

Sterling Selling and Fulfillment Foundation



Parcel Carrier Adapter

Release 9.1.044

Sterling Selling and Fulfillment Foundation



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Note

Before using this information and the product it supports, read the information in "Notices" on page 59.

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Chapter 1. Introduction to Parcel Carrier Adapter

Technology Overview

The Parcel Carrier Adapters (Sterling FedEx Adaptor, Sterling ConnectShip Adaptor, and Sterling Pierbridge Adaptor) provides applications with an interface for their carrier-related functionality. It helps companies to quickly meet the changing requirements initiated by both carriers and customers, in the most efficient way.

The Parcel Carrier Adapters have a data-driven design, with functionality defined in terms of the relationship between entities stored as data elements in the database. Carriers having similar functionality can be incorporated into an installation with minimal engineering effort.

Parcel Carrier Adapters Architecture

Figure 1 illustrates Parcel Carrier Adapters integration with FedEx, ConnectShip, and AgileElite server through TCP/IP socket and HTTP.

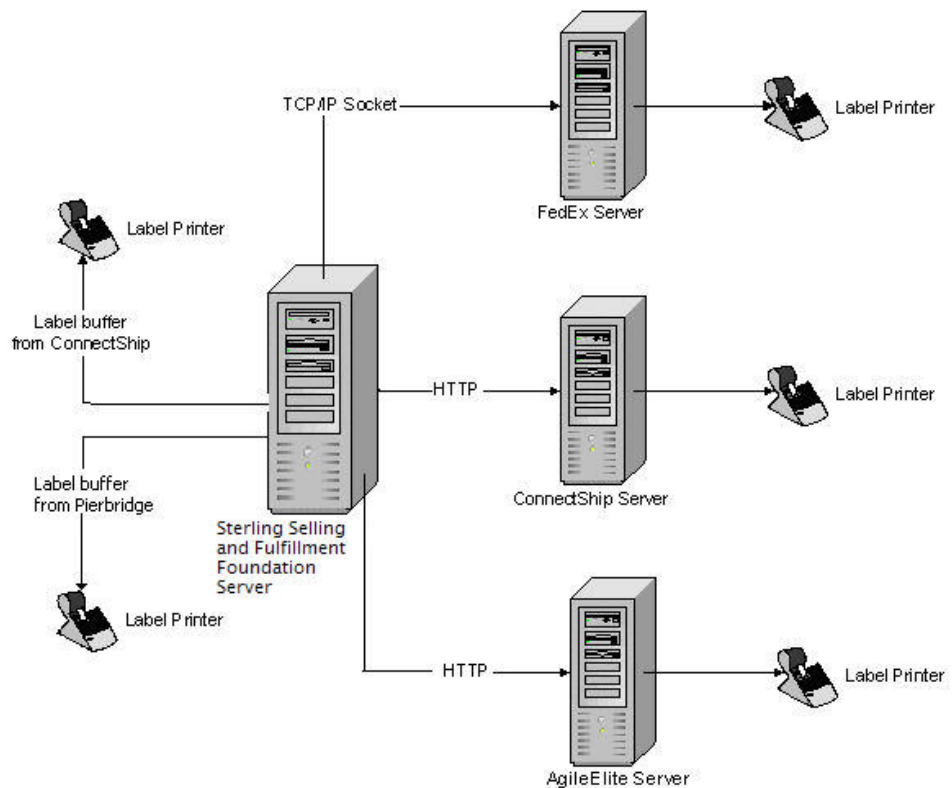


Figure 1. Architecture of Parcel Carrier Adapters

Note: For LTL/TL (Less-than Truck Load/Truck Load) shipments, integration with any of the Parcel Carrier Adapters is not supported.

FedEx

The Sterling FedEx Adaptor communicates with the FedEx PowerShip server (FSMS) through TCP/IP sockets. The FedEx Powership server and the Sterling FedEx Adaptor are part of the same LAN/WAN. Labels can be either printed directly from the FedEx server or saved in PNG format. The FedEx server can also return a label buffer, but the current IBM® Sterling Warehouse Management System or Sterling FedEx Adaptor integration does not support printing this buffer.

ConnectShip

The Sterling ConnectShip Adaptor communicates with ConnectShip through HTTP. The ConnectShip server is installed on a machine that is part of the same LAN or WAN as that of the Sterling ConnectShip Adaptor. Labels can be printed directly from the ConnectShip server or saved in PNG format.

AgileElite Shipment Server

The Sterling Pierbridge Adaptor communicates with the AgileElite shipment server through HTTP. The AgileElite shipment server is installed on a machine that is a part of the same LAN or WAN as that of the Sterling Pierbridge Adaptor. Labels can be printed either directly from the AgileElite shipment server or saved in .png format on the AgileElite shipment server.

Printers

The Parcel Carrier Adapters support the following default printers:

Table 1. Printers Supported

Carrier	Printer
FedEx	<ul style="list-style-type: none">• Eltron LP2844
ConnectShip	<ul style="list-style-type: none">• ConnectShip supports most printers. For more details about the ConnectShip supported printers, see Chapter 4, “Integrating the Sterling ConnectShip Adapter with the ConnectShip Server,” on page 31.
AgileElite shipment server	<ul style="list-style-type: none">• AgileElite shipment server supports most printers, including Eltron, Zebra, and Generic Windows.

Functionality Overview

ConnectShip Compliance Functionality

The Sterling ConnectShip Adaptor functionalities provided for ConnectShip compliance are:

- Open Manifest
- Ship Carton
- Delete Carton
- Close Manifest

ConnectShip is used for shipping UPS packages.

FedEx Compliance Functionality

The Sterling FedEx Adaptor functionalities provided for FedEx compliance are:

- Open Manifest
- Generation of Transaction 020 (Global Ship request/reply)
- Generation of Transaction 023 (Delete Carton Request/reply)
- Generation of Transaction 007 (End Of Day Request/Reply)
- Generation of Transaction 037 (Online Return Label)
- Generation of Transaction 095 (Label Reprint Transaction)

AgileElite Shipment Server Compliance Functionality

The following functionalities are included in the Sterling Pierbridge Adaptor for compliance with the AgileElite shipment server:

- Rate (Request/Reply) transaction
- Void (Request/Reply) transaction
- EndOfDayList (Request/Reply) transaction
- EndOfDayAction (Request/Reply) transaction
- Print (Request/Reply) transaction
- Ship (Request/Reply) transaction
- Return (Request/Reply) transaction

Chapter 2. Parcel Carrier Adapters Technical Details

The IBM Sterling Warehouse Management System provides the ability to integrate parcel carriers as a part of the manifesting process within a node.

The Sterling Warehouse Management System integrates with carriers when:

- Opening a manifest for a carrier
- Adding containers to an open manifest
- Removing containers from an open manifest
- Closing a manifest

The carrier integration is built over an abstraction layer called the Parcel Carrier Adapters. This layer abstracts the integration details to various carriers from the applications. The Parcel Carrier Adapters expose internal APIs corresponding to the Sterling Warehouse Management System carrier integration as listed (above) to the application layer. For example, in the Sterling Warehouse Management System, the Parcel Carrier Adapters take a standardized XML, use configuration data specific to carriers to massage the data and pass data to the carriers using specific protocols.

The Parcel Carrier Adapters are preconfigured to integrate directly with FedEx, ConnectShip, and AgileElite shipment server.

This chapter provides technical details of the Parcel Carrier Adapters. It contains descriptions and usage information for the Parcel Carrier Adapters tables, User Exits, and XML.

Database Tables for the Parcel Carrier Adapters

The Parcel Carrier Adapters are designed with a data driven approach. The business logic is defined in terms of relationships between entities stored as data elements in the database. Figure 2 on page 6 illustrates the Parcel Carrier Adapters tables.

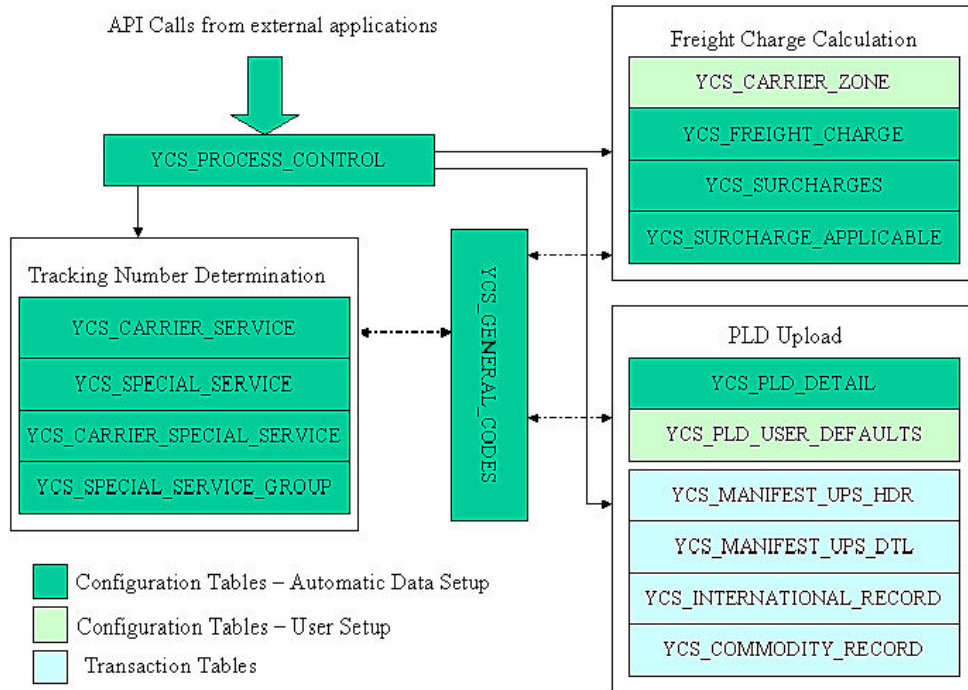


Figure 2. The Parcel Carrier Adapters Tables

Configuration Tables

The Parcel Carrier Adapters use the following configuration tables:

- YCS_CARRIER_SERVICE
- YCS_SPECIAL_SERVICE
- YCS_CARRIER_SPECIAL_SERVICE
- YCS_SPECIAL_SERVICE_GROUP
- YCS_GENERAL_CODES
- YCS_PROCESS_CONTROL
- YCS_PLD_DETAIL
- YCS_PLD_USER_DEFAULTS

Process Control Attributes

The Parcel Carrier Adapters Process Control table defines the mechanism or protocol for integrating the Sterling Warehouse Management System to a carrier for a specific API.

The Process Control attributes of the Parcel Carrier Adapters listed in the following table apply only to the Sterling FedEx Adaptor and the Sterling ConnectShip Adaptor

Table 2. Process Control

Attribute	Description
CARRIER	Carrier Code same as in the Sterling Warehouse Management System

Table 2. Process Control (continued)

Attribute	Description
API_NAME	Name of the Parcel Carrier Adapters API corresponding to each Console (OPENMANIFEST, SHIPCARTON,DELETECARTON,CLOSEMANIFEST)
LOGIC_SWITCH	Logic Switch associated with the API (This identifies the mechanism or protocol for integration to the carrier for the specific Console or API)

Logic Switches for Carrier Integration

The Logic Switches listed in the following table apply only to the Sterling FedEx Adaptor and the Sterling ConnectShip Adaptor.

Table 3. Logic switches for Carrier Integration

Sterling Warehouse Management System API	Parcel Carrier Adapters API	FedEx	ConnectShip
openManifest	OPENMANIFEST	None	None
addContainerToManifest	SHIPCARTON	020	CS_SHIP
removeContainerFromManifest	DELETECARTON	023	CS_VOID
closeManifest	CLOSEMANIFEST	007	CS_CLOSE_MANIFEST

General Codes for Carrier Integration

Table 4. General Codes

Attribute	Description
CARRIER	Carrier Code the same as in the Sterling Warehouse Management System
CODE	A Data value passed to the Parcel Carrier Adapters, that needs to be translated to the carrier specific value
VALUE	Carrier specific value to which the Parcel Carrier Adapters data value is translated to.
DESCRIPTION	Value of Field_Name in YCS_PLD_DETAIL table
CARRIER_ADAPTER_IMPL_KEY	The identifier of the Sterling Parcel Carrier Adapter that is being used.

YCS_PLD_DETAIL Table

The YCS_PLD_DETAIL table provides mapping between the Parcel Carrier Adapters XML attributes and the external Carrier Adapter attributes for the processes of add or remove package, and open or close manifest.

Table 5. PLD Detail

Attribute	Description
CARRIER	The identifier of the Sterling Parcel Carrier Adapter that is being used.
FIELD_NAME	Parcel Carrier Adapters API Attribute Name (It is either the complete XPATH to the Parcel Carrier Adapters input XML, for example ConnectShip or only the leafattribute value, for example, FEDX.)

Table 5. PLD Detail (continued)

Attribute	Description
FIELD_LOCATION	Numeric Value Based on the Attribute Name that identifies the Fedex Attribute ID. (For example, 498 -> ShipperAccountNumber)
FIELD_TYPE	Number/String
FIELD_LENGTH	Length of Attribute
DECIMAL_DIGITS	Decimal digits only if FIELD_TYPE is Real
REQUIRED_FLAG	R - Required field for the carrier
DEFAULT_TYPE	<p>SYSTEM: Use the value specified in DEFAULT_VALUE column.</p> <p>MAPPING: Use the specified value passed in the Parcel Carrier Adapters input and get the value from YCS_GENERAL_CODES table.</p> <p>Blanks: No Defaulting. Use the value from the Parcel Carrier Adapters input XML.</p>
DEFAULT_VALUE	Specific Value depending on DEFAULT_TYPE
CARRIER_FIELD_NAME	<p>Used inConnectShip to specify the complete XML path. ConnectShip do not use element attributes. They only use Nodes with child nodes or Node values, as:</p> <pre><eCommerce> <Shipment> <Shipment Detail> <ShipDate>20051229</ShipDate> <Weight>12</Weight> </ShipmentDetail> <Receiver> <Address> <City>Boston</City> </Address> </Receiver> </Shipment> </eCommerce></pre> <p>For example, SHIPMENTREQUEST/DEFATTRIBUTES/SHIPDATE</p>
TXN	Transaction or Process. Primarily Logic switches corresponding to Add/Remove package, Open/Close Manifest.
SUB_TXN	Send or Receive Input or Output Data (Request/Reply)

Parcel Carrier Adapters Integration Details

Generally, carriers are integrated with the Parcel Carrier Adapters when manifesting. The Sterling Warehouse Management System has the following Parcel Carrier Adapters:

- Sterling FedEx Adaptor
- Sterling ConnectShip Adaptor
- Sterling Pierbridge Adaptor

During manifest, the Sterling Warehouse Management System integrates with a carrier as follows:

1. IBM Sterling Selling and Fulfillment Foundation checks if carrier integration is required or not based on the configuration present in YFS_SCAC and YFS_SCAC_EX tables. If carrier integration is required, the Sterling Warehouse Management System invokes the relevant Sterling Parcel Carrier Adapter.
2. The input and output XMLs passed between the carrier's server and the Parcel Carrier Adapters may change based on the API being invoked by Sterling Warehouse Management System. The Parcel Carrier Adapters create input data needed for these XMLs based on the mapping details provided in Table 5 on page 7, and sends it to the carrier's server.

