as Panels in the ADS Delphi Client.

- System Message Bar: This is at the very bottom of the Application Content Area. It is used to advise the user of various events, errors, etc. This area grows and shrinks vertically to accommodate the message(s) that need to be shown. For example, if an ADS maintenance (such as a Fallback) caused a brief interruption, it may appear:

3 Data Grids Overview

- This section will review each data grid in the main display within the Application Content Area
  - o Batch Status/Interval Display Grid
  - o Message and Options Menu
  - o Resource Data Grid
  - o Instructions Grid, and
  - o Trajectory Plot

Batch Status/Interval Display/Alarm Management Grid

Interval	RT DOT/FR	Hourly DOT	Exceptional	Commitment	FMM AS	Hourly AS	Opr Instruction	AS Test
Current Interval	07:50-07:55	07:00-08:00		07:45-08:00	07:45-08:00	07:00-08:00		
Dispatch Interval	07:55-08:00	08:00-09:00		08:15-08:30	08:15-08:30	08:00-09:00		
Received/Status	07:50:41	06:56:53	07:50:41	07:41:56	07:42:01	06:57:20	Idle	Idle
Filter Resources	☐	☐	☐	☐	☐	☐	☐	☐

- Instructions sent by the Real Time Market to ADS are sent in what is called a Batch. When a new batch is received, such as a new batch of RT DOT dispatches, the column for the received batch will flash red until acknowledged by clicking on the column or click OK on the pop up message (if configured).

- Acknowledge visual flashing and audio alarms in Batch grid:

  - Selecting/clicking in the column will acknowledge the alarm, which will stop the column from flashing red.

  - Selecting/clicking in the main title column under "Interval" will clear all alarms.

  - When the **Continuous** alarm is active for a Batch type, the alarm will run continuously until acknowledged. This can be acknowledged from the Batch grid by clicking on the Batch Column to acknowledge the batch, which will mute the alarm.

- Filtering the Resource Data from the Batch Grid

  - When a column is selected in the batch grid, all resources with records for the received batch will be highlighted in the resource data grid. Clicking again will remove the highlight.

  - Preconfigured filter: When the filter checkbox is selected below a batch column, only resources with records for the **filtered batch** will be displayed in the Resource Data grid.

    - For example, if the filter checkbox below the Commitment column is selected, then only resources with records in the batch for Commitment will be displayed in the below grid.

- Reading **Current Interval** vs **Dispatch Interval** rows

  - Current interval displays the time period that is currently active in real time

  - Dispatch interval displays the time period that is currently being displayed and will become real time once it reaches the current clock time

  - Exceptional Dispatch (ED) records may have several active time periods and types of EDs, this column displays results when an ED has been received in the recent Batch instruction. The received/status will reflect time batch was received.

  - Operation Instructions records may have several active time periods, the Opr Ins column display results when an Operating Instruction has been received in the recent Batch instruction. The received/status will reflect time batch was received.

- A/S Test records may have several active time periods, the columns are used to display whether there are active records for the interval. If there are none active, these rows will remain blank. The received/status will reflect time received.
- Received/Status row displays the time that the last batch was received. In addition, the status will display a countdown timer for Hourly Instructions which will indicate how much time is left in the current response period.

Messages and Options Menu

- The panel shows a chronological history of the batches that were received by the ADS Client. This is a good indicator to determine if ADS is connected and receiving data. Each batch has a description of the type of data contained in the batch as well as a unique batch id. The batch id is primarily used by other automated systems that may use the batch id when programmatically pulling data into their 3rd party systems.

System Messages	Query Tool	Configurations
08/31/2020 09:46:08	Received new Exceptional Dispatch batch DISP-64DD6390-CDD7-4038-FFF9-AC15E099C4DC	
08/31/2020 09:46:08	Received new 5 Minute DOT batch DISP-64DA5650-CDD7-4038-FFF9-AC15E099C4DC	
08/31/2020 09:42:37	Received new FMM AS batch DISP-E6913C50-CDD6-4038-FFF9-AC15E099C4DC	
08/31/2020 09:42:37	Received new FMM Energy batch DISP-E6918A70-CDD6-4038-FFF9-AC15E099C4DC	
08/31/2020 09:42:35	Received new Unit Commitment batch DISP-E56B0BD0-CDD6-4038-FFF9-AC15E099C4DC	

- Options Menu above the Message grid contains three options, and when clicked will open a pop up display for that option.
    - "System Messages" allows for querying of messages
    - "Query Tool" allows for searching of historical data
    - "Configurations" allows for configuration of profiles (i.e. saving a saveset), configuration of audio alerts, and configuration of pop up messages

Resource Data Grid

- This is the main display which provides resource specific data including MW totals, relevant times, and other resource specific information.
    - An instruction is considered 'Validated' and will have a green or yellow box in the Valid column if an instruction was acknowledged
        - Green if the instruction was acknowledged by a user with write access.
        - Yellow if the instruction was acknowledged by a customer's Automated Programming Interface (API), with read access only (not read-write access)
    - Otherwise the instruction is "Unvalidated' and the   box will be red
- As the Resource Data grid is the main display, this grid is covered more in depth in the Resource Data Grid and Instructions Grid section.

Note: The default view will contain a Resource ID and SCID column, however for the purposes of confidentiality, this column has been hidden or removed for many of the screenshots in this guide.

Instructions Detail Grid

- The Instructions Detail also shows a chronological history of the DOTs, Commitments, and additional instructions for the resource selected in the Resource Data grid. The Instructions

Detail grid can be customized similar to the Resource grid, using the column picker and the inline filter.

Trajectory Plot

- The Trajectory Plot shows tracks a history of the dispatch operating targets (DOTs) and dispatch operating points (DOPs) for the resource selected in the Resource panel.
- The DOT is the instruction go-to MW that the resource should be following.
- The DOP is primarily used in Settlements, which considers where the resource is ramping to and from, to calculate Expected Energy on a 5 minute basis. The DOP is based on the Operating Ramp Rate submitted by the Scheduling Coordinator (SC) in the SIBR application.

4 Grid Filtering and Column Settings, including Resource Data Grid and Instruction Grids

The Resource Data grid is set up with multiple tabs (viewed across the top of the Resource Data grid).

- The selected tab that is being viewed is highlighted in Blue as seen in the figure above.
- There are two (2) default tabs (pre-filtered), and 14 additional tabs – all of which can be used and further filtered/configured. The 2 default tabs are the Real Time and Hourly Pre-dispatch tabs. There are a total of 16 tabs.
    - The Real Time tab has a pre-programmed filter to exclude Hourly Pre-Dispatch resources and is primarily used to view generator energy dispatches, commitments, A/S awards, and Operating Instructions.
    - The hourly pre-dispatch tab has a pre-programmed filter for resources which are flagged as hourly predispatch resources and is primarily used to view hourly instructions which are sent for intertie resources, as well as hourly A/S awards for Tie Generators if their Hourly Predispatch flag = Y.
    - The remaining tabs can setup by clicking on the tab (default will load all resources), and applying filters, etc.
    - The tabs can be renamed by right clicking and clicking "Rename", entering the new desired name.
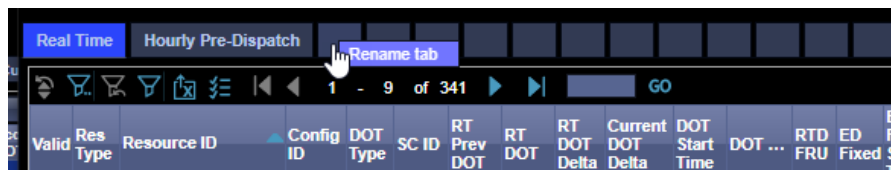
- Within each tab, a resource data grid appears showing data which is resource specific related to dispatches
    - Each Column contains data specified by the header column at the top.
    - Each Row contains data specific to the resource associated to the Resource ID listed in the Column labeled Resource ID.

Column Configuration

Column Picker

- To adjust which columns are viewed in the Resource Data grid, click the checklist icon
- A pop-up box will show a list of possible data fields which are available as shown in Figure the figure below, the scroll bar to the right can be used to scroll up or down to

view the available fields. Clicking in the checkbox next to the name of the field will either select or deselect this column for the view.

