



SmartSpace[®]

Module Import and Export

From version 3.10

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Module import and export

The Load and Save capabilities in the Business rules workspace enable the import and export of business rules from SmartSpace. Import and export is achieved via the creation of *modules* of rules and any additional selected items. These modules can also be used with other parts of SmartSpace to enable the transfer of other configuration elements, such as searches or reports, between Ubisense installations.

This guide describes the capabilities of Business rules export, and the process for loading and saving modules. Additionally, it provides information on other tools available for the transfer of assets between installations.

Requirements

Business rules export requires a license for Business rules version 3.5 or higher.

How Business Rules Export Works

Business rules export enables the creation of *modules* comprising functionality that is portable between Ubisense installations. Portable items (also referred to as *assets*) can be identified for inclusion in a module by the use of labels. When saving items for export, you can choose not only rule definitions but *any* assets that can be included in a module. This allows, for example, the creation of a module comprising a search for display on the web map, the properties and representations used by the search, and the roles that can access it. To make the selection of all required items easier, during module definition, when a label is applied to an item, dependencies are identified by the software and can be labeled accordingly.

Assets that can and cannot be included in a module

Which items can be saved using the Business rules workspace?

- *Custom* types

All types created based on Ubisense types can be saved

- Properties

Both *simple* and *complex* properties can be included in a module

- Object names

An asset is available for each user-visible type with at least one named object

- Property contents
- Spatial property contents

You can save moving spaces of an object property (relative spaces) and stationary spaces of an object property (absolute spaces)

- Object locations

There is an asset for each user-visible type with at least one located object. Background objects are not part of this

- Logged locations

For use in Reporting

- Logged properties

For use in Reporting

- Representations

- Roles

- Queries

For use in Reporting

- Searches

- Business rules

- Reports

- Screens

- HMIs

- Objects that have only a name property and inherit a type called Enumeration (referred to as enumeration objects)

To configure enumeration objects that can be saved to modules, you must first create an object type called Enumeration. Then when you create enumeration object types, you can select Enumeration as their parent type and ensure you give them only a name property. See Types and objects for information on creating types and objects.

What can't be saved using the Business rules workspace?

- *Ubisense types*
- Objects, other than enumeration objects
- Shifts

In general, configuration specific to an individual site cannot be labeled for inclusion in a module. This includes objects used for defining location rules, such as parking areas and paths; object instances, with the exception of enumeration objects; and working time shifts. Other tools are available for export and import of non-labelable items. See Other Import and Export Tools in SmartSpace.

Saving Reports and Logged Locations and Logged Properties

When saving reports, you might need to label types and properties manually, since report dependencies are not computed automatically.

Loading Modules

You can load modules along with any included dependencies from a file, or currently active business rule definitions, or previously published versions in your installation. When you choose a file or collection of rules, you will be offered a list of items to load. By default, new and unchanged items are selected. Items that are different to those which are current in your installation (for rule definitions this means those that are available for editing in the Business rules workspace), are not selected. This is to avoid accidentally overwriting locally edited rule definitions. You can choose changed items for loading to replace the current ones.

Note: It is important to remember that loading business rule definitions does not make them active in SmartSpace. When you are ready to make them active, you must publish them.

To load modules, in the Business rules workspace:

1. Click **Load** to open a dialog where you can choose the source of the module and select items to be loaded.

Load file: C:\test\personnel.ssc [Browse]

Load published rules: Version 2

Search: <Type here: search by NAME or LABELS> [Expand all] [Collapse all]

SELECT ITEMS TO LOAD	STATUS	LABELS
✓ <input type="checkbox"/> Changed items (1)	0 to be overwritten, 1 skipped	
> <input type="checkbox"/> Object names (1)	0 to be overwritten in the dataset, 1 skipped	
✓ <input checked="" type="checkbox"/> Unchanged items (7)	7 to be kept	
> <input checked="" type="checkbox"/> Types (2)	2 to be kept	
> <input checked="" type="checkbox"/> Properties (4)	4 to be kept	
> <input checked="" type="checkbox"/> Business rules (1)	1 to be kept	

