

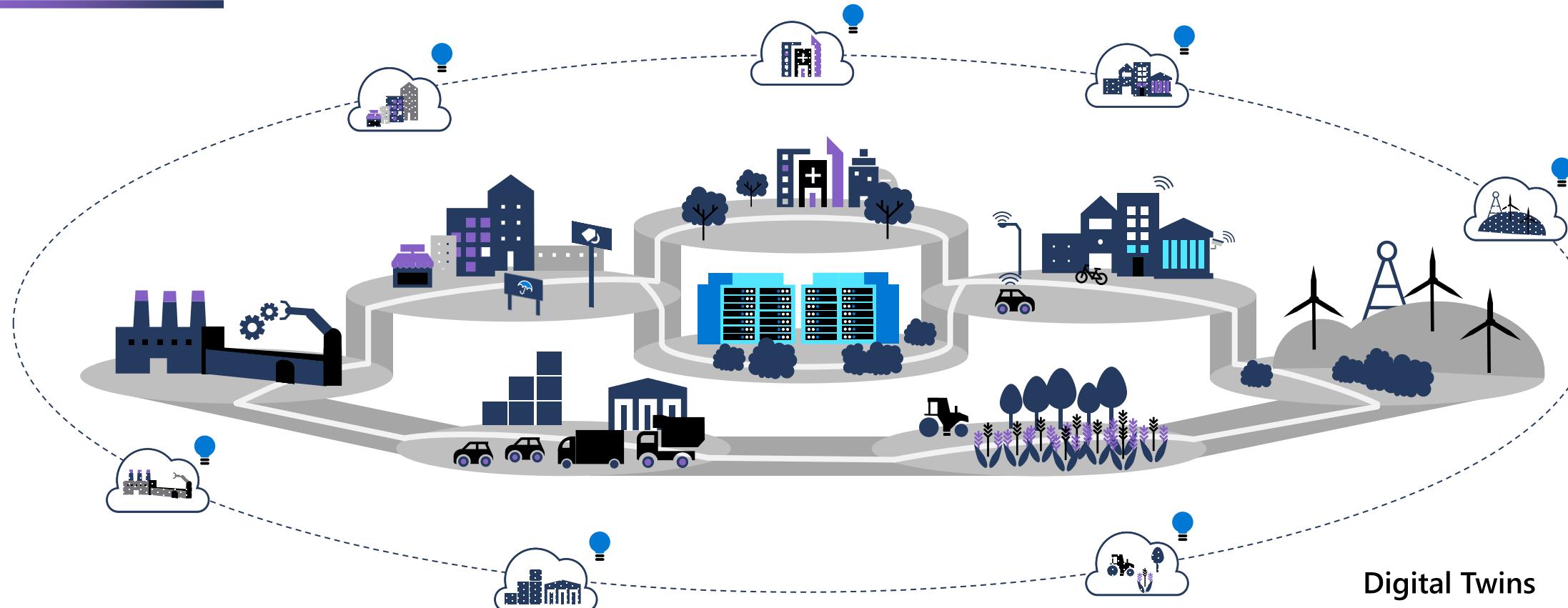
Cloud Solution with IoT Central

Creating your complete solution with IoT and extensibility points

Agenda

- Cloud Discussion
- IoT Central Workshop

IoT Solution Progression



Cloud

Globally available, unlimited compute resources

IoT

Harnessing signals from sensors and devices, managed centrally by the cloud

Edge

Intelligence offloaded from the cloud to IoT devices

AI

Breakthrough intelligence capabilities, in the cloud and on the edge

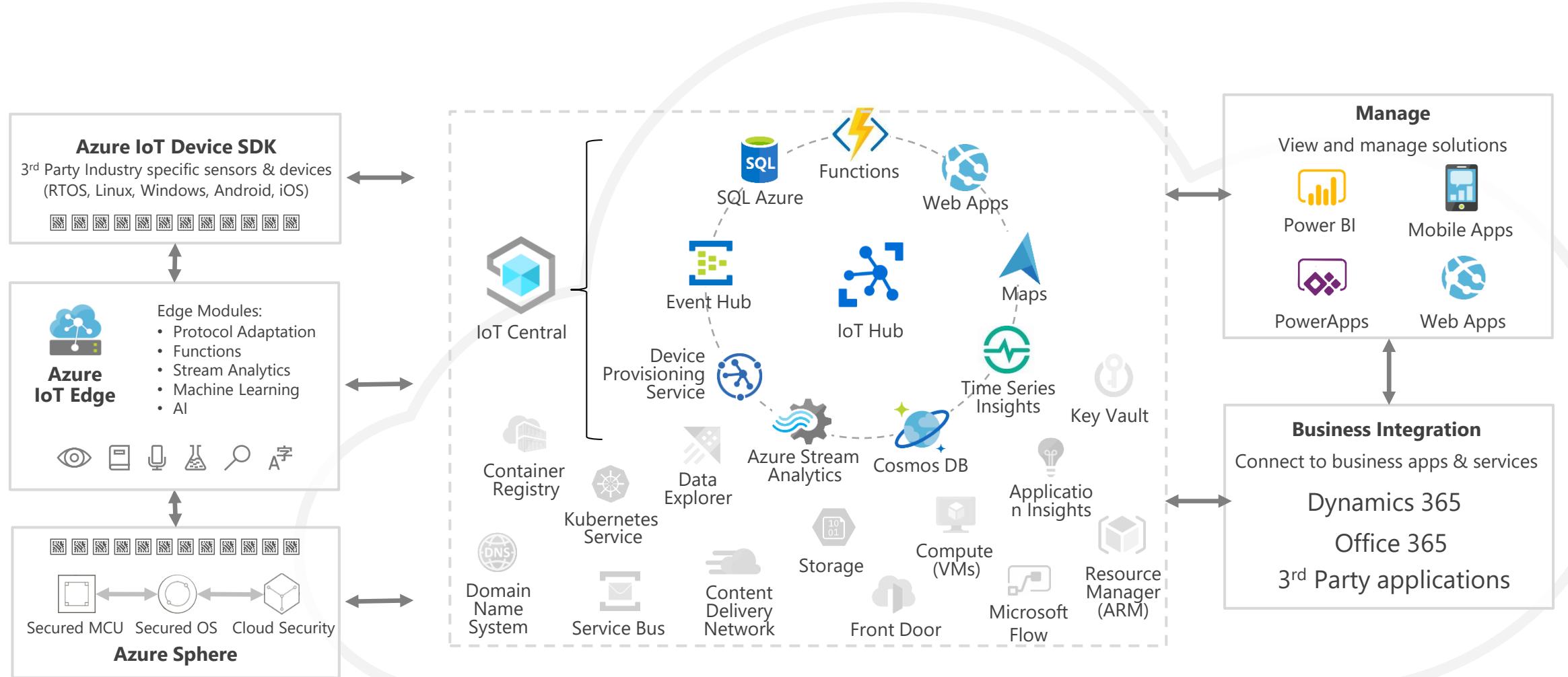
Digital Twins

Create living replicas of any physical environment, track the past and predict the future

