International Postal System

EDI Guide

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About this document

Intended audience

This document is for IPS administrators configuring EDI exchanges.

How to use this manual

This document explains how to configure EDI partners and schedules in IPS. It explains the EDI input and output processes and gives tips on troubleshooting EDI. It also provides a reference of EDI message versions and the corresponding UPU standard. For queries or service requests, you can raise them at https://support.upu.int.

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Introduction

The International Postal System (IPS) uses electronic data interchange (EDI) to transmit operational information between two organizations. These messages contain the important data about mail items and events. This exchange of data makes it possible to monitor the status of any mail item at any point in the mail handling process.

When you configure IPS, you must define:

- your EDI partners and the types of messages you want to exchange with them
- the schedule for sending and receiving EDI messages

See sections "Defining your EDI partners in IPS" on page 7 and "Setting up the EDI service and schedule in IPS" on page 10 for more details.

For a better understanding of how EDI works in IPS, see the explanations in the following sections:

- "The EDI input process" on page 16 used for receiving and processing incoming EDI messages
- "The EDI output process" on page 12, used for creating and sending outgoing EDI messages

IPS was designed to exchange EDI messages using the POST*Net Gateway and POST*Net (the UPU's worldwide EDI network), however you can use IPS with other EDI networks.

For more information on what to do when you encounter problems with EDI, see "Troubleshooting EDI" on page 19.

Message types

IPS can exchange the following message types:

- EMSEVT
- ITMATT
- eVN
- PRECON and PREDES
- RESCON and RESDES
- CARDIT and RESDIT

You can find details of specific versions of standards and messages in the Appendix at the end of this document.

EDI services

EDI uses a **maximum** of four Windows services, depending on how your schedule is configured. The four services are:

- IPS EDI Input Process (v5)
- IPS EDI Output Process (v5)
- IPS EDI Input-Output Common Process (v5)
- IPS EDI NG Service

Defining your EDI partners in IPS

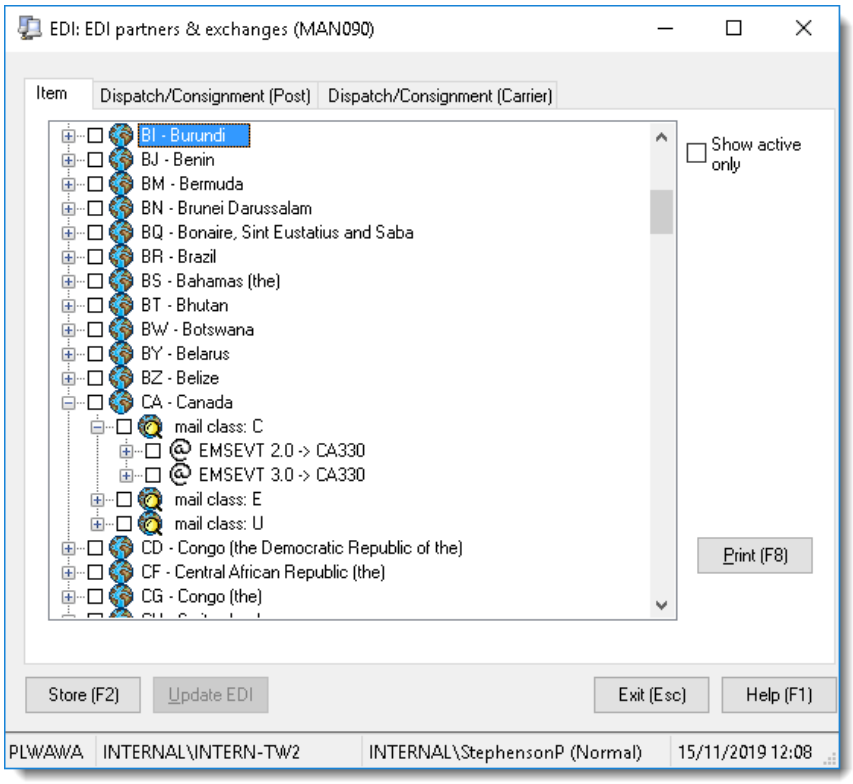
To be able to exchange EDI messages, you must specify the partners with which you will exchange messages and the types of messages you will exchange. Not all countries use EDI and most do not use all types of messages.

For the interface to work properly, Microsoft's .Net Framework must be installed on the machine where the interface will run.