☐ Compare with another set of items ☐ Discard previously loaded rule definitions [Load] [Cancel]

2. Choose the file or rules to be loaded.

- To load from an external file, select **Load file** and enter the path and filename for the saved module, or use the **Browse** button to navigate to a file
- To load current or past rule definitions, select **Load published rules** and select the current rules—labeled **active**—or a previous set from the dropdown

3. With the module source selected, all available items are displayed in the categories: **New Items**, **Changed Items**, and **Unchanged Items**. By default, unchanged and new items are selected; changed items are not selected in order to avoid writing over locally edited rule definitions.

Note: If the property contents are altered while the load screen is open, refresh the display by pressing F5 to update the view.

Select the items to load.

- Use the **Expand all** button to display available items
- Selecting a parent item selects all child items in that category
- At <Type here: search by NAME or LABELS> enter text (case sensitive) to search for items whose names or labels match your input. Click to remove the filter.

As you select items, information in the **STATUS** column indicates the result of loading those items, and the number of items currently selected for loading is shown in the **Load x item(s) from source** button.

If you already have modules loaded, choose how any conflicts will be handled during loading by:

- Selecting any changed items where otherwise they would be skipped and the current version retained
- Choosing **Cancel** to abandon the process completely

To help you identify which items to load, you can open a second source for comparison. Choose **Compare with another set of items** and choose another file or published version (as described in step 2). Items are displayed in categories: Only in source, Only in source for comparison, Identical, Different.

4. If you want to have *only* the items you select loaded *and* any definitions currently available in the Business rules workspace to be cleared away, select **Discard previously loaded rule definitions**.
5. When you have selected the items you require, click **Load x item(s) from source**.

All selected items are loaded and changes relating to non-Business rules assets, such as searches, are applied immediately. However, before any business rule definitions can become active, they must be published. See Publishing definitions.

The load operation ensures the contents of the dataset are identical to the contents of the **.ssc** file. Therefore, unsaved assets can be removed from the dataset when loading a file.

Saving Modules

Saving modules allows you to keep a copy of selected assets, including definitions currently loaded in the Business rules workspace, and other items the assets and definitions reference. You can use this functionality to create a collection of types, objects, searches, rules and so on to encapsulate specific business processes for use in other SmartSpace installations. Each module is identified by a label and by applying a label to an asset you can identify all dependencies for selection.

