1spatial
YOUR WORLD SMARTER

1Integrate

Quickstart Guide

Product Version: v 5.1

Document Version: v 1.0

Document Date: 24/01/2025

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Contents

1 Introduction

The 1Integrate documentation offers information about the installation, configuration, administration, and use of 1Integrate.

> **Note**: If you currently have 1Integrate version 3.4 or earlier and want to see the benefits of upgrading to version 4 and newer, or how to upgrade, please see the Migration Guide.

Training in the use of 1Integrate is available. For more information please contact 1Spatial support.

Getting Started

Before moving on to the detailed documentation we recommend you read the pages in this section to familiarise yourself with:

- The 1Integrate product "Overview" on page 4
- Navigating the 1Integrate Interface
- Understanding the creation and structure of "Items and Folders" on page 10
- The "Quickstart" on page 13 page is an optional reference to quickly onboard with 1Integrate

Documentation Structure

The full suite of documentation is structured whereby the sections from Data Stores to Sessions cover the core capabilities for users, and the remaining topics cover other elements of 1Integrate.

Data Stores

Data Stores refer to an external source of data that can be read from or written to. These can be files that are uploaded and downloaded or services or databases that are connected to remotely.

Schemas

Schemas are the definitions of the structure of data accessed via a Data Store. The source schema describes the data being accessed. The target schema is the structure used in the 1Integrate session, which is often the same as the source schema, but could be mapped to a different structure.

Rules and Actions

Rules and Actions are semantically constructed tasks that are run on data. Rules are defined validation checks and Actions are defined processes that change or report on the data.

Built-ins

Built-ins are used within Rules and Actions and are either functions that perform a specific calculation, or operations that perform a specific task.

Sessions

Sessions are used to control all data processing tasks. These can be configured to step through a process, allowing manual results checking at predefined points in the process.

Additional Capabilities

Additional Capabilities contains abstract geospatial concepts that 1Integrate has the capability to work on rather than specific features.

Dashboard

The Dashboard includes information about the Engines and Interface running in the Grid.

Administration

Administration overs the options and processes that administrator users have for using 1Integrate.

API

The API section holds information on the REST API integration. Which allows 1Integrate functionality to be shared or utilised with other products or programs.

Performance Tips

Performance Tips give advice on getting the best performance when running sessions.

Installation and Configuration

Installation and Configuration has all the necessary information on setting up or upgrading 1Integrate.

Resources

Resources contains reference materials and PDFs of specific topics or processes.

Overview

1Integrate is a tool to control, correct, and transform spatial data in an automated and scalable way.

Control

Rules can be created to systematically check and validate data.

Where a user may not be able to see errors when checking data, Rules can identify data that:

- Doesn't connect where needed
- Overlaps
- Is misclassified
- Has incompatible geometries
- And much more...

Correct

After validating data, inconsistencies, errors, and duplicates may have been found.

Actions can be created to correct these as soon as they're found, making sure that the data conforms to the requirements you have set.

This will keep costly mistakes from being made, ensuring that decisions can be made with confidence in the data.

Transform

Even with data that is "correct", it may benefit from being enhanced or transformed.

Multiple data sources can be brought together to further define shared features. This could be adding more specific address properties to a feature, increasing the geometric resolution of more general spatial data, or transforming one structure to another using business Rules to map objects and attributes.

Automate

Data can be manually corrected or enhanced, but that can be time consuming.

The robust Rules and Actions within 1Integrate can be automated to allow time to be reinvested elsewhere.

Partitioning data can help to automate large data sets at a lower processing cost.

Additionally, "Production Mode" allows for fast, efficient automation to streamline tasks.

Scalable

1Integrate allows for rule sets that can be shared between users, reused across projects, and created quickly through reusable content, templates, and specialised built-in functions and operations.

Focusing on making data smarter means that users won't have to work harder to achieve results.

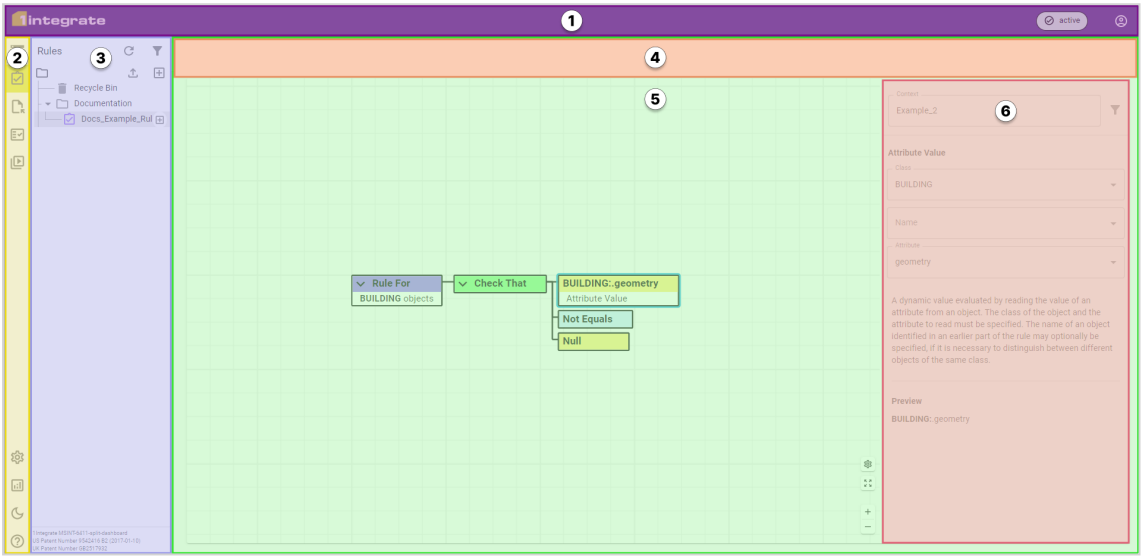
Being available via a web-app means that local hardware resources are free from having to do the processing.

Extensive API calls mean that 1Integrate can be seamlessly integrated with your existing systems.

Interface

This is the interface for 1Integrate, read this page to understand how to navigate it and the required interactions.

Interface Sections



1. Header

The header shows the product logo on the left-hand side, while Service Status, account details and the log out option, are found on the right-hand side.

2. Sidebar

The sidebar allows you to navigate to the different tabs of 1Integrate. The upper half of the menu, directly under the 1Integrate logo, contains the core 1Integrate functionality, while the lower half contains the additional features of Administration, the Dashboard, Light/Dark Theme and a Documentation link.

3. Navigation Pane

This pane acts similarly to the file/folder tree structure of an operating system. Folders with contents can be expanded/collapsed if they have an expand/collapse arrow next to them. This can be navigated with the keyboard arrow keys; anything selected here will be displayed in the workspace (5) in the same way as if it had been clicked.

4. Workspace Toolbar

The workspace toolbar only appears in the workspace (5) when an item is open ie a Rule in the Rule builder. Across all workspaces the workspace toolbar contains standard information and tools for working on an item.

WORKSPACE TOOLBAR ITEMS

Item	Description
Name	The name of the object that is selected
Breadcrumbs	The path to that object
Undo	This will step back through actions you have performed on an object from the point you opened it in this Session, including anything that has already been saved.
Redo	This will step forward through actions you have undone on an object from the point you opened it in this Session, including anything that has already been saved.
Description and Comments 	Opens fields that allow for a Description and Comments to be added to the object. Both fields allow multiple lines of text. **Best Practice**:Making notes of any changes in the description helps to keep a "paper trail" if something needs reverting or if someone is using the Rule elsewhere.
Created By/ Updated By 	Shows the Username and Timestamp for when this object was created and for it's most recent update.
Used By 	Lists every object that this object is used in. Clicking one of these will open up that object.
Save	Saves the current state of the current object.

5. Workspace

The default workspace opens on the recent items tab with the last run sessions tab next to it.

If an item is open ie a Data Store, Rule, etc then the workspace displays the editor for that item.

If folders are selected in the navigation pane (3) then the contents of that folder will be displayed here.

> **Note**: The folders do not need to be open in the side panel in order to show their contents in the workspace.

Recent Items lists objects that you recently interacted with. Last run sessions allow you to quickly reopen a session you recently ran.

If you have created any bookmarks through the Bookmark option in the context menu, then a Bookmarks tab will appear on the right.

