

Sterling Integrator[®]

OdetteFTP Protocol Overview

Version 5.1

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Odette FTP Protocol (OFTP) Overview

The Odette File Transfer Protocol is a packet-oriented file transfer protocol (RFC 5024) facilitating electronic data interchange of business data between trading partners.

Originally defined by the non-profit organization Odette (Organization for Data Exchange by Tele Transmission in Europe) for the automotive industry sector, it is used across a wide spectrum of industry sectors like banking, retail, manufacturing, and transport to list a few.

The protocol supports both direct peer to peer communication and indirect communication using a Value Added Network and may be used with TCP/IP, ISDN, and X.25 based networks

Note: X.25 is not supported in this product.

Features of the Odette FTP Adapter include:

- ◆ Support of OFTP Version 2.0. For additional information, see *Using the Odette FTP Implementation* on page 1.
- ◆ Improving support of clustered environments because the OFTP Partner Profile resides in the Sterling Integrator Database.
- ◆ The ability to list, search, create, and edit OFTP Partner Profile elements in the Sterling Integrator user interface.
- ◆ The ability to list, export, or modify (insert or delete) one or many Odette FTP Partner Profile elements through the *OFTPPartnerManager* command line tool which uses Partner Profile XML file as an import or export format.

Using the Odette FTP Implementation

The Odette FTP system uses many components. It includes the:

- ◆ Odette FTP Partner Profile Database
- ◆ Odette FTP Message Queue
- ◆ Odette FTP Adapter
- ◆ Odette FTP Queue Handler Service
- ◆ Sterling Integrator Scheduler / Odette FTP Scheduler Service

Odette FTP Partner Profile

The Odette FTP Partner Profile represents the data model describing the communication relationship between a local and remote OFTP partner (peer-to-peer) or one-to-many relationships between partners (VAN scenarios). There are OFTP Partner Profile elements on the physical and logical level: While Physical Partners and Physical Partner Contracts define the communication link parameters for TCP/IP or ISDN, Logical Partners and Logical Partner Contracts represent companies or organizations together with their departments or sub-organizations which can be used on OFTP File level (SFID) for routing purposes.

Note: Configuring the Odette FTP Partner Profile should always be the first step of each OFTP implementation.

Odette FTP Message Queue

The Odette FTP Message Queue is the central repository in the database for inbound and outbound files and OFTP receipts EERP and NERP. Each entry in the Odette FTP Message Queue has a “Status” which indicates the processing step of the file or receipt, for example, “SCHEDULED” means that the file or receipt has to be sent to a remote partner.

Note: It is recommended that you create new entries in the Odette FTP Message Queue with the Odette FTP Queue Handler so that “queuing” files and initiating an OFTP Session are independent processes. Alternatively – in Manual Mode - you can create entries in the Odette FTP Message Queue directly with the Odette FTP Adapter and initiate an OFTP Session in one BusinessProcess step.

Odette FTP Adapter

The Odette FTP Adapter is used to initiate OFTP sessions, for example, to send files to remote partners, accept inbound OFTP sessions, receive files from OFTP Partners, or to be polled for files. The Odette FTP Adapter implements the OFTP State Machines and Communication State Machines for CAPI/ISDN and TCP/IP. Each instance of an Odette FTP Adapter handles either ISDN or TCP/IP communication. You can create and use multiple adapter instances for each communication type. If a Physical Partner Contract name is passed to the adapter then all files or receipts in the Odette FTP Message Queue for this Physical Partner Contract with status “SCHEDULED” are searched, an OFTP session is initiated and the related messages are sent to the remote partner. Alternatively, a set of documents can be passed directly to the adapter which allows synchronous queuing and sending. If the Odette FTP Adapter accepts an inbound call, then all received files or receipts are persisted in the Odette FTP Message Queue and (optionally) in a Partner Mailbox.

Note: Before using the Odette FTP Adapter, the Odette FTP Partner Profile must be present, by entering the appropriate OFTP Partner data within in the Sterling Integrator user interface. For additional information, see *Odette FTP Partner Profile*. You can also import using the OFTPPartnerManager.