Note: Note that the openManifest API does not support any carrier integration.

Field-Level Mapping for Carriers

This section depicts the conversion of the Sterling Warehouse Management System input XML to the Parcel Carrier Adapters input XML. It also explains the mapping that is done between the input XML that is passed to the Parcel Carrier Adapters, and the input required for individual carrier servers.

Table 6. Field-level Mapping for Sterling WMS XMLs published to corresponding Sterling Parcel Carrier Adapter

Sterling Parcel Carrier Adapter Attribute	Database Attribute
UPSPLD/PackageLevelDetail@UOMWeight	Shipment.Carrier.Locale.WeightUOM
UPSPLD/PackageLevelDetail@PackageActualWeight	Container.Container_Gross_Weight
UPSPLD/PackageLevelDetail@UOMDim	Shipment.Carrier.Locale.DimensionUOM
UPSPLD/PackageLevelDetail@PackageLength	Container.PackageLength
UPSPLD/PackageLevelDetail@ShipmentNumber	Shipment.ShipmentNo
UPSPLD/PackageLevelDetail@PackageTrackingNumber	Container.Tracking_No
UPSPLD/PackageLevelDetail@SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"
UPSPLD/PackageLevelDetail@CurrencyCode	Shipment.Currency
UPSPLD/PackageLevelDetail@DeclaredValueInsurance	Container.Declared_Value
UPSPLD/PackageLevelDetail@ShipmentCODCurrencyCode	Shipment.Currency
UPSPLD/PackageLevelDetail@CODAmount	Container.COD_Amount
UPSPLD/PackageLevelDetail@CODFundsInd	Shipment.COD_Pay_Method
UPSPLD/AccessorialRecord@HazMat	Shipment.HazardousMaterialFlag
UPSPLD/CommodityRecord@PartNumber	Container.ContainerDetail.Item.Item_Id

Table 6. Field-level Mapping for Sterling WMS XMLs published to corresponding Sterling Parcel Carrier Adapter (continued)

Sterling Parcel Carrier Adapter Attribute	Database Attribute
UPSPLD/CommodityRecord@LineQuantity	Container.ContainerDetail.Quantity
UPSPLD/CommodityRecord@LineQtyUOM	Container.ContainerDetail.UOM
UPSPLD/CommodityRecord@CommodityWeight	Container.ContainerDetail.OrderLine.Item_Weight * Container.ContainerDetail.Quantity
UPSPLD/CommodityRecord@LineUnitAmtPrice	Container.ContainerDetail.OrderLine.Unit_Price * Container.ContainerDetail.Quantity
UPSPLD/CommodityRecord@LineMerchDesc1	Container.ContainerDetail.Item.Description
UPSPLD/CommodityRecord@LineOriginCountry	Container.ContainerDetail.Item.Country_Of_Origin
UPSPLD/CommodityRecord@CommodityCode	Container.ContainerDetail.Item.Harmonized_Code
UPSPLD/CommodityRecord@LineLicenseInfo	Container.Export_License_No
UPSPLD/CommodityRecord@LineLicenseExpDate	Container.Export_License_Exp_Date
UPSPLD/CommodityRecord@ECCN	Container.ContainerDetail.Item.ECCN
UPSPLD/ InternationalRecord@ShipmentInsuranceDeclaredValue	Container.Declared_Value
UPSPLD/InternationalRecord@UltimateDestCountry	Shipment.ShipToPersonInfo.Country
UPSPLD/InternationalRecord@DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container. ContainerDetail.Item.NMFC_Class
UPSPLD/ExtraFieldsRecord@SunDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SUNDELI" exist, then the value is set to "1"
UPSPLD/ PackageLevelDetail@ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
UPSPLD/PackageLevelDetail@ConsigneeAttention	Shipment.ShipToPersonInfo.Name
UPSPLD/PackageLevelDetail@ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
UPSPLD/PackageLevelDetail@ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
UPSPLD/PackageLevelDetail@ConsigneeAddress3	Shipment.ShipToPersonInfo.Address_Line3
UPSPLD/PackageLevelDetail@ConsigneeCity	Shipment.ShipToPersonInfo.City
UPSPLD/PackageLevelDetail@ConsigneeStateProv	Shipment.ShipToPersonInfo.State
UPSPLD/PackageLevelDetail@ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
UPSPLD/PackageLevelDetail@ResInd	If Shipment.ShipToPersonInfo.Company is "Blank", then value "1" is passed. Otherwise, value "0" is passed.
UPSPLD/PackageLevelDetail@ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone
UPSPLD/PackageLevelDetail@ConsigneeCountry	Shipment.ShipToPersonInfo.Country
UPSPLD/ PackageLevelDetail@ConsigneeUPSACctNumber	Shipment.CustCarrier_Account_No
UPSPLD/PackageLevelDetail@ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No
UPSPLD/PackageLevelDetail@ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Parcel Carrier Adapters attribute is set to "COL". Otherwise, it is set to "PRE"
UPSPLD/PackageLevelDetail@PickupDate	Container.Manifest.Manifest_Date
UPSPLD/ExtraFieldsRecord@ThermalLabelPrinterID	PrinterId for Carrier Label Document Id (FEDX_CARRIER_LABEL or UPSN_CARRIER_LABEL)
UPSPLD/PackageLevelDetail@UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code

Table 6. Field-level Mapping for Sterling WMS XMLs published to corresponding Sterling Parcel Carrier Adapter (continued)

Sterling Parcel Carrier Adapter Attribute	Database Attribute
UPSPLD/ AdvisoryInformationRecord@SNEmailAddress Destination1	Shipment.ShipTo.PersonInfo.EmailId
UPSPLD/ AdvisoryInformationRecord@SNCompanyName1	Shipment.ShipToPersonInfo.Company
UPSPLD/AdvisoryInformationRecord@SNAttnName1	Shipment.ShipToPersonInfo.Name
UPSPLD/ AdvisoryInformationRecord@SNContactPhone1	Shipment.ShipToPersonInfo.Day_Phone
UPSPLD/PackageLevelDetail@DCISType	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "DELCONF" exist, then the value is set to "1"
UPSPLD/PackageLevelDetail@DCISType	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "DELCONF" exist, then the value is set to "2"
UPSPLD/PackageLevelDetail@DCISType	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "DELCONF" exist, then the value is set to "A"
UPSPLD/AlternatePartyRecord@CompanyName	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Company
UPSPLD/AlternatePartyRecord@Address1	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line1
UPSPLD/AlternatePartyRecord@Address2	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line2
UPSPLD/AlternatePartyRecord@Address3	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line3
UPSPLD/AlternatePartyRecord@City	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.City
UPSPLD/AlternatePartyRecord@StateProv	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.State
UPSPLD/AlternatePartyRecord@PostalCode	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Zip_Code
UPSPLD/AlternatePartyRecord@Country	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Country
UPSPLD/AlternatePartyRecord@Phone	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Phone
UPSPLD/AlternatePartyRecord@ID_AcctNumber	Shipment.ShipNode.SCACEX.Account1
UPSPLD/PackageLevelDetail@NOFNSequence	Sequence of Container within the shipment
UPSPLD/PackageLevelDetail@NOFNTotal	Total no of containers in shipment
ShipperCompanyName	Shipment.ShipFrom.Country
ShipperAddress1	Shipment.ShipFrom.Address1
ShipperAddress2	Shipment.ShipFrom.Address2
ShipperCity	Shipment.ShipFrom.ShipperCity
ShipperState	Shipment.ShipFrom.ShipperState
ShipperPostalCode	Shipment.ShipFrom.ShipperPostalCode
ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company

Table 6. Field-level Mapping for Sterling WMS XMLs published to corresponding Sterling Parcel Carrier Adapter (continued)

Sterling Parcel Carrier Adapter Attribute	Database Attribute
ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
ConsigneeCity	Shipment.ShipToPersonInfo.City
ConsigneeStateProv	Shipment.ShipToPersonInfo.State
ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone
ConsigneeUPSAcctNumber	Shipment.CustCarrier_Account_No
PackageActualWeight	Container.Container_Gross_Weight
ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Parcel Carrier Adapters attribute is set to "COL". Otherwise, it is set to "PRE"
PickupDate	Container.Manifest.Manifest_Date
DeclaredValueInsurance	Container.Declared_Value
CODInd	NA
ShipperContactName	Shipment.ShipFrom.ShipperContactName
ConsigneeCountry	Shipment.ShipToPersonInfo.Country
CODAmount	Container.COD_Amount
PackageHeight	Container.PackageHeight
PackageWidth	Container.PackageWidth
PackageLength	Container.PackageLength
UltimateDestCountry	Shipment.ShipToPersonInfo.Country
DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container.ContainerDetail.Item.NMFC_Class
LineOriginCountry	Container.ContainerDetail.Item.Country_Of_Origin
LineQuantity	Container.ContainerDetail.Quantity
ShipperCountry	Shipment.ShipNodePersonInfo.Country
InvoiceLineTotals	Sum of ContainerDetail.Quantity* Unit_Price from OrderLine
ShipperPhoneNumber	Shipment.ShipFrom.ShipperPhoneNumber
ResInd	If Shipment.ShipToPersonInfo.Company is set to "Blank", then the value is set to "1". Otherwise, it is set to "0"
ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No
ThermalLabelPrinterID	PrinterId for Carrier Label Document Id (FEDX_CARRIER_LABEL or UPSN_CARRIER_LABEL)
ShipperEIN	Container.Manifest.Ship_Node.Export_Taxpayer_Id
SNEmailAddressDestination1	Shipment.ShipTo.PersonInfo.EmailId
SunDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SUNDELI" exist, then the value is set to "1"
SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"

Table 6. Field-level Mapping for Sterling WMS XMLs published to corresponding Sterling Parcel Carrier Adapter (continued)

Sterling Parcel Carrier Adapter Attribute	Database Attribute
UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code
ShipperCompanyName	Shipment.ShipFrom.Country
ShipperAddress1	Shipment.ShipFrom.Address1
ShipperAddress2	Shipment.ShipFrom.Address2
ShipperCity	Shipment.ShipFrom.ShipperCity
ShipperState	Shipment.ShipFrom.ShipperState
ShipperPostalCode	Shipment.ShipFrom.ShipperPostalCode
ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
ConsigneeCity	Shipment.ShipToPersonInfo.City
ConsigneeStateProv	Shipment.ShipToPersonInfo.State
ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone
ConsigneeUPSAcctNumber	Shipment.CustCarrier_Account_No
PackageActualWeight	Container.Container_Gross_Weight
ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Parcel Carrier Adapters attribute is set to "COL". Otherwise, it is set to "PRE"
PickupDate	Container.Manifest.Manifest_Date
DeclaredValueInsurance	Container.Declared_Value
CODInd	
ShipperContactName	Shipment.ShipFrom.ShipperContactName
ConsigneeCountry	Shipment.ShipToPersonInfo.Country
CODAmount	Container.COD_Amount
PackageHeight	Container.PackageHeight
PackageWidth	Container.PackageWidth
PackageLength	Container.PackageLength
UltimateDestCountry	Shipment.ShipToPersonInfo.Country
DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container.ContainerDetail.Item.NMFC_Class
LineOriginCountry	Container.ContainerDetail.Item.Country_Of_Origin
LineQuantity	Container.ContainerDetail.Quantity
ShipperCountry	Shipment.ShipNodePersonInfo.Country
InvoiceLineTotals	Sum of ContainerDetail.Quantity* Unit_Price from OrderLine
ShipperPhoneNumber	Shipment.ShipFrom.ShipperPhoneNumber
ResInd	If Shipment.ShipToPersonInfo.Company is set to "Blank", then the value is set to "1". Otherwise, it is set to "0"
ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No

Table 6. Field-level Mapping for Sterling WMS XMLs published to corresponding Sterling Parcel Carrier Adapter (continued)

Sterling Parcel Carrier Adapter Attribute	Database Attribute
ThermalLabelPrinterID	PrinterId for Carrier Label Document Id (FEDX_CARRIER_LABEL or UPSN_CARRIER_LABEL)
ShipperEIN	Container.Manifest.Ship_Node.Export_Taxpayer_Id
SNEmailAddressDestination1	Shipment.ShipTo.PersonInfo.EmailId
SunDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SUNDELI" exist, then the value is set to "1"
SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"
UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code
Configuration for ShipperAccountNumber. 1:1 mapping between ShipperAccountNumber and Shipping Key. One installation can have multiple meter numbers. Each meter number has a corresponding Shipping Key.	Container.Manifest.Manifest.Shipper_Account_No
ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No
PickUpDate	Container.Manifest.Manifest_Date
UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code
PackageActualWeight	Container.Container_Gross_Weight
DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container.ContainerDetail.Item.NMFC_Class
PackageLength	Container.PackageLength
PackageWidth	Container.PackageWidth
PackageHeight	Container.PackageHeight
Declared Value Insurance	Container.Declared_Value
SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"
ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Parcel Carrier Adapters attribute is set to "COL". Otherwise, it is set to "PRE"
ConsigneeUPSAcctNumber	Shipment.CustCarrier_Account_No
CODAmount	Container.COD_Amount
SenderPhone	Shipment.ShipNodePersonInfo.Day_Phone
ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
ConsigneeCity	Shipment.ShipToPersonInfo.City
ConsigneeStateProv	Shipment.ShipToPersonInfo.State
ConsigneeCountry	Shipment.ShipToPersonInfo.Country
ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone

Field-Level Mapping for ConnectShip

The field-level mapping for the Sterling ConnectShip Adaptor XML and the ConnectShip SHIPMENTREQUEST API input and output are provided in Table 6 on page 9. Mapping is done between the Input XML that is passed to the Sterling ConnectShip Adaptor and the input required for ConnectShip. The TransactionId is "CS_SHIP" and the SubTransaction Id is "Request". Pld Mapping provided here is only for the Carrier (United Parcel Service Unites States).