6. Right-hand Panel

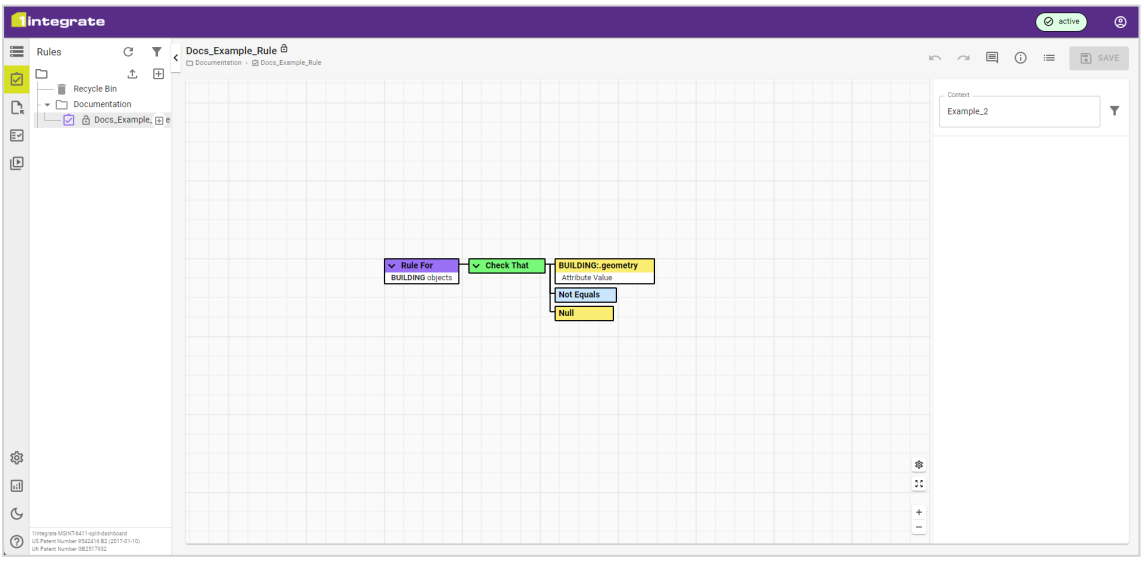
The right-hand panel appears in the workspace (5) in the Rules and Actions tabs. The panel shows the Context as well as information and parameters for the selected node.

Context Menu

Most elements of 1Integrate offer a context menu when right-clicked. This gives specific options depending on the clicked element, which includes the items and folders as well as Rules, Actions etc.

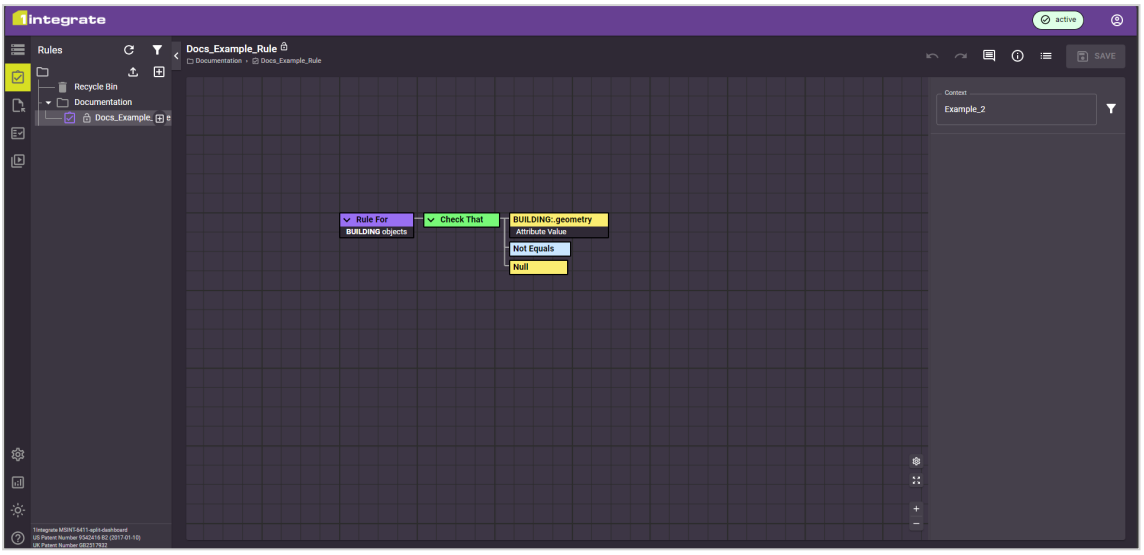
Light and Dark Themes

1Integrate is set to a light colour scheme by default.



1Integrate default theme

1Integrate can be changed to a dark theme with the Change to Dark Theme icon for higher contrast .



1Integrate default with the dark theme

Items and Folders

Objects: Items and folders are objects that can be created and modified within the Navigation Pane.

> **Note**: Objects are selected by clicking them but **Ctrl** and **Shift** allow multiple objects to be selected at once.

Creating Objects

Objects can be added either by clicking an Add icon and choosing an item or folder to create, making your choice either in the main file path or inside a folder if one is selected. This can also be done via the context menu.

Moving, Copying, and Shortcuts

All objects can be moved and copied but items can also be duplicated in place.

To move objects quickly, click and drag the object over the folder you wish to put it in.

> **Note**: Folders don't auto-expand, so if you want to place something inside a folder that isn't currently visible, the parent folder needs to be expanded first.

Alternatively, cut or copy the object and paste it to the new location. This can be done with a right click, or via the standard windows shortcuts: **Ctrl+X**, **Ctrl+C**, and **Ctrl+V** for cut, copy, and paste. Copied/cut objects are pasted into whichever folder is selected, or into the top level if nothing is selected. These also work for items within workspaces such as rules, though these can only be pasted within that same workspace.

Items can be duplicated via the context menu or with **Ctrl+D**. This creates a copy at the same level.

If an item has been copied, a shortcut can also be pasted instead. This allows access to specific items from elsewhere within the folder structure.

Bookmarks

Objects can be bookmarked by selecting the **Bookmark** option in the context menu of your chosen item or folder. Bookmarked objects will appear

under a "Bookmarks" tab in the default workspace. Once set, you can remove bookmarks by selecting **Unbookmark**.

> ⚠ **Warning**: Moving a bookmarked object will remove the bookmark.

Deleting and the Recycle Bin

Objects can be deleted with the **Delete** key, via the context menu, or dragged straight into the recycle bin. Objects will be deleted along with any child objects.

Items that are deleted will be sent to the recycle bin, where they will be stored until they are manually deleted. Anything with the same name will have a number appended to it ie New Folder and New Folder (1). This also includes the same name on different types of objects.

The recycle bin can be emptied from the recycle bin context menu. This can also be done from any other item or folder in the bin itself.

Emptying the bin permanently deletes all items and folders that are allowed to be deleted. Anything that is still currently in use outside of the bin will not be removed as part of the deletion. This includes items that are part of another item eg a rule that is part of a session or any item that has a shortcut.

> ⚠ **Warning**: The recycle bin is not shared between functions but it is shared by all users. If files that aren't yours exist in the recycle bin, you can permanently delete files individually

Focus/Unfocus

Objects in the navigation pane can be focused on using the **Focus** option in the context menu. This will show only the selected object and any child objects in the navigation pane, and hide all others.

Any folders that the focussed object is in will be shown in the breadcrumbs above it, which will be marked in purple to denote that it is in focus mode.

Focus can be removed by choosing the **Unfocus** option in the context menu.

Search and Filter

Objects in the navigation pane can also be searched and filtered by selecting the **Select Filters** funnel  at the top of the navigation pane, just below the Header.

Typing your chosen word will filter the selection of objects in the navigation pane.

Quickstart

This guide is designed as a whistle-stop tour for users, to show how a basic 1Integrate workflow is created and run. Each heading links to an explanation of that step in the process.

> **Note**: For in-depth explanations of each feature of 1Integrate please access the relevant sections from the table of contents.

General 1Integrate Flow

1Integrate is a robust tool that can have workflows that take different shapes and sizes. All of these follow a similar basic structure to the five steps described below, while more complex Sessions may contain more Data Stores, Rules, and Actions.

"Create a Data Store" on page 15

Data Stores are where the data is held within 1Integrate for access and configuration. They can be set to determine how 1Integrate interprets the data for both inputs and outputs. This may be an input of one file type that is then outputted as another type at the end of the workflow.

"Create a Rule" on page 18

1Integrate is a Rules-based tool that takes logical steps outlined within Rules (and Actions) to perform validation on the Data.

Rules are built to validate for specific outcomes or conditions, creating reports and filtering data to show non-conformances.

"Create an Action" on page 21

Actions are set up and built in the same way as Rules. However, Actions are used to add, transform, remove, or report on data. They can also be paired with Rules in an Action Map to filter the data before the Action runs.

"Create a Session" on page 24

Sessions are a collection of ordered Tasks that execute a particular type of instruction. Tasks include things like opening a Data Store for other tasks to get access to the Data within, or running the Rules and Actions that validate or interact with the data. These Tasks activate sequentially and it's important to understand how each Task will affect others in the Session.