Odette FTP Queue Handler

The Odette FTP Queue Handler is used to create new entries in the OFTP Message Queue for queuing files, EERPs, or NERPs. A file can be queued by passing a Primary Document or a reference to a Mailbox Message together with additional parameters to the service. If a Primary Document is passed in Mailbox Mode (optional) then a Mailbox Message is also created. Optionally, in OFTP 2.0 a file can be compressed, encrypted, and signed in a CMS package before it is persisted into the Odette FTP Message Queue. Vice versa, when used in DECIPHER Mode, a CMS enveloped file in the Odette FTP Message Queue can be decrypted and written into the process data for further processing (same applies for compressed and/or signed files).

Sterling Integrator Scheduler / Odette FTP Scheduler Service

The Sterling Integrator Scheduler together with the Odette FTP Scheduler Adapter is used to invoke the Odette FTP Adapter for sending files or receipts previously queued in the Odette FTP Message Queue. The Sterling Integrator Scheduler invokes the Odette FTP Scheduler Adapter in business process with a set of Physical Partner Contract names and/or Physical Partner Contract Group names. Then the Odette FTP Scheduler Adapter optionally checks whether there are messages to send for each of the Physical Partner Contracts. If “yes” then the “Initiator Business Process” configured in the Physical Partner Contract is started which invokes the Odette FTP Adapter for this Physical Partner Contract.

OFTP Version 2.0

In Version 2.0, the protocol additionally supports secure and authenticated communication over the Internet using Transport Layer Security, provides file encryption, signing and compression using Cryptographic Message Syntax and provides signed receipts for the acknowledgement of received files.

Note: With ISDN only, secure authentication and file level encryption are supported.

Additional features in OFTP Version 2.0:

- ◆ Session level encryption
- ◆ File level encryption
- ◆ Secure authentication (for additional information, see *Odette FTP Security* on page 16)
- ◆ File compression
- ◆ Signed EERP
- ◆ Signed NERP
- ◆ Maximum permitted file size increased to 9PB (petabytes)
- ◆ Virtual file description added
- ◆ Extended error codes

How an Odette FTP Session Works

The following steps describes the steps of an successful OFTP Session between Partner A (Initiator) and Partner B (Responder):

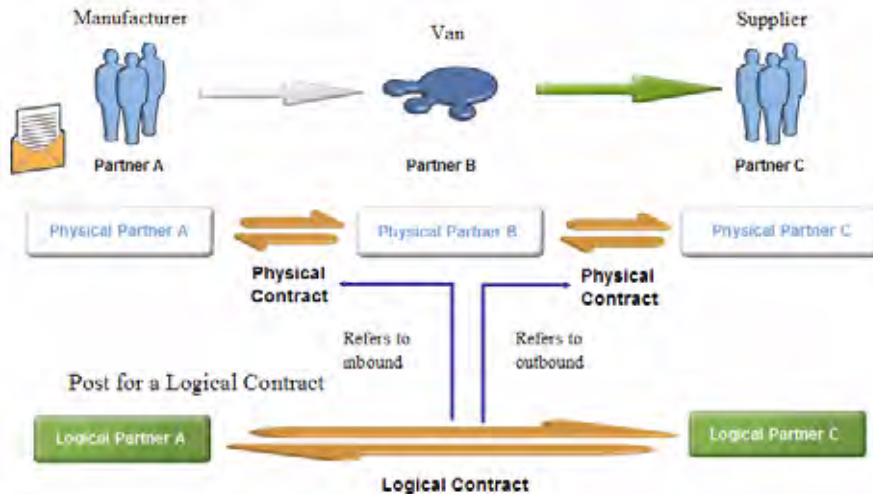
1. Partner A calls a Remote Partner B (ISDN over telephone line or IP connection).
2. Partner B responds with an SSRM command indicating that he is ready to start using the OFTP protocol.
3. Partner A sends a “Start Session” command (SSID) which describes his identity (OFTP User and Password, Exchange Data Buffer proposal, Secure Authentication Y/N, ...).
4. Partner B responds with his SSID (his OFTP User name and Password).