- A checkmark in the checkbox next to the data field indicates the column is selected and viewed on the Resource Data grid.
- A blank checkbox indicates this data field is not selected and therefore, not viewed on the resource data grid.
- Refer to Section X for the data dictionary, which contains the available data fields and descriptions.

o To apply the adjustment to selected/deselected data fields, click **OK**. To return to resource data grid without making the adjustments, click **Cancel**.
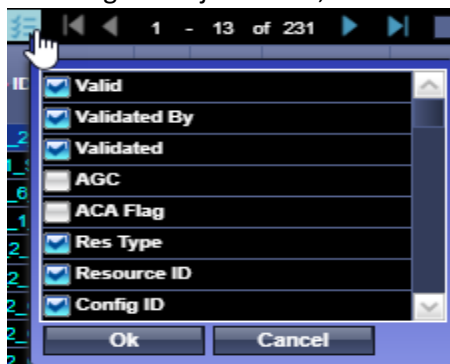
Column Order

o To adjust the order of the columns in the view, **click +hold** in the column header and **drag left or right** to place data field in desired location within the Resource Data Grid.

o Black dotted lines appear around the column header to indicate selection (shown in image below), and when dragging left or right the black dotted line will indicate new location. To place, release click.

o

Column Width

o To adjust the column width, click on the column edge to contract or expand the column by dragging left or right and releasing.

o
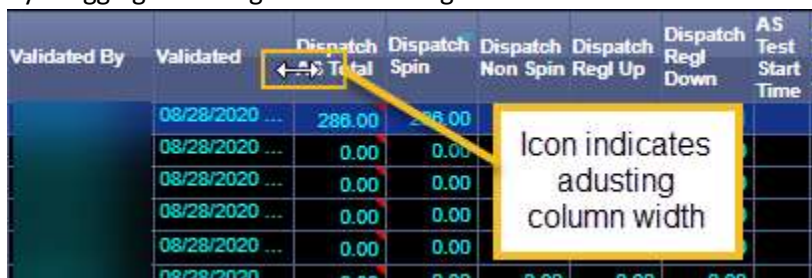
Column Sorting

- o The sort order of the tabular grid by column is established within this grid also. The user may change the sort order by clicking on the header row of a column and is indicated to be in place by a blue triangle.
- o For example, in the grid illustrated in Figure X, the application has defined a default set of sorting for Resource ID, showing a blue triangle in the header of the column. The orientation of the triangle identifies the sort order for that column.
    - ▪ The blue triangle is pointed up indicating ascending, such as smallest to biggest, earliest to latest, lowest to highest, or in this example – in Alphabetical Order (A to Z)
    - ▪ The triangle pointed down indicating descending, such as biggest value to smallest value, latest to earliest, highest to lowest, or Alphabetical sort Z to A.
- o A number above the triangle indicates the order of the sort, such as first, second, etc.
    - ▪ For example, if a second triangle appeared with a 2, the columns would first sort on the column with the 1, then apply a second sort using the column with the 2.
- o As implied above, sorting may be ascending, descending, or no sorting order.
    - ▪ Clicking once sorts in ascending order
   - ▪ Clicking a second time on the same column changes the order to descending
    - ▪ Clicking on the same column for a third time removes sorting.
    - ▪ Clicking on the Restore Default Sort button, will revert **all** sort keys to their default state.

Column Filtering

- In this section, we will cover multiple options for filtering the data which results in the resource data grid.
    - o **Column Picker:** Removing or adding columns which data is not desired to be viewed as discussed in the column configuration section.
    - o **Batch Dispatch Filter:** Filtering when receiving a dispatch batch by the batch type using the Filter checkbox in Batch grid
    - o **Inline Filter:** "Search" filter using the inline filter for exact match or contains search. The inline filter appears as a funnel icon as described in the introduction table and allows for a user to filter quickly (one at a time) or quick combinations.
        - ▪ Depending on the column, user may get option for dropdown options (if there are limited choices), or an option to type characters to filter for any result in that column containing those characters.
        - ▪ Example, after selecting the Inline Filter icon, the icon turns orange and provides fields for inline filtering as shown in the image below. Using the column for Resource ID, user chooses would like to view results in which the resource ID contains the letters "SOL"

- Options to search for Exact Match (Default is "Contains"), or to change if the search to be case sensitive (setting is by column), click within the box of the filter, hover to the right edge, and click the "…" icon, select/deselect the checkbox, and click Ok.

  - To select or deselect if the inline filter is case insensitive or sensitive, select or deselect blue checkmark. Close inline and re-open inline filter to search again.
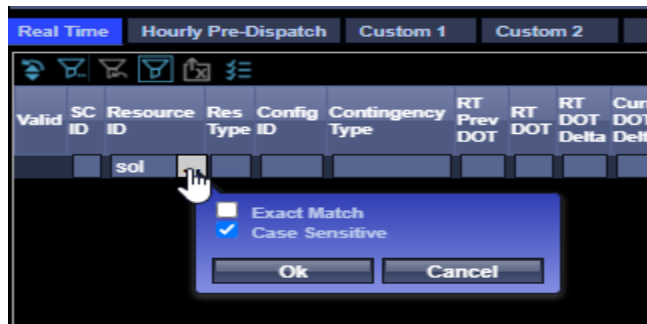
- **Advanced Filter:** A more advanced filtering option to the inline filter. The Advanced filter appears as a funnel with ".." icon as described in the introduction table and when clicked, will result in a pop up box to view or create defined criteria to filter the resource data grid.

  - This filter functionality can be used in narrowing results, for example to those which are greater than a certain value in a particular column.

  - This filter functionality can also be used as a more complex, but powerful custom filter (similar to the previous ADS Filter Builder) which allows user to create more narrowly defined list of data results by defining a set of criteria and applying math logic to achieve results.

  - For example, a user may filter to see when Criteria 1 OR Criteria 2 is applicable. Another example could be if a user wanted filter for any resource with SCID XSC1 and has [either RT DOT greater than 0.00 MW *OR* RT DOT Delta greater than 0.00 MW].

  - Once filter logic and criteria is entered, click Update. When reopened after updating, all active rows will be moved to the top of the list

  - In the next section, we will discuss the use of each column in the Advanced Filter options.

> **Tip!** When creating an advanced filter containing multiple criteria, first map out or draw desired criteria on a piece of paper to easier translate to the Advanced filter.
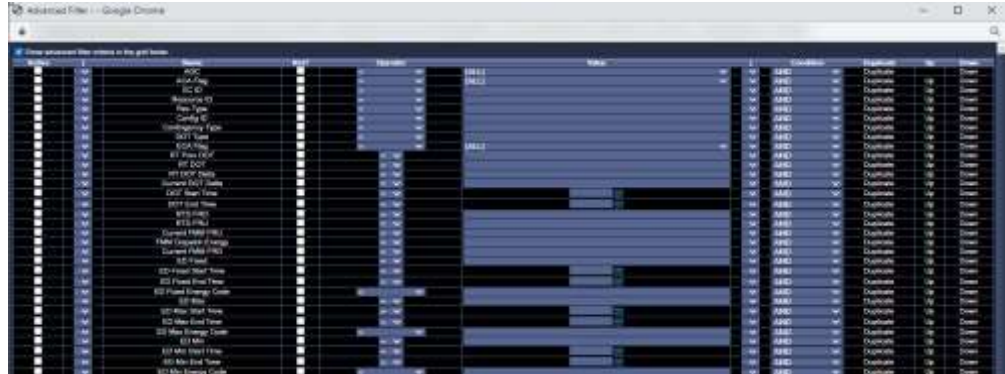
- The first column is labeled **Active**. As criteria is defined, this column will need to be checked to be made an active filter criteria.

  - Conditions can be added/removed by selecting/deselecting the checkbox in the "Active" column.

    - Only rows with this box checked will be used for filtering.

    - Effectively, can delete a row by unchecking it and hitting update

- The "Name" column is where the user will choose which Resource Data column to filter (i.e. SC ID, Unit Commitment type, etc).