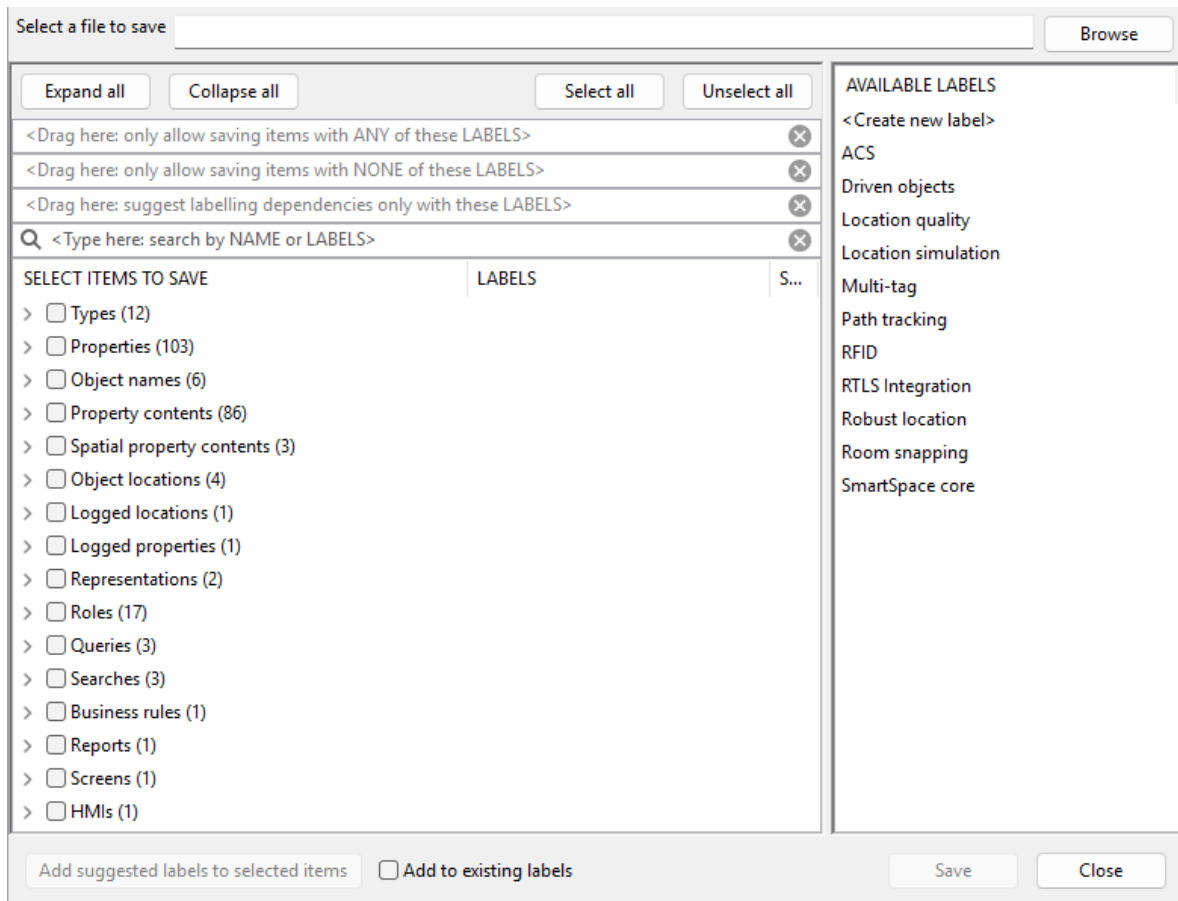
The recommended workflow for saving modules is:

1. Select a file to save the assets to
2. Create labels and apply them to assets
3. Use the **Add suggested labels to selected items** button to apply labels to selected items required by labeled assets

4. Select the items you want to save
5. Save the file

To save modules, in the Business rules workspace:


1. Click **Save** to open a dialog where you can specify the content and destination of a collection of assets:



All items available for saving are listed with any previously-applied labels shown in the **LABELS** column.

At any time you can:

- Use the **Expand all** button to display available items

- At **<Type here: search by NAME or LABELS>** enter text (case sensitive) to limit the display to items whose names or labels match your input. Click  to remove the filter.
2. At **Select a file to save** enter the path and filename for the modules, or use the **Browse** button to navigate to a location or file.
- To save your module in a format compatible with both SmartSpace Config and the **ubisense_smartspace_module_admin** command-line tool, save it with the **.ssc** extension.
- If there are only business rules and no other object types in your file, you cannot use the **.ssc** extension. Save a rules-only module with a **.rules** extension.
3. Create and apply labels.

- Create a label by double-clicking **<Create new label>**, entering the name for the label and clicking **Save**.
- Drag labels from the **AVAILABLE LABELS** list onto assets. Other items required by a labeled asset are indicated by the relevant label appearing in the **SUGGESTED LABELS** column. Items labeled as suggested are those which are necessary for the module to work and whose omission will cause a future import to fail.
- Slowly double-click an asset's current labels to open a dropdown from which you can select a single label to replace the current ones, or the blank entry to delete all labels from the asset.
- Highlight one or more assets (using Shift+click or Ctrl+click, or press Ctrl+A to select all) and labels associated with the highlighted items are listed under **LABELS ON THE SELECTED ITEMS**. If labels are attached to only some of the highlighted items, they are shown inside **[square brackets]**. Deleting a label from the **LABELS ON THE SELECTED ITEMS** list, removes it from any items with which it has been associated without deleting the label itself.

