



Smart Cities Hackathon Tier 1 Challenge 2

Challenge 2: Create Analytics Widgets

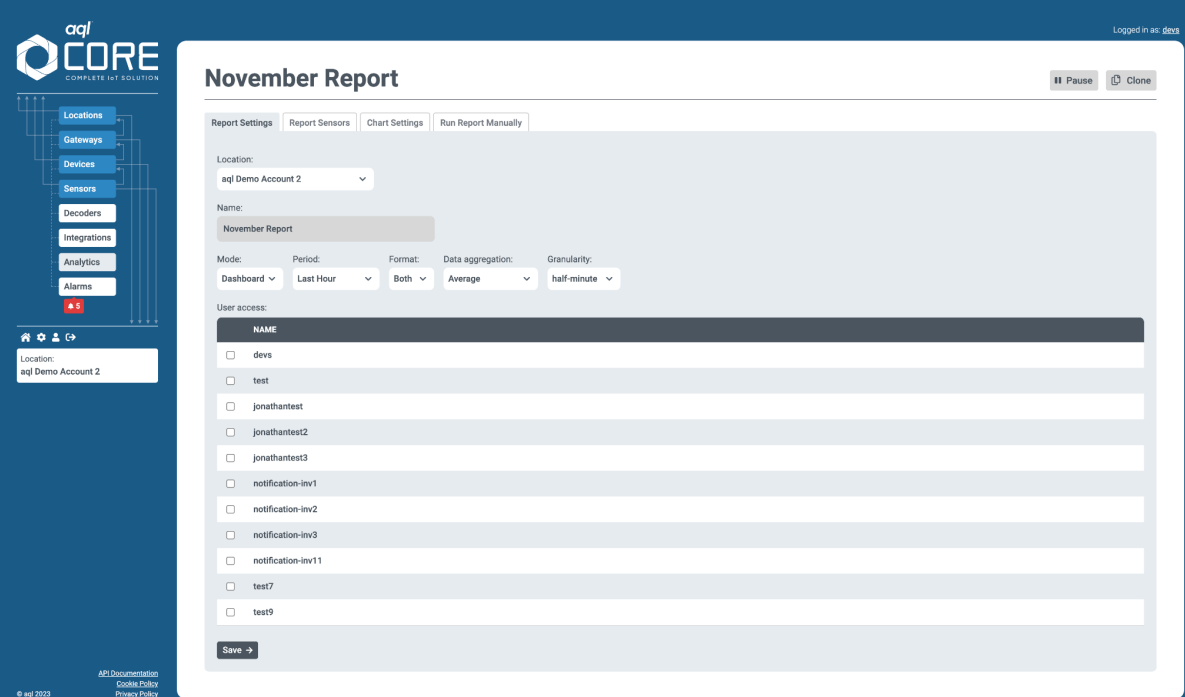
In this challenge, you will choose a selection of sensors from the differing samples and you will create a series of Widgets. Can you create a line, scatter, and bar chart with multiple Y Axis?

Step 1

Before creating your analytics widget, it will be beneficial to browse through the available devices and their respective sensor readings. This will show you relevant data that you may want to present within your analytics widget. To view a device's sensor readings, navigate to the "Devices" section on the left-hand menu, select a device from the table and browse through its available sensors. Selecting a sensor will display a graph that charts the sensor's readings. Once you see some sensors you wish to add to your analytics, make a note of their device's name & location so you can add them later on.

Step 2

Navigate to the "Analytics" section from the menu on the left, and select the "Add Analytics Report" button in the top right of the page. Enter a name for your team's analytics widget and select a desired location from the location field. It's important to select the location that has the devices you wish to use for this challenge.



The screenshot shows the aqi CORE interface. On the left is a sidebar menu with options: Locations, Gateways, Devices, Sensors, Decoders, Integrations, Analytics, and Alarms. The 'Analytics' option is highlighted. The main area is titled 'November Report' and has tabs for 'Report Settings', 'Report Sensors', 'Chart Settings', and 'Run Report Manually'. The 'Report Settings' tab is active, showing configuration options for a report. Fields include 'Location' (set to 'aqi Demo Account 2'), 'Name' (set to 'November Report'), 'Mode' (set to 'Dashboard'), 'Period' (set to 'Last Hour'), 'Format' (set to 'Both'), 'Data aggregation' (set to 'Average'), and 'Granularity' (set to 'half-minute'). Below these is a 'User access' section with a table listing users and checkboxes for access. The table has a header 'NAME' and lists users: devs, test, jonathantest, jonathantest2, jonathantest3, notification-inv1, notification-inv2, notification-inv3, notification-inv11, test7, and test9. A 'Save' button is at the bottom of the table. The top right of the interface shows 'Logged in as: gaus'.