5. If “Secure Authentication” is requested in the SSID, then the Secure Authentication protocol sequence is started to exchange the Authentication Challenge (AUTH) and the Authentication Response (AURP) between the local and remote partner.
6. Partner A sends an “Start File” command (SFID) indicating that they have a file to send. A SFID contains information about Originator and Destination, OFTP Virtual File Name, File Format and options for File Compression, File Encryption and Signed EERP among others. An organization may have more than one originator and destination Logical Partner for each department.
7. Partner B responds with an “Send file positive answer” command (SFPA) indicating that they are willing to accept that file. Note: If B would like to reject the file it would send a negative answer (SFNA)
8. Partner A starts to send data in the DATA command with the negotiated “Exchange Buffer Size”.
9. After 7 data blocks (Default Credit Window Size), Partner B sends back a CDT command which indicates that Partner B is still listening).
10. At the end of the file, Partner A sends an EFID to indicate that the end of the file is reached.
11. Partner B then sends back an “End of File Positive Answer (EFPA) indicating that the file was successfully received.
12. Partner A has no more files to send. With a Change Direction command (CD) it allows Partner B to send his files. Partner A and B are exchanging their roles: now B is Speaker and A is Listener. If Partner B has some files to send the process starts.
13. The process then starts again with sending DATA commands from Partner B.
14. At the end of the file, they change direction again with a CD command.
15. Partner A acknowledges the file by sending an “End-to-End Response” (EERP).
16. Partner B acknowledges the receipt of the EERP by sending the RTR.
17. Partner A has nothing more to send and passes control to Partner B.
18. Partner B also has nothing to send and sends an “End of Session” command (ESID)
19. Partner A receives the ESID and hangs up the line.

Store-and-Forward Scenario

The following diagram describes a sample configuration between two communication partners and one clearing hub.

OFTP VAN Routing Example



Odette FTP and Mailboxes

The Odette FTP system provides an interface to the Sterling Integrator Mailbox system. Using the Mailbox system is optional.

The following description of the Mailbox Mode assumes an OFTP communication scenario between OFTP Partner A and B.

Prerequisites:

1. Before using the Mailbox Mode, create Mailbox User A (Sterling Integrator Users) for you - the Local Partner A - and User B for your Remote Partner B.
2. Create a Partner Mailbox for you (Mailbox A).
3. Within Mailbox, create a submailbox with name "Inbox". All messages sent from Partner A will be placed into the "Inbox" of Mailbox A.
4. Create a Partner Mailbox for your Remote Partner B (Mailbox B). As default behaviour all messages received from Partner B will be placed in the root (/) of Partner Mailbox B. Optionally, you may create submailboxes in the Mailbox B of your Remote Partner. The names of the submailboxes have to be configured in the Remote Physical Partner Profile. If submailboxes are used, inbound messages are placed directly into the submailboxes instead of root "/". This option has advantages if you want to receive messages from different remote partners because the messages are placed into separate submailboxes for each remote partner which allows you to define automated Mailbox Rules for each submailbox, for example, to further automate message routing.

5. Create Mailbox Virtual Roots to associate each Mailbox User with its Mailbox Virtual Root Path, for example, User "A" is associated with the Mailbox Virtual Root "/A". Same for B.
6. To switch on Mailbox Mode, select a Mailbox User "A" in the Local OFTP Physical Partner Profile and Mailbox User "B" in the Remote Physical Partner Profile B.

Using Mailbox Mode

Outbound Direction (Partner A initiates the OFTP Session)

There are two scenarios for outbound direction:

- ◆ For sending files from Partner A to Remote Partner B, a new entry has to be created in the Odette FTP Message Queue first.

In Mailbox Mode, the Odette FTP Queue Manager Service creates a copy of the outbound message in the Inbox of Partner Mailbox A and an entry in Odette FTP Message Queue (which refers to the Mailbox message ID and contains a reference to the document ID). If Partner A initiates an OFTP session all messages for a given Physical Partner Contract with status "SCHEDULED" are sent to Partner B. Messages received from Partner B in the same OFTP session are placed into the root of Partner Mailbox B (optionally: in submailboxes of B).