Specifying your EDI partners

Procedure

1. In IPS, open window: **National management** > **EDI** > **EDI partners & exchanges**.



2. To show only active partners, check the **Show active only** check box.
3. Click the tab that corresponds to the type of EDI message you want to define.
    - **Item** - Use this tab to define messages that are generated for events that happen to items. These message types are EMSEVT and ITMATT.
    - **Dispatch/Consignment (Post)** - Use this tab to define messages about dispatches and consignments that are exchanged between postal operators. These message types are PRECON, PREDES, RESCON, and RESDES.
    - **Dispatch/Consignment (Carrier)** - Use this tab to define messages about dispatches and consignments that you exchange with carriers such as an airline company. This message type is CARDIT.

4. Select the EDI partner countries you want to define by clicking the check box next to the country name.
5. For each EDI partner, drill down and select the mail classes you want to attach to the partner.
6. Drill down further by each mail class you selected and check the checkboxes next to the events you want to attach.
7. If you want to create a report of some of your EDI partners and exchanges, click the **Print (F8)** button. In the dialog that opens you can customize the display and title of your report.
8. Click the **Store (F2)** button.

You must repeat this procedure for each partner and message type.

Upgrading EDI partnerships to the latest message version supported

You can upgrade all of your existing EDI partnerships in one go to the latest message version that both you and your EDI partner support using stored procedure, `USP_EDI_PARTNERSHIP_UPDATE`. You must run this stored procedure only on your IPS national or standalone database (without replication):

```
exec USP_EDI_PARTNERSHIP_UPDATE
```

For example, your existing EDI partners FRA, ITA and ESA support EMSEVT V3 and PREDES V2.1 but you only have EMSEVT V1 partnership enabled with FRA and ITA and PREDES V2.0 with FRA and ESA. If you run the stored procedure, EMSEVT V3 partnership is enabled with FRA and ITA and PREDES 2.1 enabled with FRA and ESA. Note that the stored procedure does not enable new partnerships so you still do not have EMSEVT partnership with ESA or PREDES with ITA.

Setting up the EDI service and schedule in IPS

You define the schedules for incoming and outgoing messages separately. Until you set up the schedule, IPS cannot retrieve incoming EDI messages or write outgoing ones.

Before you set up the schedule, you must define the EDI partners for your location (see the previous section, "Defining your EDI partners in IPS" on page 7). EDI partners are the other countries with whom your location will exchange EDI messages. Once you define the EDI partners, you can then define the parameters for exchange with the partners. The option to display this window only appears on workstations and servers on which the EDI interface software was installed.

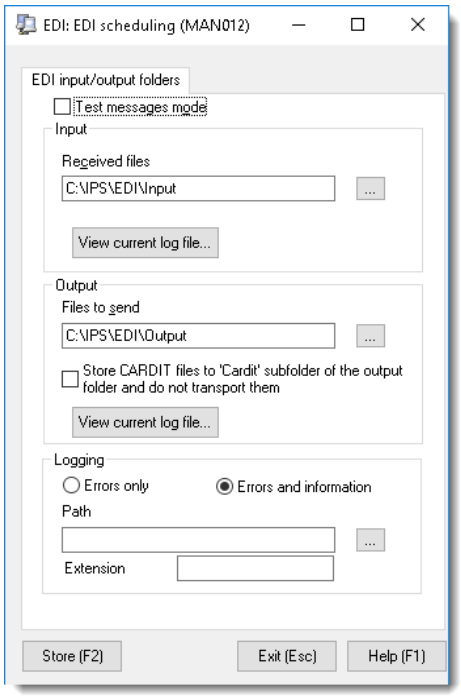
You can set up processing to take place only once, on startup, or you can create schedules for inbound and outbound transactions. You have a number of scheduling options: you can schedule processing to take place at regular intervals (every two hours, for example) or you can schedule the process to occur at specific times during the day. You can also schedule different outbound message types to process at different times.

IPS imports and exports messages at their scheduled time. If a message cannot be processed at its scheduled time (such as if another message is being processed), it will be processed as soon as the EDI service becomes available again.

Setting up the EDI service

Only complete this procedure if you want to change the default file locations for the EDI service which were created during installation. Before you do so, you must create the directories on a specific server in your network where incoming and outgoing messages will be stored.

1. Open window **National management** > **EDI** > **EDI scheduling**.



2. In the **Received files** field, specify the directory where you want to receive incoming EDI messages. You can use the browse button to open a dialog box to help you locate the directory.
3. In the **Files to send** field, specify the directory where you want to write outgoing EDI messages. You can use the browse button to open a dialog box to help you locate the directory.
4. If you want to store CARDIT files and not export them, check the **Store CARDIT files to 'Cardit' subfolder of the output folder and do not transport them** check box.
5. Click the **Store (F2)** button to save your changes.