  - Each of these rows corresponds to a column in the Resource Data grid, and the list contains the available data fields like the Column Picker

  - Common Name fields that might be used: SC ID, Resource ID, Unit Commitment, etc.
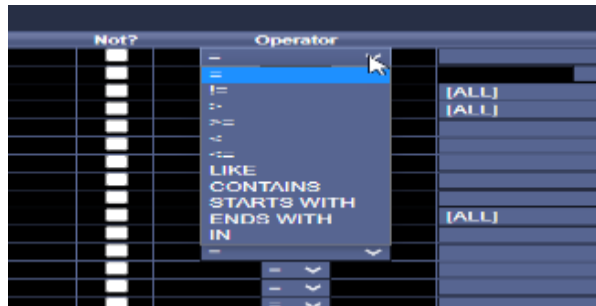

  - By default, only one row of each **Name** data field is present, any additional must be duplicated. To do this, click duplicate button in Duplicate column to add an additional row. For example, user wants to include two SC IDs in their filter.

- o Note: all definitions in this row that have been defined will be duplicated, but can be changed in the newly added row if desired.

- ▪ Order columns (the last two columns Up/Down): the order of the rows is important when configuring the filter

  - Order of rows is important for multi-line filters

  - Execution is from top to bottom – can use the Up and Down buttons to move the defined row up or down

- ▪ Operator column: the fifth column from the left is the operator column and is used to determine (i.e. telling the advanced filter) the filtering logic for that row.

Advanced Filter Operator	Description
=	Exact Match
!=	Is not an exact match
>	search for results greater than
>=	search for results greater than or equal to
<	search for results is less than
<=	search for results is less than or equal to
LIKE	search for results which contain string provided in value when wild (%) is before and after the value %VALUE%
	search for results which start with provided in value when wildcard (%) is after the value VALUE%
	search for results which end with provided in value when wildcard (%) is prior to the value %VALUE
IN	this operator allows to search individual values in one row by separating with commas (instead of adding new lines & using the OR function).

Figure 3 Operators in Advanced Filter tool

- *IN is the preferred alternative to multiple OR searches for different values within the same category (i.e. multiple resources) which will assist with performance of the advanced filter.*

- *The "Not?" column can be selected with use of "=" as an alternative to "!="*

- - *Note: Not all filtering options make logical sense for every column. For example, the option "greater than" would have no value for the Resource ID column as this column contains no numerical values. Select your filtering criteria according to the intrinsic logic of the column values.*
  - Value column: Field to enter what the value user wants to filter on for that row) either free form field to enter filtering criteria or dropdown menu if there are limited options
    - For example, if filtering for a specific SC ID – this would be the place the user would enter the SC ID after identifying the row, and choosing the operator logic.
  - Defining multiple criteria using Boolean Logic: user can use "Both/AND" or "Either/OR" logic by selecting the appropriate parentheses and conditions.
    - Parentheses are the second and sixth columns, "**(**" and "**)**", used in pairs to group criteria into a single idea. Parentheses can be nested.
      - Be aware, unpaired parentheses i.e. if you have a "(" but no partner ")" will not throw an error
      - Be aware, could cause a logic error if parentheses are not placed in the correct logic position
    - The Condition column contains "AND" and "OR" options in the dropdown menu. Condition determines how rows are linked together.
      - AND will be used when linking separate exclusion ideas together
      - Within a single exclusion idea either AND or OR will be used
- Basic Example for setting up an Advanced Filter
  - **Step 1** – Define the Criteria
    - I do not want to see resources with a zero RT DOT in this tab
  - **Step 2** – Translate into ADS filter criteria (i.e. map it out for ease of entering into Advanced Filter display)
    - DOT not equal to 0.00
    - DOT "!=" 0.00*
  - **Step 3** – Enter in the display & hit Update
    - Click checkbox in Active Column for row "DOT"
    - Select Operator "!=" in that same row
    - Enter 0.00 in Value column for that row

o   Scroll to bottom of list and click **Update**
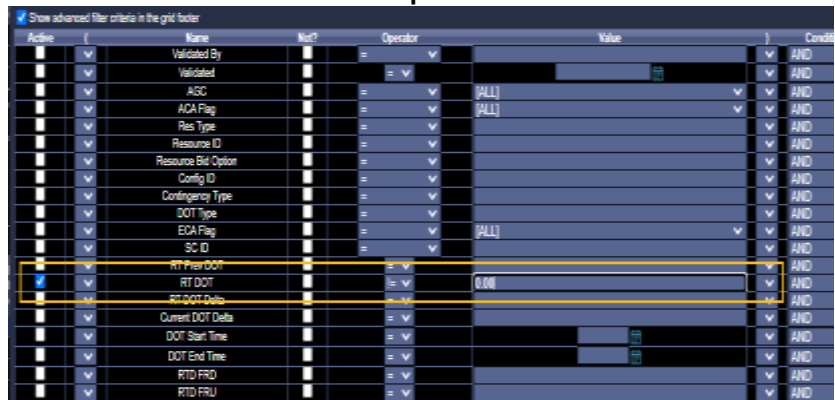
▪ Step 4: View filter applied. If the box is selected next to **show advanced filter criteria in grid footer**, you will see the criteria after applying the filter in the footer of the grid. The user may also deduce there is an advanced filter in place as there is a light square outline around this icon and the option to "reset Advanced Filter", which is a funnel with the back arrow, is no longer grayed out as seen in the figure below.

o   For more advanced examples and practice exercises to become more familiar, visit section 9.

o

> **Tip!** It is highly recommended to use the inline filter and the advance filter independently. Using these two filters together will result in them resetting each other.

Column Calculations (Default)

- A quick calculation can be applied to columns with numerical values. This can be done by right clicking on the column, and choosing the desired function for that column.

- The available calculations include Summation, Minimum, Maximum, Count, and Average. Calculations can be removed by deselecting the option in the column.

- Result will be in the bottom of the display. If there are a large number of results, may need to expand window or page to the last page to view results.

5 Real Time Tab

- The Real Time tab is filtered to exclude Hourly Pre-Dispatch resources. The Real Time tab is primarily used to view generator energy dispatches, commitments, and AS Awards. The energy dispatches include 5 minute RT dispatches, 10 minute contingency dispatches, as well as Exceptional Dispatches, Ancillary Service Tests, and Operating Instructions.
- Under normal operating conditions, generation instructions are received every 5 minutes and are binding.
  - **ADS System Time** is in the lower right hand corner, this is 15:06:10 in the figure below.
  - At this time, the batch status/interval grid will display:
    - "Current Interval" row displays the current 5 minute interval, which corresponds to the previous DOT and what the resource should **currently** be following
    - "Dispatch Interval" row represents the upcoming 5 minutes and what the resource will **begin** to follow.
      - Resources begin ramping at the beginning of the interval and are expected to reach the Dispatch Operating Point, DOT in the **middle of the interval.**
    - In the example below, the resource received the instruction at 15:05:54, which can be seen in both the message window and the pop up message alert.

- The operator then has approximately 90 seconds to review and respond to their instructions, before the resource would begin ramping at 15:07:30 and reach the DOT of 206.00 MW at 15:12:30.

Exceptional Dispatches (EDs)

- ED instructions are created manually by the operator for a specific resource. There are no specific intervals for ED instructions. Resources are expected to follow the MW value from the ED Min, ED Max, or ED Fixed columns in the Resource Data grid.
    - The Start and End Times associated with the ED (for example, an ED Max Instruction will have an associated ED Max Start Time and ED Max End Time, to indicate the duration of the ED instruction. These are included in the default view of the Instruction grid, and can also be added to the Resource data grid using the column configuration options.
    - A list of valid ED Codes (for CAISO BA SC's) can be found in the Operating Procedure 2330C on www.caiso.com.

Commitment Instructions

- Start-Up Instructions are sent prior to the initial DOT instruction and communicate when a resource needs to be coming online. The resource should follow the Start Time, and End Time in the Instruction grid. The Start and End time is based on your start-up time and requirements communicated in the CAISO Masterfile.
    - Example: an ADS startup instruction may communicate to start up at 11:37 and reach PMIN of 48.46 MW at 11:45. The resource will receive a DOT greater than or equal to this PMIN (48.46 MW) at the first time after the commitment startup instruction time of 11:45. In the example illustrated, the RT DOT is communicated for the 11:47 DOT start time. The startup trajectory plot is also seen here.