- ◆ If Partner A wants to poll B's OFTP system for messages and Partner A does not have files to send then A sends an OFTP Change Direction command to B immediately. Then Partner B sends all messages previously scheduled for Partner A in the Inbox of Mailbox A on the remote system back to Partner A within the same OFTP session.

Inbound Direction (Partner B initiates the OFTP session)

There are two cases for inbound direction:

1. If Partner A accepts an inbound connection from Remote Partner B and B sends messages to A then these messages are placed in the root of Partner Mailbox B (optionally: in submailboxes of B) together with an entry in the Odette FTP Message Queue which refers to the Mailbox Message ID and Document ID.
2. Partner B wants to poll A's OFTP system for messages)

If Partner A accepts an inbound connection from Remote Partner B and Partner B does not have files to send then B sends an OFTP Change Direction command to A immediately. Then Partner A sends all messages previously scheduled for Partner B in the Inbox of Mailbox A in the local system back to Partner B within the same OFTP session.

Odette FTP Business Scenario (Including Security Features)

The following description assumes that you are familiar with the standard protocol flow of OFTP version 1.4.

Intention: Partner A (Originator) wants to send a file to Partner B (Destination) using IP communication with security features of OFTP 2.0.

Assuming Physical Partner A is a Manufacturer who wants to order material from his Supplier (Physical Partner B). The procurement department at the Manufacturer is Logical Partner A and the Sales Department of Supplier is Logical Partner B. There is a Logical Partner Contract between the Procurement and Sales department. This Logical Partner Contract has a reference to the Physical Partner Contract between both companies which defines the communication layer.

Precondition: User has configured the OFTP Partner Profile:

- ◆ Logical Partner (LP_A, LP_B)
- ◆ Logical Partner contract (LPC, referring to LP_A and LP_B and Physical Partner Contract PPC)
- ◆ Physical Partner (PP_A and PP_B, both communication type IP)
- ◆ Physical Partner Contract (PPC, between PP_A and PP_B)
- ◆ Odette FTP Adapter Instance "OFTP_IP" configured
- ◆ Communication Mode "Secure IP"

Description

Originator (A):

1. The user starts a business process calling the OFTP Queue Handler Service and passes:
 - ◆ The Logical Partner Contract LPC.
 - ◆ OFTP Virtual Filename (optional).
 - ◆ Primary Document (the file to send).
2. The OFTP Queue Handler:
 - ◆ Prepares the file for sending.
 - ◆ Signs, compresses and encrypts the file.
 - ◆ Calculates the file size after encryption (required for SFID).
 - ◆ Generates Digest (Hash) from the file's transport stream. The digest is stored in database table OFTP_OBJECT_EXT).
 - ◆ Persists OFTP Version 2.0 parameters in OFTP Message Queue (table OFTP_OBJECT(_EXT)).
3. The OFTP scheduler starts a business process that calls the Odette FTP Adapter instance "OFTP_IP" and passes the name of the Physical Partner Contract "PPC" that should be used for sending the file .
4. The Odette FTP Adapter:
 - ◆ Establishes an OFTP Session to Partner B.
 - ◆ Sends a SSID command to Partner B which requests Secure Authentication (SSIDAUTH=Y, optional, see "Secure Authentication").
 - ◆ Sends a SFID command containing a reference to the file, the file size, the original file size, a virtual file description, security level, Cipher Suite Selection, File compression algorithm, File enveloping format and a request for signed EERP and NERP (SFIDSIGN=Y).

Destination (B):

1. While the file is received by Destination A the Digest is calculated from the byte stream.

2. If the file was transferred successfully:
 - ◆ The document containing the file is persisted to the database
 - ◆ If requested, (here: yes) an EERP is created together with the Digest calculated in step 1. The EERP is signed from B (for non-repudiation purpose)
 - ◆ The EERP is created in OFTP Message Queue (table OFTP_OBJECT)
3. B sends a "Change Direction" command (CD) to the Originator A to indicate that it now intends to send data back from B to A
4. B sends the EERP prepared in OFTP Message Queue (table OFTP_OBJECT)

Originator (A):

1. Partner A receives the EERP from Partner B
2. "A" checks whether the signature of the EERP is valid. If valid, "A" checks whether:
 - ◆ The set of EERP-fields which were signed within the EERP are valid.
 - ◆ The fields in the Signature are identical with the fields of the EERP.