Defining the EDI schedule

You can configure the EDI service to run once or on a schedule. If you configure it to run once, the service starts on IPS startup, runs all scheduled message types, imports and exports any messages and then stops.

1. Open window **National management** > **System** > **National parameters**.
2. If you require the service to run once only on startup, and not according to a schedule, set parameter **Edi service - once only execution** to **True**; skip the following steps.
3. If you need to send outgoing ITMATT messages, specify the export schedule using the parameter **EdiExportFrequencyInMinutes (ITMATT)**, as a frequency in minutes (expressed as an integer).
4. If you need to send outgoing eVN messages, specify the export schedule using the parameter **EdiExportFrequencyInMinutes (eVN)**, as a frequency in minutes (expressed as an integer).
5. Specify the input schedule using the **EDI input schedule** parameter, as a frequency in minutes (expressed as an integer) or as a list of times separated by spaces (e.g. 10:15 19:03 22:00). If you specify times, they must be in order, starting with the earliest time.
6. Specify the default output schedule using the **Default EDI output schedule** parameter. You can then override the default output schedule for specific message types, if required, using the **EDI output schedule (*<message_type>*)** parameter. You can define either a frequency in minutes, or a list of times, as described in step 3.

Check the EDI event log

When you receive or send EDI messages, information is stored in input and output log files. The purpose of the log files is to provide information about EDI transactions you send or receive, and to help you identify any problems.

The log files tell you information such as the type of message, the country it came from, the number of events, the number of errors and any duplicate or non-standard item identifiers you received. You can access the EDI log files directly from the IPS interface.

1. Open window **National management** > **EDI** > **EDI scheduling**.
2. Click the **View current log file** button in the **Input** or **Output** section.

The EDI output process

The output process generates EDI messages based on operational data in the IPS database. These messages can then be transmitted by POST*Net Gateway to the POST*Net network (or other EDI network).

Postal operators can use the messages to track the post they send, and also to let their partner operators know what postal items they should expect to receive from them.

EDI message formats

IPS generates EDI messages in two formats, depending on the type of EDI message created by the sending post:

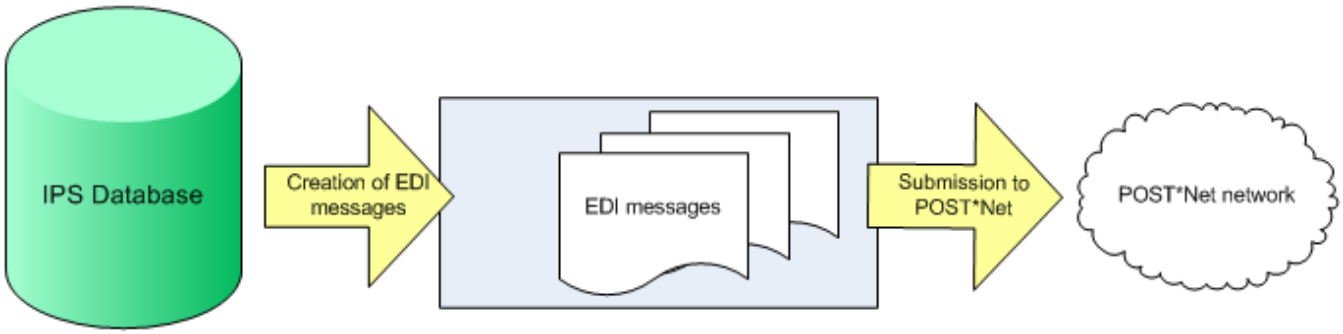
EDI message type	File format
EMSEVT, PREDES, PRECON, RESDES, RESCON and CARDIT	EDIFACT
ITMATT, eVN	XML

You must configure the service correctly before you can generate messages. The configuration of the service includes specifying the types of EDI message to exchange with each partner, and the schedules for exchanging them. See the sections "Defining your EDI partners in IPS" on page 7 and "Setting up the EDI service and schedule in IPS" on page 10 for detailed instructions.

After you have configured the service, it can perform the two tasks that comprise the output process:

1. Creating the EDI messages from data in the IPS database.
2. Placing the generated EDI messages in the IPS EDI\Output folder.

For details on how to configure the POST*Net Gateway, the application used to exchange EDI messages with the POST*Net network, see the *PNG User Guide*.



How the EDI output process works

Generating EDI messages from the database

The trigger for EDI message generation is a scan against an event. The configuration of EDI triggers can be done on the IPS Event types screen.