Table 7. Field-Level Mapping for ConnectShip

Carrier Field Name	Sterling ConnectShip Adaptor Attribute
SHIPMENTREQUEST/PACKAGES/PKG/ PKGWEIGHT/WEIGHTUNITS	UPSPLD/PackageLevelDetail@UOMWeight
SHIPMENTREQUEST/PACKAGES/PKG/ PKGWEIGHT/WEIGHTVALUE	UPSPLD/PackageLevelDetail@PackageActualWeight
SHIPMENTREQUEST/PACKAGES/PKG/ DIMENSION/DIMUNITS	UPSPLD/PackageLevelDetail@UOMDim
SHIPMENTREQUEST/PACKAGES/PKG/ DIMENSION/DIMVALUE	UPSPLD/PackageLevelDetail@PackageLength
SHIPMENTREQUEST/PACKAGES/PKG/ REFERENCE/MISCREERENCE1	UPSPLD/PackageLevelDetail@ShipmentNumber
SHIPMENTREQUEST/PACKAGES/PKG/ TRACKINGNUMBER	UPSPLD/PackageLevelDetail@PackageTrackingNumber
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/SATDELIVERY	UPSPLD/PackageLevelDetail@SatDeliveryInd
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/DECLAREDVALUE/ CURRENCYCODE	UPSPLD/PackageLevelDetail@CurrencyCode
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/DECLAREDVALUE/ MONETARYVALUE	UPSPLD/PackageLevelDetail@DeclaredValueInsurance
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/COD/CODAMOUNT/ CURRENCYCODE	UPSPLD/ PackageLevelDetail@ShipmentCODCurrencyCode
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/COD/CODAMOUNT/ MONETARYVALUE	UPSPLD/PackageLevelDetail@CODAmount
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/COD/ CODPAYMENTMETHOD	UPSPLD/PackageLevelDetail@CODFundsInd
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/HAZARDOUS/ HAZMAT	UPSPLD/AccessorialRecord@HazMat
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ PRODUCTCODE	UPSPLD/CommodityRecord@PartNumber
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/QUANTITY	UPSPLD/CommodityRecord@LineQuantity

Table 7. Field-Level Mapping for ConnectShip (continued)

Carrier Field Name	Sterling ConnectShip Adaptor Attribute
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ UNITMEASURE	UPSPLD/CommodityRecord@LineQtyUOM
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/UNITWEIGHT	UPSPLD/CommodityRecord@CommodityWeight
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/UNITVALUE	UPSPLD/CommodityRecord@LineUnitAmtPrice
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ PRODUCTDESCRIPTION	UPSPLD/CommodityRecord@LineMerchDesc1
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ ORIGINCOUNTRY	UPSPLD/CommodityRecord@LineOriginCountry
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ HARMONIZEDCODE	UPSPLD/CommodityRecord@CommodityCode
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ LICENSENUMBER	UPSPLD/CommodityRecord@LineLicenseInfo
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ LICENSEEXPDATE	UPSPLD/CommodityRecord@LineLicenseExpDate
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ COMMODITYCONTENTS/CONTENT/ECCN	UPSPLD/CommodityRecord@ECCN
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ DECLAREDVALUECUSTOMS	UPSPLD/ InternationalRecord@ShipmentInsuranceDeclaredValue
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ ULTIMATEDESTCOUNTRY	UPSPLD/InternationalRecord@UltimateDestCountry
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/INTL/ INTLDESCRIPTION	UPSPLD/InternationalRecord@DescriptionOfGoods
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/SUNDAY_DELIVERY	UPSPLD/ExtraFieldsRecord@SunDeliveryInd
SHIPMENTREQUEST/PACKAGES/PKG/ CONSIGNEE/COMPANY	UPSPLD/PackageLevelDetail@ConsigneeCompanyName
SHIPMENTREQUEST/PACKAGES/PKG/ CONSIGNEE/CONTACT	UPSPLD/PackageLevelDetail@ConsigneeAttention
SHIPMENTREQUEST/PACKAGES/PKG/ CONSIGNEE/ADDRESS1	UPSPLD/PackageLevelDetail@ConsigneeAddress1

Table 7. Field-Level Mapping for ConnectShip (continued)

Carrier Field Name	Sterling ConnectShip Adaptor Attribute
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/ADDRESS2	UPSPLD/PackageLevelDetail@ConsigneeAddress2
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/ADDRESS3	UPSPLD/PackageLevelDetail@ConsigneeAddress3
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/CITY	UPSPLD/PackageLevelDetail@ConsigneeCity
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/STATEPROVINCE	UPSPLD/PackageLevelDetail@ConsigneeStateProv
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/POSTALCODE	UPSPLD/PackageLevelDetail@ConsigneePostalCode
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/RESIDENTIAL	UPSPLD/PackageLevelDetail@ResInd
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/PHONE	UPSPLD/PackageLevelDetail@ConsigneePhone
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/COUNTRYSYMBOL	UPSPLD/PackageLevelDetail@ConsigneeCountry
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/CONSIGNEEACCOUNT	UPSPLD/PackageLevelDetail@ConsigneeUPSacctNumber
SHIPMENTREQUEST/DEFATTRIBUTES/SHIPPERINFO/SHIPPER	UPSPLD/PackageLevelDetail@ShipperAccountNumber
SHIPMENTREQUEST/PACKAGES/PKG/TERMS	UPSPLD/PackageLevelDetail@ShipmentChgType
SHIPMENTREQUEST/DEFATTRIBUTES/SHIPDATE	UPSPLD/PackageLevelDetail@PickupDate
SHIPMENTREQUEST/PACKAGES/PKG/LABELPRINT/PORT	UPSPLD/ExtraFieldsRecord@ThermalLabelPrinterID
SHIPMENTREQUEST/SHIPMENTSERVICE/SCS	UPSPLD/PackageLevelDetail@UPSServiceType
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNNUMBER_OR_EMAIL	UPSPLD/AdvisoryInformationRecord@SNEmailAddressDestination1
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNADDRESS/CSNCOMPANY	UPSPLD/AdvisoryInformationRecord@SNCompanyName1
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNADDRESS/CSNCONTACT	UPSPLD/AdvisoryInformationRecord@SNAttnName1
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNADDRESS/CSNPHONE	UPSPLD/AdvisoryInformationRecord@SNContactPhone1
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/PROOF/PROOFFLAG	UPSPLD/PackageLevelDetail@DCISType
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/PROOF/PROOFSIGNATURE	UPSPLD/PackageLevelDetail@DCISType
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/PROOF/PROOFADULTSIGNATURE	UPSPLD/PackageLevelDetail@DCISType
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPCOMPANY	UPSPLD/AlternatePartyRecord@CompanyName

Table 7. Field-Level Mapping for ConnectShip (continued)

Carrier Field Name	Sterling ConnectShip Adaptor Attribute
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPADDRESS1	UPSPLD/AlternatePartyRecord@Address1
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPADDRESS2	UPSPLD/AlternatePartyRecord@Address2
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPADDRESS3	UPSPLD/AlternatePartyRecord@Address3
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPCITY	UPSPLD/AlternatePartyRecord@City
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPSTATEPROVINCE	UPSPLD/AlternatePartyRecord@StateProv
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPPOSTALCODE	UPSPLD/AlternatePartyRecord@PostalCode
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPCOUNTRYSYMBOL	UPSPLD/AlternatePartyRecord@Country
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPPHONE	UPSPLD/AlternatePartyRecord@Phone
SHIPMENTREQUEST/PACKAGES/PKG/ PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/ BTPACCOUNT	UPSPLD/AlternatePartyRecord@ID_AcctNumber
SHIPMENTREQUEST/PACKAGES/PKG/ REFERENCE/NOFN_SEQUENCE	UPSPLD/PackageLevelDetail@NOFNSequence
SHIPMENTREQUEST/PACKAGES/PKG/ REFERENCE/NOFN_TOTAL	UPSPLD/PackageLevelDetail@NOFNTotal

Field-Level Mapping for FedEx

For FedEx integration, the following internal methods of the Sterling FedEx Adaptor are invoked:

- openManifest
- shipCarton
- deleteCarton
- closeManifest

The field-level mappings for FedEx are provided in the following table.

Table 8. Field-Level Mapping for FedEx

ID	Name	Sterling FedEx Adaptor Attribute
4	Shipper Company Name	ShipperCompanyName
5	Shipper Address 1	ShipperAddress1
6	Shipper Address 2	ShipperAddress2
7	Shipper City	ShipperCity

Table 8. Field-Level Mapping for FedEx (continued)

ID	Name	Sterling FedEx Adaptor Attribute
8	Shipper State	ShipperState
9	Shipper Postal Code	ShipperPostalCode
11	Recipient Company	ConsigneeCompanyName
13	Recipient Address 1	ConsigneeAddress1
14	Recipient Address 2	ConsigneeAddress2
15	Recipient City	ConsigneeCity
16	Recipient State/Province	ConsigneeStateProv
17	Recipient Postal Code	ConsigneePostalCode
18	Recipient Phone Number	ConsigneePhone
20	Payer or Account Number	ConsigneeUPSACctNumber
21-#	Package/Shipment Weight	PackageActualWeight
23	Payment Code	ShipmentChgType
24	Ship Date	PickupDate
26	Declared / Carriage Value	DeclaredValueInsurance
27	COD Flag	CODInd
32	Shipper Contact Name	ShipperContactName
50	Recipient Country Code	ConsigneeCountry
53	COD Amount	CODAmount
57-#	Package height	PackageHeight
58-#	Package width	PackageWidth
59-#	Package length	PackageLength
74	Country of Ultimate Destination	UltimateDestCountry
79-#	Description	DescriptionOfGoods
80-#	Country of Manufacture	LineOriginCountry
82-#	Quantity	LineQuantity
117	Shipper Country	ShipperCountry
119	Total Customs Value	InvoiceLineTotals
183	Shipper Phone Number	ShipperPhoneNumber
440	Residential Delivery Flag	ResInd
498	Meter Number	ShipperAccountNumber
537	Thermal Label Printer ID	ThermalLabelPrinterID
1139	Sender IRS/EIN Number	ShipperEIN
1204-#	Ship Alert Email Address	SNEmailAddressDestination1
1248	Sunday Delivery Flag	SunDeliveryInd
1266	Saturday Delivery Flag	SatDeliveryInd
1274	Service Type	UPSServiceType

Field-Level Mapping for Sterling Pierbridge Adaptor

The field-level mapping for Sterling Pierbridge Adaptor API inputs and outputs are provided in the factory setup of . Mapping is performed between the input

XML that is passed to the Sterling Pierbridge Adaptor and the input required for the AgileElite shipment server. The PLD mappings for the Sterling Pierbridge Adaptor provided in the table are applicable for the following carriers:

- United States Postal Service
- Federal Express
- United Parcel Service United States
- United Parcel Service Canada
- United Parcel Service Asia Pacific
- United Parcel Service Europe
- United Parcel Service Latin America
- Purolator

Table 9. Field-Level Mapping for Sterling Pierbridge Adaptor

Field Name	Sterling Pierbridge Adaptor Attribute
PierbridgeVoidRequest/Carrier	DelPackage/Carrier
PierbridgeVoidRequest/Packages/Package/WayBillNumber	DelPackage/TrackingNumber
PierbridgeVoidRequest/UserName	DelPackage/ShipperAccountNumber
PierbridgeEndOfDayActionRequest@Carrier	Manifest@Carrier
PierbridgeEndOfDayActionRequest@ShipDate	Manifest@ManifestDate
PierbridgeEndOfDayActionRequest@UserName	Manifest@ShipperAccountNumber
PierbridgeEndOfDayListRequest@Carrier	Manifest@Carrier
PierbridgeEndOfDayListRequest@UserName	Manifest@ShipperAccountNumber
PierbridgePrintRequest@WayBillNumber	ReprintPackage@TrackingNumber
PierbridgePrintRequest@UserName	ReprintPackage@ShipperAccountNumber
PierbridgePrintRequest@Carrier	ReprintPackage@Carrier
PierbridgePrintRequest@UPSServiceType	ReprintPackage@ServiceType
PierbridgeRateRequest@Carrier	FreightCharge@Carrier
PierbridgeRateRequest@Carrier	FreightCharge/Shipment@Carrier
PierbridgeRateRequest/Sender/City	FreightCharge/Shipment@FromCity
PierbridgeRateRequest/Sender/Region	FreightCharge/Shipment@FromState
PierbridgeRateRequest/Sender/PostalCode	FreightCharge/Shipment@FromZip
PierbridgeRateRequest@ServiceType	FreightCharge/Shipment@Service
PierbridgeRateRequest/Receiver/City	FreightCharge/Shipment@ToCity
PierbridgeRateRequest/Receiver/Country	FreightCharge/Shipment@ToCountry
PierbridgeRateRequest/Receiver/Region	FreightCharge/Shipment@ToState
PierbridgeRateRequest/Receiver/PostalCode	FreightCharge/Shipment@ToZip
PierbridgeRateRequest/Packages/Package/DeliveryConfirmation	FreightCharge/SpecialServices@SpecialService
PierbridgeRateRequest/Packages/Package/DimensionsUOM	FreightCharge/Package@DimensionUOM
PierbridgeRateRequest/Packages/Package/Height	FreightCharge/Package@Height
PierbridgeRateRequest/Packages/Package/Length	FreightCharge/Package@Length
PierbridgeRateRequest/Packages/Package/Weight	FreightCharge/Package@Weight

Table 9. Field-Level Mapping for Sterling Pierbridge Adaptor (continued)