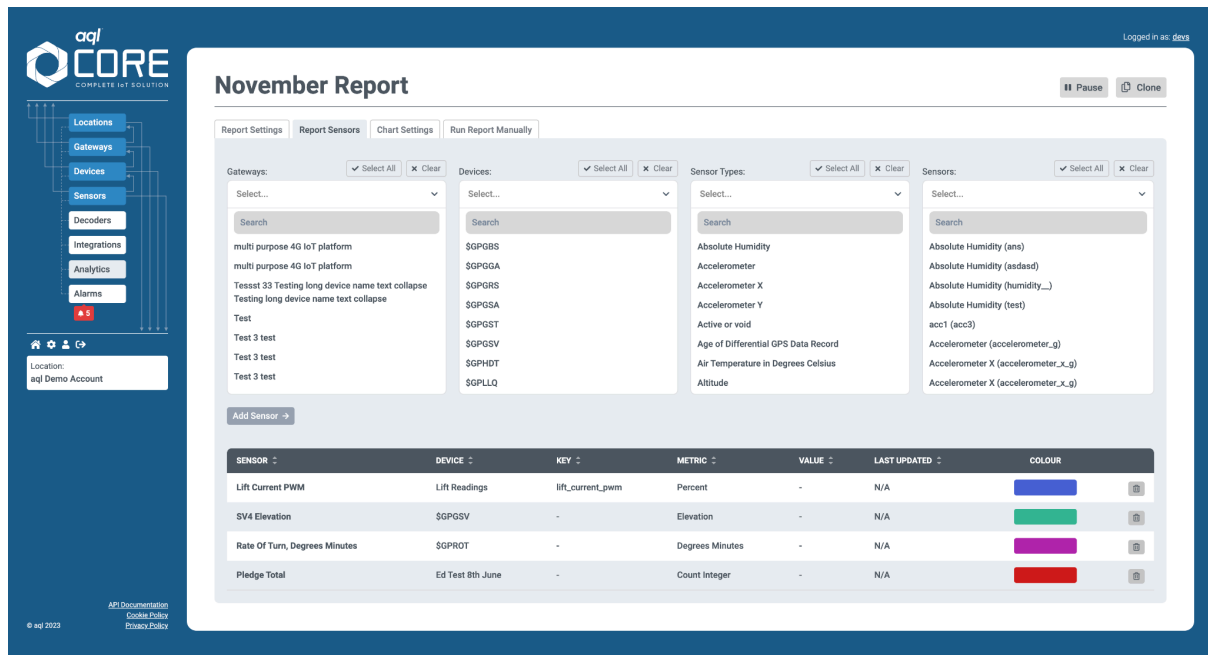
Step 3

From the "Configure" tab of your analytics: choose the data period, data aggregation, and granularity you want to use for your widget. "Mode" will need to be "Dashboard" for the purpose of this exercise & "Period" must extend over the time when you submitted readings

to the device. The “Granularity” should be adjusted for the time-difference between submissions.

