Easy SMTA Wizard User Guide

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Background

Easy-SMTA is the Information Technology System developed in support of the users of the Multilateral System of Access and Benefit-sharing of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

<u>Blue Bicycle Technologies</u> was contracted by <u>CIMMYT</u> to create a GRIN-Global Curator wizard to support the publishing of order request data to Easy-SMTA. This document provides instructions on how to use the new functionality, as well as a brief overview of the design approach.

Installing the Wizard

The Easy-SMTA wizard follows the standard GRIN-Global Curator Tool framework for wizards. To install the wizard for a standard Curator Tool installation, the following steps are required:

- 1. Copy the "EasySMTAWizard.dll" to the Wizards sub directory of the GRIN-Global Curator Tool installation.
- 2. Through the GRIN-Global Admin tool, import the following two dataviews:
 - get_SMTA_Report

- get_SMTA_Report_Material
- 3. Add your Provider ID to the app_settings with the name of "SMTA-PID-Provider". The provider ID is provisioned by The Food and Agriculture Organization (FAO) and tied to your Easy-SMTA account.
- 4. [Optional] Run the "EasySMTAWizard_Resources.sql" script on the GRIN-Global database server to add resource text for alternative languages.

When installed correctly, the user will be able to launch the Curator Tool and see an Easy SMTA Wizard icon on the toolbar:

💓 Easy SMTA Wizard

During launch, the wizard will verify the existence of the dataviews and the provider PID. If one or more of these items do not exist, the following error dialog will be displayed:

SMTA Co	onfiguration Error	×
⊗	The Easy SMTA Wizard requires the Provider PID to be set in Application Settings, and both the get_SMTA_Report and get_SMTA_Report_Material dataviews to be defined. Please correct the issues and relaunch.	
	ОК	

Configuring the SMTA Connection

The Easy SMTA Wizard must be configured with the SMTA server address, username and password before any data can be transmitted. The username and password can be requested through the web by visiting <u>https://mls.planttreaty.org</u>.

Once credentials have been obtained, open the Easy SMTA Wizard and select the "Configure..." button in the lower left corner of the wizard form. Clicking the button will display the Configuration dialog.

SMTA Configuratio	n v1.9.6.43	Х			
Easy-SMTA is the Information Technology System developed in support of the users of the Multilateral System of Access and Benefit-sharing of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).					
An account on Easy-SMTA is required to transfer SMTA data. Accounts can be requested by registering online at:					
	https://mls.planttreaty.org/				
Server Address	https://mls.planttreaty.org/itt				
Usemame	grin-global				
Password					
	Save Cancel				

The server address will default to the production Easy-SMTA server at <u>https://mls.planttreaty.org/itt</u>. There is also a testing server located at <u>https://easy-smta-test.planttreaty.org/itt</u>. Credentials for the two systems must be requested separately.

The configuration settings are encrypted and stored locally on the client machine per user.

How to Transmit Data

The Easy SMTA Wizard functions by pulling Order Requests and Order Request Items from GRIN-Global, formatting them as SMTA documents, and transmitting those documents to the Easy SMTA server. Per the SMTA protocol, each Order Request is sent as a separate document.

Start by selecting one or more Orders in the Curator Tool and launching the wizard.

sts from: Show All	Acce	essions Inventory	Orders Cooperators	Get SMTA Report	24			
M, Administrator, ~		Order Bequest ID	Ordered Date	Web Order	Original Order	Local Number	Owner Site	Order Type
lude Sub-Folders		283	6/28/2016	75	283 - Liu, Qianhe	S2016 272206101	CIMMYT INT I	Distribution
5		284	8/15/2016	79	284 - Johnson, C		CIMMYT INT I	Distribution
Tab 1 Root Folder		285	8/15/2016	80	285 - Shock, Myr		CIMMYT INT I	Distribution
		286	8/24/2016		283 - Liu, Qianhe		CIMMYT INT I	Phytosanitary Te
		287	8/26/2016		287 - Li, Huihui, I		CIMMYT INT I	Distribution
		288	8/26/2016		288 - Coffey, Lisa		CIMMYT INT I	Distribution
		289	8/31/2016		289 - Presterl, Th	S2016_255521776	CIMMYT INT I	Distribution
		290	9/1/2016		290 - Guerrero C	S2016_272320626	CIMMYT INT I	Distribution
		291	9/6/2016		287 - Li, Huihui, I		CIMMYT INT I	Phytosanitary Te
		292	9/2/2016	81	292 - Sawers, Ru		CIMMYT INT I	Distribution
		293	9/12/2016		293 - Gonzalez,	S2016_274781391	CIMMYT INT I	Distribution
		294	9/13/2016		294 - Orozco Cas	S2016_274719848	CIMMYT INT I	Distribution
		295	9/13/2016		295 - Tuinstra, Mi	S2016_274357151	CIMMYT INT I	Distribution
		296	9/12/2016		293 - Gonzalez,		CIMMYT INT I	Distribution
		297	9/14/2016		297 - Iñiguez Lup	S2016_275189938	CIMMYT INT I	Distribution
		298	9/6/2016		291 - Li, Huihui, I		CIMMYT INT I	Phytosanitary Te
		299	9/12/2016	82	299 - SANCHEZ		CIMMYT INT I	Distribution
		300	9/26/2016		300 - Ceballos R		CIMMYT INT I	Distribution
	<	201	0/20/2016		201 Martinea M	COUIC 31253003	CIMMVTINT I	Distribution
		◀ 1 of 2 a Editing	243 🕨 🕅 🕂 🔿	<				Refresh Dat