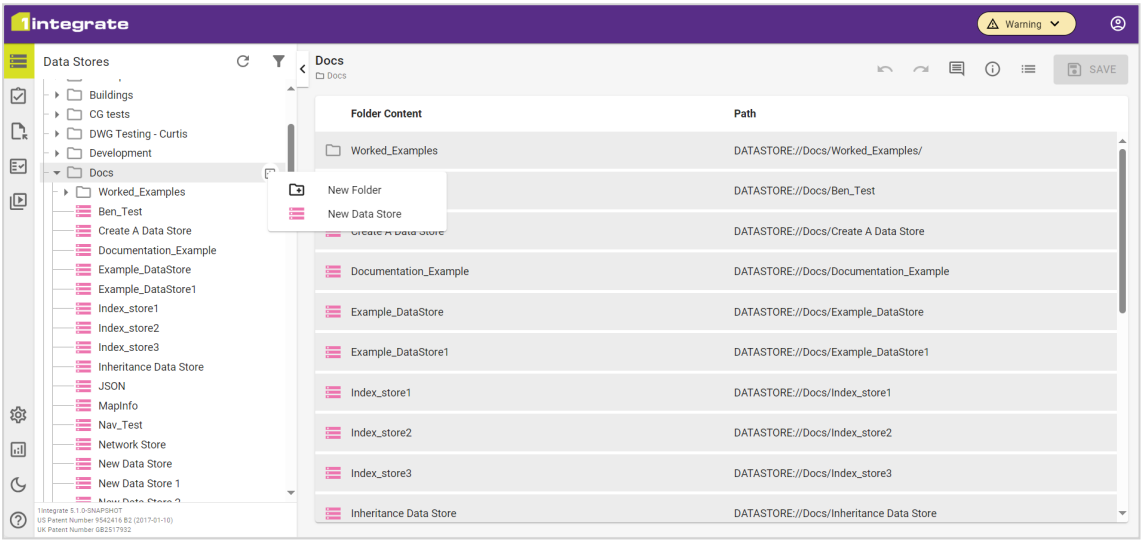
"Run a Session" on page 27

Running Sessions will execute the Tasks in order. The Session controls allow Tasks to be paused and for the Session to be rewound and edited if necessary before running again.

Finished Sessions allow users to view the outcomes of each Task, which includes viewing reports from Rules and Actions, downloading data, or viewing data on the Map Viewer.

Create a Data Store

Data Stores allow 1Integrate to connect the data that you want to use to the Rules, Actions and other parts of 1Integrate. Configuring a Data Store may often be the first step in a workflow, as it will make configuration of the latter steps easier.



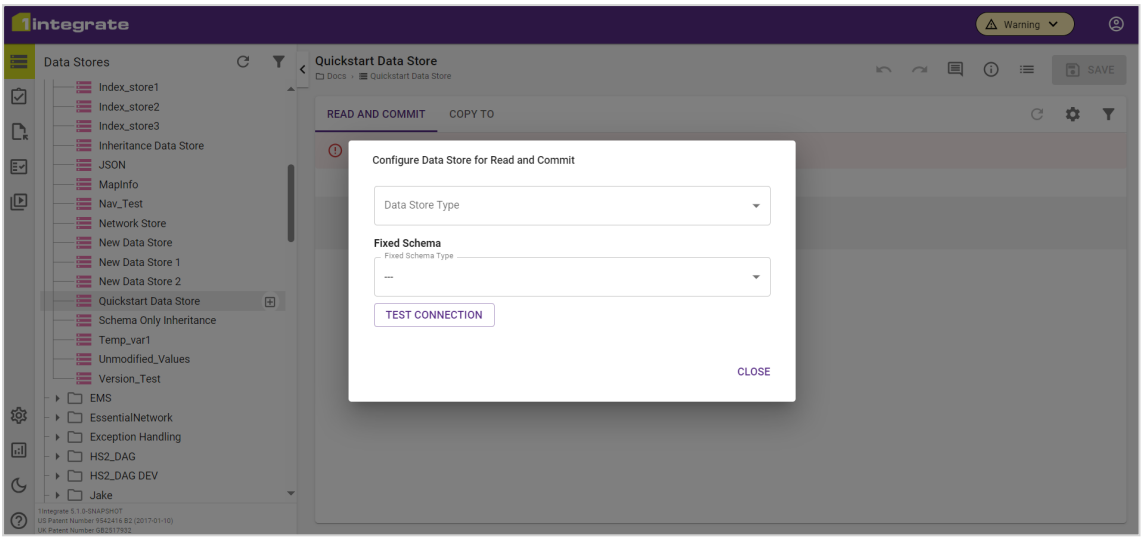
1. In the folder structure on the **Data Store** tab, click the **Add** button ⊞ and name your Data Store.

Each Data Store needs to be configured for at least one of the two settings: Read and Commit, or Copy To.

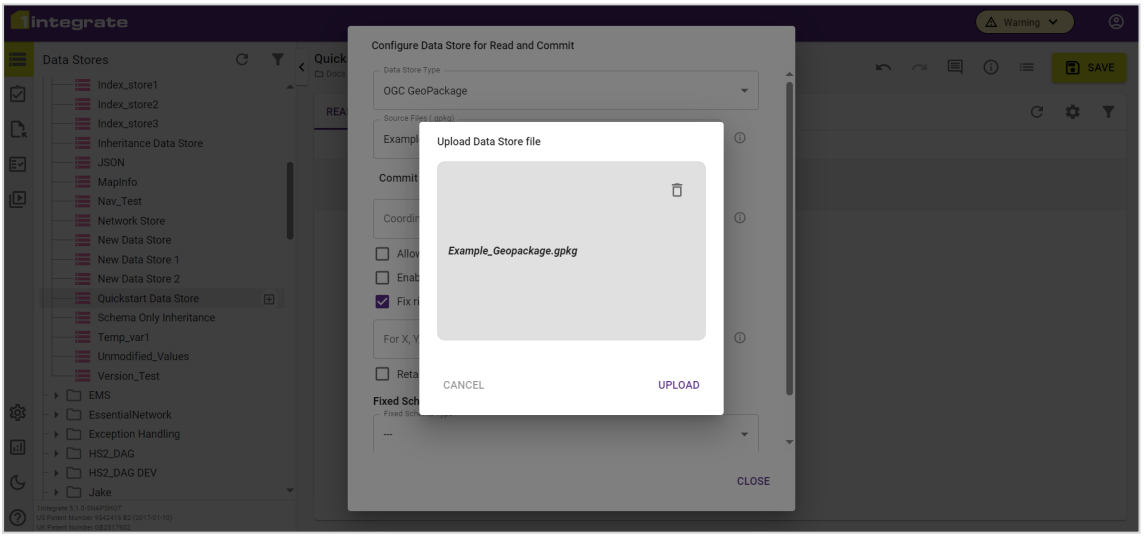
Read and Commit will use the same settings for reading the data as it will for any committing of that data. This includes the format as well as any settings, like character encoding or CRS override.

Copy To allows a Data Store to output data into a different Data Store type (format/file type), with some options for settings too. Not all Data Store types are supported for Copy To.

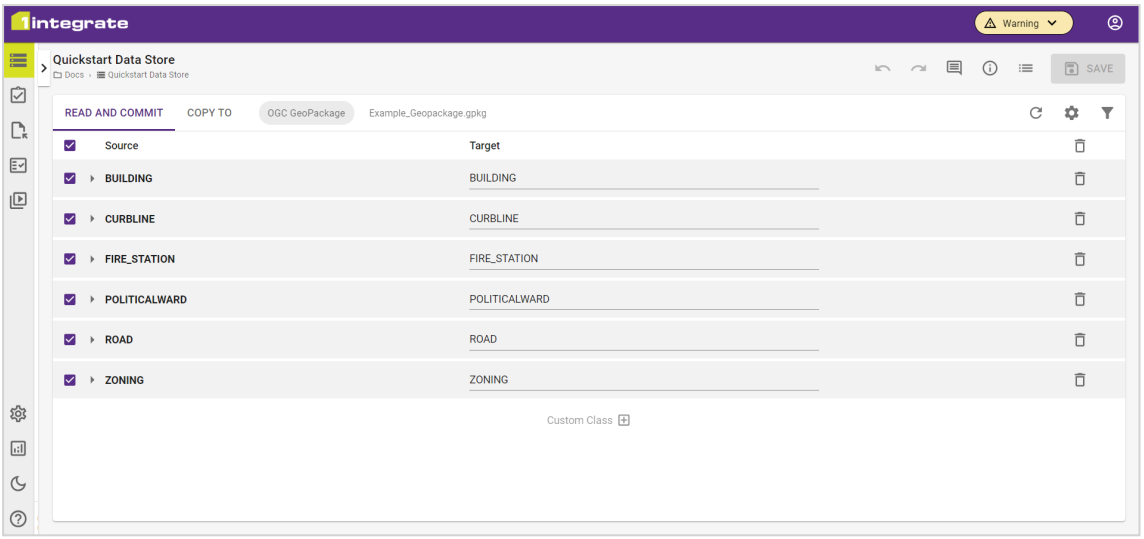
2. As soon as a new Data Store is added you will have to choose the file type. Pick the required type and the panel will update with all the relevant configuration settings.



3. Upload the source file(s) by clicking the **Upload** button and picking your file(s). Or, if you are connecting to a external database, enter the required details.



4. Complete any remaining configuration and then close the panel. Click the **Refresh** button to load the Schema Mapping.