If all fields are identical:

- ◆ "A" checks whether the Digest in the EERP is identical with the Digest stored in the OFTP_OBJECT_EXT.
- ◆ And the Digest matches, the file transmission ends with Status "success" otherwise an error status is written to the entry in the OFT_OBJECT table

Odette FTP Queue Handler

Before a message can be sent with the Odette FTP Adapter, it has to be queued into the Odette FTP Message Queue by the Odette FTP Queue Handler. Optionally, the Odette FTP Queue Handler performs offline file level services for inbound and outbound file processing. Offline file level services include file compression/decompression, file encryption/decryption, and file signing/signature validation as specified in OFTP Version 2.0.

Offline Outbound Processing

Mode "QUEUE" is used to queue ("schedule") a File, EERP or NERP in the Odette FTP Message Queue for sending or getting polled from a remote partner. Optionally, in OFTP 2.0 and higher, a FILE can be compressed, encrypted and signed by the Odette FTP Queue Handler before it is put into the Odette FTP Message Queue. The optional sequence of steps is as follows:

1. Insert record length indicators (V-Format files only). To preserve record structure, V format file must have record headers inserted into them prior to signing, compression or encryption (2bytes, network byte order).
2. Sign files

3. Compress files
4. Encrypt files

After having queued one or more files in the Odette FTP Message Queue the Sterling Integrator Scheduler is used to initiate OFTP sessions with the Odette FTP Adapter.

Offline Inbound Processing

In mode "DECIPHER" following steps are performed of for a received file that has been persisted to the Odette FTP Message Queue:

1. Offline file level decryption
2. Offline file decompression
3. Offline signature validation

All actions have to be performed according to file enveloping format (SFIDENV).

Encryption and Decryption is performed outside an OFTP session for performance reasons.

Queing OFTP Messages

Sending OFTP messages in the OFTP Message Queue in Sterling Integrator can be performed asynchronously from a time schedule based sending process. This is the recommended approach though synchronous queuing and sending is possible (see *Odette FTP Adapter, Manual Mode* for additional information),

The Odette FTP Queue Handler is used for two different purposes:

- ◆ Mode "QUEUE": Queue/schedule a message in the Odette FTP Message Queue for sending or getting polled from a remote partner (this is the default mode)
- ◆ Mode "DECIPHER": Perform Offline File Level Decryption, Decompression and Signature verification/de-enveloping for inbound files as specified in OFTP Version 2.0

Odette FTP Scheduler and Sterling Integrator Scheduler

Upgrading Information

Because the Sterling Integrator Scheduler is now used for scheduling the Odette FTP adapter (instead of using the Odette FTP Scheduling adapter for versions 4.3 and below), it is no longer required to define Time Schedules as part of the Physical Partner Contract Profile. Schedule related PPC fields *Initiator Business Process* and *Business Process User* still exist and have the same meaning.

All used schedules have to be defined in the Sterling Integrator Scheduler (schedule type: business process). The Sterling Integrator Scheduler business process (see template *oftpcheckformessages*) invokes the Odette FTP Scheduler service and passes parameters to it, which specify what Physical Partner Contract (or PPC Group) messages should be sent or polled.

Overview

Scheduling OFTP messages in the OFTP Message Queue can be performed asynchronously from a time schedule based sending process. This is the recommended approach though synchronous queuing and sending is possible (see *Odette FTP Adapter, Manual Mode* for additional information).

The Sterling Integrator Scheduler along with the Odette FTP Scheduler service is used to define when the Odette FTP Adapter should initiate an OFTP Session for either sending previously scheduled messages to a Remote Partner or poll the Remote Partner OFTP system for messages that have been scheduled for the local Partner (or should be forwarded by the local partner).