Azure IoT Product Portfolio

Azure Security Center for IoT 	IoT Priority Verticals	Manufacturing	Automotive	Spaces	Energy	Agriculture	Retail	Oli & Gas
	IoT Solutions	 Azure IoT Central (SaaS)	 Reference Architecture & Accelerators (PaaS)	 Dynamics Connected Field Service (SaaS)				
	Azure Services for IoT	 Azure IoT Hub Azure IoT Hub Device Provisioning Service Azure Digital Twins Azure Time Series Insights Azure Maps	 Azure Stream Analytics Azure Cosmos DB Azure AI Azure Cognitive Services Azure ML Azure Logic Apps	 Azure Active Directory Azure Monitor Azure DevOps Power BI Azure Data Share Azure Spatial Anchors				
	IoT & Edge Device Support	 Azure Sphere Azure IoT Device SDK Azure IoT Edge Azure Data Box Edge	 Windows IoT Azure Certified for IoT—Device Catalog Azure Stream Analytics Azure Storage	 Azure ML Azure SQL Azure Functions Azure Cognitive Services				

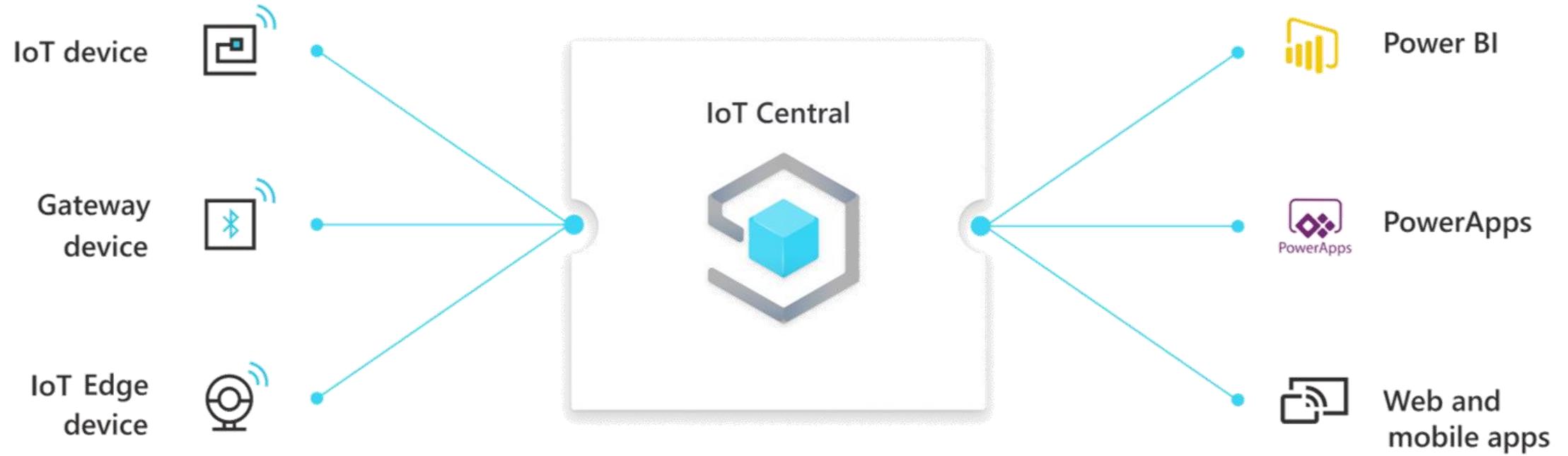
Your options for building IoT solutions



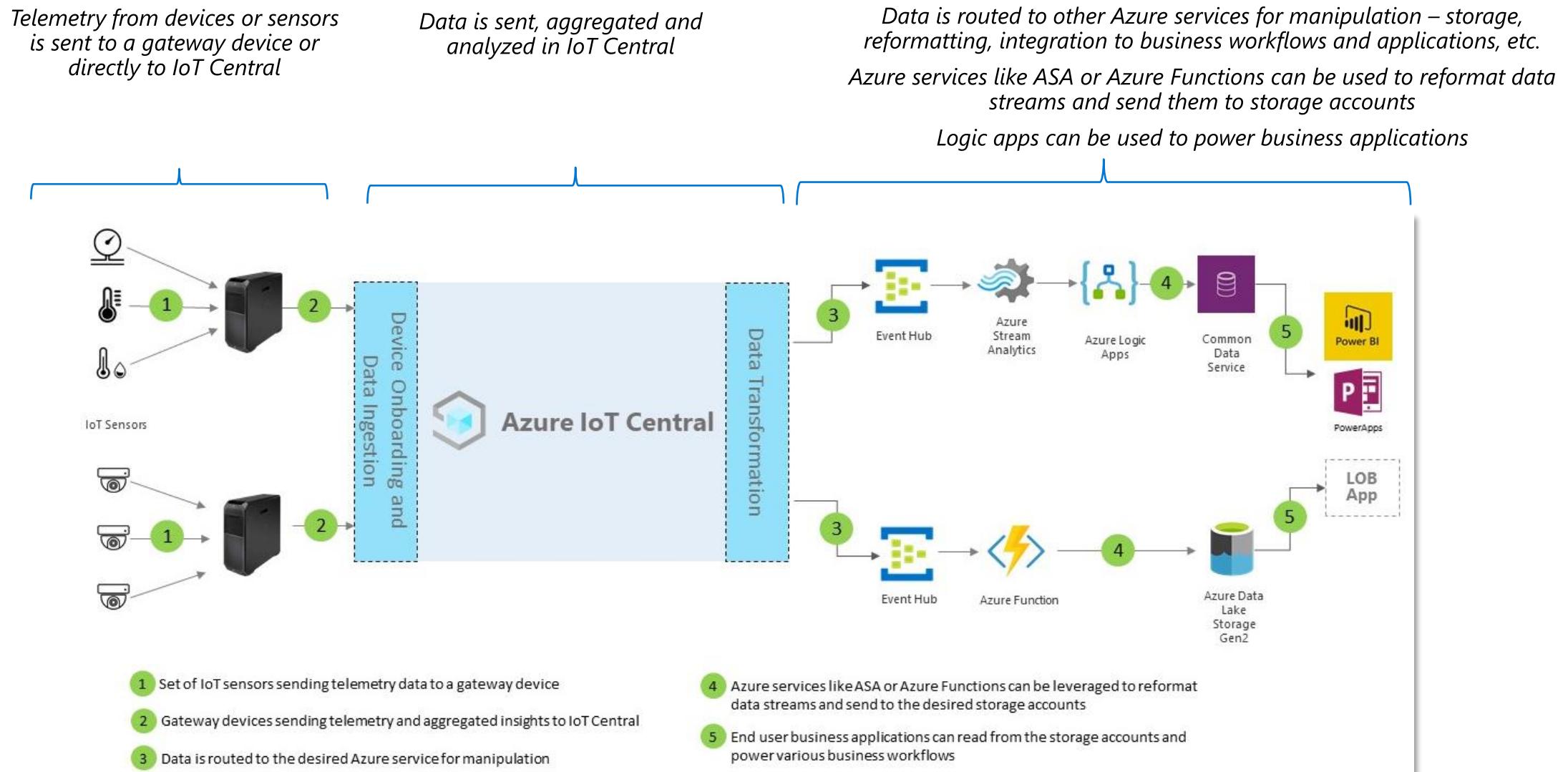
Azure Security Center for IoT

- Integrated view for [CISO & SecOps](#) personas to review enterprise security posture, including IoT solutions.
- Holistic view of IoT solution security posture for [DevOps and IoT solution managers](#) to review and manage day to day security status