Suggested labels are automatically created for types and properties generated by the platform. You can add the suggested labels and then exclude them when saving **.ssc** files. Including autogenerated items in **.ssc** files doesn't do any harm, but it will often be easier to manage files containing fewer items.

4. While you are adding labels, you can click **Add suggested labels to selected items** if you want any dependencies within the highlighted assets to be labeled too. If no highlighted

items require labeling, the button is unavailable.

When structuring sets of definitions it can be useful to ensure that each asset gets one single label, corresponding to the activity that 'owns' the asset. If you check **Add to existing labels**, then a suggested label is always added to every asset; if you leave **Add to existing labels** unchecked, then a suggested label is only added to assets that had no labels before **Add suggested labels to selected items** was selected.

5. Select the items to be saved.
 - Drag labels to the filters at the top of the screen to limit the displayed items to those that match the criteria you define
 - Use the **Select all** and **Unselect all** buttons to select all or none of the displayed items
 - Selecting a top-level category, such as Roles or Types, selects all items in that category
 - Selecting parent assets to save means that you don't need to save the names of child assets separately

As you add to your selection, the number of items to be saved is shown in the **Save x item(s)** button.

Make sure all required items are selected to ensure successful import of the module.

6. When you have specified the destination and selected the items to be saved, click **Save x item(s)**.

Saving modules examples

Saving without labeling

Whilst the recommended method for saving makes use of labels, you can save selected assets without the use of labels. For example, to save just the business rules and no other items you:

1. Select the file to save to
2. Check **Business rules** in the list of items to save and all listed rules are selected
3. Click **Save x item(s)**

In this case, no dependencies are saved, and there would be no guarantee that the rules would function if loaded into a different SmartSpace installation.

Note: You cannot use the .ssc extension to save modules containing only rules.

Saving all items

You can save all available items by:

1. Selecting the file to save to
2. Clicking **Select All**
3. Clicking **Save x item(s)**

Saving a web form and all dependencies by using a label

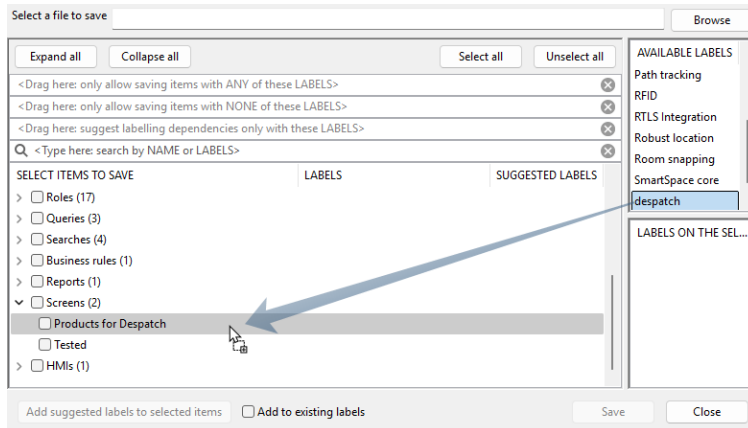
With the use of labels, as the following example shows, all dependencies can be identified and (optionally) selected to build a meaningful collection of assets into a module. Here, a form that lists products ready for dispatch to a selected country is to be saved.