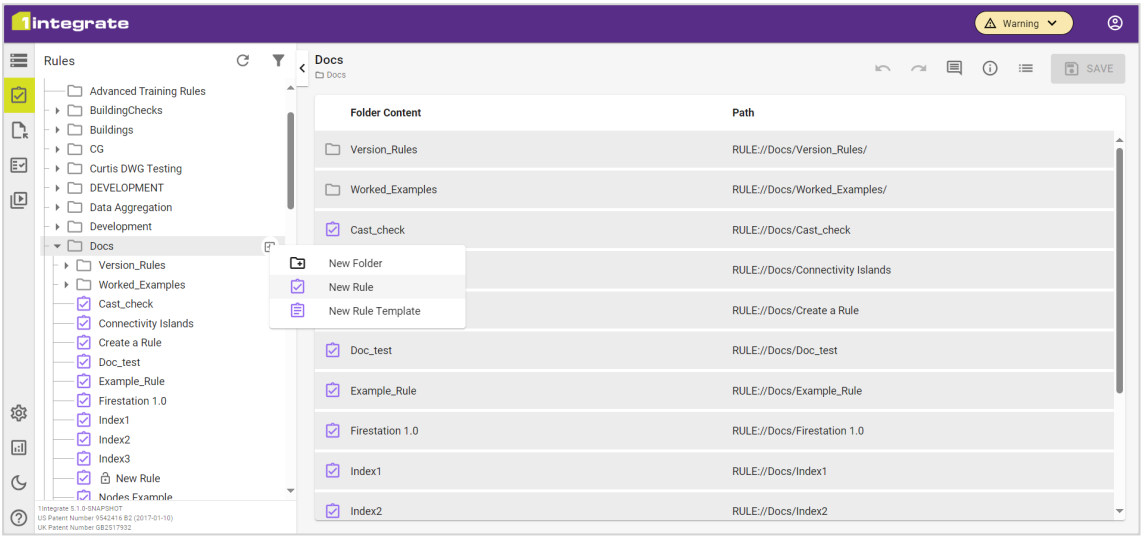


The Schema Mapping is how the Classes and Attributes within the chosen data is understood within 1Integrate.

The Data Store can now be accessed by Rules, Actions, and Sessions.

Create a Rule

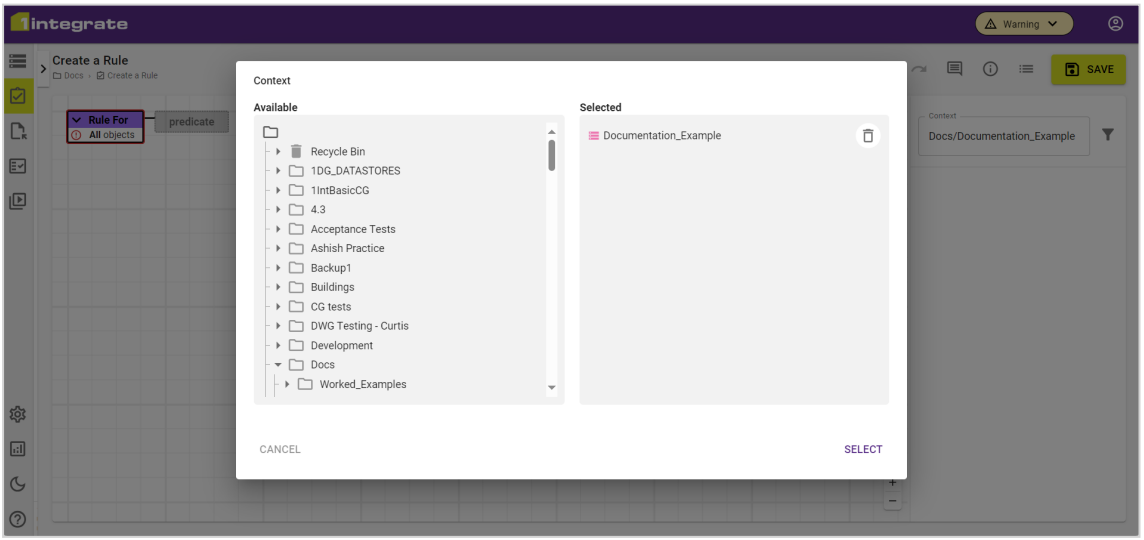
Rules are about validating data. Most workflows will contain at least one Rule that will validate the data from a Data Store. Rules (and Actions) are best suited to focusing on a single set of conditions, rather than trying to complete all data validation in a single Rule.



1. In the folder structure on the **Rules** tab, click the **Add** button  and name your Rule.

As the Data Store has been set up, it can be connected to the Rule via the Context at the top of the Right Hand Panel. This links the data in the Data Store to the Rule, allowing the classes and attributes within the data to be referenced.

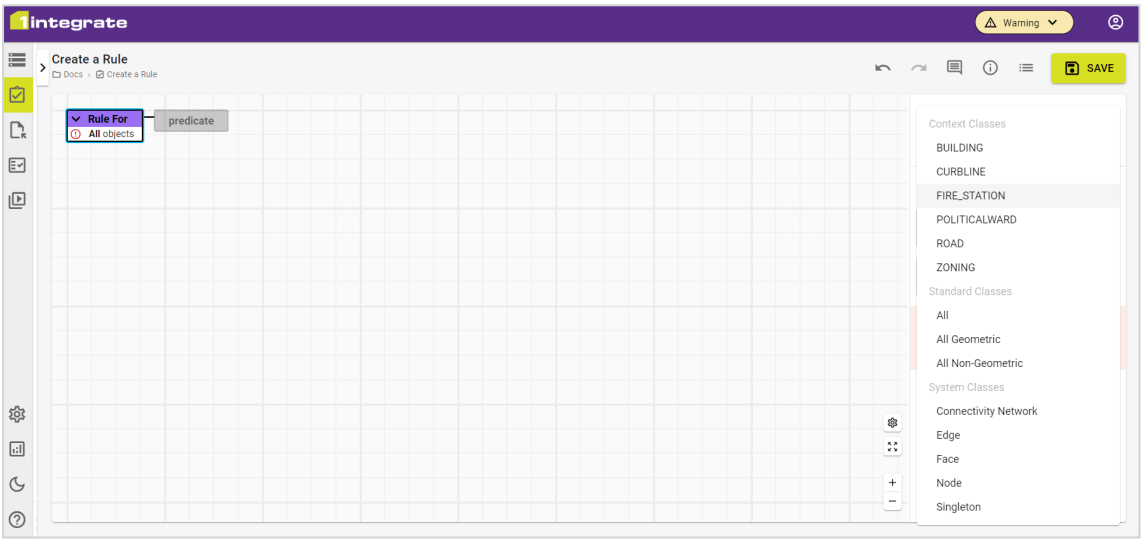
2. Click the **Context** to open the Data Store selection and choose the Data Store that you created.



Each Rule is built up from a series of logic nodes that branch out horizontally from left to right. These nodes are the visual blocks of code logic that 1Integrate utilises. Having any coding experience should make Rule (and Action) building feel familiar.

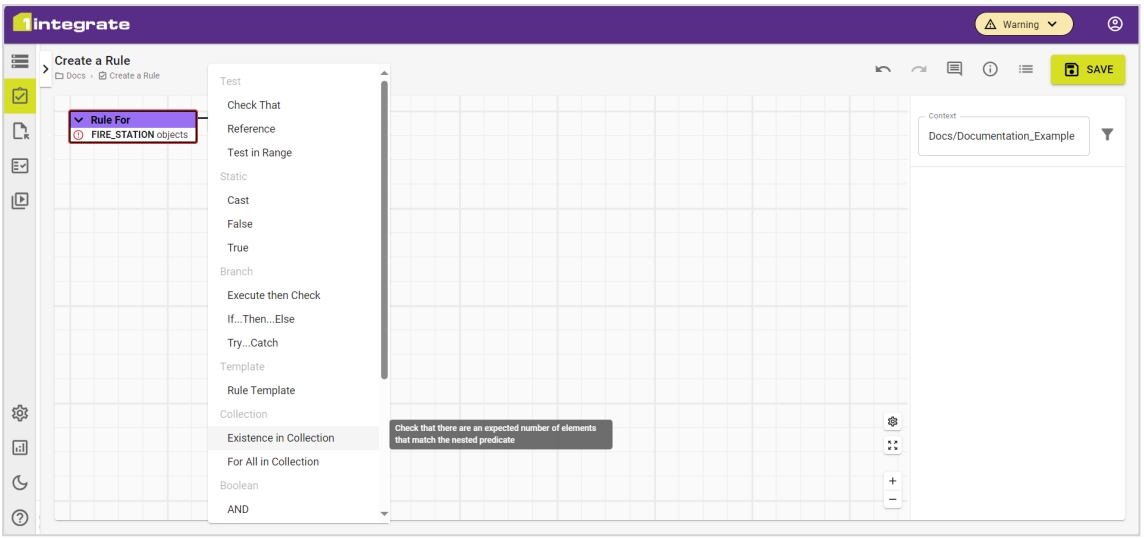
By default the purple, Root node designates what objects the Rule is built for. It helps to specify what object is the focus if there is one as it will restrict processing only to that object and any others referenced in the Rule itself. This means fewer objects to process, which often means less time spent processing the Rule.