Field Name	Sterling Pierbridge Adaptor Attribute
PierbridgeRateRequest/Packages/Package/WeightUOM	FreightCharge/Package@WeightUOM
PierbridgeRateRequest/Packages/Package/Width	FreightCharge/Package@Width
PierbridgeReturnRequest@Carrier	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@Carrier
PierbridgeReturnRequest@ServiceType	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@UPSServiceType
PierbridgeReturnRequest/Sender@CompanyName	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperCompanyName
PierbridgeReturnRequest/Sender@Street	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperAddress1
PierbridgeReturnRequest/Sender@Locale	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperAddress2
PierbridgeReturnRequest/Sender@Other	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperAddress3
PierbridgeReturnRequest/Sender@City	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperCity
PierbridgeReturnRequest/Sender@Region	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperState
PierbridgeReturnRequest/Sender@PostalCode	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperZipCode
PierbridgeReturnRequest/Sender@Country	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperCountry
PierbridgeReturnRequest/Packages/Package@SenderName	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperContactName
PierbridgeReturnRequest/Packages/Package@SenderPhone	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperPhoneNumber
PierbridgeReturnRequest/Packages/Package@Weight	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@PackageActualWeight
PierbridgeReturnRequest/Packages/Package@Length	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@PackageLength
PierbridgeReturnRequest/Packages/Package@Height	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@PackageHeight
PierbridgeReturnRequest/Packages/Package@Width	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@PackageWidth
PierbridgeReturnRequest@UserName	UPSPLD/ReturnShippingLabels/ReturnShippingLabel@ShipperAccountNumber
PierbridgeShipRequest/Carrier	UPSPLD@Carrier
PierbridgeShipRequest/Packages/Package/RecordIdentifiers/RecordIdentifier/Keys/Key1	UPSPLD/PackageLevelDetail@ShipID
PierbridgeShipRequest/ShipDate	UPSPLD/PackageLevelDetail@PickupDate
PierbridgeShipRequest/RecordIdentifiers/RecordIdentifier/Keys/Key2	UPSPLD/PackageLevelDetail@ShipmentKey
PierbridgeShipRequest/Billing/PayerType	UPSPLD/PackageLevelDetail@ShipmentChgType
PierbridgeShipRequest/Billing/AccountNumber	UPSPLD/PackageLevelDetail@ConsigneeUPSacctNumber
PierbridgeShipRequest/Receiver/CompanyName	UPSPLD/PackageLevelDetail@ConsigneeCompanyName
PierbridgeShipRequest/Receiver/Street	UPSPLD/PackageLevelDetail@ConsigneeAddress1

Table 9. Field-Level Mapping for Sterling Pierbridge Adaptor (continued)

Field Name	Sterling Pierbridge Adaptor Attribute
PierbridgeShipRequest/Receiver/Locale	UPSPLD/PackageLevelDetail@ConsigneeAddress2
PierbridgeShipRequest/Receiver/Other	UPSPLD/PackageLevelDetail@ConsigneeAddress3
PierbridgeShipRequest/Receiver/City	UPSPLD/PackageLevelDetail@ConsigneeCity
PierbridgeShipRequest/Receiver/Region	UPSPLD/PackageLevelDetail@ConsigneeStateProv
PierbridgeShipRequest/Receiver/PostalCode	UPSPLD/PackageLevelDetail@ConsigneePostalCode
PierbridgeShipRequest/Packages/Package/ReceiverPhone	UPSPLD/PackageLevelDetail@ConsigneePhone
PierbridgeShipRequest/Receiver/Country	UPSPLD/PackageLevelDetail@ConsigneeCountry
PierbridgeShipRequest/Packages/Package/ReceiverEmail	UPSPLD/PackageLevelDetail@ConsigneeEmailAddress
PierbridgeShipRequest/RecordIdentifiers/RecordIdentifier/Keys/Key1	UPSPLD/PackageLevelDetail@ShipmentNumber
PierbridgeShipRequest/Billing/PayerType	UPSPLD/PackageLevelDetail@ActualFreightTerms
PierbridgeShipRequest//Packages/Package/WayBillNumber	UPSPLD/PackageLevelDetail@PackageTrackingNumber
PierbridgeShipRequest/ServiceType	UPSPLD/PackageLevelDetail@UPSServiceType
PierbridgeShipRequest//Packages/Package/PackageType	UPSPLD/PackageLevelDetail@PackagingType
PierbridgeShipRequest/Packages/Package/Weight	UPSPLD/PackageLevelDetail@PackageActualWeight
PierbridgeShipRequest//Packages/Package/COD/Value	UPSPLD/PackageLevelDetail@CODAmount
PierbridgeShipRequest//Packages/Package/COD/Type	UPSPLD/PackageLevelDetail@CODFundsInd
PierbridgeShipRequest//Packages/Package/COD/ValueCurrency	UPSPLD/PackageLevelDetail@ShipmentCODCurrencyCode
PierbridgeShipRequest/SaturdayDelivery	UPSPLD/PackageLevelDetail@SatDeliveryInd
PierbridgeShipRequest//Packages/Package/Oversize	UPSPLD/PackageLevelDetail@OversizePackageInd
PierbridgeShipRequest/Receiver/Residential	UPSPLD/PackageLevelDetail@ResInd
PierbridgeShipRequest/International/AESTransactionNumber	UPSPLD/PackageLevelDetail@ITNEntry
PierbridgeShipRequest/Sender/SentBy	UPSPLD/PackageLevelDetail@SenderName
PierbridgeShipRequest/Sender/SentBy	UPSPLD/PackageLevelDetail@ShipperContactName
PierbridgeShipRequest/Sender/Street	UPSPLD/PackageLevelDetail@ShipperAddress1
PierbridgeShipRequest/Sender/Locale	UPSPLD/PackageLevelDetail@ShipperAddress2
PierbridgeShipRequest/Sender/Other	UPSPLD/PackageLevelDetail@ShipperAddress3
PierbridgeShipRequest/Sender/City	UPSPLD/PackageLevelDetail@ShipperCity
PierbridgeShipRequest/Sender/Region	UPSPLD/PackageLevelDetail@ShipperStateProv
PierbridgeShipRequest/Sender/Region	UPSPLD/PackageLevelDetail@ShipperState
PierbridgeShipRequest/Sender/PostalCode	UPSPLD/PackageLevelDetail@ShipperPostalCode
PierbridgeShipRequest/Sender/PostalCode	UPSPLD/PackageLevelDetail@ShipperZipCode
PierbridgeShipRequest/Sender/Phone	UPSPLD/PackageLevelDetail@ShipperPhoneNumber
PierbridgeShipRequest/Sender/Phone	UPSPLD/PackageLevelDetail@SenderPhone

Table 9. Field-Level Mapping for Sterling Pierbridge Adaptor (continued)

Field Name	Sterling Pierbridge Adaptor Attribute
PierbridgeShipRequest/Sender/Country	UPSPLD/PackageLevelDetail@ShipperCountry
PierbridgeShipRequest/Sender/Email	UPSPLD/PackageLevelDetail@ShipperEmailAddress
PierbridgeShipRequest/CloseShipment	UPSPLD/PackageLevelDetail@IsLastPackageInShipment
PierbridgeShipRequest/Packages/Package/International/Hazardous	UPSPLD/AccessorialRecord@HazMat
PierbridgeShipRequest/Packages/Package/Length	UPSPLD/AccessorialRecord@PackageLength
PierbridgeShipRequest/Packages/Package/Width	UPSPLD/AccessorialRecord@PackageWidth
PierbridgeShipRequest/Packages/Package/Height	UPSPLD/AccessorialRecord@PackageHeight
PierbridgeShipRequest/Packages/Package/DeliveryConfirmation	UPSPLD/SpecialServices/SpecialService@SignatureRequiredFlag
PierbridgeShipRequest/Packages/Package/DeliveryConfirmation	UPSPLD/SpecialServices/SpecialService@SignatureRequiredType
PierbridgeShipRequest/International/TotalDutyValue	UPSPLD/InternationalRecord@InvoiceLineTotals
PierbridgeShipRequest/International/TotalDutyValue	UPSPLD/InternationalRecord@ShipmentInsuranceDeclaredValue
PierbridgeShipRequest/International/UltimateDestinationCountry	UPSPLD/InternationalRecord@UltimateDestCountry
PierbridgeShipRequest/Packages/Package/International/Contents/Content/PurchaseOrderNumber	UPSPLD/InternationalRecord@PONumber
PierbridgeShipRequest/Packages/Package/International/Contents/Content/ItemDescription	UPSPLD/InternationalRecord@DescriptionOfGoods
PierbridgeShipRequest/International/AESTransactionNumber	UPSPLD/InternationalRecord@AESTransactionNumber
PierbridgeShipRequest/Packages/Package/International/Contents/Content/ItemDescription	UPSPLD/CommodityRecord@DescriptionOfGoods
PierbridgeShipRequest/Packages/Package/International/Contents/Content/ItemCode	UPSPLD/CommodityRecord@PartNumber
PierbridgeShipRequest/Packages/Package/International/Contents/Content/OriginCountry	UPSPLD/CommodityRecord@LineOriginCountry
PierbridgeShipRequest/Packages/Package/International/Contents/Content/Quantity	UPSPLD/CommodityRecord@LineQuantity
PierbridgeShipRequest/Packages/Package/International/Contents/Content/ItemDescription	UPSPLD/CommodityRecord@LineMerchDesc1
PierbridgeShipRequest/Packages/Package/International/Contents/Content/Value	UPSPLD/CommodityRecord@LineExtendedAmt
PierbridgeShipRequest/Packages/Package/International/Contents/Content/Weight	UPSPLD/CommodityRecord@CommodityWeight
PierbridgeShipRequest/Outputs/Output/PrinterID	UPSPLD/ExtraFieldsRecord@ThermalLabelPrinterID
PierbridgeShipRequest/Outputs/Output/PrinterID	UPSPLD/ExtraFieldsRecord@ShipmentDocumentPrinterID
PierbridgeShipRequest/Billing/AccountNumber	UPSPLD/AlternatePartyRecord@ID_AcctNumber
PierbridgeShipRequest/Billing/CompanyName	UPSPLD/AlternatePartyRecord@CompanyName
PierbridgeShipRequest/Billing/Street	UPSPLD/AlternatePartyRecord@Address1

Table 9. Field-Level Mapping for Sterling Pierbridge Adaptor (continued)

Field Name	Sterling Pierbridge Adaptor Attribute
PierbridgeShipRequest/Billing/Locale	UPSPLD/AlternatePartyRecord@Address2
PierbridgeShipRequest/Billing/Other	UPSPLD/AlternatePartyRecord@Address3
PierbridgeShipRequest/Billing/City	UPSPLD/AlternatePartyRecord@City
PierbridgeShipRequest/Billing/Region	UPSPLD/AlternatePartyRecord@StateProv
PierbridgeShipRequest/Billing/PostalCode	UPSPLD/AlternatePartyRecord@PostalCode
PierbridgeShipRequest/Billing/Country	UPSPLD/AlternatePartyRecord@Country
PierbridgeShipRequest/UserName	UPSPLD/PackageLevelDetail@ShipperAccountNumber
PierbridgeShipRequest/Packages/Package/ReceiverName	UPSPLD/PackageLevelDetail@ConsigneeAttention
PierbridgeShipRequest/Packages/Package/ShipperReference	UPSPLD/PackageLevelDetail@PBShipperReference

Using User Exits

User exits are provided in the Parcel Carrier Adaptors to facilitate the implementation of different logic.

The following user exits are supported for the Parcel Carrier Adaptors:

- YCSshipCartonUserExit
- YCScloseManifestUserExit
- YCSdeleteCartonUserExit

For more information about these user exits, see the *Sterling Selling and Fulfillment Foundation: Javadocs*.

Implementation

There is a class for each user exit, which is called from the application.

For example: A user wants to use the shipCarton user exit for a ShipCarton Transaction. There is a Java™ interface for this transaction for which the user exit has been defined. That is, shipCarton is defined in the Java interface YCSshipCartonUserExit.

This file has to be compiled and the path of the class file should be specified using the User Exit Management in the Applications Manager. For more information about User Exit Management, see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration Guide*.

Chapter 3. Configuring the Parcel Carrier Adapters

This chapter describes the configuration of the Parcel Carrier Adapters.

Although, the Parcel Carrier Adapters come with pre-installed carrier configuration data, carriers can modify their service offerings based on business plans. This may require you to modify the configuration data at such times.

Setting Properties for the Parcel Carrier Adapters

The Parcel Carrier Adapters require relevant values for the following parameters:

- ConnectShip Server URL
- FedEx logon parameters
- XML Logging
- AgileElite Server URL
- AgileElite Default User for Rate Request
- AgileElite DB Server logon parameters

These values are stored in the <INSTALL_DIR>/properties/yfs.properties_ycs_ext file. To modify any of these parameters, add an entry for them in the <INSTALL_DIR>/properties/customer_overrides.properties file or rerun the install script.

For additional information about overriding properties using the customer_overrides.properties file, see the *Sterling Selling and Fulfillment Foundation: Properties Guide*.

Carriers Supported by the Supplied Adapters

The Parcel Carrier Adapters support the following carriers out-of-the-box:

Table 10. Carriers supported by Sterling Parcel Carrier Adapters

Carrier	Sterling FedEx Adaptor	Sterling ConnectShip Adaptor	Sterling Pierbridge Adaptor
Federal Express® (FedEx)	Yes	No	Yes
United Parcel Service United States (UPSN)	No	Yes	Yes
United Parcel Service Canada (UPSC)	No	Yes	Yes
United Parcel Service Europe (UPSE)	No	Yes	Yes
United Parcel Service Asia Pacific (UPSA)	No	Yes	Yes
United Parcel Service Latin America (UPSL)	No	Yes	Yes
United States Postal Service (USPS)	No	No	Yes
Purolator	No	No	Yes

Pre-Configured Carriers

The Parcel Carrier Adapters application is pre-configured for the following carriers:

Federal Express (FedEx) Services and Special Services

United Parcel Service United States (UPSN)

United Parcel Service Canada (UPSC)

United Parcel Service Europe (UPSE)

United Parcel Service Asia Pacific (UPSA)

United Parcel Service Latin America (UPSL)

United States Postal Service (USPS) Services and Special Services

Purolator Services and Special Services

Federal Express (FedEx) Services and Special Services

This section provides a list of the services and special services provided for FedEx.