The screenshot shows a web application interface. On the left is a sidebar with a 'SEARCHES' section containing a search bar and a list of tags including 'All Products' and 'Despatch'. Below this is a 'PARAMETER' section with a search bar and a list of properties. The main content area is titled 'Products for despatch' and features a dropdown menu for 'destinations' with 'UK' selected. Below the dropdown is a 'Search' button and a list of search results. The results are displayed in a table with columns 'name', 'despatch number', and 'destination'. The table shows three entries: 20000 (137, UK), 30000 (139, UK), and 30001 (123, UK). Below the table is a 'Showing 1 to 3 of 3 entries' message. At the bottom of the interface is a 'DETAIL' section with a table containing columns 'TITLE', 'FORMAT', 'REPRESENTATION', and 'FOR'. The table has three rows: 'name of <Product>', 'despatch number of <Product>', and 'destination of <Product>'.

name	despatch number	destination
20000	137	UK
30000	139	UK
30001	123	UK

DETAIL	TITLE	FORMAT	REPRESENTATION	TITLE	FOR
name of <Product>					
despatch number of <Product>					
destination of <Product>					

First a label is created and is dragged onto the name of the form:



The label is added to the **SUGGESTED LABELS** column for the following related assets:

- The search on which the form is based
- The types and properties used in the search
- The roles to which the screen and form have been assigned

Additionally, the names of the objects used in the search filter, here a list of countries for selection when the form displays, are available for saving. This is because the Country type has only a name property and inherits an enumeration type. See [Assets that can and cannot be included in a module](#)

Pressing Ctrl+A and clicking **Add suggested labels to selected items** adds the label to all the identified items. Note that nothing has as yet been selected for inclusion in the module. The most reliable way to ensure all labeled items are selected is to use one of the filters. Drag the despatch label into a filter:



The list of items now shows only those items with the corresponding label:

Expand all
Collapse all
Select all
Unselect all

despatch

<Drag here: only allow saving items with NONE of these LABELS>

<Drag here: suggest labelling dependencies only with these LABELS>

Q <Type here: search by NAME or LABELS>

SELECT ITEMS TO SAVE	LABELS
<div>Types (2)</div> <div> <input type="checkbox"/> Country </div> <div> <input type="checkbox"/> Product </div>	despatch despatch
<div>Properties (4)</div> <div> <input type="checkbox"/> despatch number of 'Product' </div> <div> <input type="checkbox"/> destination of 'Product' </div> <div> <input type="checkbox"/> id of 'Product' </div> <div> <input type="checkbox"/> name of 'Country' </div>	despatch despatch despatch despatch
<div>Property contents (1)</div> <div> <input checked="" type="checkbox"/> the contents of the name of 'Country' </div>	despatch
<div>Roles (17)</div>	
<div>Searches (1)</div>	
<div>Screens (1)</div>	

Clicking **Select all** and then **Save 19 items** adds all the required assets to the module.

Saving a module with space properties

The following example shows how a module that includes types with space properties and a containment relationship requires a little more work to ensure all dependencies are identified and included in a module.

In TYPES / OBJECTS, the Product and Workspace types each have an extent property:

TYPE	IDENTIFIED BY
GPS Zone	
LLRP Reader	
Lights	name
Location Action Zone	
Office	name
Path Group	
Path Point	
Person	name
Process	name
Product	name
Room	
Room	

PROPERTIES OF PRODUCT	TYPE	INHERITED FROM	ATTRIBUTES
<Create new property>			
has passed QA checks	Bool		
is ready for shipping	Bool		
delete pending flag	Bool	Object	assertion
description	String		
despatch number	String		
destination	Country		
extent	Space		
ignore tag locations flag	Bool	Object	
name	String		unique name
remove location pending flag	Bool	Object	assertion

TYPE	IDENTIFIED BY
Person	name
Process	name
Product	name
Room	name
Size	name
Stream	
Tag Association Point	
Vehicle	registration number
Web Location Source	
Workspace	name