- Similarly, for a shutdown instruction, the resource is expected to begin ramping down at the time communicated in the Start Time column and reach PMIN to shut down at the time communicated in the End Time column.
- To increase visual awareness, ADS now has colors associated to the different commitment instructions types:
- Green for startup instructions
- Orange for shutdown instructions
- Yellow for transition instructions

- Colors for these instruction types will be visible in the real-time instruction grid only, and not visible in queries for previous day data.

Transition Instructions

- Transition Instructions are a type of commitment instruction for Multi-Stage Generation (MSG) resources that communicate when a resource must transition between configuration IDs.
    - The Unit Commitment column is populated with "Transition" when a Transition Instruction is received for a resource.
    - Commitment To and From Config ID columns are provided to communicate which configurations are transitioning, and the **Commitment Start Time** is used to communicate the target time for beginning the ramp for the transition. The **Commitment End Time** is used to communicate when the resource should reach the Pmin of the configuration. In the figure below, the Resource Data grid shows a transition to the resource's 2x1 configuration, where the resource is expected to reach the 2x1 configuration by 18:30.

Ancillary Service Awards (AS Awards)

- Under normal operating conditions, Ancillary Service Awards are sent every 15 minutes.
    - There are Current AS Total columns communicating the AS that was awarded during Current interval. Dispatch Interval columns communicate the AS that was awarded for the next 15 minute interval.

- o Note, that the AS Awards are not energy instructions. If there were energy being dispatched from an AS Award, it would be included in the RT DOT and listed in the energy breakdown, which is visible by hovering the mouse over the red triangle next to the MW total.

Unannounced Ancillary Service Tests (AS Tests)

- AS Tests are instructions created manually by the CAISO BA operator to perform an unannounced A/S test for resources (in the CAISO BA) with Spin or Non Spin awards per CAISO Operating Procedure 5370, which can be found in the Operating Procedures on www.caiso.com.
- When this instruction is created, a new batch notification will be displayed in ADS in the Batch Status/Interval Display in the "A/S Test" column.

- o Default settings include a pop up notification and continuous audio alarm for this instruction
- o A/S Test begins for the applicable resource at the **A/S Test Start Time** shown in the resource data column "A/S Start Time", and the AS Test Constraint MW denotes the AS Testing MW and operating target for resource during the AS testing period

  - ▪ For additional information on requirements for Ancillary Services and unannounced AS Testing, refer to the procedure noted above and the Market Instruments BPM.

Operating Instructions and Follow DOT Flag (Eligible Intermittent Resources in CAISO BA)

- Operating Instructions are created manually by the CAISO operator for a specific Eligible Intermittent Resource (EIR) or set of EIRs, as discussed in the BPM **Appendices to Market Operations** A.12.1 and consistent with section 7.6 or 7.7 of the CAISO Tariff. For more information, both of these documents can be found on www.caiso.com under the Rules section.
- Columns are available in the Resource data grid to view information related to Operating Instructions, including:

  - Operating Instruction Start Time
    - Effective Start time of the Operating Instruction
  - Operating Instruction End Time
    - Effective End time of the Operating Instruction
  - Operating Instruction Reason, examples include:
    - Congestion
    - System Reliability
  - Operating Instruction Flag
    - If the flag = Y, an operating instruction is active
  - To view current active Operating Instructions, the "Filter" checkbox in the Batch Status/Interval grid can be selected. An "or Operating Instruction = Y" will be applied to the resource data grid as a filter criteria.
- An additional column for monitoring for EIRs is the **Follow DOT flag**, which will result in displaying a Y in the scenarios below:
  - If an Operating Instruction is in place per the above.
  - If the **Resource DOT < Forecast** per market optimization parameters (resulting in negative SUPP value) *For more information on SUPP, please refer to the Market Operations BPM, and CAISO Tariff as mentioned earlier in this section.*
  - For a Subordinate Aggregate Capability Constraint (ACC), if any of the resources in the constraint receive an AS award or qualified AS self-provision, the Market will set the **Follow DOT** flag as Y for EIRs behind this Subordinate Aggregate Capability Constraint only.
  - For the EIRs <u>outside</u> this Subordinate Aggregate Capability Constraint, but within the same Master Aggregate Capability Constraint, their **Follow DOT** shall not be impacted by this.
  - For co-located resources, when any resources within a standalone ACC receive an AS award, the System shall set the FOLLOW_DOT flag to "Y" for all EIRs behind the ACC.
  - When the FOLLOW_DOT flag is "Y" for co-located resources, the System shall display the FOLLOW_DOT flag internally and externally.

- o When an operating instruction changes, for example an update to the end time of an Operating Instruction – a new batch will be sent to ADS. In the example below, an Operating Instruction was sent which started at 12:05, but an update was made to the end time to 16:50. The user receives a new notification 12:16 after this update was made.

6 Hourly Pre-Dispatch Tab

- The Hourly Pre-Dispatch tab is set up to show resources which have the Hourly Pre-Dispatch flag = Y (resources which receive hourly pre-dispatches).
- Hourly AS Awards for Tie Generators may also be displayed on the Hourly Pre-Dispatch tab, provided they have a Hourly Pre-Dispatch flag = Y

- **Hourly Prev DOT** reflects Hourly DOT received from the previous hour – in the image above, Hourly DOT Start time of 12:00. The **Hourly DOT** column is the Hourly DOT received for dispatch interval hour, with DOT start time 13:00 in the image above. The Hourly DOT is the HASP Award.
- The above logic also applies for the **Prev Accept DOT** and **Accept DOT**.
- Here is an additional example below to show how the **Delta** columns are calculated.

1) Hourly DOT received from RTM for previous hour (i.e. Hourly DOT Start time: 17:00)
2) Hourly DOT received from RTM for Current hour (i.e. Hourly DOT Start time: 18:00)
3) SC Accepted Hourly DOT for previous Hour (i.e. Hourly DOT Start time: 17:00)
4) SC Accepted Hourly DOT for Current Hour (i.e. Hourly DOT Start time: 18:00)

5, 6 & 7 are derived value:

5) 2 minus 1
6) 4 minus 3
7) 4 minus 2

Responding to Hourly Instructions

- Hourly Instructions are generally sent for **intertie resources** *prior to the start* of the previous operating hour (after the Hour Ahead Scheduling Process market results have been published), however there may be circumstances which the results may be published after the top of the hour.
  - o The instructions should be responded to during the participant response window.
  - o The participant response window begins from time the instruction is received and lasts **5** minutes. After the 5 minute participant response window has expired, the CAISO operator will have until 40 minutes prior to the operating hour (T-40 or XX:20) to update the dispatch on behalf of the SC.
  - o There are buttons in the display to **Accept**, **Decline**, or **Partial**.
    - Decline will set the Accepted DOT = 0.
    - Partial will allow the SC to accept a partial value of the award.
      - When clicking this option, the user will receive a pop up display to enter a value into the Accept DOT field. This value is limited to a minimum of 0 MW and a maximum of the HASP award MW, which is displayed in the **Hourly DOT** field.

      - The SC or CAISO operator will also select a Reason Code, then select **Send** to submit.
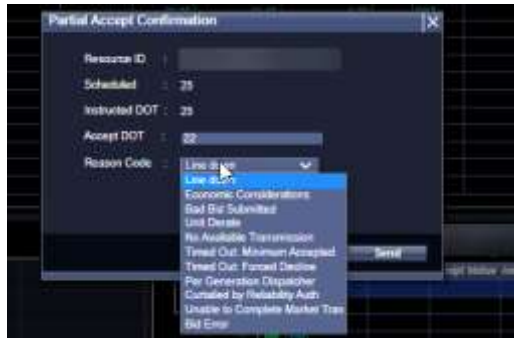
-
  - In the figures above, the example is showing a resource that received an Hourly DOT of 25 MW, and will accept a partial amount of 22 MW, with Reason Code as Line down.
  - Failure to respond to a dispatch will result in an auto accept of the Hourly DOT MW as the Accepted DOT.

  - Hourly Pre-Dispatch Resources also receive non-binding 5 minute instructions. These instructions are advisory only. The Accepted DOT from the Hourly Pre-Dispatch run is binding and should be followed.