Setting Up Time Schedules for Initiating OFTP Sessions

For the general usage of the Sterling Integrator Scheduler see *Creating and Managing Schedules*. For OFTP, please keep the following in mind when using Sterling Integration for OFTP sessions:

1. Create a business process that invokes the Odette FTP Adapter and passes all process data parameter to the adapter. (Only the *PhysicalPartnerContract* parameter is used)
2. Type the name of the business process in the OFTP Physical Partner Contract field **Initiator Business Process** and type a Sterling Integrator user name in field **Business Process User**. Optionally, you may enter one or more comma separated Physical Partner Contract Group names in the **Group Name List** if you want to initiate OFTP sessions for a group of Physical Partner Contracts at the same point of time.
3. Create a Time Schedule. From the Administrator menu, select Deployment > Schedules > Schedule a business process. For initiating an OFTP Session to Remote Partner B every hour (using Physical Partner Contract A_B_Init) and additionally to initiate an OFTP session for PPC Group "PPC_PARTNER_GROUP". In **Associate BPs to Documents Service: Select BP and optional name/value pair**, type the name of the business process to start (see template "oftpcheckformessages") and define following supported Name-Value-Pairs:

Name	Value
OFTPPPCName	The name of the Physical Partner Contract for which you want to initiate an OFTP session
OFTPPPCGroup	The name of the Physical Partner Contract Group for which you want to initiate OFTP sessions.
OFTPAcctionType (Used for all PPCs and PPC Groups specified)	<ul style="list-style-type: none"> ◆ Conditional: If messages exist for the PPC or PPC group, initiate OFTP Session. ◆ Unconditional: Always initiate OFTP Sessions, even if there are no messages to send. This is used to poll the Remote Partner for messages.

Requirements for Setting Up Time Schedules for OFTP Sessions

- ◆ There must be at least one OFTPPPCName or OFTPPPCGroup Name-Value-Pair.
- ◆ Both OFTPPPCName and OFTPPPCGroup Name-Value-Pairs can be repeated.
- ◆ OFTPActionType is optional. It may be defined exactly once or not at all.

Note: After successfully testing the scenario you can set the persistence level of business process "oftpcheckformessages" to PERSIST_ON_ERROR to avoid persisting BP data if no OFTP session has to be started because no messages have to be sent. This helps to save system resources if the business process is often called.

Odette FTP Message Queue

The Odette FTP Message Queue represents the central repository in the Application database for all inbound and outbound OFTP messages and receipts. Each entry in the queue has a status which indicates the current status of the processing step.

Outbound

To send a message with the Odette FTP Adapter to a remote partner you have to schedule the message in the Odette FTP Message Queue. The Odette FTP Queue Service can be used to create a new entry for a virtual file or EERP/NERP with initial status "SCHEDULED".

Inbound

For each inbound message or receipt the Odette FTP Adapter creates a new entry with initial status "RECEIVING".

During processing the Odette FTP Adapter updates the status of each entry in the queue according to the current processing status. All entries in the Queue reach a final state which indicates successful or failed processing. Entries that have reached final states, may be purged by the Odette FTP Scheduler service after a configurable time interval.

The following table contains an extract of the most important fields in the Odette FTP Message Queue (database table OFTP_OBJECT):

Field	Description	Possible Values
TYPE	The message type FILE is used for OFTP virtual files. EERP is a positive end-to-end-acknowledgement. NERP is a negative acknowledgement.	FILE, EERP, NERP

Field	Description	Possible Values
STATUS	The status of the message or receipt that has been scheduled, sent, received or forwarded.	<p>Initial Status: SCHEDULED, RECEIVING</p> <p>Intermediate Status: SENT_WAIT_ERP, RETRY, WAIT_ON_FORWARDING, FORWARDED_WAIT_ERP, RETRY_FORWARDING, NERP_IGNORED, WRONG_ERP_RECEIVE,</p> <p>Outbound direction Final Success Status indicated by: SENT. SENT_AND_GOT_ERP Final Error Status indicated by: FAIL</p> <p>Inbound Direction Final Success Status: RECEIVED RECEIVED_AND_EERP_CREATED, FORWARDED, FORWARDED_AND_GOT_ERP, Final Error Status indicated by: FORWARD_FAIL FWD_FAIL_AND_CREATED_NERP</p>
MESSAGE_ID	Mailbox Message ID for the message to send. This field is used for Mailbox Mode, only. For outbound messages the mailbox message is created by the Odette FTP Queue Handler before a new entry in table OFTP_OBJECT is created. For inbound messages the Odette FTP Adapter both creates the Mailbox message and a new entry in OFTP_OBJECT when a message is received.	0, if the Mailbox System is not used
DOCUMENT_ID	Document ID of the message to send.	
LPC	Logical Partner Contract as defined in the Odette FTP Partner Profile	
PPC	Physical Partner Contract as defined in the Odette FTP Partner Profile	
SFIDDSN	The OFTP Virtual File Dataset Name as used in the "Start File" SFID command	