PROPERTIES OF WORKSPACE	TYPE	INHERITED FROM	ATTRIBUTES
<Create new property>			
delete pending flag	Bool	Object	assertion
extent	Space		
ignore tag locations flag	Bool	Object	
name	String		unique name
remove location pending flag	Bool	Object	assertion
remove tag pending flag	Bool	Object	assertion
stale flag	Bool	Object	assertion
the shift of _ is active	Bool	Object	assertion

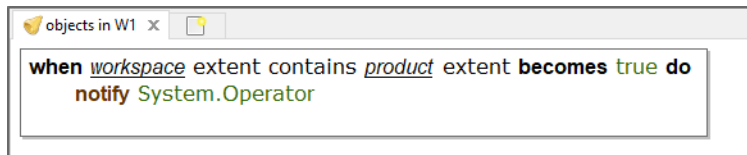
In SPATIAL PROPERTIES, specific spaces have been defined for the area of each workspace, a default space has been created for the product type, and a request to monitor their spatial relationship has been defined. (See *Spatial properties* for further information.)

A complex property is defined for the spatial relationship between the two types:

COMPLEX PROPERTY	TYPE	ATTRIBUTES
'Process' needs demotion below 'Process'	Bool	
'Tag Association Point' has candidate 'Object'	Bool	assertion
'Tag Association Point' sets tag position 'String'	Bool	
'Workspace' extent contains 'Product' extent	Bool	
current tag id of 'Tag Association Point' is 'String'	Bool	assertion
external system message of 'Tag Association Point' is 'String'	Bool	
external system status of 'Tag Association Point' is 'String'	Bool	
status of 'Tag Association Point' and tag 'String' at 'Time'	Bool	assertion

<Create new property row>	
W1 extent contains 20003 extent	true
W1 extent contains 9000 extent	true
W1 extent contains 9003 extent	true

A business rule then makes use of the complex property:



To create a module containing this rule and all dependencies, in BUSINESS RULES with the rule loaded, click **Save**. Creating a label and dragging it onto the business rule and then clicking **Add suggested labels to selected items** results in dependencies being identified. These are shown filtered by their label below:

Expand all		Collapse all	
objects + extents example			
<Drag here: only allow saving items with ANY of these LABELS>			
<Drag here: only allow saving items with NONE of these LABELS>			
Q <Type here: search by NAME>			
SELECT ITEMS TO SAVE		LABELS	
<input type="checkbox"/> Business rules (1)			
<input type="checkbox"/> objects in W1		objects + extents example	
<input type="checkbox"/> Objects (7)			
<input type="checkbox"/> Properties (8)			
<input type="checkbox"/> 'Product' has passed QA checks		objects + extents example	
<input type="checkbox"/> 'Workspace' extent contains 'Product' extent		objects + extents example	
<input type="checkbox"/> description of 'Product'		objects + extents example	
<input type="checkbox"/> despatch number of 'Product'		objects + extents example	
<input type="checkbox"/> destination of 'Product'		objects + extents example	
<input type="checkbox"/> name of 'Country'		objects + extents example	
<input type="checkbox"/> name of 'Product'		objects + extents example	
<input type="checkbox"/> name of 'Workspace'		objects + extents example	
<input type="checkbox"/> Roles (3)			
<input type="checkbox"/> Types (3)			
<input type="checkbox"/> Country		objects + extents example	
<input type="checkbox"/> Product		objects + extents example	
<input type="checkbox"/> Workspace		objects + extents example	