IoT Central



Common Architectures





REST API

- Interact with devices programmatically using the IoT Central REST API
- Query up to 30 days of IoT data and telemetry

Microsoft | Docs Documentation Learn Q&A Code Samples Shows Events

Search Sign in

Azure Product documentation Architecture Learn Azure Develop Resources

Portal Free account

Save Feedback Edit Share

Azure / Internet of Things / IoT Central

Filter by title

Azure IoT Central documentation

✓ Overview

- What is Azure IoT Central
- Tour of the UI
- Tour of the API**
- What's new?
- Quickstarts

 - 1. Connect your first device
 - 2. Configure rules and actions
 - 3. Export data

- Tutorials
- Concepts
- How-to guides
- Reference
- Resources

Take a tour of the Azure IoT Central API

Article • 01/31/2022 • 2 minutes to read • 1 contributor

This article introduces you to Azure IoT Central REST API. Use the API to create client applications that can create, manage, and use an IoT Central application and its connected devices. The extensibility surface enabled by the IoT Central REST API lets you integrate IoT insights and device management capabilities into your existing dashboards and business applications.

The REST API operations are grouped into the:

- **Data plane operations** that let you work with resources inside IoT Central applications. Data plane operations let you automate tasks that can also be completed using the IoT Central UI. Currently, there are [generally available](#) and [preview](#) versions of the data plane API.
- **Control plane operations** that let you work with the Azure resources associated with IoT Central applications. Control plane operations let you automate tasks that can also be completed in the Azure portal.

Data plane operations

Version 1.0 of the data plane API lets you manage the following resources in your IoT Central application:

- API tokens
- Device templates
- Devices
- Roles
- Users

The devices API also lets you query telemetry and property values from your devices.

To get started with the data plane APIs, see [Explore the IoT Central APIs](#).

Control plane operations

Version 2021-06-01 of the control plane API lets you manage the IoT Central applications in your Azure subscription. To learn more, see the [Control plane overview](#).

In this article

- Data plane operations**
- Control plane operations**
- Next steps



Data Export

- Continually export data from IoT Central for use in “downstream” applications
- Enrich the exported data with key-value pair meta data
- Export to Blob storage, Service Bus, Event Hubs, Azure Data Explorer, Azure Synapse, or a custom Webhook endpoint
- Support for multiple export destinations per application

The screenshot shows the Microsoft Azure Stream Analytics interface. At the top, there's a navigation bar with the Microsoft Azure logo, a search bar, and user information (aaronbjork@hotmail.com). Below the navigation bar, the URL is `Home > iot-office > office-hub (iot-office/office-hub) >`. The main area is titled "Query" and "Event Hub instance". On the left, there's a sidebar with sections for "Inputs (1)" (selected, showing "office-hub") and "Outputs (1)" (selected, showing "outputalias"). In the center, under "Test query", there's a code editor with the following T-SQL query:

```
1 SELECT
2   *
3   INTO
4     [OutputAlias]
5   FROM
6     [office-hub]
```

Below the code editor, there are tabs for "Input preview", "Test results", and "Test results schema (preview)". The "Input preview" tab is selected, showing a JSON representation of event data. One event is highlighted with a red box:

```
8   },
9   "messageProperties": {},
10  "messageSource": "telemetry",
11  "schema": "default",
12  "telemetry": {
13    "temperature": 72,
14    "rssi": -58,
15    "timestamp": "2022-03-16 21:40:09.744528517 +0000 UTC"
16  },
17  "templateId": "urn:modelDefinition:x25tallu:mydh18nciy",
18  "EventProcessedUtcTime": "2022-03-21T21:50:49.8619035Z",
19  "PartitionId": 0,
20  "EventEnqueuedUtcTime": "2022-03-16T21:40:11.069000Z"
21 },
22 {
23   "applicationId": "cd0daa51-31ed-4b48-a6bd-887dfa16fd09",
24   "deviceId": "80e4da769c18",
25   "enqueuedTime": "2022-03-16T21:40:07.360000Z",
```

A note at the bottom says: "While sampling data, no data was received from '1' partitions." The bottom right corner shows "Ln 1, Col 1".

Explore IoT Central Yourself!

Configure dashboard

Set a rule on device telemetry

Run a Job

Data Explorer

Configure dashboard

- [Create and manage Azure IoT Central dashboards | Microsoft Docs](#)
- Update links to point to Slim's doc: [Azure IoT Central B-U585I-IOT02A Notification Setup \(st.com\)](#)

Goals

Add a tile showing last 100 values of temperature

Configure device dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the IoT Central Device Dashboard for a device named "B-U585I-IOT02A IoT Node 2 discovery kit. - 2gbyzmuq9ym". The left sidebar menu is visible, with the "Device templates" option highlighted by a red box. The main content area displays a line chart titled "Temperature, Relative Humidity, Pressure" showing data from 04:42 PM on 09/08/2022 to 05:13 PM on 09/08/2022. The chart tracks three metrics: Temperature (teal solid line), Relative Humidity (black dashed line), and Pressure (red dotted line). To the right of the chart are three summary tiles: "Temperature" (50.56, Average, Past 12 hours), "Relative Humidity" (49.88, Average, Past 12 hours), and "Pressure" (49.87, Average, Past 12 hours).

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the Microsoft IoT Central interface for the 'Huerta Orchards' organization. The left sidebar contains navigation links: Connect, Devices, Device groups, Device templates (which is selected and highlighted in blue), Analyze, Data explorer, Dashboards, Manage, Jobs, Extend, Rules, Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main content area is titled 'Device templates' and includes a sub-header: 'Device templates are blueprints that define the characteristics and behaviors of a device. [Learn more](#)'. Below this, there is a card for the template 'B-U585I-IOT02A IoT Node 2 discovery kit.', which is highlighted with a red rectangular box. The card displays the status 'No pending changes' and was 'Published 3 hours ago'. At the top of the page, there is a search bar with the placeholder 'Search for devices', a '+ New' button, and a 'Sort by: Last updated' dropdown. The top right corner features three icons: a gear, a question mark, and a circular refresh.