Field	Description	Possible Values
SFIDDATE_TIME	Virtual File Date stamp as used in the "Start File" SFID command	
SFIDTIMEC	Virtual File Time stamp as used in the "Start File" SFID command	
SFIDDEST	OFTP Destination as used in the "Start File" SFID command	
SFIDORIG	OFTP Originator as used in the "Start File" SFID command	

Message Status Table

The following table describes the meaning of all status values in field STATUS:

Status	Description	Successor
Initial States		
SCHEDULED	Initial Status for outbound direction. The message is ready to send.	None
RECEIVING	Initial Status for inbound direction. A message is being received from a remote partner.	None
Intermediate States		
SENT_WAIT_ERP	A message is sent successfully to a remote partner and an EERP is requested.	SCHEDULED
RETRY	A message has not been sent successfully and a sent retry is performed.	SCHEDULED or RETRY
WAIT_ON_FORWARDING	A message is received from a remote partner A that needs to be forwarded to a remote partner B.	RECEIVING
FORWARDED_WAIT_ERP	A message has been forwarded to a remote partner successfully and an EERP has been requested.	WAIT_ON_FORWARDING
RETRY_FORWARDING	A message has not been forwarded successfully to a remote partner and a forward retry is performed.	WAIT_ON_FORWARDING

Status	Description	Successor
NERP_IGNORED	<p>Received NERP which cannot be passed back. A NERP has been introduced with Odette API Level 1.4. Scenario: Local system is "in the middle" and we got a message from a remote partner A with the Odette API Level lower than 1.4.</p> <p>We forwarded the message to a remote partner B with Odette API Level equal or higher than 1.4.</p> <p>If the remote partner B sends back a NERP it cannot be passed back to remote partner A because A does not support NERPs.</p>	None
WRONG_ERP_RECEIVE	Received EERP whose content is invalid	SENT_WAIT_ERP, FORWARDED_WAIT_ERP
Final States		
SENT	Final success status for outbound direction if no EERP is required	SCHEDULED
SENT_AND_GOT_ERP	Final success status for outbound direction if and EERP or NERP is received for a sent message.	SENT_WAIT_ERP
FAIL	Final error status for outbound direction if the retry counter is exceeded.	SCHEDULED
RECEIVED	Final success status for inbound direction if no EERP is requested by the remote partner. Used both for type FILE and NERP/EERP.	RECEIVING
RECEIVED_AND_EERP_CREATED	Final success status for inbound direction if an EERP is requested by the remote partner	RECEIVED
FORWARDED	Final success status for inbound direction if the message has been forwarded to the forward partner and no EERP is requested.	WAIT_ON_FORWARDING
FORWARDED_AND_GOT_ERP	Final success status for inbound direction if the message has been forwarded to the forward remote partner and an EERP is requested.	FORWARDED_WAIT_ERP
FORWARD_FAIL	Final error status for inbound direction if a message has not been forwarded successfully to a forward remote partner and no EERP is requested.	WAIT_ON_FORWARDING

Status	Description	Successor
FWD_FAIL_AND_CREA TED_NERP	Final error status for inbound direction if a message has not been forwarded successfully to a forward remote partner and an EERP is requested.	WAIT_ON_FORWARDING

Odette FTP Partner Profile Administration

Elements of the Odette FTP Partner Profile can be listed, searched, edited or new ones created from the Trading partner > OFTP Partner Profile link. There are four different types of Partner Profile elements that can be used in the Odette FTP Partner Profile link:

- ◆ Odette FTP Physical Partner
- ◆ Odette FTP Physical Partner Contract
- ◆ Odette FTP Logical Partner
- ◆ Odette FTP Local Partner Contract

Note: The Odette Partner link in Sterling Integrator is a convenient and recommended way to create or modify profile elements for the first time. If a large amount of profile elements have to be added (mass import) it is more efficient to use the external command line tool OFTPPartnerManager.