7 Options Menu

Configurations (Profiles)

- The Configurations display that can be used to configure or save system settings, such as:
  - Saving settings to create a Display Profile (this includes filter sets within the grids)
  - Viewing and loading created private and shareable Display Profiles created by certificate user
  - Editing Audio Alarm settings and Pop Up [Message] Alert settings
  - Resetting settings to default configuration
- Display Profiles (saveset) Creation
  - First, in the main ADS display – make sure to set up settings desired, such as configuration of tabs and filtering criteria, as well as settings in this display, such as Audio alarms to create the desired profile.
  - Then, click the Configurations button.

- o Once desired configurations and settings are in place, click Save Current Display Settings as a Template.
  - Fill in Profile Name, Description (recommend to include detail which reminds which profile this is),
  - Determine if profile is to be Private (viewable by this certificate user) or Sharable (viewable across users in your organization who have access to ADS).
    - If Shareable, select Shareable dropdown and select Yes.
  - Click **Submit**
  - The new profile should appear in the Private Display Profiles grid once submitted to save as a template.
    - Once saved, the profile can be viewed, uploaded, deleted or overridden by the user.
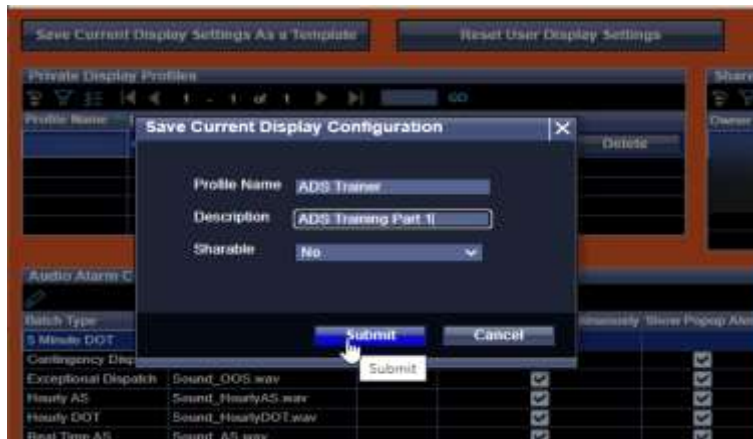
  - There are two ways to modify a configuration:
    - o The previous option to upload the configuration so ADS has all of the applicable settings and filters. Then, make changes to the settings or filters. Click Save Current Display Settings a Template and name new profile. Then, go back and delete the old profile if desired.
    - o More efficient option to make changes within the current configuration then click the Override button.

- o Once you have clicked the Override button, an alert popup will display. Clicking 'OK' results in a permanent override that cannot be undone and will remain until you make future changes.
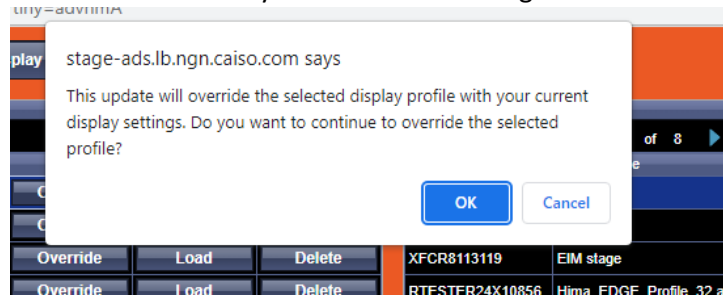
- ▪ It is recommended to implement a maintenance process for ease of management of the profiles.
- ▪ Display Profiles which are shared by others in your organization will be viewable in the Shared Display Profiles.
- Loading an existing Display Profile
  Note: if you wish to save your current settings to be used at a later time, ensure to do so by following instructions in the previous section prior to loading another existing profile.
  - o Locate the desired profile in the **Private** or **Shared Display Profiles** grid
  - o Click **"Load"**
  - o A pop up will appear which will request to acknowledge your current display settings will be overridden by the selected profile and that the UI will need to be refreshed to take effect
    - ▪ Click OK
  - o Hit Refresh in ADS global dashboard

- Audio Alarms and Pop Up Alerts Configuration: for each Batch Type (listed by row), user can:
  - o Select **Audio file** (there is a default sound for each batch type)
  - o Choose to **Mute Sound** (don't play any sound at all for Batch type listed in that row)
  - o **Continuously alert** until acknowledged
    - ▪ If this column is unchecked AND Mute Sound is unchecked, the alarm will sound **once** each time the notification is sent
  - o Select if Popup Alert is desired for each batch type notification/message
    - ▪ This is associated with the popup notifications received each time a batch is received by ADS
  - o To edit these settings, first click the **Pencil** icon

- Then, select or deselect the checkboxes in the associated columns for the desired settings based on the above descriptions
- In Selecting Audio File, there is a drop down menu. To hear what each sounds like, the option to play sound is below the Audio Alarm Configurations grid.

- When updates are completed, ensure to click **"Update"** in the left corner of the grid, before saving profile template or closing the display.

System Messages and Message Query

- System messages are notifications provided via the ADS system. These may be configured as described in the previous section to receive/disable a pop up notification. Messages can be acknowledged by clicking the **"OK"** button.
    - An example of a system message may be related to a received batch, such as the below figure:
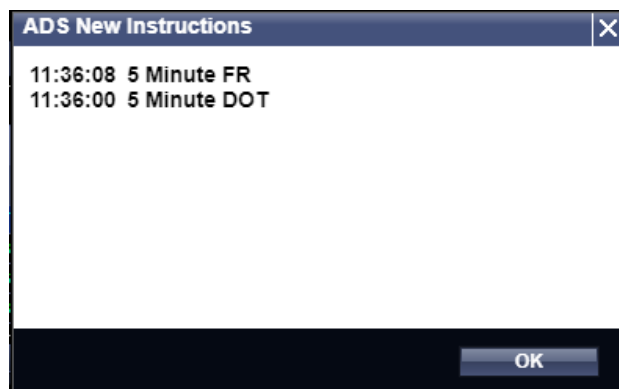
    - Another type of message may be an operator message sent by the CAISO BA Operator with instruction or notification (such as a contingency message) or the Real Time Market Operator (upcoming system maintenance), such as:

- Systems messages history is able to be viewed and queried within the ADS UI, by navigating to the System Messages option in the Options Menu.
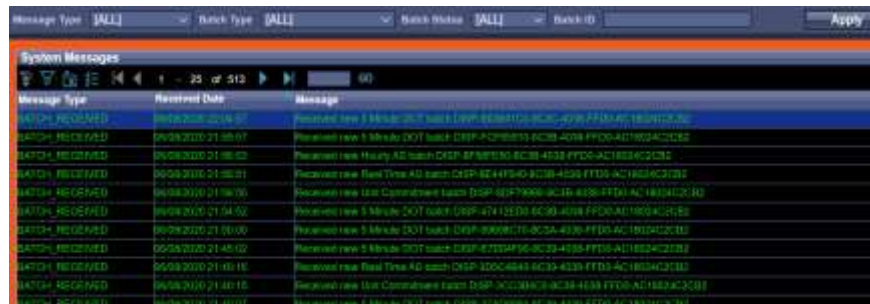
- o Filter Options include: Message Type, Batch Type, Batch Status, Batch ID
    - To filter, choose options in the dropdown menus. Click "**Apply**".
    - To clear the filter selection, click Reset.
- o To view the message, click the button to the right hand side which is labeled **"View"** and a pop up notification will display.
- o The System Messages grid data can be exported using the Export icon.

Query Tool

- The Query Tool can be used to query historical instruction data for a resource from the last 30 days, including Real Time Dispatches, Unit Commitments, etc.
- To access the Query Tool, click on the "**Query Tool**" button in the Options Menu. A pop up display will show with search options for Start/End Dates, Batch Type, and Resource ID.

