

High Content Profiler Integration

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.

Plate Info	Published Info			
Publish	ning Information for: Operet	a Ready Made Solutions	> P001-CT Peroxison	nes
	Plate Name *	Measurement Date *	Upload Date	Published Status
	P001-CT Peroxisomes	2009-02-12 12:10:32	2012-11-15 11:00:17	Unpublished
1	P001-CT Peroxisomes	2009-02-03 14:43:00	2012-11-15 11:00:14	Unpublished
Publi	ish Unpublish			

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 Inf	fo Published Info			
Publis	hing Information for: Ope	eretta Ready Made Solution	ns > P001-CT Peroxiso	mes
	Plate Name	 Measurement Date 	 Upload Date 	Published Status
	P001-CT Peroxisomes	2009-02-12 12:10:32	2012-11-15 11:00:17	Published
	P001-CT Peroxisomes	2009-02-03 14:43:00	2012-11-15 11:00:14	Unpublished
Pub	lish Unpublish			

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.

Jser name:	columbus	-	
Password:			
Server:	http://columbus_server		Columbus

- 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.

1740-111			
Overo 1	1	Presew	
200 Toolaat Administra Statement Statements			
Seemen Train to events (AD 1 when			
	E beert At E beert At Cet	(method/Total 3/3	+ Equal Ad
Plates	Columber (relation)	- 30103 - 2011-05 20111 15-48 P	Columbus
Tape & second	Reference Detext 1 + Application Plat Columbus (columbus))	- 30101 - 2011-01-20111 (0-31)	Columbus
Application Pain, 32102 Application Pain, 32102	Enternance Detect 1 > Application Plat Columbus (columbus)	190100 + 2011 GE 20110 SH 31 Y	Columbia
Managements			
2010-09-21 2010-09-21	1		
	1		
Aucey Defeations	*.		
		-	

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.