OFTP Partner Manager

Use the command line tool OFTPPartnerManager (OFTPPartnerManager.sh resp .cmd on Windows) to list, export, insert or delete one or many Odette FTP Partner Profile elements.

All OFTP Partner configuration data resides in the Sterling Intergrator database and the OFTP Partner XML file format is used by OFTPPartnerManager for listing, importing, exporting, and deleting OFTP Partner data.

Note: It is strongly recommended to shutdown Sterling Integrator before importing data because the import can change partner data accessed by current OFTP sessions.

For additional information see *Odette FTP Partner Profile*.

Odette FTP Queue Management and Visibility

OFTP Visibility

The Odette FTP Adapter supports Visibility Events which can be queried in the Administration menu, Business Process > Monitor > Advanced Search and selecting either DataFlows or Communication Sessions. Select protocol OFTP together with additional search criteria.

- ◆ Visibility Communication Connect/Disconnect Event for OFTP Sessions
- ◆ Visibility Communication Authentication
- ◆ Visibility Session Update Event
- ◆ Visibility Transfer Begin / Transfer Update / Transfer Complete Event for files and receipts (EERP/NERP)
- ◆ Visibility Route Discovery (WFID, producer, consumer, document ID)

Odette FTP Queue Management

Old entries from the Odette FTP Message Queue may be purged when they have reached a configurable time limit and have a final status like “RECEIVED”, “SENT”, “RECEIVED_AND_EERP_CREATED”, “SENT_AND_GOT_EERP”. These status’ can be purged automatically from database tables OFTP_OBJECT and OFTP_OBJECT_EXT.

1. In Menu Deployment, select Services > Configuration and select **OFTPScheduler** of adapter type **Odette FTPScheduler**. Click **edit**.
2. Parameter **Number of hours OFTP records are kept in the database (0=unlimited)** determines how long entries are kept in the Odette FTP Message Queue. Default is 72 hours. Enter “0”, if you do not want to delete any old entries. For example, if you want to implement some archiving concept.
3. Save configuration.
4. Enable the Odette FTP Scheduler Adapter.

Odette FTP Security

The Odette File Transfer Protocol version 2.0 provides a number of new security features including: authentication/authorization, session level encryption, file level encryption, and the signing of files and receipts to help protect the transfer of files. When using Secure IP as your transport protocol in Sterling Integrator, a new configuration page opens with following configuration parameters

- ◆ System Certificate
- ◆ Cipher Strength (Weak, Strong, All)
- ◆ CA Certificate

These new configuration parameters are used if an IP-Client (such as a remote partner) tries to establish an IP connection to Sterling Integration (a local partner). Once an IP connection is established a handshake protocol is used to create a secure connection between client and server Sterling Integrator.

The Odette File Transfer protocol version 2.0 supports:

- ◆ Secure and authenticated communication over the Internet using Transport Layer Security (TLS/SSL),
- ◆ File encryption, signing and compression using Cryptographic Message Syntax and
- ◆ Signed receipts for the acknowledgement of received files.

Secure Authentication (Optional, OFTP 2.0 and higher)

After exchanging Start Session commands (SSID) the Initiator may optionally begin an authentication phase in which each trading partner proves its identity to the other:

1. Initiator sends Security Change Direction (SECD).
2. Responder replies with a Authentication Challenge (AUCH) which contains a Random challenge unique to each session.
3. The signed challenge is sent back to the responder in the Authentication Response (AURP).
4. Responder first verifies authenticity of CMS signature. Then it checks the signing certificate. If successful the responder sends back a SECD.
5. Complementary process of verifying Responder to Initiator.

Note: The Secure Authentication protocol can be enabled or disabled in the OFTP Partner Profile, Physical Partner Contract, checkbox “Secure Authentication”.