- Available Batch Types in Query Tool:
  - Instructions, which includes:
    - DOTs
    - Commitments
    - Energy
    - AS Awards
    - Exceptional Dispatches
    - Operational Instructions
    - ASTEST (Unannounced A/S Testing)
  - Trajectory
  - MSS LF Instructions
- Selecting a Start and/or End Time
  - Users can retrieve data up to 90 days prior to the current day.
  - The Batch Type **"Instruction"** query allows for up to 30 days max at one time. If querying for 30 days, please allow for additional processing time. Due to the amount of queried data, this query may take a longer duration to complete query (minutes).
    - After date selection in Start or End Date, the UI may update the dates to limit to 30 days.
    - In UI, if a date is selected which is outside of the 30 day range, a message will be shown in the message bar at the bottom of the display "Dates must not span more than 30 days".
  - The Batch Types **"Trajectory"** and **"MSS LF"** query allows for 1 day at a time.
    - In UI, once Batch Type for either of these is selected, only the start date will be shown.
    - The Trajectory Data tab contains data related to the DOP for the selected resource and can be selected by clicking on the label.
- Submitting Request: To retrieve results for the date and Resource selected, click **"Submit Query Request"** button in the upper right corner of the selections.

- The results will be listed in the grid with tabs for Instructions, Trajectory Data, and MSSLF Instructions.
  - Note that the columns for these tabs may be filtered and setup based on the columns, similarly to that described in the **Resource Data** grid configuration section. To add columns which are not in the default display, click on the Adjust Columns [Checklist] icon to use the Column picker.
  - The results will be returned in the tab with the label associated with the Batch Type selected.
  - The Export option may be used to export this data to .xls or .csv for use outside of ADS
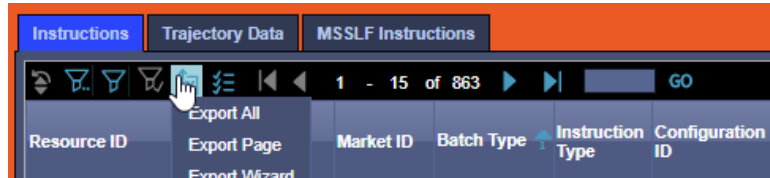
- Each search will be saved and displayed in the **Query Requests** grid during that user session. To view a previous Query which is showing in this grid, click on the row for the previous query request desired and the grid below will update with those results.
  - Note: to see data, once selecting the row in the query request history – ensure the correct tab is selected in the returned results. In the example below, the results are in the instruction tab, but the user may see no results if selected in the Trajectory tab.

8 Trouble Shooting – Logging in

- Having trouble accessing? Access denied?
  - Check with your User Access Administrator on certificate status and provisioned with correct SC IDs or Access Control Lists (Resources)
  - Clear Cache/start fresh instance of browser (Chrome/Edge with Chromium)
  - Check for system outages on Market Participant Portal homepage or in messages
  - Call the Service Desk
- Clicking on ADS link but then nothing happens or eventually times out?
  - Check for browser pop ups or if pop up blockers enabled
  - Check with your IT department for firewalls and IP addresses have been allowed
    - IP addresses and URLs can be found on developer.caiso.com
- Not seeing the correct SC ID/Resources?
  - Check with your User Access Administrator on certificate status and provisioned with correct SC IDs or Access Control Lists (Resources)
- ADS opens, but the configuration is unreadable?

- o Check in correct browser, Chrome or Microsoft Edge with Chromium
- o Too small? Check zoom settings
- Receive notification that session is already established?
  - o Clear cache and start new instance of browser or try the options in the notification
- Not seeing new feature or patch communicated by CAISO?
  - o Clear cache and start new instance of browser

Note: if calling the Service Desk, please have your certificate name and environment information on hand to provide to the Service Desk Representative. This information is located on the bottom of the User Interface.

9 Advanced Filter User Exercises (additional examples)

- In this section, there are additional examples to illustrate use of the advanced filtering in ADS.
- Illustrated in the form of user exercises and will follow this flow:
  - o Step 1 – Determining the conditions to filter for mapping out the filter criteria
  - o Step 2 – Map out the criteria to input into tool
  - o Step 3 – Entering into the tool
  - o Step 4 – View results

Exercise 1: User is setting up an advanced filter within one of their tabs. This example illustrates two ways to filter for a set of values in the same column.

- Step 1: User determines what filtering criteria is needed and writes out conditions desired:
  - o Filter for a specific set of resources (i.e. in this filter, show only resources which match any of these Resource ID names):
    - ▪ ResourceID1
    - ▪ ResourceID2
    - ▪ ResourceID3
    - ▪ ResourceID4
- Step 2: Define for tool input by identifying the columns to filter by, which operator to use, what value is being compared, and which condition (together or separate?). Two ways this can be achieved is either by using:
  - ▪ the **IN** operator in 1 row (preferred method)

Name	Operator	Value	Condition
Resource ID	IN	Resource_ID1,Resource_ID2,Resource ID3,ResourceID4	

  - ▪ the **OR** Condition and multiple rows of Resource ID

Name	Operator	Value	Condition
Resource ID	=	Resource_ID1	OR
Resource ID	=	Resource_ID2	OR
Resource ID	=	Resource_ID3	OR
Resource ID	=	Resource_ID4	OR

- Step 3: User navigates to the Advanced Filter and defines criteria in the tool using method 1. Since this is a single filter, no parentheses necessary.
  - o Click **Active** checkbox on the identified row where **Name** column reads **Resource ID**

- o Input criteria, "**IN**" and Resource IDs (separated by commas ONLY, no spaces) as defined in Step 1 in initial definition

- o Scroll to bottom of filter tool, and click **Update**
- **Step 4:** Review results.

Exercise 2: User is setting up an advanced filter to view a specific set of resources which have any value other than 0 MW in the RT DOT Delta column (i.e. for changes in the RT DOT Delta). Similar to Exercise 1, with an added filter criteria.

- o Filter for a specific set of resources (i.e. in this filter, show only resources which match these Resource ID names):
  - ▪ ResourceID1
  - ▪ ResourceID2
  - ▪ ResourceID3
  - ▪ ResourceID4
- o Would like to only see a result show for these resources:
  - ▪ if the RT DOT Delta is any value other than 0 MW

Exercise 3: User is setting up a tab to filter using the Advanced Filter for A/S criteria.

- Step 1: User determines what filtering criteria is needed and writes out conditions as desired:
  - o Filter for resources which are showing nonzero values for AS, including regulation and AGC status (on regulation per market dispatch) for the current and dispatch intervals.
- Step 2: User maps out criteria to input into the Advanced Filter tool identifying the columns to filter by, which operator to use, what value is being compared, and which condition (together or separate?).
  - ▪ AS Totals
    - Current AS Total not equal to 0 MW, or
    - Dispatch AS Total not equal to 0 MW, or
  - ▪ Regulation
    - Current Regl Down not equal to 0 MW, or
    - Current Regl Up not equal to 0 MW, or
    - Dispatch Regl Down not equal to 0 MW, or
    - Dispatch Regl Up not equal to 0 MW, or
  - ▪ AGC Flag is a Y flag

Name	Operator	Value	Condition
Current AS Total	!=	0.00	OR
Dispatch AS Total NOT 0 MW, or	!=	0.00	OR
Current Regl Down NOT 0 MW, or	!=	0.00	OR
Current Regl Up NOT 0 MW, or	!=	0.00	OR
Dispatch Regl Down NOT 0 MW, or	!=	0.00	OR
Dispatch Regl Up NOT 0 MW, or	!=	0.00	OR
AGC Flag	=	Y	OR

- Step 3: User navigates to the Advanced Filter and defines criteria in the tool – since these are all "OR" conditions (no groupings), parentheses not necessary.
    - Identify each row that is needed, and ensure to click the **Active** checkbox.
        - Current AS Total != 0.00, or
        - Dispatch AS Total NOT 0 MW, or
        - Current Regl Down NOT 0 MW, or
        - Current Regl Up NOT 0 MW, or
        - Dispatch Regl Down NOT 0 MW, or
        - Dispatch Regl Up NOT 0 MW, or
        - AGC Flag is a Y flag
- Step 4: View results. Upon re-opening the Advanced Filter tool, user should see the rows previously defined at the top.
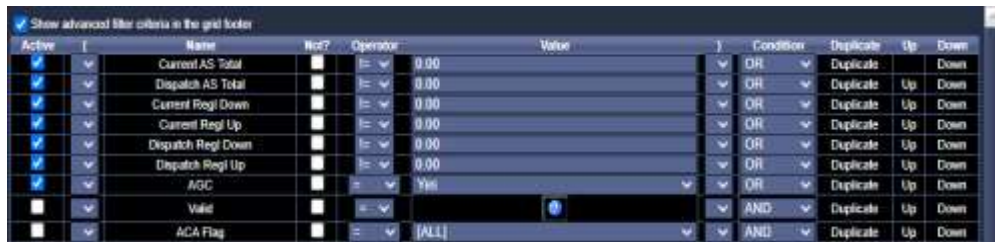
Exercise 4: User is setting up a tab to filter using the Advanced Filter with some grouped criteria, introducing use of the parentheses.