3. Click the Root node and select the Class you want to run the logic against.

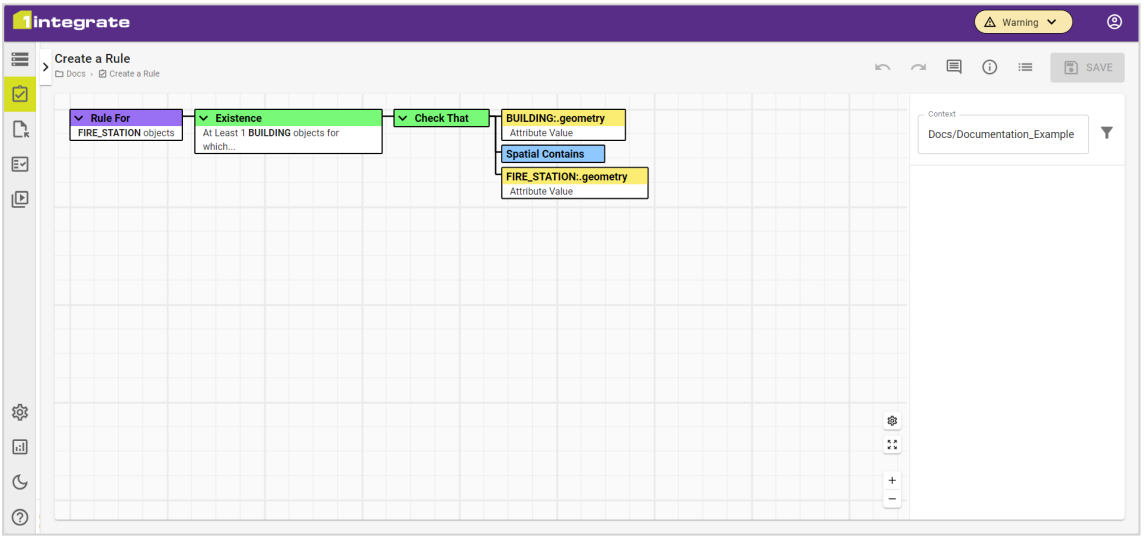


Each node that is available has to be of a certain type: a Predicate which defines the type of check, a Relation which evaluates two Values, or a Value of a particular attribute. Clicking on a node displays the options for that node, allowing the Rule to be built up quickly using only "correct" logic.

4. Add nodes to create the logic that you want from the Rule until all the required nodes and optional nodes that you need are filled in.

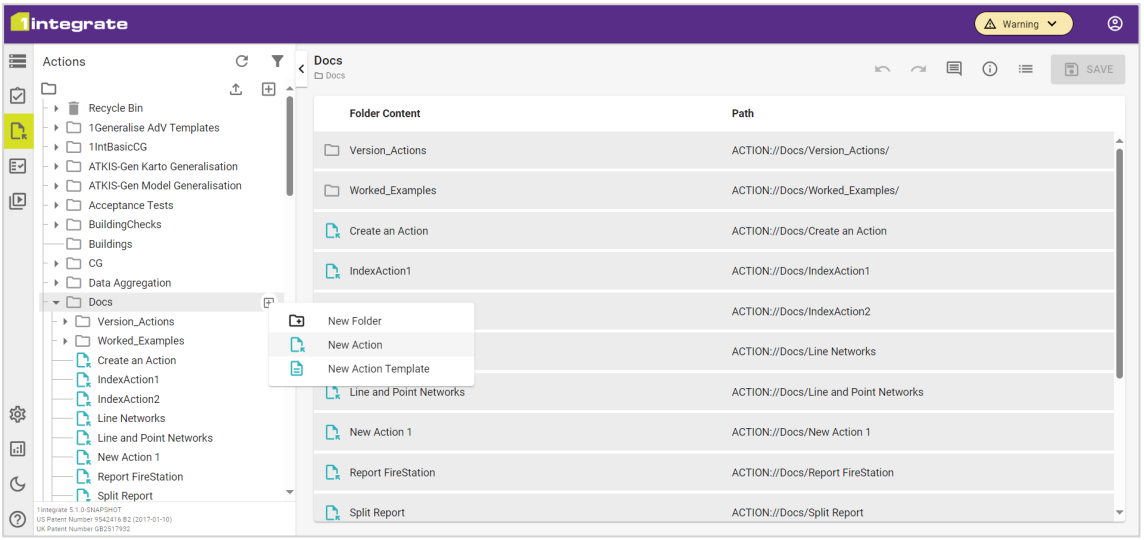


5. Click the **Save** button in the top right of the screen. This Rule is then ready for use with Actions or as a standalone Rule within a Session.



Create an Action

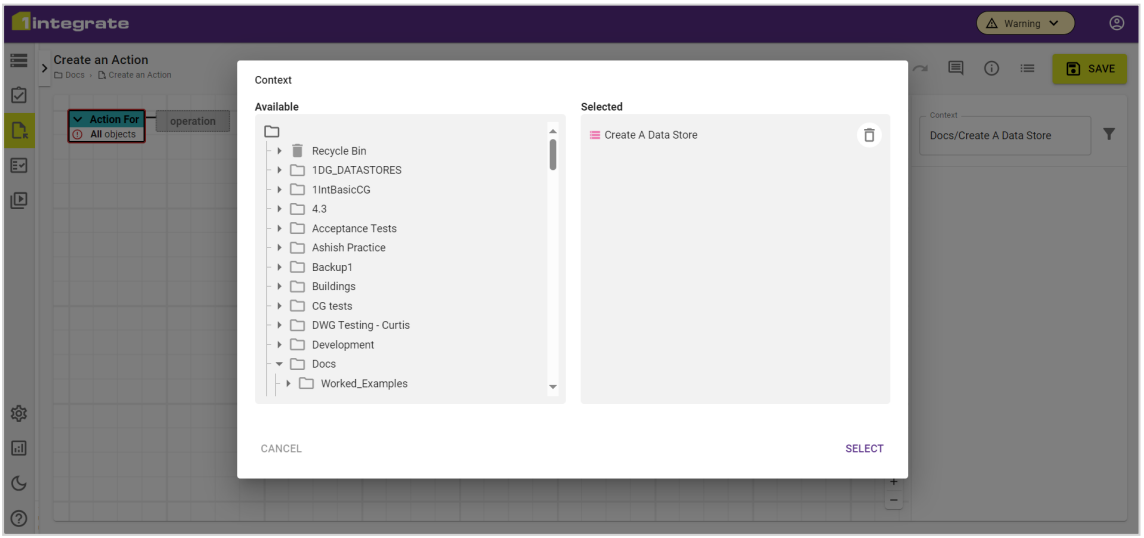
Actions are built in the same way as Rules are and can contain validation logic as well. However, their main purpose is to change, create, or report on data. Actions are still best when kept to their own purpose and can be paired with a Rule to filter out objects that don't need to be processed by the Action.



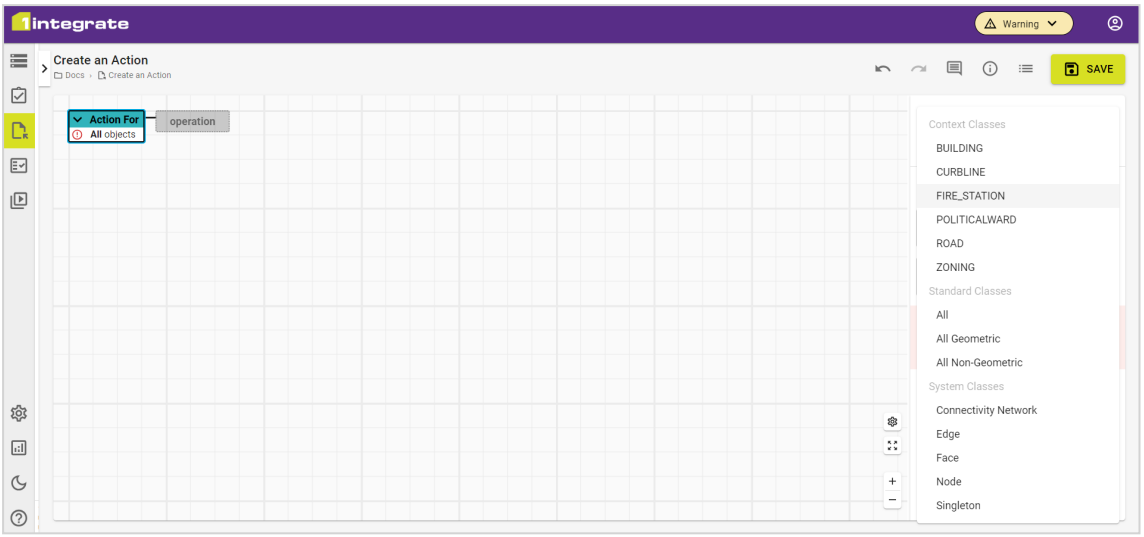
1. In the folder structure on the **Actions** tab, click the **Add** button  and name your Action.

Actions can be built with the assumption that a Rule will already have filtered out unwanted any objects. This means that Predicate logic doesn't necessarily need to make it's way into an Action and you can focus on using Operations instead.