Services

The Sterling FedEx Adaptor and the Sterling Pierbridge Adaptor supports the following carrier services for FedEx:

- FedEx Priority Overnight
- First Overnight
- 2 Day
- Standard Overnight
- Express Saver
- 1 Day Freight
- 2 Day Freight
- 3 Day Freight
- FedEx Ground
- Extra Hours
- Home Delivery
- International Priority
- International Economy
- International First
- International Priority Freight
- International Economy Freight

Special Services

The Sterling FedEx Adaptor supports the following special services for FedEx:

- Saturday Delivery
- Saturday Pickup

- COD
- Ship Alert
- Adult Signature Required
- Indirect Signature Required

The Sterling Pierbridge Adaptor supports the following special services for FedEx:

- Saturday Delivery
- Adult Signature Required
- Indirect Signature Required

United Parcel Service United States (UPSN) Services

The Sterling ConnectShip Adaptor and the Sterling Pierbridge Adaptor supports the following carrier services for UPSN:

- UPS NEXT DAY AIR
- UPS NEXT DAY AIR SAVER
- UPS 2ND DAY AIR
- UPS 2ND DAY AIR AM
- UPS GROUND
- UPS 3 DAY SELECT
- UPS EARLY AM
- UPS WORLDWIDE EXPEDITED
- UPS WORLDWIDE EXPRESS
- UPS WORLDWIDE EXPRESS PLUS

Special Services

The Sterling ConnectShip Adaptor supports the following special services for UPSN:

- Declared Value Insurance
- Collect on Delivery
- Tagless COD
- Signature Required
- Adult Signature Required
- Delivery Confirmation
- Shipment Notification
- Saturday Delivery
- Saturday Pickup

The Sterling Pierbridge Adaptor supports the following special services for UPSN:

- Saturday Delivery
- Delivery Confirmation - Signature Required
- Delivery Confirmation - Adult Signature Required

United Parcel Service Canada (UPSC) Services

The Sterling ConnectShip Adaptor supports the following carrier services for UPSC:

- CANADA UPS EXPRESS
- CANADA UPS EXPRESS SAVER
- CANADA UPS EXPEDITED
- CANADA UPS STANDARD
- CANADA UPS EXPRESS EARLY AM

Special Services

The Sterling ConnectShip Adaptor supports the following special services for UPSC:

- Declared Value Insurance
- Collect on Delivery
- Tagless COD
- Signature Required
- Adult Signature Required
- Delivery Confirmation
- Shipment Notification
- Saturday Delivery
- Saturday Pickup

United Parcel Service Europe (UPSE) Services

The Sterling ConnectShip Adaptor supports the following carrier services for UPSE:

- EUROPE UPS EXPRESS
- EUROPE UPS EXPRESS SAVER
- EUROPE UPS EXPEDITED
- EUROPE UPS STANDARD

Special Services

The Sterling ConnectShip Adaptor supports the following special services for UPSE:

- Declared Value Insurance
- Collect on Delivery
- Tagless COD
- Signature Required
- Adult Signature Required
- Delivery Confirmation
- Shipment Notification
- Saturday Delivery
- Saturday Pickup

United Parcel Service Asia Pacific (UPSA) Services

The Sterling ConnectShip Adaptor supports the following carrier services for UPSA:

- APAC UPS EXPRESS
- APAC UPS WORLDWIDE EXPEDITED
- APAC UPS WORLDWIDE EXPRESS
- APAC UPS WORLDWIDE EXPRESS PLUS

Special Services

The Sterling ConnectShip Adaptor supports the following special services for UPSA:

- Declared Value Insurance
- Collect on Delivery
- Tagless COD
- Signature Required
- Adult Signature Required
- Delivery Confirmation
- Shipment Notification
- Saturday Delivery
- Saturday Pickup

United Parcel Service Latin America (UPSL) Services

The Sterling ConnectShip Adaptor supports the following carrier services for UPSL:

- LATAM UPS EXPRESS
- LATAM UPS WORLDWIDE EXPEDITED
- LATAM UPS WORLDWIDE EXPRESS
- LATAM UPS WORLDWIDE EXPRESS PLUS

Special Services

The Sterling ConnectShip Adaptor supports the following special services for UPSL:

- Declared Value Insurance
- Collect on Delivery
- Tagless COD
- Signature Required
- Adult Signature Required
- Delivery Confirmation
- Shipment Notification
- Saturday Delivery
- Saturday Pickup

United States Postal Service (USPS) Services and Special Services

This section provides a list of the services and special services provided for USPS.

Services

The Sterling ConnectShip Adaptor and the Sterling Pierbridge Adaptor supports the following carrier services for USPS:

- USPSPriority
- USPSStandard

Special Services

The Sterling ConnectShip Adaptor supports the following special services for USPS:

- Saturday Delivery
- Signature Confirmation

The Sterling Pierbridge Adaptor supports the following special services for USPS:

- Saturday Delivery
- Signature Confirmation

Purolator Services and Special Services

This section provides a list of the services and special services provided for Purolator.

Services

The Sterling Pierbridge Adaptor supports the following carrier services for Purolator:

- Purolator Air 9:00 AM
- Purolator Air 10:30 AM
- Purolator Air
- Purolator Ground

Special Services

The Sterling Pierbridge Adaptor supports the following special services for Purolator:

- Saturday Delivery

Chapter 4. Integrating the Sterling ConnectShip Adapter with the ConnectShip Server

ConnectShip provides a suite of products to integrate with various carriers. At the core of this product line is Prologistics, which provides full functionality access to many parcel carriers (including UPS) in a carrier independent approach. Prologistics conforms to Microsoft's Internet technologies like ASP, COM/DCOM and requires Windows-based systems running IIS.

ConnectShip Toolkit, another product of ConnectShip, provides XML over HTTP-based APIs to access these Prologistics features.

The Sterling ConnectShip Adaptor uses APIs provided by ConnectShip Toolkit to integrate with all carriers. For more information about ConnectShip capabilities, visit the following Web site:

<http://www.connectship.com>

The Parcel Carrier Adapters integrate only with the parcel services, and not with the LTL/TL (Less-Than Truck Load/Truck Load) services.

Installing the ConnectShip Toolkit

ConnectShip Toolkit can be downloaded from the 'members area' of ConnectShip website (<http://www.connectship.com>).

- ConnectShip requires the installation of IIS. For more information about installing ConnectShip, see ConnectShip website.
- While installing choose all the relevant Carrier components, like UPS Domestic, UPS Europe, UPS Canada, UPS Latin America (including Mexico), and UPS Asia Pacific.
- Also choose the relevant printer device models, such as, Eltron, Zebra, and Windows Printer.

Configuring the ConnectShip Server

On successful installation, ConnectShip ToolKit is accessible through IIS. This is installed under C:\Inetpub\wwwroot\Prologistics and is accessible with Internet Explorer at <http://localhost/Prologistics/ASP/index.asp> (This link is relative to the server where this software is installed).

Some minimal configuration is required on the ConnectShip server, including creating shippers, and registering the shippers with carriers. This configuration is available under Prologistics configuration link.

In configuring a shipper, ensure that shipper abbreviation is mapped to ShipperAccountNumber on the Sterling ConnectShip Adaptor.

Warehouse Management System sets the ShipperAccountNumber Parcel Carrier Adapters XML attribute with the Shipping Account Number in ScacEx setup for ShipNode and Enterprise.

Keep the Abbreviation attribute on ConnectShip exactly the same as that of ShipperAccountNumber. But it would be better if there is a mapping created on the Sterling ConnectShip Adaptor (through YCS_GENERAL_CODES table) between Abbreviation on ConnectShip with ShipperAccountNumber from Sterling Warehouse Management System.

Open Manifest for ConnectShip

ConnectShip does not have a corresponding API. It automatically opens a new manifest for the pickup date and the Shipper when the first package is being manifested. While the Sterling ConnectShip Adaptor allows multiple open manifests for a given day for UPS packages, ConnectShip does not support this. ConnectShip allows only one open manifest for a Shipper for a given day. To open a second manifest, the first one has to be closed. So, while integrating with ConnectShip, the Sterling ConnectShip Adaptor ensures that only one open manifest exists for UPS for a given day. To identify if ConnectShip integration is being used, the Sterling ConnectShip Adaptor checks the existence of Logic_Switch attribute with "CS_SHIP" and Api_Name attribute with SHIPCARTON in YCS_PROCESS_CONTROL.

Add Containers to a Manifest for ConnectShip

ConnectShip provides two APIs called SHIPREQUEST and SHIPMENTREQUEST for manifesting a package. Both have similar XMLs and the Sterling ConnectShip Adaptor uses the SHIPMENTREQUEST API. Apart from manifesting the package, it also returns Tracking #, rating details, and prints labels. This API accepts Shipper, Carrier and Service, Consignee details, and Package & Special Services details as input.

The Sterling ConnectShip Adaptor exposes CS_SHIP as a Transaction (in YCS_PLD_DETAIL table and Logic_Switch in YCS_PROCESS_CONTROL table). If this is configured for the Carrier in which the package is being shipped, then ConnectShip integration is called.

Out-of-the-box, this integration is provided for UPS. FedEx continue to communicate directly to PowerShip.

This component of the Sterling ConnectShip Adaptor transforms the input XML to ConnectShip's requirements based on configuration present in YCS_PLD_DETAIL table. Factory defaults are provided for YCS_PLD_DETAIL for UPS/CS_SHIP.

Shipping international Shipments for ConnectShip

These are shipments originating from USA to a consignee in a different country. The Sterling ConnectShip Adaptor integration with ConnectShip for international shipments is different from domestic shipments in the US.

For international shipments, integration with ConnectShip occurs at a Shipment level and not at the Package level. This is required since freight charges at Shipment level is less than the sum of freight charges for individual packages.

The Sterling ConnectShip Adaptor internally calls ConnectShip SHIPMENTREQUEST API, which prints a label for the package and also manifest it. However, in the case of international shipments, ConnectShip is called only after all the packages in the shipment are manifested.

Labels for all packages along with Commercial invoice for Shipment is printed when the last package in the shipment is manifested. The `IsLastPackageInShipment` attribute has been added to `PackageLevelDetail` in `shipCarton` input XML.

Logic for determining whether a package requires Shipment/Package level integration is determined based on Carrier Service code. `YFS_SCAC_AND_SERVICE` table has a column called `Is_Shipment_Level_Intg_Reqd` based on which the switch occurs.

Note that International shipments have different Service codes as compared to Domestic Services. This is because Domestic shipments would sometimes require Shipment level integration.

Other additional setup required is:

Mapping between Country codes sent by Sterling Warehouse Management System and the Country Symbol code as required by ConnectShip. In `YCS_PLD_DETAIL` table, two ConnectShip XML nodes, `SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/COUNTRYSYMBOL` and `SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/ORIGINCOUNTRY` require this mapping. These fields are mapped to `UPSPLD/PackageLevelDetail@ConsigneeCountry` and `UPSPLD/CommodityRecord@LineOriginCountry` attributes on the input XML.

If international shipments are to be sent for countries other than US and Canada, user needs to insert data in `YCS_GENERAL_CODES` table. For example, if you want to ship to Germany, the Sterling Warehouse Management System code is `DE`, and ConnectShip maps it to `GERMANY`. Insert the following record in the `YCS_GENERAL_CODES` table:

```
INSERT INTO YCS_GENERAL_CODES (GENERAL_CODES_KEY, CARRIER,
CARRIER_ADAPTER_IMPL_KEY, CODE, VALUE, DESCRIPTION) values
('PrimaryKey1', 'UPSN', 'ConnectShipAdaptor', 'DE', 'GERMANY',
'UPSPLD/PackageLevelDetail@ConsigneeCountry');
```

Similar record must be inserted for the `UPSPLD/CommodityRecord@LineOriginCountry` attribute.

As a factory setup, the Sterling ConnectShip Adaptor only provides the mapping for US, passed in the input XML by Sterling Warehouse Management System, to "UNITED_STATES", as required by ConnectShip. Similar mappings would be required for other countries. The Carrier Code to be passed to ConnectShip is `TANDATA_UPS.UPS`.

Carrier Service Codes are different for international shipments and domestic shipments. ConnectShip provides three service codes for International shipments: `WEPD`, `WEXPPLS` & `WEXP`. Only these Services can be passed. Default factory data is provided for this mapping based on default Sterling Warehouse Management System configuration. `WEPD` is mapped to 08, `WEXPPLS` to 54 and `WEXP` to 71.

ConnectShip treats UPS Carrier code for Shipments from Canada, Europe, APAC, Latin America and US all differently.

Shipments from Canada

UPS Carrier Code for Canada is TANDATA_UPSCANADA.UPS.

Shipments from Europe

UPS Carrier Code for Shipments from Europe is TANDATA_UPSINTL.UPS.

Shipments from APAC

UPS Carrier Code for Shipments from Asia Pacific region is TANDATA_UPSAPAC.UPS.

Shipments from Latin America (including Mexico)

UPS Carrier Code for Shipments from Latin America is TANDATA_UPSLATAM.UPS.

Printing Labels and Documents for ConnectShip

Labels and documents can be printed by ConnectShip to a network printer or to a local printer. Alternatively, ConnectShip can also return a label buffer to the Sterling ConnectShip Adaptor for printing.

Printing and Saving UPS Labels for ConnectShip

ConnectShip enables automatic printing of UPS labels for the package being manifested. ConnectShip supports printing of US Domestic MaxiCode labels, Canada MaxiCode labels as well as Standard UPS label for shipments from other countries. The factory setup provided by Sterling Warehouse Management System supports printing of MaxiCode labels for US Domestic Shipments and Canada shipments. For rest of the countries, the printing utilizes Standard labels.

ConnectShip also provides the capability to save UPS labels in PNG format. To enable this, you must configure parcel carrier preferences appropriately. For more information about configuring parcel carrier preferences, see the *Sterling Selling and Fulfillment Foundation: Warehouse Management System Configuration Guide*. ConnectShip returns the label URL in the SHIPMENTRESPONSE input XML whenever a package is manifested using the SHIPMENTREQUEST input XML.

Table 11. Label Format Codes

Carrier Code	Domestic/International	Label Format
UPSN	DOMESTIC	TANDATA_UPS_MAXICODE_US_DOMESTIC.STANDARD
UPSN	INTERNATIONAL	TANDATA_UPS_MAXICODE_US_INTL.STANDARD
UPSC	DOMESTIC	TANDATA_UPS_MAXICODE_CANADA.STANDARD
UPSC	INTERNATIONAL	TANDATA_UPS_MAXICODE_CANADA.STANDARD
UPSE	DOMESTIC	TANDATA_STDLABEL.STANDARD
UPSE	INTERNATIONAL	TANDATA_STDLABEL.STANDARD
UPSA	DOMESTIC	TANDATA_STDLABEL.STANDARD
UPSA	INTERNATIONAL	TANDATA_STDLABEL.STANDARD
UPSL	DOMESTIC	TANDATA_STDLABEL.STANDARD
UPSL	INTERNATIONAL	TANDATA_STDLABEL.STANDARD

The label format to be printed is determined as follows:

- The Sterling ConnectShip Adaptor internally sets the “UPSPLD/ExtraFieldsRecord@LabelFormatValue” input XML attribute to either DOMESTIC/INTERNATIONAL based on origin and destination countries.
- The Sterling ConnectShip Adaptor looks up YCS_PLD_DETAIL table to get the mapping for CarrierFieldName SHIPMENTREQUEST/PACKAGES/PKG/LABELFORMAT and it's DefaultType & DefaultValue.
- For UPSN, the DefaultType is set as MAPPING and mapped to “UPSPLD/ExtraFieldsRecord@LabelFormatValue” input XML attribute.
- In the YCS_GENERAL_CODES table, DOMESTIC has been mapped to “TANDATA_UPS_MAXICODE_US_DOMESTIC.STANDARD” and INTERNATIONAL to “TANDATA_STDLABEL.STANDARD”.
- For other Carriers (UPSC, UPSE, UPSA & UPSL), the DefaultType is set to SYSTEM and DefaultValue to TANDATA_STDLABEL.STANDARD.