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the Microsoft IoT Central interface for managing device templates. The left sidebar menu is visible, showing various sections like Connect, Devices, Device groups, Device templates (which is selected), Analyze, Data explorer, Dashboards, Manage, Jobs, Extend, Rules, Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home.

The main content area displays the details for the "B-U585I-IOT02A IoT Node 2 discovery kit". The title is "B-U585I-IOT02A IoT Node 2 discovery kit." Below it, it says "Application updated: 3 hours ago" and "Interfaces published: 3 hours ago".

The "Model" section contains the following items:

- B-U585I-IOT02A IoT Node 2 discover...
- deviceinfo
- std_comp
- Raw data

The "Views" section contains the following items:

- Overview (highlighted with a red box)
- About

At the bottom right of the main content area, there are buttons for Save, Add capability, Edit identity, Export, Delete, and Edit DTDL.

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the 'Edit view' screen in Microsoft IoT Central for a dashboard named 'Overview'. The left sidebar contains navigation links for Connect, Devices, Device groups, Device templates (which is selected), Analyze, Data explorer, Dashboards, Manage, Jobs, Extend, Rules, Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area has a search bar at the top right. Below it, the title 'Edit view' is followed by 'View name *' with the value 'Overview'. The 'Add a tile' section is open, showing two tabs: 'Start with a visual' (selected) and 'Start with devices'. A descriptive text explains how to choose a visual type and click 'Add tile' or drag-and-drop. Below this are five visual options: KPI, Last known value (LKV), Line chart, Bar chart, and Pie chart. The 'Line chart' option is highlighted with a red box and a large arrow pointing to it from the bottom right. On the right side of the screen, there are three preview tiles for 'Temperature', 'Relative Humidity', and 'Pressure', each with edit icons.

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the Microsoft IoT Central 'Edit view' interface for a dashboard named 'Huerta Orchards'. The left sidebar contains navigation links for Connect, Devices, Device groups, Device templates (selected), Analyze, Data explorer, Dashboards, Manage, Jobs, Extend, Rules, Data export, Security, Permissions, Settings (selected), Application, Customization, and IoT Central Home. The main area displays a tile titled 'Temperature, Relative Humidity, Pressure' with a placeholder icon. A modal window titled 'Configure line chart' is open, showing configuration options for the selected tile. The 'Title' field is set to 'Temperature, Relative Humidity, Pressure'. The 'Display range' section, which is highlighted with a red box, is set to 'Last 100 values'. Under 'Value', 'Last 100 values' is selected. Under 'Time', 'Past 30 minutes' is selected. Other options include 'Past 1 hour', 'Past 12 hours', 'Past 1 day', 'Past 1 week', and 'Past 1 month'. The 'Pressure' unit is also visible. At the bottom of the modal are 'Update' and 'Cancel' buttons.

Huerta Orchards

Search for devices

Back Save Delete Copy Configure preview device

Edit view

View settings

View name *

Add a tile

Start with a visual Start with devices

Choose the type of visual you want to show on your tile, and then click Add tile (or just drag and drop it on the canvas). Click the Settings icon on your new tile to add content or device data.

Key Performance Indicator (KPI)
Set up telemetry for devices over a set time range

Last known value (LKV)
Show the last value reported for one or more devices

Line chart
Track aggregate telemetry values over time as a dynamic line

Bar chart
Show aggregate telemetry values over time as vertical bars

Pie chart
Show aggregate telemetry values over time as a circular chart

Temperature, Relative Humidity, Pressure

Configure line chart

Title *

Show legend On

Show X axis On

Show Y axis On

Display range

Value

Time

Last 100 values

Past 30 minutes

Past 1 hour

Past 12 hours

Past 1 day

Past 1 week

Past 1 month

Pressure

Update Cancel

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the 'Edit view' screen in Microsoft IoT Central. The left sidebar has a 'Device templates' section selected. The main area shows a preview of a dashboard titled 'Temperature, Relative Humidity, Pressure' with three cards: 'Temperature', 'Relative Humidity', and 'Pressure'. Below the preview is an 'Add a tile' section. Under 'Start with a visual', the 'Line chart' option is highlighted with a blue border and a description: 'Track aggregate telemetry values over time as a dynamic line'. Other options shown include 'Key Performance Indicator (KPI)', 'Last known value (LKV)', 'Bar chart', and 'Pie chart'. At the top of the page, there is a red box around the 'Save' button.

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the Microsoft IoT Central interface. The left sidebar has a 'Device templates' section selected. The main content area displays the 'B-U585I-IOT02A IoT Node 2 discovery kit' model. A red box highlights the 'Publish' button in the top navigation bar. The 'Model' section contains components like deviceinfo, std_comp, and Raw data. The 'Views' section includes Overview and About. On the right, there's a toolbar with Save, Add capability, Edit identity, Export, Delete, and Edit DTDL.

Configure dashboard

Goals

- Add a tile for last 100 temperature values

The screenshot shows the Microsoft IoT Central interface. On the left, a sidebar menu is open under the 'Connect' section, with the 'Devices' item highlighted by a red box. The main content area displays the device details for 'B-U585I-IOT02A IoT Node 2 discovery kit. - 2gbyzmuq9ym'. It shows the device is connected, with the last data received on 9/8/2022 at 5:17:44 PM, and is marked as SIMULATED. The organization is listed as 'Huerta Orchards'. Below this, there are tabs for 'About', 'Overview' (which is selected), 'Raw data', 'Mapped aliases', and 'Files'. The 'Overview' tab contains three data visualizations: a line chart titled 'Temperature, Relative Humidity, Pressure' showing three data series over time, and two summary tiles for 'Temperature' (50.36) and 'Relative Humidity' (50.08), both labeled as 'Average, Past 12 hours'. A third tile for 'Pressure' shows a value of 49.84 with the same 'Average, Past 12 hours' label.

Dashboards

- A dashboard is a helpful way to look at what the sensors on a device are sending.
- A good way to monitor device health
- Can also be configured at a device type level

Set a Rule

[Tutorial - Create and manage rules in your Azure IoT Central application | Microsoft Docs](#)

Link to ST Doc

Time check

Goal

A rule that fires when the temperature is above 70 degrees Fahrenheit or below 32 degrees Fahrenheit

Set a Rule

Goal

A rule that fires when the temperature is above 70 degrees Fahrenheit

STM3U5 IoT Discovery Application

Search for devices

+ New

Connect

- Devices
- Device groups
- Device templates

Analyze

- Data explorer
- Dashboards

Manage

- Jobs

Extend

- Rules
- Data export

Security

Permissions

Settings

Application

Customization

IoT Central Home

Rules

Create a rule



Rules monitor your devices and trigger actions (for example, send an email when temperature is higher than 80 degrees). [Learn more](#)

Create a rule

The screenshot shows the STM3U5 IoT Discovery Application interface. The left sidebar contains navigation links: Connect (Devices, Device groups, Device templates), Analyze (Data explorer, Dashboards), Manage (Jobs), Extend (Rules, Data export), Security, Permissions, Settings, Application, Customization, and IoT Central Home. The 'Rules' link in the Extend section is highlighted with a red box. The main content area is titled 'Rules' and features a large blue button labeled '+ New' with a red box around it. Below the button is a circular icon containing a blue folder with a gear and a white bell. The text 'Create a rule' is displayed next to the icon. A descriptive paragraph explains that rules monitor devices and trigger actions like sending emails. A 'Learn more' link is provided at the bottom.