All EDI data is queued in the following tables:

- L_MAILITM_EVENTS_FOR_EDI data for EMSEVT and ITMATT messages
- L_VN_ATTACHMENTS and L_VN_ATTACHMENTS_DATA data for eVN messages
- L_RECPTCL_EVENTS_FOR_EDI data for all the other EDI messages

Note that a line in one of these tables is not equivalent to one EDI message, and that the EDI service composes EDI messages from several different tables in the IPS database.

Writing EDI messages to files

After the EDI process loads the required data from the database, it builds the interchange files and writes them to the EDI\Output folder. The process then queries the IPS database again to load the POST*Net e-mail addresses that correspond to the origin and destination EDI addresses of the interchange.

The following information about filenames does not apply to ITMATT or eVN messages; in their case, the filename is simply a GUID.

The generated interchange file has the following filename:

```
<POST*Net e-mail address of origin>#<POST*Net e-mail address of destination> #INTREF<IntrefNumber>.<DuplicateIndex>
```

Where:

- *<POST*Net e-mail address of origin>* – is the e-mail address associated with the originating EDI address.
- *<POST*Net e-mail address of destination>* – is the e-mail address associated with the destination EDI address.
- *<IntrefNumber>* – is the interchange number of the EDI message.
- *<DuplicateIndex>* – if a similar file (same e-mail addresses and same IntrefNumber) already exists in the folder, the DuplicateIndex is incremented.

Example

```
au101@upu.int#t_cz101@upu.int#INTREF1.0
```

Error Log

The EDI process does not only log errors. It also logs information such as the date and time when the process started and which EDI files have been written to the output folder.

Any errors that occur during the creation of the EDI messages are logged in the EDI\Output\Log folder.

Examples

The following is an example of an error that can occur when connecting to the IPS database:

```
[Export operation] started on 11/11/03 09:30:14
*Err* DBCONN:Unable to connect to IPS database !
```

Other errors can occur when the EDI data is being read from the database and while being written to the message files.

Validity errors that occur (retrieved data not compatible with EDI formats) are logged and indicate which EDI message component is invalid. Then the process continues. When all the data has been retrieved from the IPS database, the EDI process assembles the EDI messages in memory and saves them to files.

The following example shows an error that occurred when an item identifier for EMSEVT was not valid:

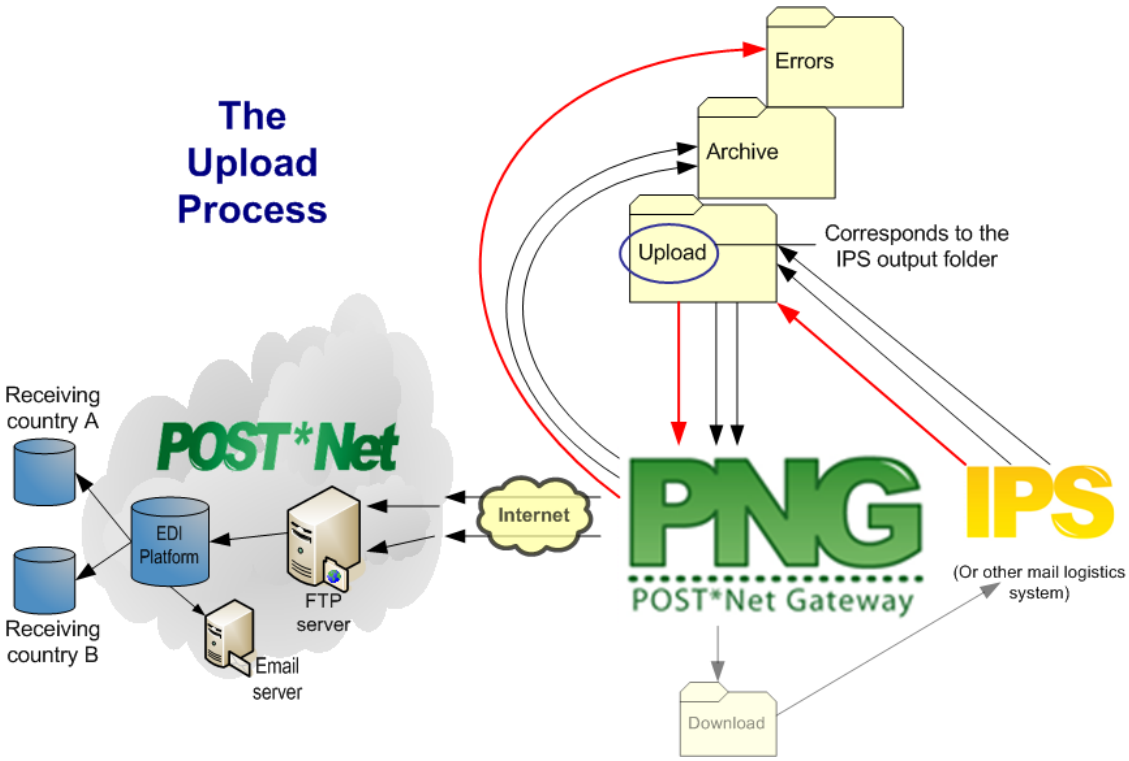
```
[Export operation] started on 11/11/03 09:44:04
*Err* [EMSEVT 2.0] Component=EMSEVT2_0Event, Item=EE111100011XAU,
Error=Invalid (ItemId)
*Err* [EMSEVT 2.0] Component=EMSEVT2_0Info, Item=EE111100011XAU,
Error=Invalid
Saving EDI messages to interchange 'au001@upu.int#t_nz001@upu.in-
t#INTREF9.0'
Saving EDI messages to interchange 'au101@upu.int#t_hu101@upu.in-
t#INTREF1.0'
Saving EDI messages to interchange 'au101@upu.int#t_cz101@upu.in-
t#INTREF1.0'
```