Printers Supported by ConnectShip

ConnectShip supports printing labels on many printers. Significant among them are many models of Zebra printers as well as Eltron printer models.

Following are the ConnectShip values for various printer models:

- ELTRON_2044
- ELTRON_2348
- ELTRON_2543
- ZEBRA_90XIII
- ZEBRA_170XIII
- ZEBRA_105SE
- ZEBRA_140
- ZEBRA_105
- ZEBRA_170
- ZEBRA_220
- ZEBRA_S300
- GENERIC.WINDOWSPRINTER

Irrespective of whether the Printer is a Zebra/Eltron or a different model, ConnectShip prints to that printer if printer driver is installed on the machine where ConnectShip is installed, by passing the PrinterModelSymbol as “GENERIC.WINDOWSPRINTER”.

Returning the Label String to the ConnectShip Adaptor

ConnectShip can also return the label string back to the Sterling ConnectShip Adaptor if the Printer Port is passed as “STRING” instead of a PrinterName. Label string that ConnectShip returns is based on the PrinterModel that is passed to it. However Port cannot be passed as “STRING” if PrinterModelSymbol is passed as “GENERIC.WINDOWSPRINTER”. PLD setup provided in factory setup for printing is listed below. In B2C scenarios where a shipment is predominantly a single package shipment, implementations can pass the value “STRING” in the “UPSPLD/ExtraFieldsRecord@ThermalLabelPrinterID” Parcel Carrier Adapters input XML attribute to get back the Printer string and print this UPS label as a part of a A4 Packing slip.

Table 12. PLD Factory Setup For Printing

Carrier Field Name	Field Name	Default Value
SHIPMENTREQUEST/ PACKAGES/PKG/LABELPRINT/ PORT	UPSPLD/ ExtraFieldsRecord@ThermalLabel PrinterID	NA
SHIPMENTREQUEST/ PACKAGES/PKG/LABELPRINT/ STOCKSYMBOL	NA	THERMAL_LABEL_8
SHIPMENTREQUEST/ PACKAGES/PKG/LABELPRINT/ PRINTERMODELSYMBOL	NA	GENERIC.WINDOWSPRINTER

Printing Other Documents with ConnectShip

ConnectShip also prints shipment level documents like Commercial Invoice, SED, and Certificate of Origin. These documents are valid only for international shipments, as integration at shipment level occurs only for international shipments. The Sterling ConnectShip Adaptor prints these documents only when the last international package is being manifested.

Note: In order to print shipment level documents, you need to install the Sterling Warehouse Management System on top of Sterling Selling and Fulfillment Foundation.

Shipment Level documents that need to be printed can be configured in YCS_PLD_Detail. The Sterling ConnectShip Adaptor provides printing of Commercial Invoice in the Factory setup. Additional documents can just be similarly added. The attribute ShipmentDocumentPrinterID added to the Sterling ConnectShip Adaptor input XML obtains the printer details for printing these documents.

Configuration Dependencies for ConnectShip YCS_PROCESS_CONTROL

Table 13. YCS Process Control

Carrier	API Name	Logic Switch
UPSN/UPSE/UPSL/ UPSA/UPSC	SHIPCARTON	CS_SHIP

YCS_GENERAL_CODES

Table 14. YCS General Codes

Carrier	Input XML Field Name	Notes
UPSN/UPSE/ UPSL/UPSA/ UPSC	UPSPLD/ PackageLevelDetail@ShipperAccountNumber	ShipperAccountNumber sent from Sterling Warehouse Management System should be mapped to Shipper setup on ConnectShip.

Close Manifest for ConnectShip

ConnectShip provides an API called “CloseOutRequest” to close the manifest. The Sterling ConnectShip Adaptor accepts Carrier, Manifest#, and ShipperAccountNumber as inputs for closing a manifest. The Sterling ConnectShip

Adaptor changes the status of manifest and deletes all packages (YCS_MANIFEST_UPS_DTL) on the Sterling ConnectShip Adaptor database and then calls ConnectShip's CloseOutRequest API.

The Sterling ConnectShip Adaptor additionally checks to see if all printed packages are manifested. If any of the packages have not been manifested, this API throws an error. Such packages have to be removed from the manifest (either by User or by Sterling Warehouse Management System) and reprinted (by manifesting them). For shipment level integration, actual manifestation of packages with ConnectShip happens when the last carton in the shipment is manifested on Sterling Warehouse Management System. However, if user is trying to close the manifest even before all the packages in a shipment are manifested, then the Sterling ConnectShip Adaptor automatically calls ConnectShip's SHIPMENTREQUEST API to close all these shipments. Note that Sterling Warehouse Management System actually disallows closure of Manifest if all packages are not manifested. But this helps in situations where all packages in a Shipment are manifested by user and when Sterling Warehouse Management System fails to specify the last package to the Sterling ConnectShip Adaptor. This would typically happen if the last package was deleted from Sterling Warehouse Management System before it was manifested.

YCS_PROCESS_CONTROL Configuration

Table 15. YCS Process Control

Carrier	API Name	Logic Switch
UPSN	CLOSEMANIFEST	CS_CLOSE_MANIFEST

YCS_GENERAL_CODES Configuration

Table 16. YCS General Codes

Carrier	Input XML Field Name	Notes
UPSN/UPSE/ UPSL/UPSA/ UPSC	Manifest@ShipperAccountNumber	ShipperAccountNumber sent from Sterling Warehouse Management System should be mapped to Shipper setup on ConnectShip.

YCS_PLD_DETAIL Configuration

Table 17. YCS Pld Details

Carrier: UPSN	Transaction: CS_CLOSE_MANIFEST	Sub Transaction: Request
Carrier Field Name	Field Name	Default Value
CLOSEOUTREQUEST/LOGIN/ LOGINID	NA	TEST
CLOSEOUTREQUEST/LOGIN/ PASSWORD	NA	TEST
CLOSEOUTREQUEST/ CLOSEOUT/SC	Manifest@Carrier	NA
CLOSEOUTREQUEST/ CLOSEOUT/SHIPPER	Manifest@ShipperAccountNumber	NA
CLOSEOUTREQUEST/ CLOSEOUT/CLOSEOUTITEM	Manifest@PickupDate	NA

Remove Containers From Manifest for ConnectShip

ConnectShip provides an API called “Void Request”. VoidRequest ConnectShip API requires Shipper# and MSN (Master Sequential Number). ConnectShip identifies a package using MSN and it returns this MSN when a package is included into a manifest using SHIPMENTREQUEST API.

YCS_PROCESS_CONTROL Configuration

Table 18. YCS Process Control

Carrier	API Name	Logic Switch
UPSN	VOIDCARTON	CS_VOID

YCS_GENERAL_CODES Configuration

Table 19. YCS General Codes

Carrier	Input XML Field Name	Notes
UPSN/UPSE/ UPSL/UPSA/ UPSC	DelPackage@ShipperAccountNumber	ShipperAccountNumber sent from Sterling Warehouse Management System should be mapped to Shipper setup on ConnectShip.

YCS_PLD_DETAIL Configuration

ConnectShip/Sterling ConnectShip Adaptor XML mapping is mentioned below. Mapping is done from getXML output of the YCS_PLD_DETAIL table (for the Tracking # passed in input XML to the Parcel Carrier Adapters) to input required for ConnectShip. Root node for YCS_Pld_Detail.getXML is the same as input XML passed to the Sterling ConnectShip Adaptor.

Table 20. YCS Pld Details

Carrier: UPSN	Transaction: CS_SHIP	Sub Transaction: Request
Carrier Field Name	Field Name	Default Value
VOIDREQUEST/LOGIN/ LOGINID	NA	TEST
VOIDREQUEST/LOGIN/ PASSWORD	NA	TEST
VOIDREQUEST/SC	DelPackage@Carrier	NA
VOIDREQUEST/SHIPPER	DelPackage@ShipperAccountNumber	NA

Print or Reprint Container Labels

The Sterling ConnectShip Adaptor component generates Tracking # and prints the carton label without actually manifesting it. Sterling Warehouse Management System implementations may want carrier carton labels to be printed during wave release or at the time of manifest. Implementations that need these labels to be printed during wave release can use this component.

ConnectShip allows user to generate Tracking # and return rating information without actually manifesting the containers.

During actual manifestation, Sterling ConnectShip Adaptor also checks to see if the package has been modified after it was printed. If package was modified, then it would return an error to inform the user to void the package and reprint it. To determine if Package is modified, it would check to see if the following attributes have changed or not:

- PackageActualWeight
- ConsigneeAddress1
- ConsigneeAddress2
- ConsigneeCity
- PickupDate

YCS_PROCESS_CONTROL Configuration

Table 21. YCS Process Control

Carrier	API Name
UPSN	TRACK_AND_PRINT

YCS_PLD_DETAIL Configuration

Since this component internally calls ConnectShip's SHIPMENTREQUEST API, the Sterling ConnectShip Adaptor uses "CS_SHIP" transaction's PLD setup. For more information, see "Add Containers to a Manifest for ConnectShip" on page 32.

Reprint Container Labels

The Sterling ConnectShip Adaptor component regenerates carton labels and reprint the labels for cartons for which the tracking numbers have already been generated.

Adding New Carriers to the Sterling ConnectShip Adaptor

About this task

Sterling Selling and Fulfillment Foundation can be easily configured to integrate with the Sterling ConnectShip Adaptor to support other carrier services. To add a new carrier to the Sterling ConnectShip Adaptor, perform the following steps:

Procedure

1. From the YCS_PROCESS_CONTROL table, copy only those records that have UPSC as the Carrier Code, insert the records into the same table, and change the Carrier Code to that of the new carrier.
2. From the YCS_GENERAL_CODES table, copy only those records that have UPSC as the Carrier Code, insert the records into the same table, and change the Carrier Code to that of the new carrier.

Update YCS_GENERAL_CODES to Add Carriers to ConnectShip

The YCS_GENERAL_CODES table provides a translation of the Sterling Selling and Fulfillment Foundation XML attribute values to ConnectShip-specific values with respect to some of the attributes. Most of these attributes, such as Sunday Delivery Required, Residential Flag, and Consignee Country are not specific to any particular carrier, and can be copied from UPSC. However, attributes such as Carrier Service Code are specific to each carrier, and such records must be modified with appropriate ConnectShip values. The following table lists the attributes that must be updated with ConnectShip carrier-specific values.

Table 22. Additional Mapping Configuration in YCS General Codes

ConnectShip Attribute	Sterling Selling and Fulfillment Foundation Attribute	Description
EODFILEREQUEST/SHIPMENT/DOCFORMAT	Manifest@DocFormat	This attribute is used for passing the Manifest document that ConnectShip prints. The document Id that prints differs from each carrier.
SHIPMENTREQUEST/SHIPMENTSERVICE/SCS	UPSPLD/PackageLevelDetail@UPSServiceType	This record translates the Sterling Selling and Fulfillment Foundation data for Carrier Service Code to ConnectShip data.
EODFILEREQUEST/SHIPMENT/SC	Manifest@Carrier	This record translates the Sterling Selling and Fulfillment Foundation data for Carrier Code to ConnectShip data when the manifest is closed on Sterling Selling and Fulfillment Foundation.
CLOSEOUTREQUEST/CLOSEOUT/SC	Manifest@Carrier	This record translates the Sterling Selling and Fulfillment Foundation data for Carrier Code to ConnectShip data when the manifest is closed on Sterling Selling and Fulfillment Foundation.
VOIDREQUEST/SC	DelPackage@Carrier	This record translates the Sterling Selling and Fulfillment Foundation data for Carrier Code to ConnectShip data when a package is removed from the Manifest on Sterling Selling and Fulfillment Foundation.

Adding New Services to the Sterling ConnectShip Adaptor

About this task

Sterling Selling and Fulfillment Foundation can be easily configured to integrate with the Sterling ConnectShip Adaptor to support other carrier services. To add a new service to the Sterling ConnectShip Adaptor, perform the following steps:

Procedure

- From the YCS_GENERAL_CODES table, copy only those records that meet all the following requirements:
 - The value of the CarrierAdapterImplKey column must be ConnectShipAdaptor.
 - The Carrier Code can be that of any carrier.
 - The Description can be either ReprintPackage@UPSServiceType or UPSPLD/PackageLevelDetail@UPSServiceType.
- Insert these records back into the YCS_GENERAL_CODES table.
- Make the following changes to the newly added records:
 - Carrier Code to that of the new carrier.
 - Electronic Code to that of the Electronic Code of the carrier service.

- Service Code to that of the new Service Code. The new Service Code must be set as to the code that ConnectShip uses to address the carrier service.

Integrating the Sterling FedEx Adapter with the FedEx PowerShip Server

The Parcel Carrier Adapters integrate only with the parcel services, and not with the LTL/TL (Less-Than Truck Load/Truck Load) services.

Open Manifest for PowerShip

PowerShip does not have a corresponding API. It automatically opens a new manifest for the pickup date and the shipper when the first package is manifested. For FedEx packages, the Sterling FedEx Adaptor doesn't allow you to simultaneously open multiple manifests for a given day. To open a second manifest, the first manifest must be closed. Therefore, when integrating with PowerShip, the Sterling FedEx Adaptor ensures that only one open manifest exists for FedEx for a given day.

Add Containers to a Manifest for PowerShip

PowerShip provides string-based transaction 020 for manifesting a package. When manifesting a package, the carrier label is generated for the package. Return labels can also be generated for the package if the package contains returnable items, and the FedEx carrier service used to manifest allows returns.

The Sterling FedEx Adaptor exposes transaction 020 (in the YCS_PLD_DETAIL table and Logic_Switch in YCS_PROCESS_CONTROL table).

This component of the Sterling FedEx Adaptor transforms the input XML to the requirements of PowerShip based on the configuration present in the YCS_PLD_DETAIL table. The factory defaults are provided for the YCS_PLD_DETAIL table for FEDX or 020.

Shipping International Shipments for PowerShip

These are shipments originating from USA to a consignee in a different country. The Sterling FedEx Adaptor integration with PowerShip for international shipments is different from domestic shipments in the USA.

For international shipments, integration with PowerShip occurs at a shipment level and not at the package level because freight charges at shipment level is less than the sum of freight charges for individual packages.

The logic for determining whether a package requires shipment or package level integration is based on the Carrier Service code. The YFS_SCAC_AND_SERVICE table has a column Is_Shipment_Level_Intg_Reqd based on which the switch occurs.