- Step 1: User determines what filtering criteria is needed and writes out conditions as desired:
    - Filter for resources which are a specific set of resources (resources which contain a certain criteria in the Res ID or are in a particular SCID group) that have a change in RT DOT or a nonzero RT DOT.
- Step 2: User maps out criteria to prepare for input into the Advanced Filter tool and enters into the Advanced Filter Criteria.
        - Anything not an hourly pre-dispatch resource (RT)
        - Resources which end with SOLAR or PEAKER,
        - But also wants to see any resource ID if the SCID is SCID1,SCID2 or SCID 3,
        - And only show these resources if they have a nonzero RT DOT, or a result in RT DOT Delta

(	Name	Operator	Value	)	Condition
	Hourly PreDispatch	!=	Y		**OR**
(	Resource ID	LIKE	%SOLAR		OR
	Resource ID	LIKE	%PEAKER		OR
	SCID	IN	SCID1,SCID2,SCID3	)	**AND**
(	RT DOT	!=	0.00		OR
	RT DOT Delta	!=	0.00	)	OR

- Step 3: User navigates to the Advanced Filter and defines criteria in the tool – since we have some grouped constraints defined, this will require use of the Conditions & Parentheses.
  - Identify each row that is needed, and ensure to click the **Active** checkbox.
- Step 4: View results. Upon re-opening the Advanced Filter tool, user should see the rows previously defined at the top.
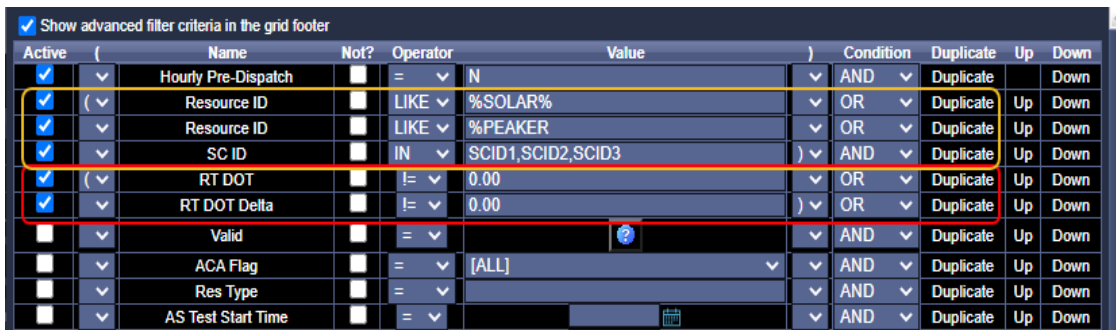
Additional exercises a user may try:

- When using the inline filter in the Resource Data grid, view the advanced filter setting that gets applied in the foot of the Resource data grid. Close the inline filter and re-create the filter using the advanced filter tool.
- Try different groupings/settings to see what results return by:
  - Switching AND/OR conditions
  - Change operator to see how it changes results

10 Column Definitions (Data Dictionary)

Below is a table which contains short descriptions of many (but not all) of the columns in the Resource and Instruction data grids.

ADS UI Columns	Description	Examples
Accept DOT	Participant Accepted DOT for intertie instructions. This denotes the SC accepted DOT for hourly (dispatch interval)	MW value
Accept DOT Delta	Accept DOT - Prev Accept DOT	MW value

Accept Status	Participant Accept Status for intertie instructions.	ACCEPT, NON- RESPONSE, DECLINED, PARTIAL
Acknowledged	Flag Y Acknowledged	Y/Null
Acknowledged By	Initial participant with ReadWrite access who acknowledges notification, based on the certificate used at log in.	SC01_xBPosey
AGC	The AGC flag will communicate when a resource shows market awarded regulation for the current five minute interval	Y/N
API Acknowledged	Flag Y Acknowledged via API	Y/Null
AS Test	Flag indicates a resource is designated to be dispatched with instruction type "ASTEST". SC is expected to follow the dispatch MW corresponding to AS Test constraint mw.	Y (A/S Test dispatch) N (End of A/S Test)
AS Test Constraint MW	MW which denotes the AS Testing MW and operating target for resource during the AS testing period.	MW value
Base Schedule	EIM Entity Base Schedule	MW Value
Commitment End Time	When the resource should reach PMIN for start up, zero for shut down, the new configuration for transition	Time Value
Commitment From Config	Displays the configuration that a resource should be transitional from when a transition instruction is sent.	Gen_7_Unit1_1
Commitment Start Time	When the resource should begin the ramping up/down or transition.	Time Value
Commitment To Config	Displays the configuration that a resource should be transitional to when a transition instruction is sent.	Gen_7_Unit1_2
Config ID	Displays the MSG configuration associated with the dispatch.	Gen_7_Unit1_1
Contingency Type	Contingency Type will communicates when operating reserves are prioritized over energy-only bids. RTDD, Real-Time Disturbance Dispatch RTCD, Real-Time Contingency Dispatch For more information, please refer to BPM.	CAISO SCs: RTDD RTCD
Current AS Total	Total AS for the current 15 minute interval.	MW value
Current DOT Delta	Accept DOT - Hourly DOT	MW Value

Current FMM FRD	FMM Flexible Ramping Down binding awards for generators and Tie-generator resources	MW value
Current FMM FRU	FMM Flexible Ramping Up binding awards for generators and Tie-generator resources	MW value
Current MSS LF Down	Metered Subsystem Load Following Down for the current interval	MW value
Current MSS LF Up	Metered Subsystem Load Following Down for the current interval	MW value
Current Non Spin	Non Spin Award for the current interval	MW value
Current Regl Down	Reg Down Award for the current interval	MW value
Current Regl Up	Reg Up Award for the current interval	MW value
Current Spin	Spin Award for the current interval	MW value
Dispatch AS Total	Total AS for the next 15 minute interval.	MW value
Dispatch FMM FRD	FMM Flexible Ramping Down awards for generators and Tie-generator resources for next interval	MW value
Dispatch FMM FRU	FMM Flexible Ramping Up awards for generators and Tie-generator resources for next interval	MW value
Dispatch MSS LF Down	Metered Subsystem Load Following Down for the next interval	MW value
Dispatch MSS LF Up	Metered Subsystem Load Following Down for the nextinterval	MW value
Dispatch Non Spin	Non Spin award for next 15 minute interval.	MW value
Dispatch Regl Down	Regulation Down award for next 15 minute interval.	MW value
Dispatch Regl Up	Regulation Up award for next 15 minute interval.	MW value
Dispatch Spin	Spin award for next 15 minute interval	MW value
DOT Start Time	The time the resource should reach the RT DOT MW, ie the target time.	15:02:30 15:07:30
DOT Type	Whether the record is applicable for an upcoming interval.	DOT Inactive
ED Fixed	A set MW value that should be provided.	MW value
ED Fixed End Time	The end time of a Fixed ED instruction.	Time Value
ED Fixed Energy Code	The code describing the reason for the Fixed ED instruction	ASTEST, BS, SYSEMR, etc.
ED Fixed Start Time	The start time of a Fixed ED instruction.	Time Value