The following is an example that shows errors that occurred while saving the EDI message files:

```
[Export operation] started on 11/11/03 09:45:04
Saving EDI messages to interchange 'au001@upu.int#t_nz001@upu.in-
t#INTREF10.0'
*Err* The [UNH] segment couldn't be saved
*Err* The interchange file couldn't be saved
```

Submitting EDI messages to the POST*Net network using PNG

The following diagram illustrates the process used by IPS to submit EDI messages to the POST*Net network using PNG.


The Upload Process
Errors
Archive
Upload
Corresponds to the IPS output folder
Receiving country A
POST*Net
EDI Platform
FTP server
Email server
Receiving country B
Internet
PNG
POST*Net Gateway
IPS
(Or other mail logistics system)
Download

The EDI input process

The input process in IPS retrieves incoming EDI messages in the IPS EDI\Input folder and extracts the information contained in them to be inserted into the corresponding tables of the IPS database. In this way postal operators can track the incoming post they expect to receive from their partner designated operators.

EDI message formats

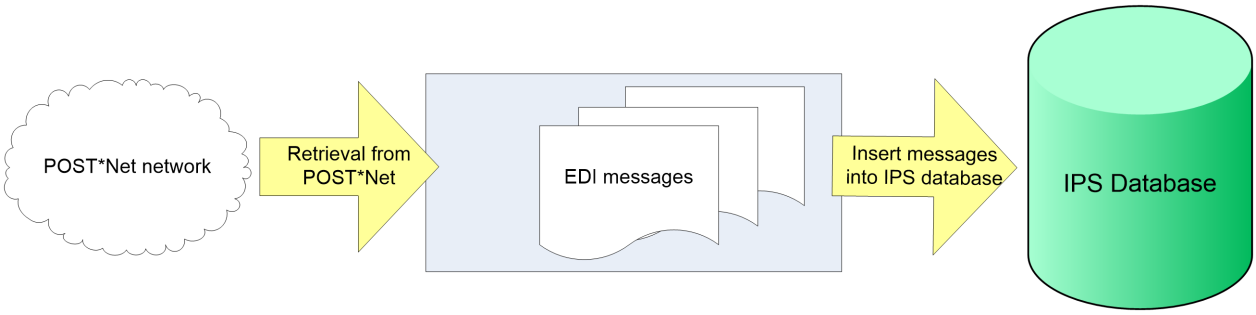
IPS can receive EDI messages in two formats, depending on the type of EDI message that was created by the sending post:

EDI message type	File format
EMSEVT, PREDES, PRECON, RESDES, RESCON and RESDIT	EDIFACT
ITMATT, eVN	XML

You must configure the service IPS uses correctly before you can receive messages. The configuration of the service includes specifying the types of EDI message to exchange with each partner, and the schedules for exchanging them. See the sections "Defining your EDI partners in IPS" on page 7 and "Setting up the EDI service and schedule in IPS" on page 10 for details.

After you have configured the service, IPS inserts the information from the EDI messages into the IPS database.

For details on how to configure the POST*Net Gateway, the application used to exchange EDI messages with the POST*Net network, see the *PNG User Guide*.