Labels for all packages are printed when the last package in the shipment is manifested. The IsLastPackageInShipment attribute has been added to PackageLevelDetail in the shipCarton input XML.

The Sterling FedEx Adaptor uses open shipping method of PowerShip to manifest shipments that requires shipment level integration.

The Country Codes sent by the Sterling Warehouse Management System and the Country Symbol Code of the FedEx PowerShip server (FSMS) must be mapped. The following table describes the field-level mapping in the YCS_PLD_DETAIL table.

Table 23. Mapping in the YCS_PLD_DETAIL Table

FedEx PowerShip Server	input XML of shipCarton API of the Sterling Warehouse Management System
Field ID 50	ConsigneeCountry
Field ID 74	UltimateDestCountry
Field ID 80	LineOriginCountry
Field ID 117	ShipperCountry

If international shipments are to be sent for countries other than US and Canada, user needs to insert data in YCS_GENERAL_CODES table. For example, if you want to ship to Germany, the Sterling Warehouse Management System code is DE, and FedEx maps it to GERMANY. Insert the following record in the YCS_GENERAL_CODES table:

```
INSERT INTO YCS_GENERAL_CODES (GENERAL_CODES_KEY, CARRIER,
CARRIER_ADAPTER_IMPL_KEY, CODE, VALUE, DESCRIPTION) values
('PrimaryKey1', 'FEDX', 'FedexAdaptor', 'DE', 'GERMANY', 'ShipperCountry');
```

Similar records must be inserted for the other fields mentioned in the previous table, Mapping in the YCS_PLD_DETAIL Table.

Note: In the factory setup, mapping has been provided for United States and Canada as US and CA, respectively.

Printing and Saving FedEx Labels for PowerShip

PowerShip enables printing of FedEx labels automatically for packages that are manifested. PowerShip also provides the capability to save labels in PNG format in the default directory. To enable this functionality, you must configure the parcel carrier preferences appropriately. For more information about configuring parcel carrier preferences, see the *Sterling Selling and Fulfillment Foundation: Warehouse Management System Configuration Guide*.

FedEx generates PNG image of the carrier label for the package that is manifested if the value of the label format FSMS Field ID 187 is set to "PNG". The label is saved in the default directory of PowerShip.

The label format that is to be printed is determined as follows:

- The Sterling FedEx Adaptor internally sets the UPSPLD/ExtraFieldsRecord@LabelFormatValue attribute of the input XML to the Device Sub Type of the printer configured to print the FedEx label. For creating a Device Sub Type, see the *Sterling Selling and Fulfillment Foundation: Application Platform Configuration Guide*.
- The Sterling FedEx Adaptor searches in the YCS_PLD_DETAIL table to retrieve the records for FieldName LabelFormatValue. For this record, the DefaultType is set to MAPPING, and mapped to the UPSPLD/ExtraFieldsRecord@LabelFormatValue attribute of the input XML.
- In the YCS_GENERAL_CODES table, the record with Description LabelFormatValue and the Code equal to UPSPLD/

ExtraFieldsRecord@LabelFormatValue is selected and the value of the field named Value of this record is passed as a label format value to FSMS.

Default mapping is provided for Eltron and Zebra printers for determining the value of field 187. The list of values that is used in field 187 for other printers are as follows:

- Unimark U550 4x6 doc tab - 177
- Unimark U550 4x6 non doc tab - 277
- Eltron LP2348 or LP2443 4x6 doc tab - 199
- Eltron LP2348 or LP2443 4x6 non doc tab - 299
- Zebra DA402 4x6 doc tab - 188
- Zebra DA402 4x6 non doc tab - 288
- Laser - DIB

The reprint of carrier labels is supported only by the printer type that printed the same carrier label previously, although different physical devices are available to print the carrier label.

Configuration Dependencies for PowerShip YCS_PROCESS_CONTROL Configuration

Table 24. YCS Process Control

Carrier	API Name	Logic Switch
FEDX	SHIPCARTON	020

Close Manifest for PowerShip

PowerShip provides transaction 007 to close a manifest.

YCS_PROCESS_CONTROL Configuration

Table 25. YCS Process Control

Carrier	API Name	Logic Switch
FEDX	CLOSEMANIFEST	007

YCS_PLD_DETAIL Configuration

Table 26. YCS Pld Details

Carrier: FEDX	Transaction: 007	Sub Transaction: Request
Field Location	Field Name	Default Value
0	TransactionType	007
498	ShipperAccountNumber	

Remove Containers From a Manifest for PowerShip

PowerShip provides transaction 023 to remove containers from manifest. This transaction requires shipper account number and tracking number. PowerShip identifies a package using the tracking number. In case of shipment level integration, the entire shipment is unmanifested when a container belonging to the shipment is removed from manifest.

YCS_PROCESS_CONTROL Configuration

Table 27. YCS Process Control

Carrier	API Name	Logic Switch
FEDX	VOIDCARTON	023

YCS_PLD_DETAIL Configuration

PowerShip/Sterling FedEx Adaptor mapping is mentioned below.

Table 28. YCS Pld Details

Carrier: FEDX	Transaction: 023	Sub Transaction: Request
Field Location	Field Name	Default Value
0	TransactionType	023
29	TrackingNumber	NA
498	ShipperAccountNumber	NA

Print or Reprint Container Labels for PowerShip

The Sterling FedEx Adaptor component generates the tracking number and prints the carton label without manifesting the carton. Sterling Warehouse Management System implementations may want carrier carton labels to be printed during wave release or at the time of manifest. Implementations that need these labels to be printed during wave release can use this component.

PowerShip enables the user to generate tracking number and return rating information without manifesting the containers.

During manifestation, the Sterling FedEx Adaptor verifies if the package is modified after printing it. To determine this, the Sterling FedEx Adaptor checks whether the following attributes are changed:

- PackageActualWeight
- ConsigneeAddress1
- ConsigneeAddress2
- ConsigneeCity
- PickupDate

If the package is modified, the Sterling FedEx Adaptor throws an error. To reprint the package, you must void it.

YCS_PROCESS_CONTROL Configuration

Table 29. YCS Process Control

Carrier	API Name
FEDX	TRACK_AND_PRINT

YCS_PLD_DETAIL Configuration

As this component internally calls transaction 020 of PowerShip, the Sterling FedEx Adaptor uses the PLD setup of transaction 020. For more information about the

PLD setup of transaction 020, see “Add Containers to a Manifest for PowerShip” on page 41.

Reprint Container Labels

The Sterling FedEx Adaptor component regenerates carton labels and reprint the labels for cartons for which the tracking number and a carton label have already been generated.

Integrating the Sterling Pierbridge Adapter with the AgileElite Shipment Server

The AgileElite shipment server provides a unified view of multiple carriers, including UPS, USPS, FedEx, and Purolator in a carrier-independent approach through its XML interface. It allows shipping functionalities, such as Ship, Rate, and Void. The AgileElite shipment server is an open Web service built on Microsoft .NET, and is highly scalable and reliable. For more information about Pierbridge's capabilities, visit the following Web site:

<http://www.pierbridge.com>

The Parcel Carrier Adapters integrate only with the parcel services, and not with the LTL/TL (Less-Than Truck Load/Truck Load) services.

Installing the AgileElite Shipment Server

Before installing the AgileElite shipment server, ensure that all the corresponding prerequisites are met. For more information about how to install the AgileElite shipment server and the prerequisites, refer the corresponding Pierbridge documentation.

When installing the AgileElite shipment server, install the following components:

- Pierbridge Administrators Toolbar
- Pierbridge FSMS Label Server
- Pierbridge Shipment Server

Note: Because the AgileElite shipment server uses Microsoft SQL Server 2005, sqljdbc.jar version 1.2 must be installed in . For more information about installing the sqljdbc.jar file, refer to the *Sterling Selling and Fulfillment Foundation: Installation Guide*.

Note: The AgileElite shipment server uses the ConnectShip server to integrate with the UPS and USPS carriers. Similarly, this server connects to the FedEx PowerShip Server for integrating with FedEx-supported carriers. Both the ConnectShip server and the FedEx server should be installed and configured on the machine where the AgileElite shipment server is installed in order to integrate with the carriers supported by them.

Configuring the AgileElite Shipment Server

Configurations pertaining to the following must be performed on the AgileElite shipment server:

Organization and Location

An organization is an entity that ships packages. The AgileElite shipment server setup requires at least one organization to be added to the AgileElite shipment server.

A location refers to an organization's address. Every organization must have at least one location associated with it. The address will be overridden by the transactional requests sent by the Sterling Pierbridge Adaptor. The will not use the details pertaining to the organization that has been added to the AgileElite shipment server.

Carrier

The carriers that are supported by the Sterling Pierbridge Adaptor are listed in Table 10 on page 25. These carriers should be enabled on the AgileElite shipment server. The AgileElite shipment server uses the ConnectShip server to integrate with the UPS and USPS carriers. Ensure that these carries are enabled in the ConnectShip server too.

User

The AgileElite shipment server uses the Windows user as the AgileElite shipment server user. The transactional requests sent by the Sterling Pierbridge Adaptor are sent with respect to this Windows user that exists on the AgileElite shipment server. Therefore, when configuring a user, ensure that the Windows User Name is exactly the same as the ShipperAccountNumber on the IBM Sterling Warehouse Management System. The IBM Sterling Warehouse Management System sets the ShipperAccountNumber Parcel Carrier Adapters XML attribute with the Shipping Account in the Parcel Carrier Preference for ShipNode and Enterprise. Similarly, a user must be configured on the AgileElite shipment server with the same User Name as that of the default Rate Request User provided in the `<INSTALL_DIR>/properties/yfs.properties_ycs_ext` file.

After a user is configured, necessary permissions must be granted to the user in order to allow the user to perform relevant shipping activities. For activities such as shipping a container, if the bill payer is not specified in the request sent by the Sterling Pierbridge Adaptor, the bill payer value that is configured in the Default Bill Payer field in the Permissions tab of the AgileElite shipment server becomes the default value.

Accounts

The AgileElite shipment server connects internally with the ConnectShip server and the FedEx server in order to ship packages using various carriers. Ensure that the necessary security credentials and account information are configured for the carriers on the AgileElite shipment server. Also ensure that the user has the required permission to ship the packages using the carriers configured on the AgileElite shipment server.

Device

When configuring the device (in this case, a printer for printing labels) and providing a description of the printer on the AgileElite shipment server, ensure that you enter the complete path to the printer on the network. This path must

match the printer alias of the printer configured on the IBM Sterling Warehouse Management System.

Output

In order to configure the formatting of shipping labels and other documents, provide the required permissions for the AgileElite shipment server users to allow them to print labels, return labels, and documents. All AgileElite shipment server users should be granted permission to use all the printers that are configured using the Device tab. If a user wants to save labels as images, configure the PrinterType field as Client on the AgileElite shipment server, under the Outputs tab. When this configuration is completed, the URL of the labels will be returned as output in response to the ship transaction. This URL will be in encoded format.

Notes

When the Save label as images option is set in the IBM Sterling Warehouse Management System, a user must manually configure the PrinterType field as Client on the AgileElite shipment server. Also, in the AgileElite shipment server, select Images from the Format drop-down list by navigation to Outputs > Config.

When a user wants to print a label using a specific printer, and if that printer is incorrectly configured in the Outputs tab of the AgileElite shipment server, by default, the label is printed using the first available printer configured in the Outputs tab.

It is recommended that in the Outputs tab of the AgileElite shipment server, you select only the specific user or user group from the User/Group drop-down list to whom you want to grant permission to perform certain configurations, and not all users.

Open Manifest for AgileElite

The AgileElite shipment server does not have a corresponding API. It automatically opens a new manifest for the pickup date and the shipper when the first package is being manifested. The Sterling Pierbridge Adaptor doesn't allow to simultaneously open multiple manifests on a given day and for a carrier. The Sterling Pierbridge Adaptor also allows only one open manifest for a shipper for a given day. To open a second manifest, you must close the first manifest. So, when integrating with the AgileElite shipment server, the Sterling Pierbridge Adaptor ensures that only one open manifest exists for a carrier on a given day.

Add Containers to a Manifest for AgileElite

The AgileElite shipment server provides the ShipRequest transaction for manifesting a package. Apart from manifesting the package, this transaction also returns the tracking number, rating details, and prints the labels. This transaction accepts the details pertaining to the Shipper, Carrier and Service, Consignee, Package, and Special Services as inputs. When manifesting a package, a carrier label is generated for the package. Return labels can also be generated for the package if the package contains returnable items, and the carrier service used to manifest allows returns. The returns functionality is available for both FedEx and UPSN carriers that use the Sterling Pierbridge Adaptor.

The Sterling Pierbridge Adaptor transforms the input XML to the AgileElite shipment server's requirements based on the configurations present in the YCS_PLD_DETAIL table.

Shipping International Shipments for AgileElite: The international shipments originate from a country and go to a consignee located in a different country. The Sterling Pierbridge Adaptor integration with the AgileElite shipment server for international shipments is different from domestic shipments.

For international shipments, integration with the AgileElite shipment server occurs at a shipment level and not at the Package level. This is because freight charges at the shipment level is less than the sum of the freight charges for individual packages. For international shipments, after the pack process, it is mandatory to enter the ITN#.

For domestic shipments, the Sterling Pierbridge Adaptor internally calls AgileElite shipment server's ShipRequest transaction, which prints a label for the package and also manifest it. However, in the case of international shipments, AgileElite shipment server transaction is called only after all the packages in the shipment are manifested.

Labels for all the packages along with the Commercial Invoice for a shipment is printed when the last package in the shipment is manifested. The `IsLastPackageInShipment` attribute has been added to `PackageLevelDetail` in the `shipCarton` input XML.

Note: In order to print shipment level documents, you need to install the Warehouse Management System on top of IBM Sterling Selling and Fulfillment Foundation.

Logic for determining whether a package requires Shipment or Package level integration is determined based on the Carrier Service code. The `IsShipmentLevelIntgReqd` column in the `YFS_SCAC_AND_SERVICE` table helps to determine whether a package requires Shipment or Package level integration.

Note: The international shipments have different service codes as compared to domestic shipments. This is because domestic shipments sometimes require shipment level integration.

Printing Labels and Documents for AgileElite

Labels and documents can be printed by the AgileElite shipment server to either a network printer or a local printer. Alternatively, the AgileElite shipment server can also return a label buffer to the Sterling Pierbridge Adaptor for printing.

