



# High Content Profiler Integration

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## Overview

This guide outlines the basic steps that are required to integrate Columbus results files with Spotfire ready for use with High Content Profiler. This workflow provides an overview only; for further information please refer to the Columbus and High Content Profiler documentation.

### Prerequisites:

- Columbus 2.7 or later
- High Content Profiler 1.3 or later

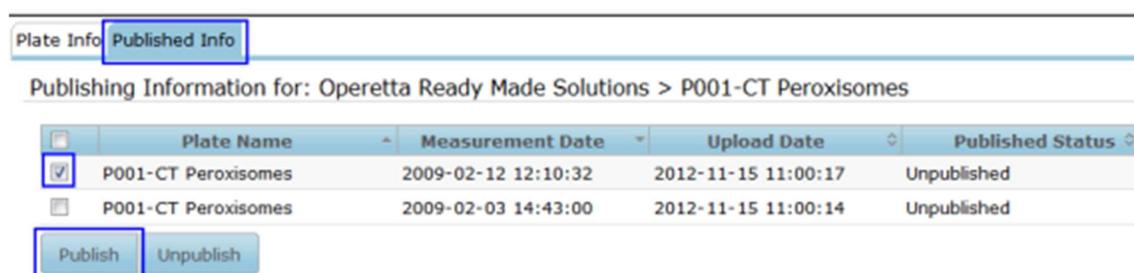
## Publishing data

In order to make the data in Columbus available to the Columbus Navigator for import into Spotfire, it must first be published. Users can publish data such as screen objects, plate objects, and measurement objects. Note that data which has been published is visible to all users who have access to Columbus via the Columbus Navigator.

### To Publish Data:

1. Select the required dataset that you want to publish from that the Columbus navigation tree. You may select a screen object, plate object, or measurement object as required.
2. Click the **Published Info** tab at the lower section in the right-pane.
3. Select the required data that you want to publish.

**Note:** You can also publish multiple data sets simultaneously. To publish multiple data sets simultaneously, select the required check-boxes from the Published Info tab.



4. Click **Publish**. An export job starts running in the background, and when the job is complete, the status changes as shown. You can also view the status of the currently running publishing job via the **Job Status** page.

Plate Info		Published Info		
Publishing Information for: Operetta Ready Made Solutions > P001-CT Peroxisomes				
<input type="checkbox"/>	Plate Name	Measurement Date	Upload Date	Published Status
<input checked="" type="checkbox"/>	P001-CT Peroxisomes	2009-02-12 12:10:32	2012-11-15 11:00:17	Published
<input type="checkbox"/>	P001-CT Peroxisomes	2009-02-03 14:43:00	2012-11-15 11:00:14	Unpublished

After the data is published successfully, the results and Assay definitions are available to the Columbus Navigator for downloading.

## Columbus Navigator

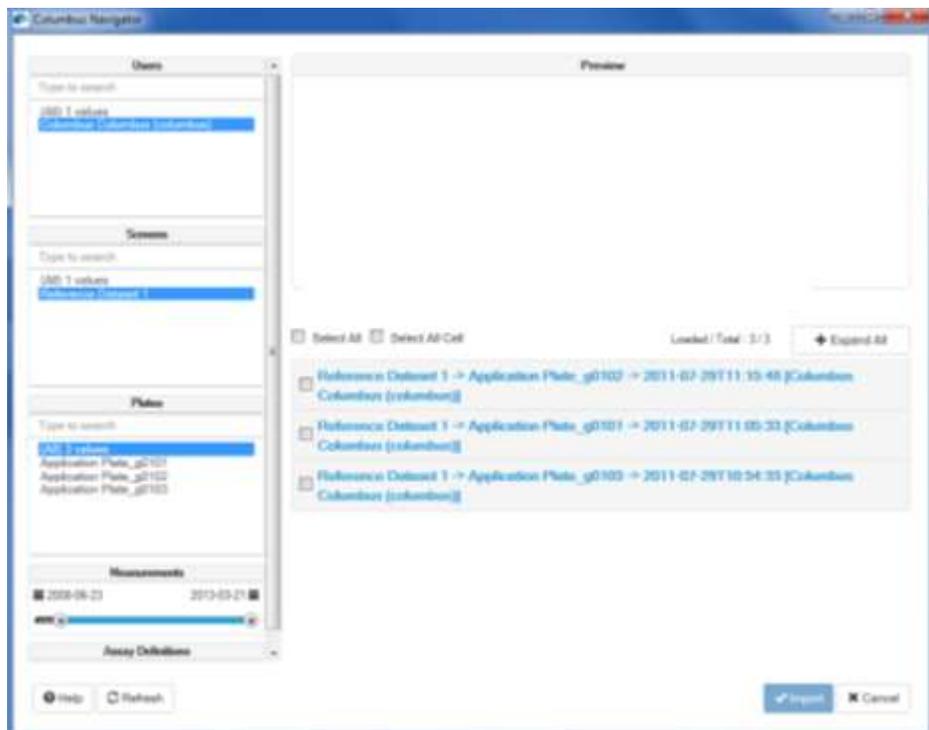
The Columbus Navigator provides a connection between Columbus and High Content Profiler. It enables users to search/filter data in Columbus, preview the measurements as well as preview the image for a selected measurement and subsequently import the specified data into High Content Profiler.