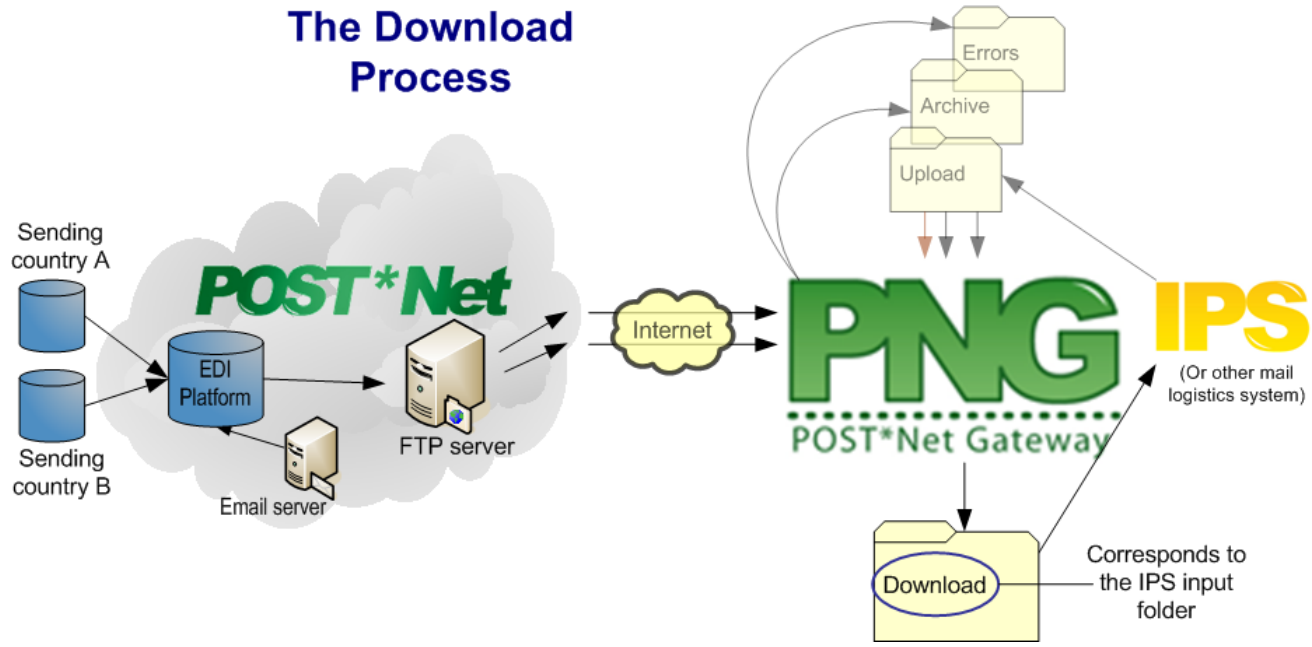
How the input process works

The IPS EDI service:

- runs at the frequency configured in IPS
- processes all files in the EDI input folder that is configured during EDI scheduling setup
- is able to import files containing multiple interchanges with multiple messages of mixed message type
- discards only interchanges containing invalid messages, not the entire file
- creates a log file in the \Error subfolder of the EDI input folder if an error occurs during input of the file; the file has the same name as the import file and extension .log
- logs other errors in the log file in the \Log subfolder of the EDI input folder

Retrieving incoming EDI messages from the POST*Net network

The following diagram illustrates the process used by IPS to retrieve incoming EDI messages from the POST*Net network using the POST*Net Gateway.



Parsing the input EDI file

Any errors that occur during the parsing of the EDI files or insertion of the EDI data are logged in the EDI\Input\Log folder. As well as errors, the EDI process also logs information such as the date and time when the process started, and which EDI files have been parsed and inserted in the database.

Errors occurring while parsing an EDI file

In the example below, the location type specified for one EMSEVT event is incorrect, and the handling class of a receptacle listed in PREDES is incorrect.

```
[Import operation] started on 11/11/03 15:29:41
Loading EDI messages from interchange AU001_0310171631.0
*Err* [EMSEVT 2.0] Component=EMSEVT2_0Event, Item=EE16100016XNZ,
Error=Invalid (LocationType)
*Err* The [UNT] segment couldn't be read
```

```
Loading EDI messages from interchange AU101_0310171732.0
*Err* [PREDES 2] Component=Predes2_0ReceptacleInfo, Item-
m=AUADLACZBVAAAUN30003002100030344, Error=Invalid (HandlingClass)
*Err* [PREDES 2] Component=Predes2_0Info, Item-
m=AUADLACZBVAAAUN30003, Error=Invalid
*Err* The message body couldn't be read
```

If the error occurs while parsing the file (the log shows the entry **Loading EDI messages from interchange <....>**) the file is moved to the EDI\Input\Error folder without any further processing.