Set a Rule

Goal

A rule that
fires when the
temperature is
above 70
degrees
Fahrenheit

The screenshot shows the STM32U5 IoT Discovery Application interface. On the left, a sidebar menu includes options like Connect, Devices, Device groups, Device templates, Analyze, Data explorer, Dashboards, Manage, Jobs, Extend, Rules (which is selected), Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area displays a 'Temperature Alert' rule configuration. The rule name 'Temperature Alert' and its status ('Enabled') are highlighted with a red box. The 'Target devices' section, which specifies the device template 'B-U585I-IOT02A IoT Node 2 discovery kit.', is also highlighted with a red box. The 'Conditions' section, where the rule triggers if 'all of the conditions are true', is shown with another red box. Within this section, a telemetry condition for 'Temperature' using the operator 'Is greater than' is highlighted with a red box. Below this, there are options to 'Enter a value' or 'Select a value' for the threshold, and a field for the 'Value'.

Set a Rule

Goal

A rule that fires when the temperature is above 70 degrees Fahrenheit

The screenshot shows the STM32U5 IoT Discovery Application interface. The left sidebar contains navigation links: Connect (Devices, Device groups, Device templates), Analyze (Data explorer, Dashboards), Manage (Jobs, Extend, Rules), Rules (selected), Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area is titled 'STM32U5 IoT Discovery Application' and shows a 'Conditions' section. It specifies 'Trigger the rule if all of the conditions are true'. Under 'Time aggregation', the 'Off' toggle is selected. The 'Telemetry *' field is set to 'Temperature' and the 'Operator *' field is set to 'Is greater than'. Below this, there are options to 'Enter a value' or 'Select a value' and a 'Value *' input field. A '+ Condition' button is available to add more rules. The 'Actions' section at the bottom lists '+ Email', '+ Webhook', '+ Azure Monitor Action Groups', '+ Microsoft Power Automate', and '+ Microsoft Azure Logic Apps', with '+ Email' highlighted by a red box.

Set a Rule

Goal

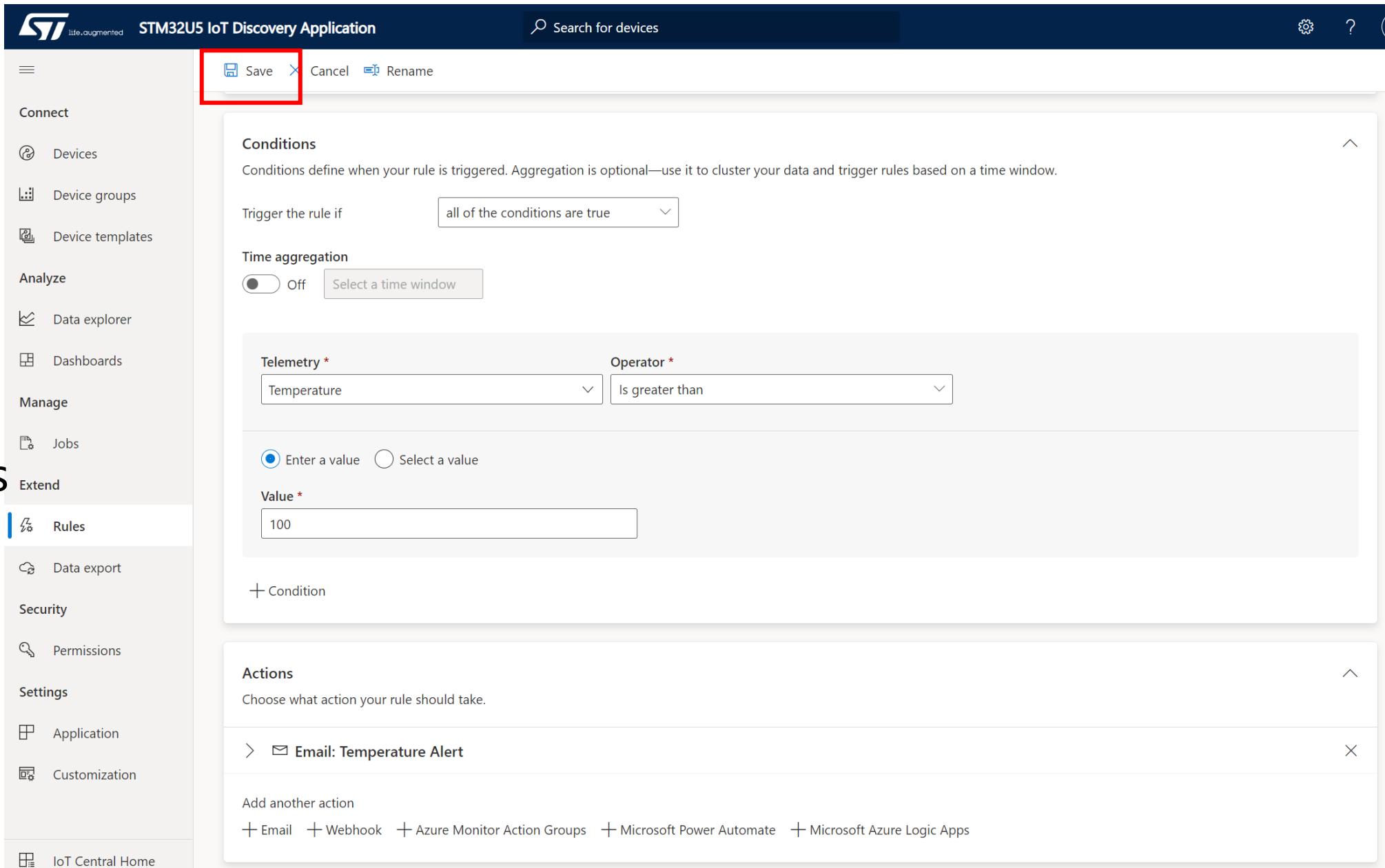
A rule that fires when the temperature is above 70 degrees Fahrenheit

The screenshot shows the STM32U5 IoT Discovery Application interface. On the left, a sidebar menu includes options like Connect, Analyze, Manage, Extend, Rules (which is selected), Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area is titled "Value *" with the value "100". Below it is a "+ Condition" button. The "Actions" section contains an "Email: Temperature Alert" entry, which is expanded. It includes fields for "Display name" (set to "Temperature Alert") and "To" (set to "joesmith@email.com"). A note field is present but empty. At the bottom of this section is a "Done" button, which is highlighted with a red box. To the right of this section, there's a Microsoft Azure IoT Central panel with the title "Azure IoT Central" and a message: "Temperature Alert triggered on [device name] at July 18, 2022 21:45 UTC". Below this are sections for "Measurements" (listing "B-U585I-IOT02A IoT Node 2 discovery kit. / std_comp / Temperature: [value]"), "Details" (listing "Time triggered: July 18, 2022 21:45 UTC"), "Device Name: [device name]", and "Rule Name: Temperature Alert".