Missing from the items identified for saving are extent of 'Product' and extent of 'Workspace'. The easiest way to ensure these properties are also identified is to drag the label onto the autogenerated Business rule for the 'Workspace' extent contains 'Product' extent complex property (remove the filter first). Clicking **Add suggested labels to selected items** again adds the label to the two properties:

objects + extents example	
<Drag here: only allow saving items with ANY of these LABELS>	
<Drag here: only allow saving items with NONE of these LABELS>	
Q <Type here: search by NAME>	
SELECT ITEMS TO SAVE	LABELS
<input type="checkbox"/> Business rules (1)	
<input type="checkbox"/> Business rules (autogenerated) (1)	
<input type="checkbox"/> Default rule for 'Workspace' extent contains 'Product' extent	objects + extents example
<input type="checkbox"/> Objects (7)	
<input type="checkbox"/> Properties (10)	
<input type="checkbox"/> 'Product' has passed QA checks	objects + extents example
<input type="checkbox"/> 'Workspace' extent contains 'Product' extent	objects + extents example
<input type="checkbox"/> description of 'Product'	objects + extents example
<input type="checkbox"/> despatch number of 'Product'	objects + extents example
<input type="checkbox"/> destination of 'Product'	objects + extents example
<input type="checkbox"/> extent of 'Product'	objects + extents example
<input type="checkbox"/> extent of 'Workspace'	objects + extents example
<input type="checkbox"/> name of 'Country'	objects + extents example
<input type="checkbox"/> name of 'Product'	objects + extents example
<input type="checkbox"/> name of 'Workspace'	objects + extents example
<input type="checkbox"/> Roles (3)	
<input type="checkbox"/> Types (3)	

Adding the label to the autogenerated business rule and clicking **Add required labels..**

Labels the required extent properties

Selecting all the labeled items and saving them will create a module with all dependencies satisfied.

Managing Modules from the Command Line

Before using the command-line tool, **ubisense_smartspace_module_admin**, label everything in Business rules, publish the labels, then use the command-line tool to manage your .ssc files in source control.

The command-line tool allows you to:

- Save items from your dataset to .ssc files
- Diff items from your dataset against .ssc files
- Load items from .ssc files and sync with your dataset
- Remove .ssc file assets from your dataset
- Print a list of all the labels in your dataset
- Print a list of all the assets in your dataset
- Print a list of all the assets in your dataset without a label

You can download **ubisense_smartspace_module_admin** using the Ubisense Application Manager where it can be found in the **DOWNLOADABLES** task under Ubisense > SmartSpace core > Module admin tools.

For example, to load a module **packing-bay.ssc**, use the command:

```
C:\Ubisense>ubisense_smartspace_module_admin load packing-bay

ubisense_smartspace_module_admin (version 3.9 build 8545)
Copyright 2023-2024 Ubisense Limited, all rights reserved.
Please report any bugs to <support@ubisense.com>.
For more information visit <http://www.ubisense.net>.

> Dataset assets labelled 'packing-bay' = 1/281
> packing-bay.ssc assets labelled 'packing-bay' = 3/3
> Loading rule "packing bay" .. OK
> Applying changes .. OK
> Loaded 1 asset; 0 deprecated; 2 skipped
> Published rule and label definitions as version 50
```

Note: Do not include the .ssc extension of the module's filename when using **ubisense_smartspace_module_admin**.

To view the information about how to use the command-line tool, use the command:

```
ubisense_smartspace_module_admin --help
```

Other Import and Export Tools in SmartSpace

Other tools available for data import and export are:

- For Reporting, the **ubisense_ai_config** and **ubisense_report_config** tools can be used to import reports written by third parties. See Loading predefined reports.
- For HMLs, the **ubisense_hmi_config** tool enables the import and export of HMLs. See Exporting and Importing HMLs.
- For transferring LDAP and email settings, and the connection strings configured for property history, between datasets, a pair of command line tools, **ubisense_ldap_and_email_export** and **ubisense_ldap_and_email_import**, is available.
- For transferring shift patterns between datasets, a pair of command line tools, **ubisense_shift_pattern_export** and **ubisense_shift_pattern_import**, is available.
- For Paths and queues, a pair of command line tools, **ubisense_path_export** and **ubisense_path_import**, is available.

These tools can all be downloaded via the DOWNLOADABLES tab in the Ubisense Application Manager. Additional information on how to use them can be obtained by running the tool with the **--help** option.