Errors occurring while inserting EDI data in the IPS database

Once the EDI file has been parsed successfully, the EDI input service inserts the EDI data in the IPS database. A database error can occur for various reasons:

- Reference data in the IPS database does not fully match the EDI data

  For example, a PREDES 2 message contains an item going to CS <<Serbia and Montenegro>>. The EDI file is syntactically valid, so no parsing errors have been found. However, if the country code CS does not exist in the IPS database there will be a database error: integrity violation.)

- Database server overloaded

  The error text logged in this case does not give much information. It does not inform you about the detailed SQL error message. To find a more detailed error description you need to look in the Application Event Viewer.

Example

```
[Import operation] started on 11/11/03 15:29:41
Loading EDI messages from interchange AU101_0310171732.0
Saving EDI messages from 'AU101_0310171732.0' to DB
*Err* [PREDES 2] Component=Predes2_0ReceptacleInfo, Item-
m=AUADLACZBVAAAUN30003001000060, Error=DB error
```

Troubleshooting EDI

This chapter describes the procedures used when troubleshooting problems that arise with EDI in the normal operation of IPS.

EDI messages are not being exported

If EDI messages are not being exported:

- Check the log files
- Check that the IPS EDI NG Service is running
- Check the queue in the appropriate table (see "Generating EDI messages from the database" on page 13)

EDI messages are not being imported

If EDI messages are not being imported:

- Check the log files
- Check that the IPS EDI NG Service is running
- Check that the username under which the service is running has permissions to update the IPS database
- Check for other database errors

For more information on:

- input error logging, see "How the input process works" on page 16 and "Errors occurring while parsing an EDI file" on page 17
- database errors, see "Errors occurring while inserting EDI data in the IPS database" on the previous page

PREDES messages are not being created on dispatch closure

Check the values assigned to the following four parameters are not delaying PREDES creation:

- Max allowed duration without PREDES creation for EMS (minutes)
- Max allowed duration without PREDES creation for Letters (minutes)
- Max allowed duration without PREDES creation for Parcels (minutes)
- Pre departure PREDES generation deadline (minutes)

Using stored procedures to resend EDI messages

When the schedules have been set up properly, IPS generates EDI messages for incoming and out-going mail items, based on data found in the IPS database, that was stored there when the (incoming

or outgoing) items were scanned.

When IPS is operating normally, these EDI messages are exchanged with the POST*Net network, according to the schedules that have been set up. However, occasionally the messages may not be generated or sent, causing a gap in the event record for that particular postal organization. There are several reasons why this could happen, such as the POST*Net server being temporarily off-line, or errors made when scanning the items.

To resolve the problem of these missing EDI events, IPS includes a number of stored procedures that can be used to re-generate the EDI events and update the records held by the partner organizations:

- USP_EDI_RESEND_MAILITM_EVENTS
- USP_EDI_RESEND_RECPTCL_EVENTS
- USP_EDI_RESEND_DESPTCH_EVENTS
- USP_EDI_RESEND_CONSGNT_EVENTS

 When using these stored procedures, it is important to note the following:

- The stored procedures regenerate the EDI events, they do not resend the original messages
- The procedures described here are only to be used in exceptional circumstances. As no check is made on whether the events have already been sent, there is the possibility of duplicating event traffic on the POST*Net network. In that case, the postal organization will pay twice for sending the events. Before running these procedures, you should be completely sure that it is the only course of action remaining to solve the problem.
- Running one or more of the procedures listed above causes the database performance to be slower, so it is recommended that they be run only when all of the IPS users have logged out.
- After the procedures have finished, they may cause a large number of EDI events to be generated and then sent to the POST*Net network, which will also affect the database performance. For this reason too, it is advisable that all IPS users have logged out before you run any of the procedures.

Specifying the parameters for the procedures

To run any of the procedures for resending EDI messages, you need to specify the parameters required by that procedure. Only the date and time parameters (@LOCAL_DT_FROM and @LOCAL_DT_TO) are required, the other parameters are optional. The table below describes the parameters.

Parameter	Description
USP_EDI_RESEND_MAILITM_EVENTS	
@LOCAL_DT_FROM	Starting date and time (in local time) of the period for which the EDI events are to be resent.