Set a Rule

Goal

A rule that fires when the temperature is above 70 degrees Fahrenheit



The screenshot shows the STM32U5 IoT Discovery Application interface. The left sidebar contains navigation links for Connect, Analyze, Manage, Extend, and Rules. The Rules link is currently selected and highlighted in blue. The main content area is titled 'STM32U5 IoT Discovery Application' and features a 'Save' button with a red box around it, indicating the step to save the rule configuration. The configuration screen includes sections for 'Conditions' (triggered if all conditions are true), 'Time aggregation' (set to Off), and 'Telemetry' (Temperature is greater than 100). The 'Actions' section lists an 'Email: Temperature Alert' action.

STM32U5 IoT Discovery Application

Save Cancel Rename

Search for devices

Conditions

Trigger the rule if: all of the conditions are true

Time aggregation: Off Select a time window

Telemetry * Operator *

Temperature Is greater than

Enter a value Select a value

Value * 100

+ Condition

Actions

Choose what action your rule should take.

> Email: Temperature Alert

Add another action

+ Email + Webhook + Azure Monitor Action Groups + Microsoft Power Automate + Microsoft Azure Logic Apps

IoT Central Home

Rules

- Rules can alert when a device is sending data that is out of the ordinary
- The conditions can be configured to your specified parameters
- Can be applied at the device type level

Run a Job

- [Create and run jobs in your Azure IoT Central application | Microsoft Docs](#)

Goal

Schedule a job on the device
to restart

Run a Job

Goal

Schedule a job on the device to restart

STM32U5 IoT Discovery Application

Search for devices

+ New

Jobs

Scheduled Saved 30-day history

Jobs can be scheduled ahead of time to run tasks at a later date. Create and schedule a new job, or schedule a job you've already saved. [Learn more](#)

Create a job

The screenshot shows the STM32U5 IoT Discovery Application interface. The top navigation bar includes the ST logo, the application name 'STM32U5 IoT Discovery Application', a search bar, and three icons. The left sidebar has sections for 'Connect', 'Analyze', and 'Manage'. Under 'Manage', 'Jobs' is selected and highlighted with a blue border. A red box highlights the '+ New' button in the top right of the main content area. The main content area displays the 'Jobs' section with tabs for 'Scheduled', 'Saved', and '30-day history'. Below the tabs is a large circular icon containing a clipboard with a checklist, a clock, and a gear, with a blue arrow pointing to the right. Below the icon is the text 'Schedule a job' and a descriptive paragraph. At the bottom is a blue 'Create a job' button.

Run a Job

Goal

Schedule a job on the device to restart

The screenshot shows the 'Configure your job' wizard in the Microsoft IoT Central interface. The left sidebar shows navigation links like Connect, Devices, Device groups, Device templates, Analyze, Data explorer, Dashboards, Manage, Jobs (which is selected), Extend, Rules, Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area has a search bar at the top right. The 'Configure' step is highlighted with a blue dot. The 'Configure your job' section contains fields for Name (U5 Command), Description (Enter a job description), Access (Organization: Huerta Orchards), Target devices (Device group: B-U585I-IOT02A IoT Node 2 discovery kit. - All devices), and a 'Next' button at the bottom.

Configure your job

Jobs help you manage large groups of devices. Give your job a name, choose your devices, and then decide what kind of job you want to run.

Name *
U5 Command

Description
Enter a job description

Access
Only users in the org you choose can view and modify this job (depending on their role). Your job will only apply to devices in the device group you select below.

Organization * ⓘ
Huerta Orchards

Target devices
Choose which devices this job will run on.

Device group *
B-U585I-IOT02A IoT Node 2 discovery kit. - All devices

Next

Save and exit

Run a Job

Goal

Schedule a job on the device to restart

The screenshot shows the 'Run a Job' configuration interface in Microsoft IoT Central. The left sidebar menu is titled 'Custom 1r3jkysvw3a' and includes options like Dashboards, Manage, Jobs (selected), Extend, Rules, Data export, Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area has a flow navigation bar with 'Configure' (highlighted with a blue dot) and steps: Delivery options, Schedule, and Review. A search bar at the top right says 'Search for devices'. The 'Device group *' dropdown is set to 'B-U585I-IOT02A - All devices'. The 'Job properties' section is expanded, showing 'Job type *' set to 'Command' and 'Command *' set to 'Reset'. Both fields are highlighted with a red border. At the bottom are 'Next' and 'Save and exit' buttons.

Custom 1r3jkysvw3a

Search for devices

Configure

Delivery options

Schedule

Review

Device group *

B-U585I-IOT02A - All devices

1 device

Job properties

Choose the kind of job you want to run. [Learn more](#)

Job type *

Command

Command *

Reset

Next

Save and exit

Run a Job

Goal

Schedule a job on the device to restart

The screenshot shows the 'Schedule' page for a job named 'Custom 1r3jkysvw3a'. The left sidebar has 'Jobs' selected under 'Manage'. The main area shows a flowchart with 'Configure' and 'Delivery options' nodes connected to a central 'Schedule' node, which then connects to 'Review'. The 'Schedule' section contains fields for 'Enable' (set to 'Yes'), 'Recurrence *' (set to 'One-time'), and a 'Start' date and time selector. A red box highlights the 'Recurrence' and 'Start' fields. Below the start time, a note states: 'Scheduled jobs will always run on the devices in a device group, even if it changes over time.' At the bottom, there are 'Previous' and 'Next' buttons, and a 'Save and exit' button.

Custom 1r3jkysvw3a

Search for devices

Configure

Delivery options

Schedule

Review

Manage

Jobs

Extend

Rules

Data export

Security

Permissions

Settings

Application

Customization

IoT Central Home

Schedule

Schedule this job to run in the future.

Enable

Yes

Recurrence *

One-time

Scheduled jobs will always run on the devices in a device group, even if it changes over time.

Start

9/7/2022 10 41 AM

Pacific Daylight Time UTC-7

The date and time is specific to your time zone, and not to your device's local time.

Previous

Next

Save and exit

Run a Job

Goal

Schedule a job on the device to restart

The screenshot shows the Microsoft IoT Central interface for a device named "Custom 1r3jkysvw3a". The left sidebar has a "Manage" section with "Jobs" selected. The main content area shows a "Reset" job scheduled to run once on 9/7/2022 at 10:41 AM (UTC-7). A message indicates that the recurring schedule hasn't begun yet.