I Analys	is Results Co	mpletely vis	ible cells of (F	RMS Texture	Analysis - Mi	tochondria (lassification	92015-06-0	9T09:59:48) And Ass	v Definit	ions Merge	d Table					Filters	
										•	•							Type to search libers	_
enName	ScreenID	PlateName	PlateID	Measurement	MeasurementD	WellName	Row	Colu	m	Field	Plane	Timepoint	Object Number	x	Y	Boun Data	table:	Assay Definitions	
storety	2	CyloTok_3_cm	2	2009-09- 90T07:56:382	2	63	3		3	2	1	,	,	1243	45	1208 🗰 🕯	Cell Analysis Re •	ScreenID	
stocicity	2	CytoTax_3_cm.	2	2009-09-	2	C3	3		3	2	1	1	2	1112	74	Mark	ng	F 2	
				10707.56:382													darking +	ScreenName	
(totoxicity	2	CytoTax_3_cm	2	10107.56:387	2	C3	3		3	2	1	,	3	1268	73	1243		P Contractor	
totoxicity	2	CytoTox 3 cm	2	2009-09-	2	C3	3		3	2	1	1	4	1087	95			E cynasaeg	
				10707.56.382												1,000.		Fiates -	
(fotoxicity	2	CytoTax_3_cm	2	2009-09-	2	C3	3		3	2	1	1	5	227	132	199,"		P 2	
dotoxicity.	2	CutoTox 3 cm	2	2009-09-	2	C3	3		3	2	1	1	6	451	108			PlateName	
				10107-56-382												410,1		CytoTox_3_cmpds	
(fotoxicity	2	CytoTax_3_cm	2	2009-09-	2	C3	3		3	2	1	1	7	544	152	764,1		MeasurementID	
delensie ihr	2	OdoTox 3 cm	2	2009-09-	2	63	1		1	2	1	1		1043	154			₩ 2	
		4,4.1.0.0		10707.56:382												1022.		MeasurementDate	
fotoxicity	2	CytoTax_3_cm	2	2009-09-	2	C3	3		3	2	1	1	9	1245	224	1181.		P 2009-09-10T07:56	38Z
				10000														AssaydefinitionName	
All Anaba	ie Desuite Ar	d Areau Daf	initions Mercy	ad Table														E MA Contractor	
en Annay.	ila revaulta Al	a Assay Dei	microria mer ge	ed rebie														Accordeficition	
reenName	ScreentD	PlateName	PlateID	Measurement	MeasurementD	WellName	Row	Colu	no Time	trice	Plane 1	Completely vi-	Completely vi	Completely vi-	Completely vi	Come Date	Table	Assayoemationuate	
totoxicity	2	CytoTox 3 cm	2	2009-09-10707	2	C3	3		3	1	1	1625	577.09	0.64	3449.51		tates	P 2013-02-16117.194	19
riotoxicity	2	CytoTax_3_cm	2	2009-09-10107	2	C4	3		4	1	1	1594	574.72	0.65	3766.99		THE ADALYSIS FOL	WellName	
totoxicity	2	CytoTox_3_cm	2	2009-09-10707	2	C5	3		5	1	1	1269	638.26	0.64	4354.19	Mark	ng	Type to search in list	
totoxicity	2	CytoTox_3_cm	2	2009-09-10107	2	C6	3		6	1	1	1460	617.25	0.65	3663.05	_	earning +	(AD 170 million	-
fotoxicity	2	CytoTox_3_cm	2	2009-09-10107	2	C7	3		7	1	1	1225	630.62	0.64	4111.98			R10	_
fotokicity	2	CytoTax_3_cm	2	2009-09-10107	2	C8	3		8	1	1	1048	640.69	0.63	4191.98			B11	
folloxicity	2	CytoTax_3_cm	2	2009-09-10107	2	C9	3		9	1	1	742	656.79	0.70	4512.84			Autority on Assessed	
(totoxicity	2	CytoTax_3_cm	2	2009-09-10107	2	C10	3		10	1	1	747	563.98	0.68	4850.54			Decails on Demand	
totoxicity	2	CytoTax_3_cm	2	2009-09-10107	2	C11	3		11	1	1	775	515.76	0.91	7821.67				
Actionicity	2	CytoTox_3_cm	2	2009-09-10107	2	012	3		12		1	522	347.11	0.89	5509.15				
fotoxicity	2	CytoTax_3_cm	2	2009-09-10107	2	D3	4		3		1	1665	580.63	0.65	3292.09				
fotoxicity	2	CytoTox_3_cm	2	2009-09-10107	2	D4	4		4	1	1	1918	535.92	0.66	4304.62				
fotoxicity	2	CytoTox_3_cm	2	2009-09-10107	2	D5	4		5	1	1	1723	575.86	0.65	4583.98				
soloxic by	2	Cylotox_3_cm	2	2009-09-10107	2	D6				1	1	1932	533.46	0.66	4078.38				
NOROKICRY	2	CyloTok_3_cm	2	2009-09-10107	2	07			/	1	1	1419	566.51	0.66	4310.19				
Utoxicity	2	CvtoTox 3 cm	2	2009-09-10107	2	DB				1	1	1239	604.76	0.63	3507.30				
say Defin	nitions																		
ScreenID	ScreenName	PlateID	PlateName	MeasurementD	Measurement	Assaydefiniti	Assaydefiniti	WellName		Row	Column	Compound-N	Compound-C	Compound-TL	Cell type	Cell count	Stains	1	
2	Cytotoxicity	2	CytoTax_3_cm	2	2009-09-10707	RMA_ Cytotox	2013-07-16T17	83		2	3 1	FCCP (µM)	0.00		HepG2	4E3 /sells	1µM Hoechst,		
2	Cytotoxicity	2	CytoTex_3_em	2	2009-09-10707	RMA_Cytotox	2013-07-16T17	84		2	4 1	FCCP (µM)	0.01		HepG2	4E3 /wells	1µM Hoechst,		
2	Cytotoxicity	2	CytoTax_3_cm	2	2009-09-10707	RMA_ Cytotox	2013-07-16717	85		2	5 1	FOCP (µM)	0.03		HepG2	4E3 /wells	1µM Hoechst,		
2	Cytotoxicity	2	CytoTax_3_cm	2	2009-09-10707	RMA_ Cytotex	2013-07-16T17	86		2	6 1	FCCP (µM)	0.10		HepG2	4E3/wells	1µM Hoechst		
2	Cytotoxicity	2	CytoTax_3_cm	2	2009-09-10707	RMA_Cytotox	2013-07-16T17	87		2	7 1	FCCP (JAI)	0.30		HepG2	4E3 /wells	1µM Hoechst		
2	Cytotoxicity	2	CytoTax_3_em	2	2009-09-10707	RMA_ Cytotox	2013-07-16717	86		2	8 1	FCCP (JAN)	1.00		HepG2	4E3 /wells	1µM Hoechst,		
	Cytotoxicity	2	CytoTox_3_em	2	2009-09-10107	RMA_ Cytotox	2013-07-16T17	89		2	9.1	FCCP (JM)	3.00		HepG2	4E3 /wells	1µM Hoechst,		
							many and contract								March 10				
2	Cytotoxicity	2	CytoTax_3_cm	2	2009-09-10107	HMA_ Cylolox	2013-07-16117	810		6	10 1	COP (JM)	10.00		Philipholog	4E3 /wells	1µM Hoechst,		

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:

1. 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.

nsert Image Column			×
Name: Images	Rules: Columbus Co	ell Ima; 💌 Manage Rules	
Images Service			
Cocal Images Service	0		
C Remote Images Service	e Type Images Service UF	L	
Configure			
Rule Name: Columbus Ce	ell Image Rule (Colored JPG)	>
Description: Rule supports	s rendering of cropped cell in	nages in compressed, colored JPG	š
Source Format:	us_server}/api/1.1/images/m }/field/{field}/timepoint/{timep ng}	easurement/(measurement)/well/(row). point}/plane/{plane}/image.jpeg?crop=	Previ
Field	Туре	Value	
{columbus_server}	Fixed value	http://IP Address	
{measurement}	Column	MeasurementID 🔹	
{row}	Column	Row	
{column}	Column	Column	
{field}	Column	Field	
{timepoint}	Column	Timepoint 💌	
{plane}	Column	Plane 💌	
{bounding}	Column	Bounding Box	
Additional Parameters: -		1	
Parameter	Туре	Value	
Crop (Bounding bo	x) Column	Bounding Box	
Help		OK Car	icel

- 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.
- 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.