2. Click **Context** to open the Data Store selection and choose the Data Store that you created.



3. Click the **Root** node and select the Class you want to run the logic against.

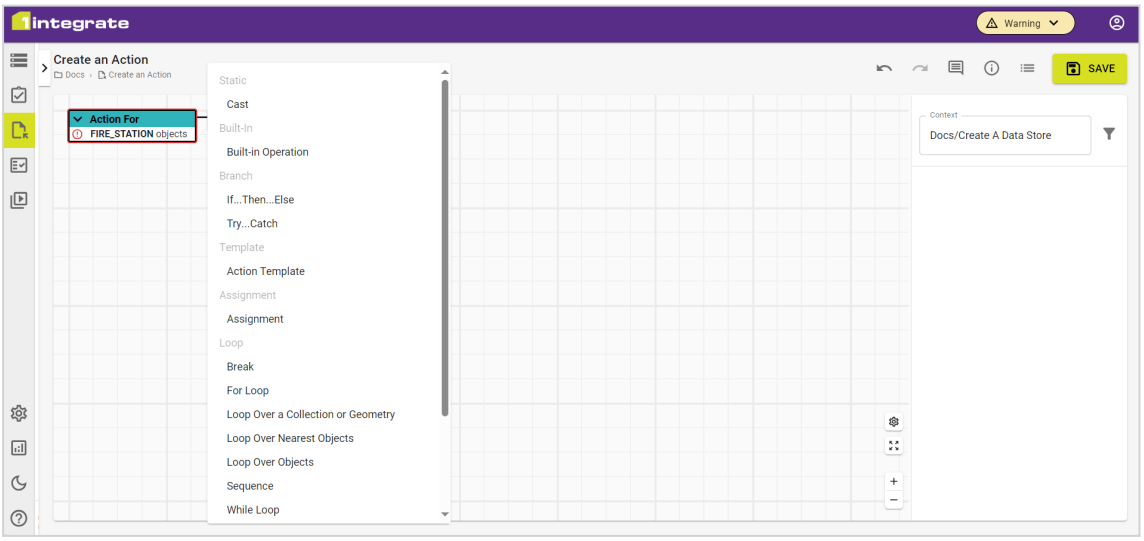


As with Rules, you will build up Actions node by node to create the logic you need for the data. Best practice is the same as with Rules, where you should be keeping them focused on a particular purpose rather than trying to do everything, all at once.

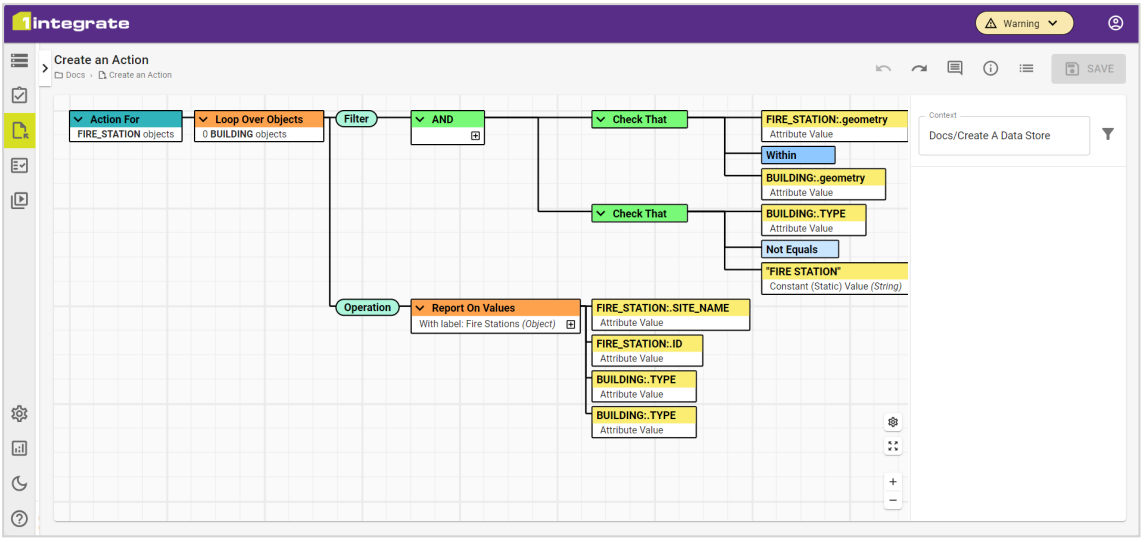
Actions will have similar choices for nodes, though Operations named similarly to Predicates will use Operations instead of or as well as Predicates in their child nodes.

If you want to create Actions that utilise Rules for filtering, then you can opt to not create filtering in the Action and use the filtering from a Rule. This requires you to create an Action Map as well to choose the pairings of Rules and Actions.

4. Add nodes to create the logic that you want from the Action until all the required nodes and optional nodes that you need are filled in.

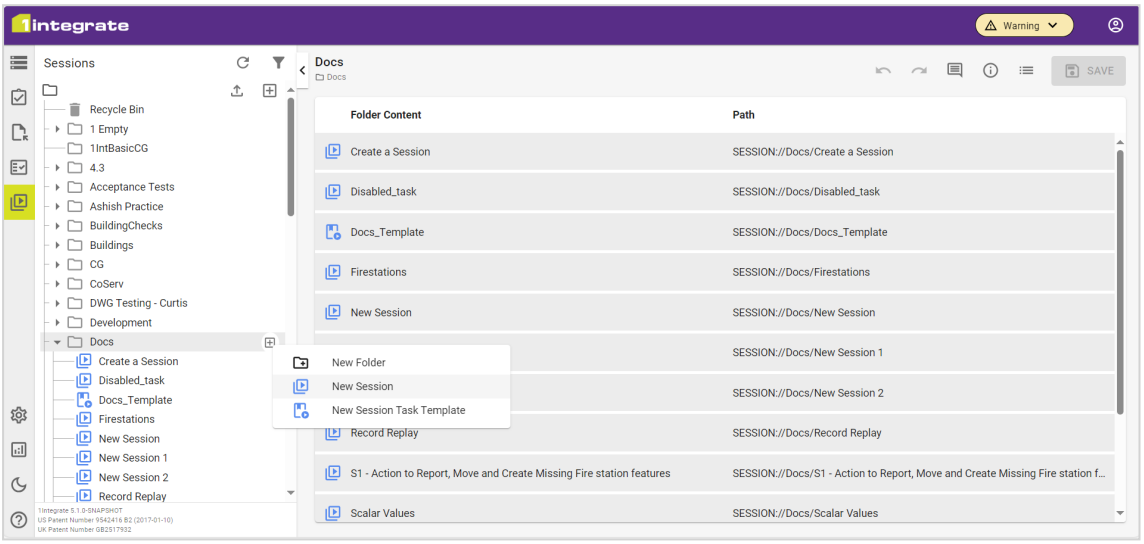


5. Click the **Save** button in the top right of the screen. This Action is then ready for use by itself or in an Action Map within a Session.



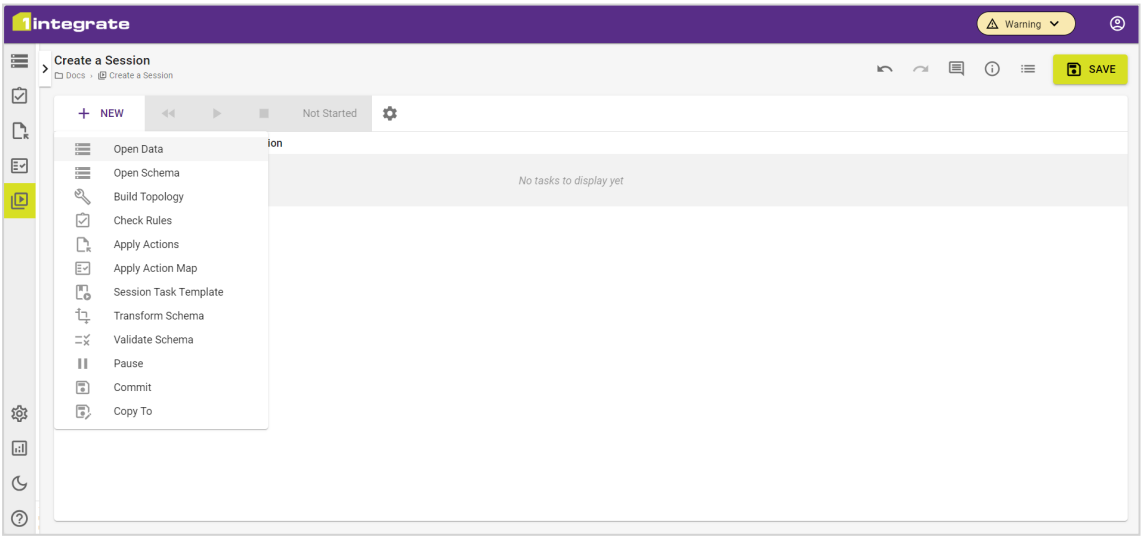
Create a Session

Sessions are a series of Tasks that are completed in sequence. These Tasks include opening Data Stores (loading the data), running Rules or Actions, or committing data to a Data Store (writing the data to a specified place).