Step 4

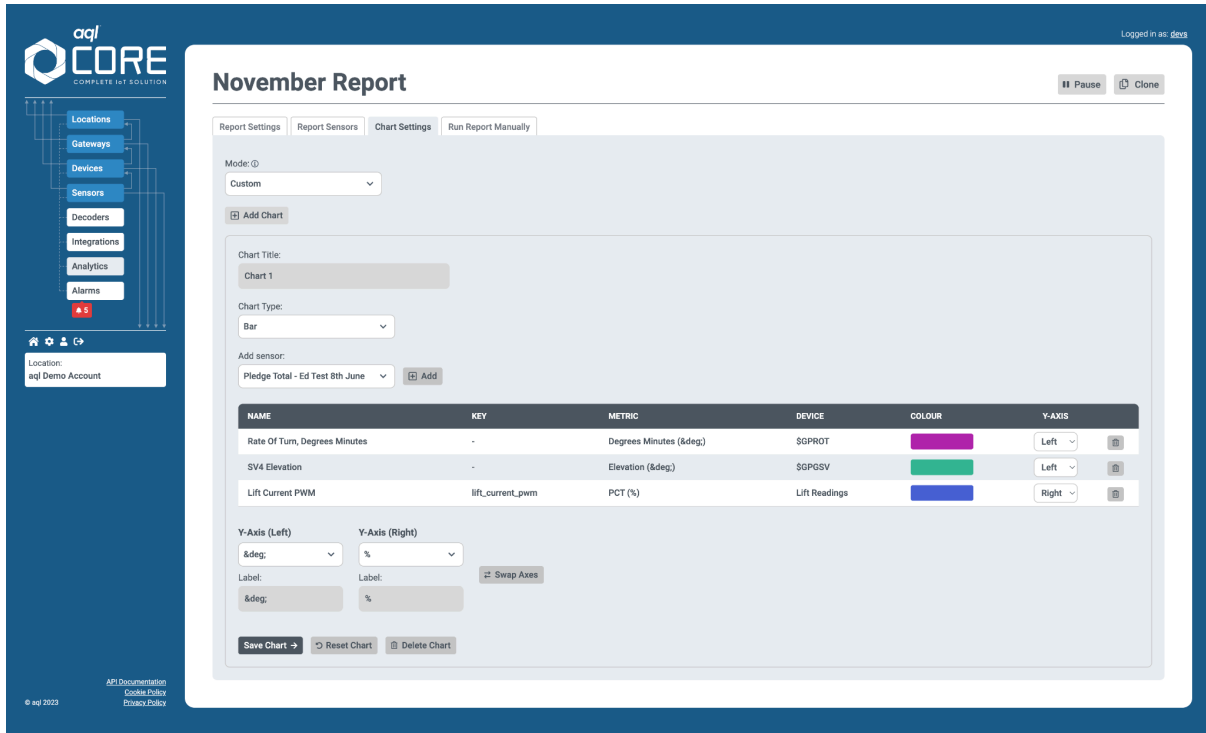
On the second tab, click “Add sensors” and filter by device name to select the sensors you wish to include in the widget. You can allocate individual colours to set themes of colours based on the type of sensor. Remember to select “change” after picking a colour. Try the search box to help filter a selection of sensors based on the sensor key. For example, you may want temperature and humidity sensors on a widget to have the same colours on the chart. When these render you can **select** the sensor from the location dashboard and the widget will auto filter to the chosen sensor.



SENSOR	DEVICE	KEY	METRIC	VALUE	LAST UPDATED	COLOUR
Lift Current PWM	Lift Readings	lift_current_pwm	Percent	-	N/A	Blue
SV4 Elevation	\$PGSV	-	Elevation	-	N/A	Green
Rate Of Turn, Degrees Minutes	\$PROT	-	Degrees Minutes	-	N/A	Purple
Pledge Total	Ed Test 8th June	-	Count Integer	-	N/A	Red

Step 5

Finally, select the charts tab and select the type of chart you wish to render. If you have chosen multiple sensors, select “Custom” mode to choose which are added. This gives increased functionality and you can add two Y axes to the widget. Name the chart, make necessary amendments and then select “Save” to save the chart.



The screenshot shows the 'November Report' dashboard in the aqi CORE system. The left sidebar contains navigation links for Locations, Gateways, Devices, Sensors, Decoders, Integrations, Analytics, and Alarms. The main content area is titled 'November Report' and includes tabs for Report Settings, Report Sensors, Chart Settings, and Run Report Manually. The 'Chart Settings' tab is active, showing a configuration for 'Chart 1'. The chart type is set to 'Bar'. A table lists the sensors to be displayed:

NAME	KEY	METRIC	DEVICE	COLOUR	Y-AXIS
Rate Of Turn, Degrees Minutes	-	Degrees Minutes (°)	\$GPRDT	Purple	Left
SV4 Elevation	-	Elevation (°)	\$GPGSV	Green	Left
Lift Current PWM	lift_current_pwm	PCT (%)	Lift Readings	Blue	Right

Below the table, there are options to configure the Y-axis for the Left and Right charts, including units and labels. A 'Swap Axes' button is also present. At the bottom, there are buttons for 'Save Chart', 'Reset Chart', and 'Delete Chart'.

Step 6

If you now navigate to the specified location you will see your custom analytics widget. You can create a custom dashboard by adjusting the size and position of the widgets.

Bonus: Try selecting a device from the devices widget and uploading readings to see how it updates your charts in real time.

Well done! Challenge 2 is now complete.