ED Max	The resource should not provide above this MW value	MW value
ED Max End Time	The end time of a Max ED instruction	Time Value
ED Max Energy Code	The code describing the reason for the Max ED instruction	ASTEST, BS, SYSEMR, etc.
ED Max Start Time	The start time of a Max ED instruction.	Time Value
ED Min	The resource should not provide below this MW value	MW value
ED Min End Time	The end time of a Min ED instruction.	Time Value
ED Min Energy Code	The code describing the reason for the MIN ED instruction	ASTEST, BS, SYSEMR, etc.
ED Min Start Time	The start time of a Min ED instruction.	Time Value
FMM Dispatch Energy	FMM Dispatch energy for Intertie resource	MW value
FMM End Time	FMM Dispatch Energy End Time	Time Value
FMM Start Time	FMM Dispatch Energy Start Time	Time Value
Follow DOT Flag	An additional flag which is set by the market optimization and displayed when either the EIR resource DOT is below the forecast or the Operation Instruction flag is set to Y	Y/Null
Has ED Fixed or ED Min Or ED Max	Flag indicates if resource has an ED Fixed/Max/Min in place	Y/N
Has Hourly AS	Communicates whether a dispatch includes Hourly AS. This includes a value of zero if the resource had a bid	true / false
Hourly DOT	Hourly DOT received for next hour shown in Dispatch Interval	MW value
Hourly DOT Delta	MW Increase or Decrease from the previous Hourly instruction. Hourly DOT - Hourly Prev DOT	MW value
Hourly DOT End Time	The end time of the next Hourly interval, which corresponds to the Hourly Instruction	Time Value
Hourly DOT Start Time	The start time of the next Hourly interval, which corresponds to the Hourly Instruction	Time Value
Hourly Meter LF Energy		MW Value
Hourly MW Threshold		MW value
Hourly Non-Spin Energy		MW value
Hourly Pre-Dispatch	Resource is flagged as Hourly Pre-Dispatch resource	Y/Null

Hourly Prev DOT	Hourly DOT received for previous hour (current interval in batch)	MW value
Hourly Ramp Energy		MW Value
Hourly Scheduled Energy		MW value
Hourly Scheduled MW	The portion of the Hourly DOT which is from the DA Award. Also included in the Hourly DOT dialog box.	MW value
Hourly Spin Energy		MW value
Hourly Suppl Energy	The portion of the Hourly DOT which is from the HASP Award. Also included in the Hourly DOT dialog box.	MW value
Intertie ID	Same as the Resource ID, except the SC ID portion has been removed to assist with sorting. For Interties only.	SYLMAR_I_F_DA01
MSS LF Down Flag	Instruction includes a MSS Load Following Down	Checkbox or Y/N?
MSS LF Up Flag	Instruction includes a MSS Load Following Down	Checkbox or Y/N?
Operator	N/A - System Response	Automated
Opr Accept DOT	Operator Accept DOT for intertie instructions. This is the final accepted value.	MW value
Opr Accept Status	Operator Accept Status for intertie instructions.	ACCEPT, NON- RESPONSE, DECLINED, PARTIAL
Opr Ins End Time	Indicates the operating instruction end time	16:00
Opr Ins Flag	Flag indicating operating instruction in place	Y/Null
Opr Ins Reason	This field will indicate the reason for the operating instructions	Congestion System Reliability
Opr Ins Start Time	Indicates the operating instruction start time	10:15
Opr Reason	Operator Reason for declined or partially accepted intertie instructions.	Transmission

Path Exclusion	Communicate when a group of interties were excluded from a Contingency Dispatch market run. The field will display NTE when Northern ties (those delivered over scheduling points North of path 26) were excluded. The field will display STE, when Southern ties (those delivered over scheduling points South of path 26) were excluded. The field will display NSTE, when both Northern and Southern ties were excluded.	STE NSTE
Prev Accept DOT	This denotes the last SC accepted DOT from the previous HASP hour (current interval)	MW value
Previous Supp	last binding SUPP value	MW value
Reason	Participant Reason for declined or partially accepted intertie instructions.	Bid Error
Res Type	A description of the Resource ID receiving the dispatch.	Gen, TG (Tie Gen), ITIE, ETIE
Resource ID	Resource ID from ISO Master File	Gen_7_Unit1 Grey – Resource does not have any dispatch instructions for the current interval Green – Resource requires an action as the real-time dispatch operating target delta (RT DOT Delta) is not zero Blue – Does not require an action, as RT DOT Delta is zero
Responder	Participant Responding to the instruction, based on the certificate used at log in.	SC01_xBPosey
RMR	The RMR flag will communicate when a resource is being incremented above the day- ahead schedule in real time, due to a RMR contract.	Y/N
RT DOT	Dispatch Operating Target MW for the previous 5 minute instructions for the dispatch interval	MW value
RT DOT Delta	MW Increase or Decrease from the previous RT instruction.	MW value
RT Interval	Numerical value indicating the 5 minute interval for the hour	1,2,3,….12

RT Meter LF Energy	The portion of the RT DOT which is comprised of Load Following Energy.	MW value
RT Non-Spin Energy	The portion of the RT DOT which is comprised of Non-Spin Energy.	MW value
RT Prev DOT	Dispatch Operating Target MW for the previous 5 minute instructions for the dispatch interval	MW value
RT Ramp Energy	N/A. A calculated value intended to be the portion of the RT DOT which is comprised of Ramp Energy.	MW value
RT Scheduled Energy		MW value
RT Scheduled MW	The portion of the RT DOT which is comprised of Day Ahead Schedules	MW value
RT Spin Energy	The portion of the RT DOT which is comprised of Spin Energy.	MW value
RT Supp Delta	This is the difference between RT SUPP Energy and Previous SUPP	MW value
RT Suppl Energy	The portion of the RT DOT which is comprised of Supplemental Energy from Real Time Market.	MW value
RTD FRD	RTD Flexible Ramping Up binding awards for generators and Tie-generator resources	MW value
RTD FRU	RTD Flexible Ramping Down binding awards for generators and Tie-generator resources	MW value
SC ID	The Scheduling Coordinator ID associated with the Resource ID.	SC01
Unit Commitment	Communicating the type of commitment instruction.	Startup Shutdown Transition
Valid	The instruction is valid if it was received by an ADS Client with Read-Write access to the resource	Green - Validated by user with read/write access Red - Not Validated Yellow – Validated by the API of a customer with only Read access to the resource

11 Additional information

Questions

- For additional information regarding ADS functionality, please contact CAISO by submitting an inquiry into the CIDI application.

Technical Information

- For more information regarding API or Web Services for ADS such as technical specifications, visit developer.caiso.com.

Day Light Savings

- For information regarding the ADS UI during Day Light Savings transition, please refer to the **Day Light Savings Long** and **Short Day Information** documents by visiting www.caiso.com >> Participate >> Application Access and navigating to the Featured Documents section.

Pop up notifications on the Desktop

- Desktop notifications for ADS are able to be enabled which are outside of the ADS application for when the application may be minimized. These notifications would appear in the lower right hand corner, which is similar to those seen with Microsoft Outlook.
- In Chrome, the browser will prompt you to allow for notifications
  - If Allow is selected, the pop ups will display in the lower right hand corner of your display


  - To bring up ADS upon notification, click in the empty area of the notification. To close notification, click close
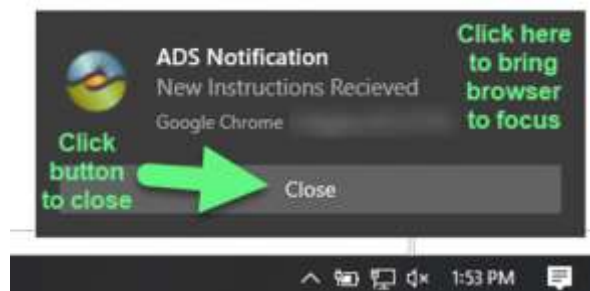
  - If not prompted as described, visit the Chrome settings and search for the section on Notifications to enable notifications.
  - Here is an example from Microsoft Edge with Chromium of what the prompt may show on initial login:

- Disabling the notifications
    - To disable the pop up notifications, navigate to settings and edit in "Manage Permissions"
    - In Edge with Chromium, can also click the "Settings" wheel icon in the notification
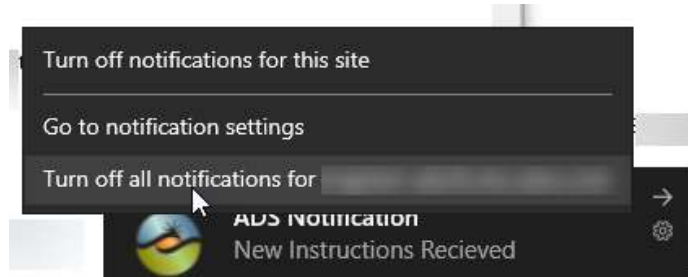
- Please note, if you are not receiving these prompts, please contact your organization's IT administrator or service desk for additional assistance as these are desktop functionalities external ADS.