1. In the folder structure on the **Session** tab, click the **Add** button  and name your Session.

2. Click **New** to add a Task, selecting whichever Task Type you need from the list. This will often begin with the Open Data Task which will give other Tasks in the Session access to the specified Data Store.



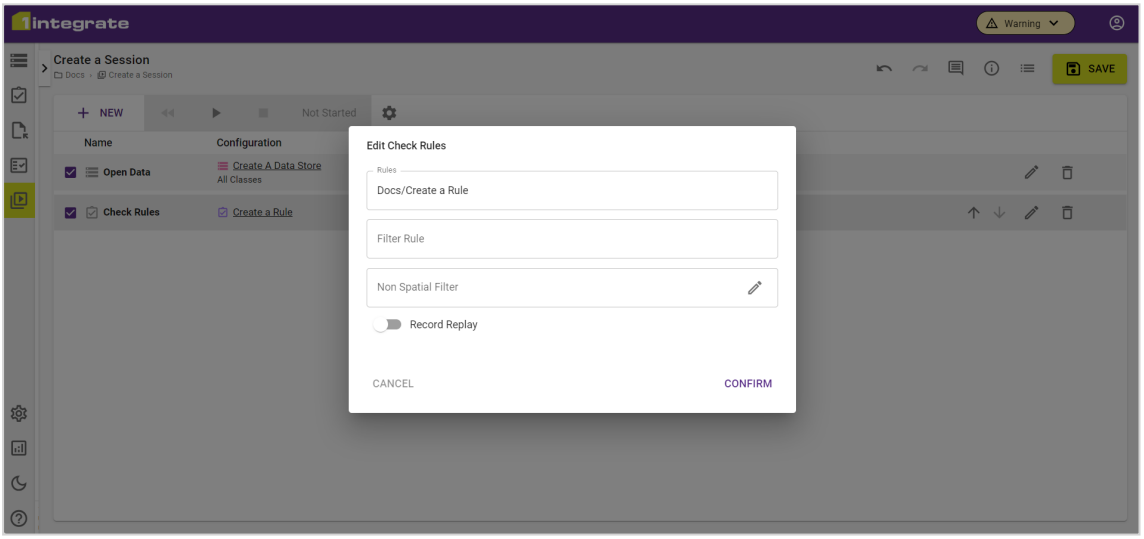
A basic Session would include the following Tasks, in order: Open Data, Check Rules, Apply Action, Commit, Pause. These would enable the Data Store for use

in the Session, run Rules against the data, apply Actions against the data, and then write the data back to the original Data Store.

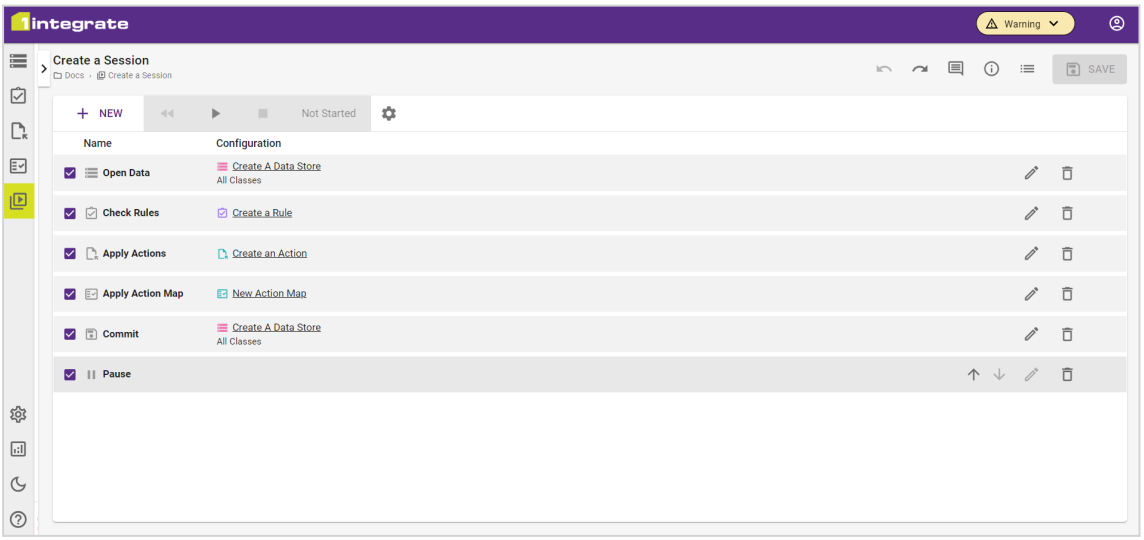
Pause Tasks are used to stop a Session from progressing without further manual input. This is usually to keep a Session "open" allowing the reports and other features to be accessed before the Session is closed.

They can also be used to create checkpoints where the data can be assessed before continuing the Session, or to be able to set "checkpoints" to fix any possible errors without restarting the entire Session.

3. Each Task is configured when it is created but can be reconfigured later on. This includes advanced features such as Rules filtering and Record Replay.



4. Continue to add new Tasks to include all the steps your Session needs to take.

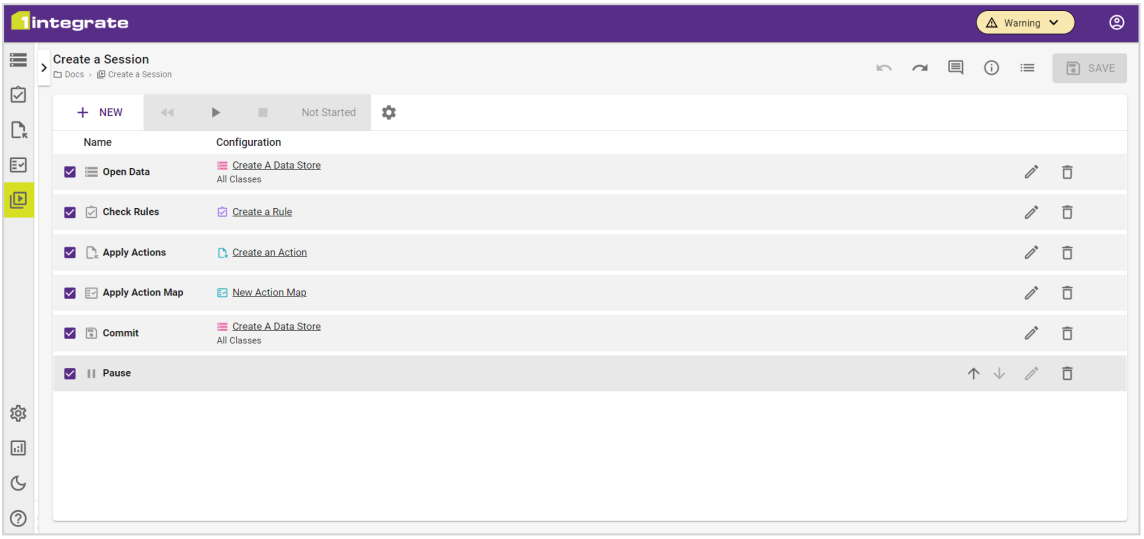


Tasks can be moved by clicking and dragging them into the position in the Session needed or by clicking **Up**  and **Down**  on a selected Task. This can be done to unprocessed Tasks even when a Session is paused.

The Session is now set up and ready to be run.

Run a Session

Sessions are simple to build and simple to run. Once a Session is complete it is ready to run, and then to be evaluated.