Custom 1r3jkysvw3a

Search for devices

Edit Unschedule Job properties Delete

Schedule > Reset

Reset

- Scheduled Once on 9/7/2022 at 10:41 AM (UTC-7).

Recurring schedule hasn't begun

The first occurrence will run on 9/7/2022 at 10:41 AM.

☰ Dashboards

Manage

Jobs

Extend

Rules

Data export

Security

Permissions

Settings

Application

Customization

IoT Central Home

Run a Job

```
C:\windows\py.exe

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":11,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":288,"g_y":-411 :10,"m_z":-16}, "temperature":29.21, "humidity":39.2, "pressure":1018.07, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":11,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":350,"g_y":-455 :12,"m_z":-22}, "temperature":29.25, "humidity":39.17, "pressure":1018.11, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":12,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":367,"g_y":-402 :13,"m_z":-9}, "temperature":29.21, "humidity":39.08, "pressure":1018.16, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":11,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":236,"g_y":-393 :12,"m_z":-15}, "temperature":29.19, "humidity":39.06, "pressure":1018.13, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":12,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":306,"g_y":-393 :16,"m_z":-18}, "temperature":29.19, "humidity":39.01, "pressure":1018.11, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":12,"a_y":-9,"a_z":1017}, "gyroscope":{"g_x":323,"g_y":-437 :7,"m_z":-19}, "temperature":29.18, "humidity":39.01, "pressure":1018.05, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":11,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":297,"g_y":-393 :22,"m_z":-9}, "temperature":29.27, "humidity":39.04, "pressure":1018.14, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":12,"a_y":-7,"a_z":1018}, "gyroscope":{"g_x":332,"g_y":-358 :16,"m_z":-25}, "temperature":29.21, "humidity":38.95, "pressure":1018.12, "button_counter":0}.

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":12,"a_y":-8,"a_z":1018}, "gyroscope":{"g_x":271,"g_y":-341 :15,"m_z":-19}, "temperature":29.27, "humidity":38.92, "pressure":1018.18, "button_counter":0}.

Received command: Reset
Successfully executed command ctrl_comp on std_comp

Std Component std_comp Telemetry message send: {"acceleration":{"a_x":12,"a_y":-9,"a_z":1018}, "gyroscope":{"g_x":350,"g_y":-393 :9,"m_z":-19}, "temperature":29.29, "humidity":38.92, "pressure":1018.23, "button_counter":0}.

[INF] Flash operation: Op=0x0, Area=0x0, Address=0x0
[INF] Starting bootloader
[INF] Checking BL2 NV area
```

Goal

Schedule a job on the device to restart

Run a Job

Goal

Schedule a job on the device to restart

The screenshot shows the Microsoft Intune 'Jobs' page for a device named 'Custom 1r3jkysvw3a'. The left sidebar has a 'Jobs' section selected. The main area shows a 'Reset' job that has completed successfully. A red box highlights the job card, which includes the progress (100%), job name ('Reset - 1'), completion status ('Completed'), and statistics (1 Completed, 0 Failed, started 1 minute ago, took 6s). The top navigation bar includes a search bar for devices and various settings and help icons.

Custom 1r3jkysvw3a

Search for devices

Sort by: Last updated

Job properties

Schedule > Reset

Reset

Completed Once on 9/7/2022 at 10:41 AM (UTC-7).

100%	Reset - 1	Completed
1	0	Started 1 minute ago 6s
Completed	Failed	

Custom 1r3jkysvw3a

Jobs

- Concept of Jobs

Data Explorer

- [Analyze device data in your Azure IoT Central application | Microsoft Docs](#)

Goal

Save a query that shows the maximum temperature in 5 min buckets over the last 30 min

Data Explorer

Goal

Save a query
that shows the
maximum
temperature in
5 min buckets
over the last 30
min

The screenshot shows the STM32U5 IoT Discovery Application interface. The top navigation bar includes the ST logo, the application name "STM32U5 IoT Discovery Application", a search bar with placeholder "Search for devices", and three icons for settings, help, and user profile.

The left sidebar contains a navigation menu with the following items:

- Connect
 - Devices
 - Device groups
 - Device templates
- Analyze
 - Data explorer** (highlighted with a red box)
 - Dashboards
- Manage
 - Jobs
- Extend
 - Rules
- Data export
- Security
- Permissions
- Settings
- Application
- Customization
- IoT Central Home

Data Explorer

Goal

Save a query
that shows the
maximum
temperature in
5 min buckets
over the last 30
min

STM32U5 IoT Discovery Application

Search for devices

Save

Data explorer > New query

Data explorer

Organization * ⓘ
STM32U5 IoT Discovery Application

Device group * ⓘ
B-U585I-IOT02A IoT Node 2 discov...

Telemetry * ⓘ
Relative Humidity ...

Add

Group by ⓘ
Device ID

Analyze

Dashboards

Manage

Jobs

Extend

Rules

Data export

Security

Permissions

Settings

Application

Customization

Analyze Cancel

Analyze your device group data

Choose a device group and then pick the telemetry you want to analyze. You can also decide how to aggregate or split your data. [Learn more](#)

Data Explorer

Goal

Save a query
that shows the
maximum
temperature in
5 min buckets
over the last 30
min

STM32U5 IoT Discovery Application

Search for devices

Save

Organization: STM32U5 IoT Discovery Application

Device group: B-U585I-IOT02A IoT Node 2 discov...

Telemetry: Relative Humidity

Group by: Device ID

Data explorer > New query

Data explorer

06/18/2022 14:55

07/18/2022 14:55

Interval size: 4s

Timeframe: Last 30 mins (07/18/2022 14:25 - 07/18/2022 14:55 (PDT))

Relative Humidity

t8i7zy1fzs Average

14:25 07/18/2022

14:55 07/18/2022

Data Explorer

Goal

Save a query
that shows the
maximum
temperature in
5 min buckets
over the last 30
min

STM32U5 IoT Discovery Application

Search for devices

Save

Data explorer > New query

Data explorer

Organization * STM32U5 IoT Discovery Application

Device group * B-U585I-IOT02A IoT Node 2 discov...