Printing and Saving Labels for AgileElite: The AgileElite shipment server provides the functionality to automatically print labels for packages that are manifested. AgileElite shipment server also provides the capability to save labels in .png format by configuring the parcel carrier preferences appropriately. For more information about configuring the parcel carrier preferences, see the *Sterling Selling and Fulfillment Foundation: Warehouse Management System Configuration Guide*. The AgileElite shipment server returns the label URL in the `ShipResponse` input XML whenever a package is manifested using the `ShipResponse` input XML.

The AgileElite shipment server supports most of the printer models for printing labels, including Zebra and Eltron.

Following are the various printer models available on the AgileElite shipment server:

- Generic

- Generic Windows
- Eltron 2044
- Eltron 2348
- Eltron 2442
- Eltron 2543
- Generic Epson
- Unimark U501
- Zebra 105
- Zebra 105Se
- Zebra 105SL
- Zebra 110XiIIIPlus
- Zebra 140
- Zebra 140XiIIIPlus
- Zebra 170
- Zebra 170XiII
- Zebra 170XiIIIPlus
- Zebra 220
- Zebra 2746e
- Zebra 2844
- Zebra 2844-Z
- Zebra 3842
- Zebra 3844-Z
- Zebra 90XiII
- Zebra Ht-146
- Zebra R4Mplus
- Zebra Stripe S300
- Zebra Stripe S500
- Zebra Stripe S600
- Zebra R110Xi
- Zebra Z4M Plus

Irrespective of the printer model, AgileElite shipment server prints to any printer whose printer driver is installed on the machine where the AgileElite shipment server is installed, and is configured as Generic Windows on the AgileElite shipment server.

Based on the PrinterType configurations carried out on the AgileElite shipment server, the AgileElite shipment server will either return the URL of the label, or print the label.

To switch between the printing tasks, you must manually modify the configurations on the AgileElite shipment server. In , the behavior of the reprint transaction depends on the AgileElite shipment server configuration.

For more information about configuring the AgileElite shipment server, see “Configuring the AgileElite Shipment Server” on page 45.

Printing Other Documents for AgileElite: The AgileElite shipment server also prints shipment-level documents such as Commercial Invoice, Certificate Of

Origin, and Shipper's Export Declaration (SED). These documents are valid only for international shipments because integration at the shipment level occurs usually for international shipments. The Sterling Pierbridge Adaptor prints these documents only when the last international package is manifested.

Note: In order to print shipment level documents, you need to install the IBM Sterling Warehouse Management System on top of IBM Sterling Selling and Fulfillment Foundation.

The shipment-level documents that are to be printed can be configured in the YCS_PLD_DETAIL table. The Sterling Pierbridge Adaptor provides the capability to print Commercial Invoices in the factory setup. Additional documents can be printed similarly. The ShipmentDocumentPrinterID attribute of the Sterling Pierbridge Adaptor input XML obtains the printer details for printing these documents.

Close a Manifest for AgileElite

The AgileElite shipment server provides the EndOfDayActionRequest transaction to close a manifest. The Sterling Pierbridge Adaptor accepts carrier code, manifest number, and shipper account number as inputs for closing a manifest. The Sterling Pierbridge Adaptor changes the status of the manifest, deletes all the packages on the YCS_MANIFEST_UPS_DTL Sterling Pierbridge Adaptor database, and invokes the EndOfDayActionRequest transaction.

Remove Containers From a Manifest for AgileElite

The AgileElite shipment server provides the VoidRequest transaction to remove a container from a manifest. This transaction requires the shipper account number and tracking number. The AgileElite shipment server identifies a package based on the tracking number, and returns this number when a package is included in a manifest using the ShipRequest transaction.

Print or Reprint Container Labels for AgileElite

The Sterling Pierbridge Adaptor generates the tracking number and prints the carton label without manifesting it. The implementations may want carrier carton labels to be printed either during wave release or at the time of manifest. Implementations that require these labels to be printed during wave release can use this printing mechanism.

The AgileElite shipment server enables users to generate the tracking number and returns the rating information without manifesting the containers.

During manifestation, the Sterling Pierbridge Adaptor also verifies if the package has been modified after it is printed. If the package has been modified, it returns an error, informing the user to void the package and reprint it. To determine if the package is modified, Sterling Pierbridge Adaptor verifies whether any of the following attributes have changed:

- PackageActualWeight
- ConsigneeAddress1
- ConsigneeAddress2
- ConsigneeCity
- PickupDate

Reprint Container Labels

The Sterling Pierbridge Adaptor component regenerates carton labels and reprints the labels for cartons for which the tracking numbers have already been generated. To reprint a label, ensure that the PrinterType field in the Outputs tab is configured as Windows on the AgileElite shipment server.

Adding New Carriers to the Sterling Pierbridge Adaptor

About this task

Sterling Selling and Fulfillment Foundation can be easily configured to integrate with the Sterling Pierbridge Adaptor to support other carrier services.

Note: If you are performing an upgrade, for an existing carrier that is not given as part of the factory setup, integration with the Sterling Pierbridge Adaptor will take place only after you perform the steps mentioned in the subsequent sections.

To add a new carrier to the Sterling Pierbridge Adaptor, perform the following steps:

Procedure

1. From the YCS_GENERAL_CODES table, copy only those records that have the value of the CarrierAdapterImplKey column as PierbridgeAdaptor, and the Carrier Code can be any carrier.
2. Insert all these records back into the YCS_GENERAL_CODES table, and change the Carrier Code to that of the new carrier that is to be added.

The YCS_GENERAL_CODES table provides a translation of the Sterling Selling and Fulfillment Foundation XML attribute values to Pierbridge-specific values with respect to some of the attributes. Most of the attributes, such as Sunday Delivery Required, Residential Flag, and Consignee Country, are not specific to a particular carrier, and can be copied from any carrier. However, attributes such as Carrier Service Code is specific to each carrier, and such records must be modified with the appropriate AgileElite shipment server values.

3. From the YFS_SCAC_ADAPTER_SUPPORT table, copy any record that has the value of the CarrierAdapterImplKey column as PierbridgeAdaptor, and the Carrier can be any carrier.
4. Insert the record back into the YFS_SCAC_ADAPTER_SUPPORT table, and change the Carrier to that of the new carrier that is to be added.

Adding New Services to the Sterling Pierbridge Adaptor

About this task

Sterling Selling and Fulfillment Foundation can be easily configured to integrate with the Sterling Pierbridge Adaptor to support other carrier services.

Note: If you are performing an upgrade, for an existing carrier that is not given as part of the factory setup, integration with the Sterling Pierbridge Adaptor will take place only after you perform the steps mentioned in the subsequent sections.

To add a new service to the Sterling Pierbridge Adaptor, perform the following steps:

Procedure

1. From the YCS_GENERAL_CODES table, copy only those records that meet all the following requirements:
 - The value of the CarrierAdapterImplKey column must be PierbridgeAdaptor.
 - The Carrier Code can be that of any carrier.
 - The Description can be either FreightCharge/Shipment@Service, ReprintPackage@UPSServiceType, UPSPLD/PackageLevelDetail@UPSServiceType, or UPSPLD/ReturnShippingLabels/ReturnShippingLabel@UPSServiceType.
2. Insert all these records back into the YCS_GENERAL_CODES table.
3. Make the following changes to the newly added records:
 - Carrier Code to that of the new carrier
 - Electronic Code to that of the Electronic Code of the carrier service.
 - Service Code to that of the new Service Code. The new Service Code must be set as the code that the AgileElite shipment server uses to address the carrier service.

Note: For Sterling Pierbridge Adaptor, special service code must be "COD" not "1ZCOD". For example,

```
(YFCObject.equals(SpecialService, "COD"))
{
bCODsplserviceSelected = true;
}
```

Chapter 5. Troubleshooting Connectivity Issues

Dumping inXML on the Parcel Carrier Adapters

To dump inXML on the Parcel Carrier Adapters, use the `<INSTALL_DIR>/properties/customer_overrides.properties` file to set the `ycs.xmlDump.directory` property. In the value for this property specify the directory, where you want the inXML file to be dumped.

For additional information about overriding properties using the `customer_overrides.properties` file, see the *Sterling Selling and Fulfillment Foundation: Properties Guide*.

SaxParseException Encountered While Manifesting a Container

The following error is displayed while manifesting a container:

```
org.xml.sax.SAXParseException
```

Cause

If a `SaxParseException` is encountered while manifesting a container, it may be due to the address line or fax number exceeding 35 and 15 characters respectively.

Resolution

This problem can be fixed by ensuring that the address line and fax number fields do not exceed 35 and 15 characters respectively.

FedEx Error Messages and Issues

The section describes some issues that are commonly encountered with FedEx.

Dumping the FedEx Input String

The flag for dumping the XML and reply buffer to a file is set to "N" by default.

In the `YCS_GENERAL_CODES` table, the `VALUE` field has to be set to "Y" for the record with the `CARRIER` value of "FEDX" and the `CODE` value of "FEDEXINXMLDUMP".

The naming convention for the dumped file name is as follows:

`<CARRIER><CartonNo>.txt` or `<CARRIER><PalletSCM>.txt`, depending on whether it is a carton SCM or pallet SCM.

For example: The name of the file maybe `FEDX0000201001.txt`

(Where 0000201001 is the carton number and FEDX is the Carrier)

The file is dumped into the `XMLlog` directory.

Dumping the FedEx Output String

The flag for dumping the XML and reply buffer to a file is set to "N" by default.

In the YCS_GENERAL_CODES table, the VALUE field has to be set to "Y" for the record with the CARRIER value of "FEDX" and the CODE value of "FEDEXREPLYDUMP".

The naming convention of the dumped file name is as follows:

<CARRIER><CartonNo>.txt or <CARRIER><PalletSCM>.txt, depending on whether it is a carton SCM or pallet SCM.

For example: The name of the file may be FEDX0000201001.txt

(Where 0000201001 is the carton number and FEDX is the Carrier)

The file is dumped into the XMLlog directory.

Label Not Getting Printed

Carton is getting manifested, but the label is not getting printed.

Cause A

The printer associated with the station is not configured, or is incorrect.

Cause B

The printer is not online or out of labels.

Cause C

Mismatch in the device subtype printer or incorrect record is present in the YCS_GENERAL_CODE table.

Label Not Getting Reprinted or Getting a "Tracking Number Not Found" Error When Reprinting

Label is not getting reprinted, or getting a "Tracking Number Not Found" error message when trying to reprint label.

Cause

The reprint of carrier labels is supported only by the printer type that printed the same carrier label previously, although different physical devices are available to print the carrier label.

Unable to Compute Freight Charge Error

You receive an "Unable to compute freight charge" error.

Cause

- In the carrier setup, external server type is not set to "F2".
- The shipping key is invalid.

Cause

The account number in the carrier code setup is wrong or the shipping key mapping in the YCS_GENERAL_CODES table is wrong. Account ID 2 in the

carrier setup is not linked to the shipping key in the YCS_GENERAL_CODES tables.

Unable to Manifest Containers of an International Shipment

You receive a "Description 1 cannot be left blank" error.

Cause

This error message is displayed when a container is being added to manifest, and the NMFC code or the NMFC class of the item in that container is not configured.

Resolution

To resolve this issue, configure either the NMFC code or the NMFC class for each of the items being shipped in the corresponding international shipment.

Error Message is Displayed When Reprinting a Carrier Label

You receive a "Tracking No not found" error message when you try to reprint a carrier label.

Cause

This error message is displayed if the corresponding label was not printed during the Tracking Number generation process. This occurs if the Fedex carrier label printer document is not associated with a printer.

Resolution

To resolve this issue, the Fedex carrier label printer document should be associated to a printer. Also the current Tracking Number must be made void, and the container must be manifested again.

ConnectShip Error Messages and Issues

The section describes some issues that are commonly encountered with ConnectShip.

Manifesting Cartons that are Modified After Carrier Label Print

Carrier specific labels can be printed during Wave release using the `getTrackingNoAndPrintLabel` API.

If these cartons are modified (for example, units are added or removed from the package) before they are manifested, the Sterling ConnectShip Adaptor stops the user from manifesting such cartons.

The way to handle this situation is to undo the label print by calling the `voidTrackingNo` API and then manifest the package.

Closing a Manifest When Some Expected Cartons are Not Manifested

When a package label is printed during a Wave Release, a Manifest is automatically opened for the Expected Shipment Date of the package.

If the Node is unable to ship the package on that date and has to close the Manifest for the remaining packages, the label and tracking # generated for all such un-manifested packages have to be voided by calling the voidTrackingNo API.

AgileElite Shipment Server Error Messages and Issues

The section describes some issues that are commonly encountered with the AgileElite shipment server.

Error Message: Error opening input transaction

Cause

This error message is displayed when a valid account number is not configured in the Parcel Carrier Preference window of the Sterling Selling and Fulfillment Foundation Applications Manager pertaining to a shipper.

Resolution

Configure a valid shipping account number for the shipper in the Parcel Carrier Preference window of the Sterling Selling and Fulfillment Foundation Applications Manager.

Error Message: Unit of measure for commodity is unacceptable.

Cause

This error message is displayed when a Unit of Measure (UOM), for example, pound, is not accepted by the AgileElite shipment server.

Resolution

None.

Error Message: or Length girth

Cause

This error message is displayed when the dimensions of a container that is being manifested are not acceptable.

Resolution

None.

Error Message: Invalid FTR No.

Cause

This error message is thrown when the International Tracking Number (ITN) number is not posted for a shipment.

Resolution

None.

Error Message: Invalid Payer Type

Cause

This error message is displayed in the context of USPS domestic shipments when manifesting using either COLLECT or Third Party billing freight terms.

Resolution

None.

Error Message: Incomplete Dimensions

Cause

This error message is displayed when the dimensions (length, height, and width) of a package are zero.

Resolution

To resolve this issue, at the manifest station, select a valid container type for the container that is being manifested.

Error Message: Description Required for each International Package

Cause

This error message is displayed when a container is being added to manifest, and the NMFC code or the NMFC class of the item in that container is not configured.

Resolution

To resolve this issue, configure either the NMFC code or the NMFC class for each of the items being shipped in the corresponding international shipment.

Error Message: Package #1: Invalid contact SHM5-A

Cause

This error message is displayed when a container is being added to a manifest, and the name of the user receiving this shipment is not configured in the Sterling Warehouse Management System.

Resolution

To resolve this issue, configure the name of the user receiving the shipment in the Sterling Warehouse Management System.

Error Message: Recipient phone number cannot be left blank

Cause

This error message is displayed when invoking the addContainerToManifest API if all the contact numbers of the receiver of the shipment are left blank.

Resolution

To resolve this issue, configure the contact numbers of the receiver of the shipment.

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