### Working with the Columbus Navigator:

1. From the TIBCO Spotfire main interface, select **File > Open From > Columbus®**.  
The **Login - Columbus Navigator** dialog is displayed.



2. Enter the correct User name and password for the specified Columbus Server.
3. Click **OK** to open the Columbus Navigator dialog similar to the example shown below.



From here, you can select assay definitions and results to import into High Content Profiler.

**Note:** The available data is limited to what has been published from within Columbus.

### Importing data into HCP:

The Import button is enabled when an assay definition, result, or cell level data is selected. After selecting **Import**, Columbus Navigator will download the assay definition, results (well level data), and cell data specified by the user from the Columbus Server. Once the downloading of data is complete, Columbus Navigator will generate the data tables in Spotfire.

The screenshot shows the Spotfire interface with two data tables. The top table is titled 'Cell Analysis Results, Completely visible cells of (RMS Texture Analysis - Mitochondria Classification@2016-06-09T09:59:48) And Assay Definitions Merged Table'. The bottom table is titled 'I Well Analysis Results And Assay Definitions Merged Table'. Both tables have multiple columns including 'ScreenName', 'ScreenID', 'PlateName', 'PlateID', 'Measurement...', 'WellName', 'Row', 'Column', 'Timepoint', 'Plane', 'Compound N...', 'Compound C...', 'Compound TL...', 'Cell type', 'Cell count', and 'Stains'. The right side of the interface shows a 'Filters' panel with various filter options like 'Assay Definitions', 'ScreenName', 'PlateID', 'MeasurementID', and 'MeasurementDate'.

## Inserting an Image column using Image Discovery

Image Discovery provides a connection to the images stored in Columbus, which enables rendering and visualization of images directly within High Content Profiler.

### To insert an image column:

- From the Tools menu of the Spotfire client, select **Image Discovery > Insert Image Column** to open the **Insert Image Column** dialog, similar to the example shown below.

**Insert Image Column**

Name:  Rules:

Images Service

Local Images Service

Remote Images Service

Configure

Rule Name: Columbus Cell Image Rule (Colored JPG)

Description: Rule supports rendering of cropped cell images in compressed, colored JPG...

Source Format: `{columbus_server}/api/1.1/images/measurement/{measurement}/well/{row}.  
{column}/field/{field}/timepoint/{timepoint}/plane/{plane}/image.jpeg?crop=  
{bounding}`

Field	Type	Value
{columbus_server}	Fixed value	<input type="text" value="http://IP Address"/>
{measurement}	Column	<input type="text" value="MeasurementID"/>
{row}	Column	<input type="text" value="Row"/>
{column}	Column	<input type="text" value="Column"/>
{field}	Column	<input type="text" value="Field"/>
{timepoint}	Column	<input type="text" value="Timepoint"/>
{plane}	Column	<input type="text" value="Plane"/>
{bounding}	Column	<input type="text" value="Bounding Box"/>

Additional Parameters:

	Parameter	Type	Value
<input checked="" type="checkbox"/>	Crop (Bounding box)	Column	<input type="text" value="Bounding Box"/>

2. Enter a Name for the new column.
3. From the **Rules** drop down list, select the rule that represents the image data being retrieved, i.e. cell level or well level data.

**Columbus Cell Image Rule** – supports rendering of cropped cell images from Columbus

**Columbus Field Image Rule** – supports rendering of field images from Columbus

4. From the **Images Service** group box, select the Images Service to use to retrieve and process images from the image source. To use the Local Images Service deployed with Spotfire, enable the Local Images Services radio button. A green checkmark will appear once the connection to the image service is verified.
5. Review the source format for the selected rule and verify that it meets the requirements needed to retrieve images for the current data column from the image source. The source format text points to the image source to be retrieved. Here you can provide each field with a fixed value, or choose a column from the current data table for each field.

In the example shown above, the Server URL for the Columbus Server is entered manually using a fixed value, the remaining fields are chosen from Columns in the current data table.

6. Click **OK** to insert the image column, as shown below.