Parameter	Description
@LOCAL_DT_TO	End date and time (in local time) of the period for which the EDI events are to be resent.
@EMSEVT_EVENT_CD	The EMSEVT to be resent. If NULL, all events will be resent.
@CAPTURE_IND	The capture flag; if set, the date and time, specified by the parameters @LOCAL_DT_FROM and @LOCAL_DT_TO, refer to the date and time the data was captured (i.e. stored in the database). If not set, the actual time of the event is used.
@MAIL_CLASS_CD	The specific mail class to be resent; if NULL, all mail classes will be resent.
@ITEM_ORIG_COUNTRY_CD	A filter that limits the events to be resent to only those for items that originated at a specific partner organization. If NULL, there are no filters on the origin partner. This is the default value.
@ITEM_DEST_COUNTRY_CD	A filter that limits the events to be resent to only those for items with the destination set to a specific partner organization. If NULL, there are no filters on the destination partner. This is the default value.
@PRODUCT	The specific product codes to be resent. If NULL, no products are resent, and if *, all products. The default value is *.
USP_EDI_RESEND_DESPTCH_EVENTS, USP_EDI_RESEND_CONSGNT_EVENTS, USP_EDI_RESEND_RECPTCL_EVENTS	
@LOCAL_DT_FROM	Starting date and time (in local time) of the period for which the EDI events are to be resent.
@LOCAL_DT_TO	End date and time (in local time) of the period for which the EDI events are to be resent.
@CAPTURE_IND	The capture flag; if set, the date and time, specified by the parameters @LOCAL_DT_FROM and @LOCAL_DT_TO, refer to the date and time the data was captured (i.e. stored in the database). If not set, the actual time of the event is used.

Resending ITMATT for mail items with no customs and tax information

When a mail item is marked for ITMATT message generation (a row has been created in the L_MAILITM_EVENTS_FOR_EDI table in the IPS database), but no customs and tax information has been imported from a domestic system, this mail item will not be processed and will be marked as skipped in the table (L_MAILITM_EVENTS_FOR_EDI.SENT_THROUGH_EDI set to 'S').

The following stored procedure can be used to mark the mail item again as ready for ITMATT generation (L_MAILITM_EVENTS_FOR_EDI.SENT_THROUGH_EDI set to '0'):

```
SP_EDI_RESEND_ITMATT_WITHOUT_CUSTOMS_TAX_INFO @DateFrom @DateTo
```

where:

`@DateFrom` is the starting local date and time of period for which ITMATT should be resent

`@DateTo` is the end local date and time of period for which ITMATT should be resent

Please note that only mail items with recently imported customs and tax information (i.e. the L_MAILITMS.CUSTOMS_TAX_PID is defined) can be marked for ITMATT generation by the stored procedure mentioned above. Other mail items (i.e. L_MAILITMS.CUSTOMS_TAX_PID is null) will remain marked as skipped (L_MAILITM_EVENTS_FOR_EDI.SENT_THROUGH_EDI == 'S') and will not be processed by the new EDI Import-Export service.

Appendix - Message versions and UPU standard versions in IPS

The table below shows the UPU standard number and version for each EDI message version throughout the various IPS releases.

The EMSEVT v3 messages generated by IPS contain all the mandatory data elements, but not all the optional data elements.

EDI message version	UPU standard message and version			
IPS version:	5.20	2013 - 2014	2015 - 2017	2018 - 2023
PRECON 1.1	M10-7	M10-7	M10-8	M10-8
RESCON 1.1	M12-5	M12-5	M12-6	M12-6
RESDES 1.1	M13-4	M13-4	M13-4	M13-5
PREDES 2.0	M14-8	M14-8	M14-8	M14-9
EMSEVT 1.0	M17-6	M17-6	M17-6	M17-7
CARDIT 1.1	M18-8	M18-8	M18-8	M18-8
CARDIT 2.0	M20-6	M20-6	M20-6	M20-6
RESDIT 1.0[1]	M22-7	M22-7	M22-7	M22-7
ITMATT	M33-8	M33-8	M33-8	M33-8
EMSEVT 3	M40-2	M40-6	M40-6	M40-7

[1]import only

EDI message version	UPU standard message and version			
PREDES 2.1	M41-3	M41-5	M41-6	M41-7
eVN	-	-	M42-2	M42-2
CARDIT 2.1	M39c-2	M39c-3	M48-4	M48-7
RESDIT 1.1[1]	M39d-2	M39d-3	M49-4	M49-6

The table below shows messaging standards used for non-EDI exchanges.

Exchange type	UPU standard message and version
	2022
e53 - electronic statement of sampling	M50-3
e55 - electronic terminal dues statement	M51-2