When the Easy SMTA Wizard is launched, the selected orders will be displayed in the pending transfer table:

ID	Date	Symbol	Recipient	Status	Status Details
182	2017-03-08	WW-110	Raizada Manish		
83	2017-03-08	WO-383	Badr Mostafa		Status is displayed after a row has
84	2017-03-08	WO-384	Castro Garcia Humberto		been uploaded.
85	2017-03-08	WW-111	Tang Dengguo		
86	2017-03-08	WO-386	DIN SOFI MEHRAJ UD		
87	2017-03-08	WO-387	Lara Zazueta Francisco		
88	2017-03-08	WO-388	Salinas Jessica		
89	2017-03-08	WO-389	Pimienta Ron Agustin		
90	2017-03-08	WW-112	Pimienta Ron Agustin		

Simply select the "Upload" button to start transmitting SMTA records.

Note: If the "Upload" button is disabled, the Easy SMTA Wizard has not been configured with a server, username and password. Click the "Configure..." button to resolve.

During the transfer, the wizard dialog updates with the status of the operation. The status column within the table indicates whether each order request is successful, and the footer displays the progress and number of errors.

ID	Date	Symbol	Recipient	Status	Status Details
382	2017-03-08	WW-110	Raizada Manish	Upload completed with no errors.	
383	2017-03-08	WO-383	Badr Mostafa	Upload completed with no errors.	Select a row for status information.
384	2017-03-08	WO-384	Castro Garcia Humberto		
385	2017-03-08	WW-111	Tang Dengguo		
386	2017-03-08	WO-386	DIN SOFI MEHRAJ UD		
387	2017-03-08	WO-387	Lara Zazueta Francisco		
388	2017-03-08	WO-388	Salinas Jessica		
389	2017-03-08	WO-389	Pimienta Ron Agustin		
390	2017-03-08	WW-112	Pimienta Ron Agustin		

Once the transfer is complete, a message box will appear to display the results.



Selecting a row within the table will display any errors returned by the Easy-SMTA server in the "Status Details" portion of the dialog.

Order Request	Date	Symbol	Recipient	Status	Status Details
382	2017-03-08	WW-110	Raizada Manish	Error in the uploading process. 1 err	
383	2017-03-08	WO-383	Badr Mostafa	Error in the uploading process. 1 err	Error in the uploading process. 1
384	2017-03-08	WO-384	Castro Garcia Humberto	Error in the uploading process. 1 err	error(s).
385	2017-03-08	WW-111	Tang Dengguo	Error in the uploading process. 1 err	Symbol "WO-386" already exist
386	2017-03-08	WO-386	DIN SOFI MEHRAJ UD	Error in the uploading process. 1 err	for Provider PID "00AO82"
387	2017-03-08	WO-387	Lara Zazueta Francisco	Error in the uploading process. 1 err	
388	2017-03-08	WO-388	Salinas Jessica	Error in the uploading process. 1 err	
389	2017-03-08	WO-389	Pimienta Ron Agustin	Error in the uploading process. 1 err	
390	2017-03-08	WW-112	Pimienta Ron Agustin	Error in the uploading process. 1 err	

Document Attachments

The SMTA protocol supports attaching a PDF to the SMTA request. If an attachment exists on the order request of the category "SMTA" and the attachment is a PDF, the document will be sent to the Easy-SMTA server.

Implementation Approach

As noted above, the implementation follows the standard Curator Tool wizard framework.

The core classes in the implementation are as follows:

Class	Purpose
EasySMTAWizard.cs	Main dialog of the Easy-SMTA Wizard, which is responsible for orchestrating the transfer. The class populates an SMTARequest object from the order request data from the dataview. The SMTARequest object is transferred to the server through the SMTAController class.
SMTAController.cs	The SMTAController class is a shared object through the wizard which maintains state and performs the serialization and transfer of SMTARequests to the SMTA server. Responses are deserialized to SMTAResponses and returned to the caller.