Telemetry * Relative Humidity

Group by Device ID

06/18/2022 14:55

Interval size 4s

Timeframe Last 30 mins (07/18/2022 14:25)

Relative Humidity

t8i7zy1fzs Average

80

70

60

50

40

30

20

10

14:25 07/18/2022

Save query

Name * Humidity

Organization * STM32U5 IoT Discovery Application

Description

Save Cancel

Analyze Cancel

Data Explorer

- When you need to run an adhoc query over a device or devices, Data Explorer is useful

Data Export via Webhook

- [Export data to Webhook IoT Central | Microsoft Docs](#)

Goal

Export the data to a webhook

Data Export via Webhook

Goal

Export the
data to a
webhook

Huerta Orchards

+ New export

Search for devices

Connect

- Devices
- Device groups
- Device templates

Analyze

- Data explorer
- Dashboards

Manage

- Jobs
- Rules

Extend

- Data export

Security

- Permissions

Settings

- Application
- Customization
- IoT Central Home

Data export

Exports Destinations

Add an export



Add an export

Continuously export your filtered and enriched IoT data to other parts of your cloud solution for warm-path insights, analytics, visualization, and storage. [Learn more](#)

Data Export via Webhook

Goal

Export the data to a webhook

The screenshot shows the 'Huerta Orchards' IoT Central interface. The left sidebar has a 'Data export' section selected. The main area shows the 'Exports > Export Data' screen with the 'Export Data' card enabled. A red box highlights the 'Data' configuration section, which includes a dropdown for 'Type of data to export' (set to 'Telemetry'), a condition selector ('all of the conditions are true'), and a filter configuration for 'Name' (Device template) and 'Value' (B-U585I-IOT02A IoT Node 2 discovery kit.). Below this, there's an 'Enrichments' section for adding key-value pairs to exported messages.

Huerta Orchards

Save Cancel Rename

Exports > Export Data

Export Data

Enabled

Goal

Export Data

Type of data to export *

Telemetry

Export the data if

all of the conditions are true

Name *

Device template

Operator *

Equals

Value *

B-U585I-IOT02A IoT Node 2 discovery kit.

+ Filter + Message property filter

Enrichments

Add additional information to your export. This will appear as a key value pair in exported messages. Learn more ↗

+ Custom string + Property

Data Export via Webhook

Goal

Export the data to a webhook

The screenshot shows the Microsoft IoT Central interface for configuring a data export. The left sidebar has a 'Data export' section selected. The main area is titled 'Huerta Orchards' and contains the following fields:

- Type of data to export ***: Set to "Telemetry".
- Export the data if**: Set to "all of the conditions are true".
- Filter (Device template)**: Name is "Device template", Operator is "Equals", Value is "B-U585I-IOT02A IoT Node 2 discovery kit."
- Enrichments**: Options for adding additional information to the export.
- Destinations**: A section where users can select destinations for their export. A red box highlights the link "create a new one.".

At the top right, there are 'Save' (highlighted with a red box), 'Cancel', and 'Rename' buttons. At the bottom right, there is a close button (X).

Data Export via Webhook

Goal

Export the data to a webhook

The screenshot shows the Microsoft IoT Central interface for the 'Huerta Orchards' tenant. The left sidebar contains navigation links for Connect, Analyze, Manage, Extend, Data export (which is selected), Security, Permissions, Settings, Application, Customization, and IoT Central Home. The main area shows a configuration for exporting Telemetry data. A modal window titled 'New destination' is open, prompting the user to enter a destination name ('Webhook') and select a destination type ('Webhook'). Both fields are highlighted with a red border. Below the modal, the 'Destinations' section is visible, which allows selecting destinations for the export. The 'Create' and 'Cancel' buttons are at the bottom of the modal.

Data Export via Webhook

Goal

Export the
data to a
webhook

The screenshot shows the Webhook.site interface. On the left, there's a sidebar with options like Password, Alias, Schedule, CSV Export, Custom Actions, WebhookScript, Terms & Privacy, and Support. The main area shows a message: "Webhook.site lets you easily inspect, test and automate (with the visual Custom Actions builder, or WebhookScript) any incoming HTTP request or e-mail. What's a webhook? Any request or email sent to these addresses are logged here instantly — you don't even have to refresh!" Below this, it says "REQUESTS (0/500) Newest First" and "Waiting for first request...". A red box highlights the "Your unique URL (Please copy it from here, not from the address bar!)" field, which contains the URL <https://webhook.site/3ee2ddeb-8f58-42d2-8cef-bdafb4a1f985>. A red arrow points from this field to the "Callback URL" field in a modal window on the right. The modal window is titled "New destination" and contains fields for "Destination name" (set to "Webhook"), "Destination type" (set to "Webhook"), and "Callback URL" (set to the same URL). The "Create" button at the bottom of the modal is also highlighted with a red box.

Data Export via Webhook

Goal

Export the
data to a
webhook

The screenshot shows the Webhook.site interface. At the top, there's a navigation bar with links for 'Webhook.site', 'Docs & API', 'Custom Actions', 'WebhookScript', 'Terms & Privacy', and 'Support'. On the right side of the header are buttons for 'Upgrade', 'Copy', 'Edit', 'New', and 'Login'. Below the header, there's a toolbar with buttons for 'Password', 'Alias', 'Schedule', 'CSV Export', 'Custom Actions', 'XHR Redirect', 'CORS Headers', 'Auto Navigate', 'Hide Details', and 'More'.

The main area displays a list of 'REQUESTS (2/500) Oldest First'. There are two entries:

- POST #fa49e 20.59.76.9** (09/08/2022 4:24:10 PM)
- POST #c4e31 20.59.76.9** (09/08/2022 4:25:27 PM)

For the first request (#fa49e), detailed information is shown in a large box:

- Size:** 723 bytes
- ID:** fa49e62c-bce2-4200-9306-86373c355d3c
- content-length:** 723
- user-agent:** Go-http-client/1.1
- host:** webhook.site

Below these details are sections for 'Files', 'Query strings' (empty), 'Form values' (empty), and 'Raw Content'.

The 'Raw Content' section contains the following JSON payload:

```
{
  "applicationId": "257730d9-bfb0-4159-8ecf-5409c0c28a13",
  "component": "std_comp",
  "deviceId": "2gbyzmuq9ym",
  "enqueuedTime": "2022-09-08T23:24:06.709Z",
  "enrichments": {},
  "messageProperties": {
    "iothub-creation-time-utc": "2022-09-08T23:24:06.663Z"
  },
  "messageSource": "telemetry",
  "schema": "default@v1",
  "telemetry": {
    "acceleration": {
      "a_x": 37.22113075274894,
      "a_y": 35.65414175973105,
      "a_z": 31.5072613596314
    },
    "gyroscope": {
      "g_x": 69.45171672866555,
      "g_y": 33.04891848487938,
      "g_z": 44.52268869897053
    },
    "humidity": 33.96902076063089,
    "magnetometer": {
      "m_x": 31.35205082409312,
      "m_y": 75.44130436061283,
      "m_z": 60.60907832456371
    },
    "pressure": 17.637238188968066,
    "temperature": 38.12085317050886
  },
  "templateId": "dtmi:stmicroelectronics:b_u585i_iot02a:o9zjik2hdit"
}
```

At the bottom of the page, there are navigation links: 'First', '← Prev', 'Next →', and 'Last'.

Data Export via Webhook

- When you need to use other services outside of IoT Central, Data Export is the tool to use.