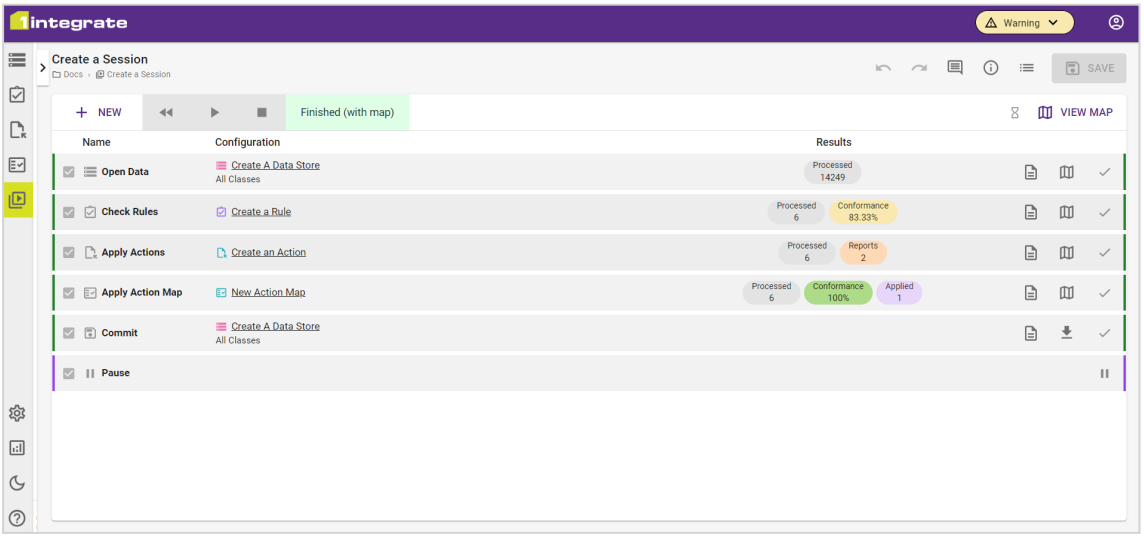


1. On a Session with at least one Task, click the **Play** button  to begin running the Session.

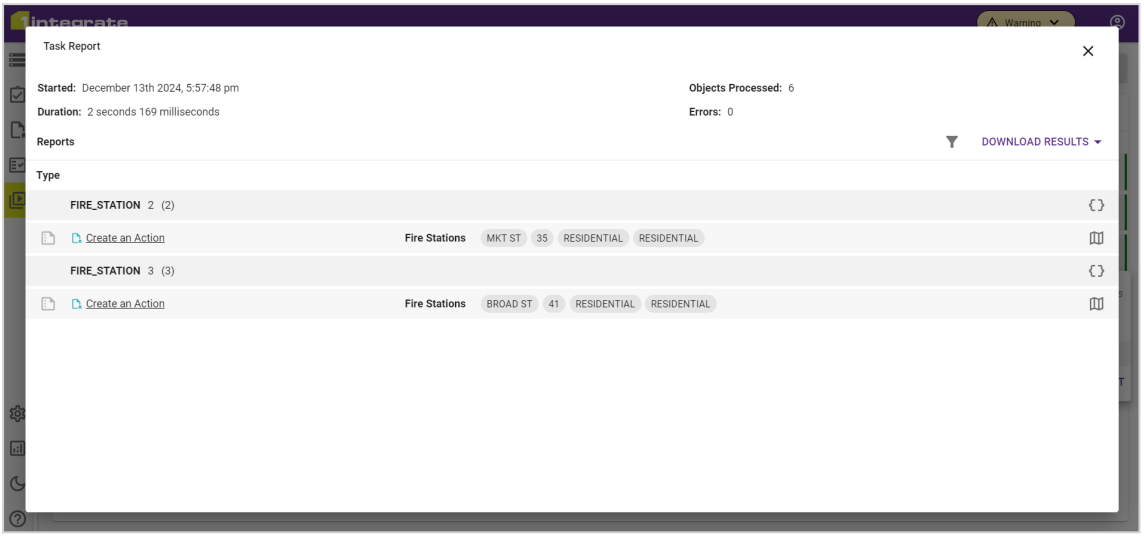
You can see the progress of the Session by the colours on the left side of each Task as well as the status symbol on the right hand side of the Task. The Status symbol will be a tick on finished Tasks, which also enables the reports and the map viewer.

All Rules and Actions have built in reports that give a break down of the number of processed objects.

2. Click the **Results** button  to view the reports.



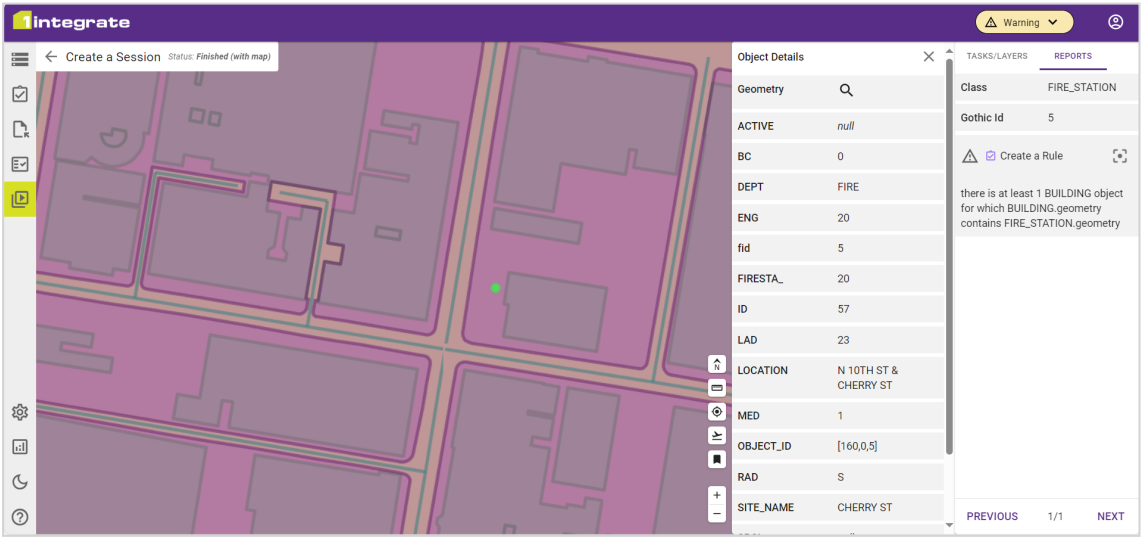
3. To view the summary click **Show Summary** or click **Show Report** to view the auto-generated or custom reports.



Reports show all the basic information for the Rule or Action that was run with the results for each object that meet the requirements. For bespoke reports this will include any information that you specified within the reporting Action.

For Sessions that use spatial data, Maps can be viewed from both Tasks that allow it in the main Session or within a report for direct access to a specific object. Maps contain all objects within a Data Store and present all that data visually, with changes to the data being updated depending on which Task is being viewed in the Map.

4. Click the **Map** button  next to a Task or an Object in the Report to open the Map.



11 Glossary

In order to get to grips with 1Integrate, it is important to understand a few basic concepts and terms used within the product:

A

Action

An Action is a procedure or process to be applied to one or more objects, when they are found to violate an associated Rule. For example, an Action could modify a geometry or attribute in order to fix it.

B

Built-in

Extensions, which can include custom "built-ins" can be added to 1Integrate to extend existing functionality.

Built-in Function

A built-in function is a Predicate Value that returns a value calculated from one or more Value nodes.

Built-in Operation

A built-in operation is an Operation Value that returns a value calculated from one or more Values nodes.

C

Child Node

A node extending from another node.

Conformance/Non-Conformance

Terms used to identify when a feature does/does not obey logic within a Rule or Action.

D

Data Store

A Data Store is an external source of data (expected to be geographic data). Rules are applied to data drawn from one or more Data Stores.

E

Extension

Extensions, which can include custom "built-ins" can be added to 1Integrate to extend existing functionality.

Extent

An extent is the selected area on which any validation checks will be run. By default this is set to the entire dataset, however this can be altered using the draw tool.

F

Feature

A generic term for items within a table or file geodatabase. Interchangeable with Object.

Folder

A folder is a logical grouping of Rules or Actions. The 1Integrate interface mimics the Windows File Explorer interface, using a tree of folders and sub-folders to store Rules and Actions. 1Integrate folders do not correspond directly to file-system directories.

G

Grid Processing

Grid processing allows 1Integrate to take advantage of the resources of multi-core machines and multiple machines. As a result, 1Integrate is a scalable system. If more processing power is needed, it can be added easily by adding more hardware resources to the grid.

N

Name Parameter

Uniquely identifies objects in the same class that are tested against each other in clauses and sub-clauses of a rule.

Node

The basic unit within a logic tree

Null

A "Value Node" that always evaluates as null.

O

Object

A generic term for items within a table or file geodatabase. Interchangeable with Feature

Object or Element

Value nodes representing objects or elements from a collection; used to access a whole object/feature directly or access and element when loopng through a collection or array.

Operation

An operation is a high level component of an action, which determines the primary function of the action.

P

Parent Node

A node from which other nodes extend.

Predicate

A Predicate is a high-level, logical test that defines the syntax for a Rule.

Predicate Node

A high-level, logical test that defines the syntax for a Rule or Action; common Predicates used are Comparison, And, Or, Existence, IF..THEN..ELSE, and For All.

R

Relationship

Compares any two values and returns a result of true or false.

Root Node

The highest node in a logic tree; within 1Integrate, this node defines which feature class will be evaluated within the logic.

Rule

Rules identify a group of features based on sets of logical expressions.

S

Scalar

A Relationshop that compares two value (boolean, integers, real numbers, dates, or strings).

Session

A session is a sequence of tasks that describe a workflow. For example, open data from one or more data sources, check conformance against

selected rules, apply rule-based transformations to resolve problems, and commit the changes to the original data source(s).

Spatial

A type of relationship only applied to geometry values.

Static Value

A "Value Node" with a fixed value such as boolean, integer, string, real or timestamp.

T

Task

A task is an abstraction referring to some process applied to data from a Data Store. Specific tasks performed by 1Integrate include "Open Data", "Check Rules", "Apply Action" and "Commit Data". A task may take seconds, minutes, hours, or days. Therefore it executes asynchronously, so that the user can monitor progress and abort sessions. Tasks continue processing even if the user who started them logs out or shuts down the client computer. All status values and reports associated with the task are retained.

V

Value

A value is a constant, a reference to objects or a calculation. They are compared using a relationship.

Value Node

A constant, a reference to objects or a calculation.