	For large orders with 100 or more order items, the SMTAController compresses the data using gzip prior to sending.
SMTARequest.cs SMTAProvider.cs SMTAMaterial.cs SMTADocument.cs	Classes which mirror the structure of the SMTA request object. Once populated, the request is serialized to XMLS and sent.
SMTAResponse.cs SMTAError.cs	Classes which mirror the structure of the SMTA response object. When a response is received, it is deserialized to an SMTAResponse.
SMTAException.cs	There are error cases when an SMTAResponse is never received from the server. For example, if the user credentials are incorrect. In these cases, an SMTAException is thrown with details on the issue.
EasySMTAConfigForm.cs	Configuration dialog for the SMTA Wizard
Configuration.cs	Responsible for managing the SMTA configuration by reading and decrypting from storage, as well as encrypting and storing.

Serializing / Deserializing SMTA Data

The SMTA protocol is based on XML documents transported of HTTPS. The wizard implementation accommodated the XML format by relying on the .Net System.Xml.Serialization library.

A set of .Net classes have been created (stored in the Model folder of the solution) which mimic the hierarchy of the SMTA request and response data. To send an SMTA request, a SMTARequest object is created, populated with GRIN-Global data, serialized to XML and transported over HTTPS. The response is deserialized into an SMTAResponse object.

Should the SMTA XML object be extended in the future, a developer could modify the Easy SMTA Wizard to add the new elements by taking a few simple steps. For example, if the SMTA request were to include a "specialNote" element one would:

- 1. Add a new "SpecialNote" string property to the SMTARequest class.
- 2. Add an XMLElement attribute to the new property which matches the XML element name (and casing)

```
[XmlElement("specialNote")]
public string SpecialNote { get; set; }
```

3. Modify the CreateSMTADocument method of the EasySMTAWizard class to map the correct order request data element to the new property.

```
request.SpecialNote = orderRow["note"].ToString();
```

With three lines of code, the new element is included in the SMTA data transfer.

Securely Storing Credentials

SMTA credentials are per individual user, so the implementation was designed to ensure that the credentials are stored securely. It handles the case where each user logs into GRIN-Global from a unique Windows account, or when they login with their individual logins from a shared Windows account.

Credentials are stored in a text file located in the Window user's application data folder. Specifically, it is stored at C:\Users\<*username*>\AppData\Roaming\GRIN-Global\Curator Tool. A file is created for each curator username. For example, if a user with username *joeblow* configures a SMTA connection, a file names *smta_joeblow.txt* will be created containing client id, client secret, and tokens.

Only users who login into the machine with the same Windows user account will be able to access the file. In the case multiple users access the Curator Tool from a single Windows account, the contents of the file are further encrypted using the Windows Data Protection API.

If at any time the credentials file is deleted or corrupted, the next time the user attempts to upload data, the configuration wizard will run automatically.

Outstanding Items

With the implementation in place, the Curator Tool installation must be modified to

1. Ensure the .Net 4.5.2 library is installed on the target machine.

SMTA-Report mapping to GRIN-Global

	SMTA-Report	GRII	N-Global fields	Comments
Pos	Column	Table	Field	
		Order_request_action	order_request_id	
		Order_request_action	Completed_date	
1	Symbol	Order_request_action	order_request_id	
2	Date	Order_request_action	Completed_date	
3	Туре		"cw", "sw" or "si"	Order_request.web_order_request_id
4	Language	Sys_lang	lso_639_3_tag	
5	Provider type		'"or" / "in"	App_setting.name like 'SMTA-PID-Provider'. If cooperator.last_name is null then 'or' else 'in' end.*
6	Provider PID	App_settings	Value	App_setting.name like 'SMTA-PID-Provider'.*
7	Provider name	Cooperator	Last_name + First_name	App_setting.name like 'SMTA-PID-Provider'.*
8	Provider address	Cooperator	address_line1 + address_line2 + address_line3	App_setting.name like 'SMTA-Provider- Cooperador-id'.*
9	Provider country	Cooperator	geography_id	App_setting.name like 'SMTA-Provider- Cooperador-id'.*
10	Provider email	Cooperator		App_setting.name like 'SMTA-Provider- Cooperador-id'.*
11	Recipient type		"or" / "in"	Order_request.final_recipient_cooperator_id. If cooperator.last_name is null then 'or' else 'in' end.*
12	Recipient PID			For CIMMYT always is blank
13	Recipient name	Cooperator		Order_request.final_recipient_cooperator_id
14	Recipient address	Cooperator		Order_request.final_recipient_cooperator_id
15	Recipient country	Cooperator		Order_request.final_recipient_cooperator_id
16	Shipment name	Cooperator		Order_request.final_recipient_cooperator_id
17	Document location			For CIMMYT always is blank
18	Retrieval information	App_settings		App_setting.name like 'SMTA-retInfo.*
19	Filename	Order_request_attach		

*See EasySMTAWizard_Resources.sql file.

Appendix A. Document Revision Notes.

- Jul 24, 2018
 - Added SMTA-Report mapping to GRIN-Global section.