Sterling Commerce
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Sterling Parcel Carrier Adapter

Guide

Release 8.0

January 2008

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4 Integrating the Sterling Parcel Carrier Adapter with Carrier Servers

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Preface

This document describes how to use the Sterling Parcel Carrier Adapter, Release 8.0 (Carrier Adapter 8.0).

Intended Audience

This document is intended for use by application developers, system administrators, and users who use the Sterling Parcel Carrier Adapter to provide carrier-related functionalities in a central place.

Structure

This document contains the following sections:

Chapter 1, "Introduction"

This chapter introduces the Sterling Parcel Carrier Adapter and its architecture.

Chapter 3, "Configuring the Sterling Parcel Carrier Adapter"

This chapter provides a detailed description about configuring the Sterling Parcel Carrier Adapter.

Chapter 2, "Sterling Parcel Carrier Adapter Technical Details"

This chapter describes the programming components of the Sterling Parcel Carrier Adapter.

Chapter 4, "Integrating the Sterling Parcel Carrier Adapter with Carrier Servers"

This chapter describes the integration of the Sterling Parcel Carrier Adapter with carrier servers, ConnectShip, and PowerShip.

Chapter 5, "Troubleshooting Connectivity Issues"

This chapter provides information for solving problems that can occur using the Sterling Parcel Carrier Adapter.

Sterling Multi-Channel Fulfillment Solution Documentation

For more information about the Sterling Multi-Channel Fulfillment Solution® components, see the following manuals:

- *Sterling Multi-Channel Fulfillment Solution® Release Notes*
- *Sterling Selling and Fulfillment Suite® Release Notes*
- *Sterling Multi-Channel Fulfillment Solution® Installation Guide*
- *Sterling Multi-Channel Fulfillment Solution® Upgrade Guide*
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- *Sterling Warehouse Management System® User Guide*
- *Sterling Multi-Channel Fulfillment Solution Mobile Application® User Guide*
- *Sterling Multi-Channel Fulfillment Solution Analytics® Guide*
- *Sterling Multi-Channel Fulfillment Solution® Javadocs*
- *Sterling Multi-Channel Fulfillment Solution® Glossary*
- *Sterling Parcel Carrier Adapter® Guide*

Conventions

The following conventions may be used in this manual:

Convention	Meaning
. . .	Ellipsis represents information that has been omitted.
< >	Angle brackets indicate user-supplied input.

Convention	Meaning
`mono-spaced text`	Mono-spaced text indicates a file name, directory path, attribute name, or an inline code example or command.
/ or \	Slashes and backslashes are file separators for Windows, UNIX, and Linux operating systems. The file separator for the Windows operating system is "\" and the file separator for UNIX and Linux systems is "/". The UNIX convention is used unless otherwise mentioned.
<INSTALL_DIR>	User-supplied location of the Sterling Multi-Channel Fulfillment Solution installation directory. This is only applicable for Release 8.0 or above.
<INSTALL_DIR_OLD>	User-supplied location of the Sterling Multi-Channel Fulfillment Solution installation directory for previously installed releases. This is only applicable for Release 8.0 or above.
<YANTRA_HOME>	User-supplied location of the Sterling Supply Chain Applications installation directory. This is only applicable for Release 7.7, 7.9, and 7.11.
<YANTRA_HOME_OLD>	User-supplied location of the Sterling Supply Chain Applications installation directory for previously installed releases. This is only applicable for Releases 7.7, 7.9, and 7.11.
<YFS_HOME>	For releases 7.3, 7.5, and 7.5 SP1, this is the user-supplied location of the Sterling Supply Chain Applications installation directory.
	For releases 7.7, 7.9, and 7.11, this is the user-supplied location of the `<YANTRA_ HOME>/Runtime` directory.
	For release 8.0, the `<YANTRA_HOME>/Runtime` directory is no longer used and this is the same location as <INSTALL_DIR>.
<YFS_HOME_OLD>	This is the `<YANTRA_HOME>/Runtime` directory of previously installed releases. This is only applicable for Releases 7.7, 7.9, and 7.11.

Convention	Meaning
<ANALYTICS_HOME>	User-supplied location of the Sterling Multi-Channel Fulfillment Solution Analytics installation directory. **Note:** This convention is used only in the *Sterling Multi-Channel Fulfillment Solution Analytics Guide*.
<COGNOS_HOME>	User-supplied location of the Cognos installation directory. **Note:** This convention is used only in the *Sterling Multi-Channel Fulfillment Solution Analytics Guide*.
<MQ_JAVA_INSTALL_PATH>	User-supplied location of the IBM WebSphere MQ Java components installation directory. **Note:** This convention is used only in the *Sterling Multi-Channel Fulfillment Solution System Management Guide*.
<DB>	Refers to the Oracle, DB2, or MSSQL depending on the database server.
<DB_TYPE>	Depending on the database used, considers the value oracle, db2, or sqlserver.

1

Introduction

The Sterling Parcel Carrier Adapter (Carrier Adapter) 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 Sterling Parcel Carrier Adapter has 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.

This chapter provides:

- Technology Overview
- Functionality Overview

1.1 Technology Overview

This section explains the Carrier Adapter architecture and default printers that Carrier Adapter supports.

1.1.1 Sterling Parcel Carrier Adapter Architecture

Figure 1–1 illustrates Carrier Adapter integration with FedEx, Airborne, and ConnectShip server through TCIP/IP socket and HTTP.

Figure 1–1   Carrier Adapter Architecture
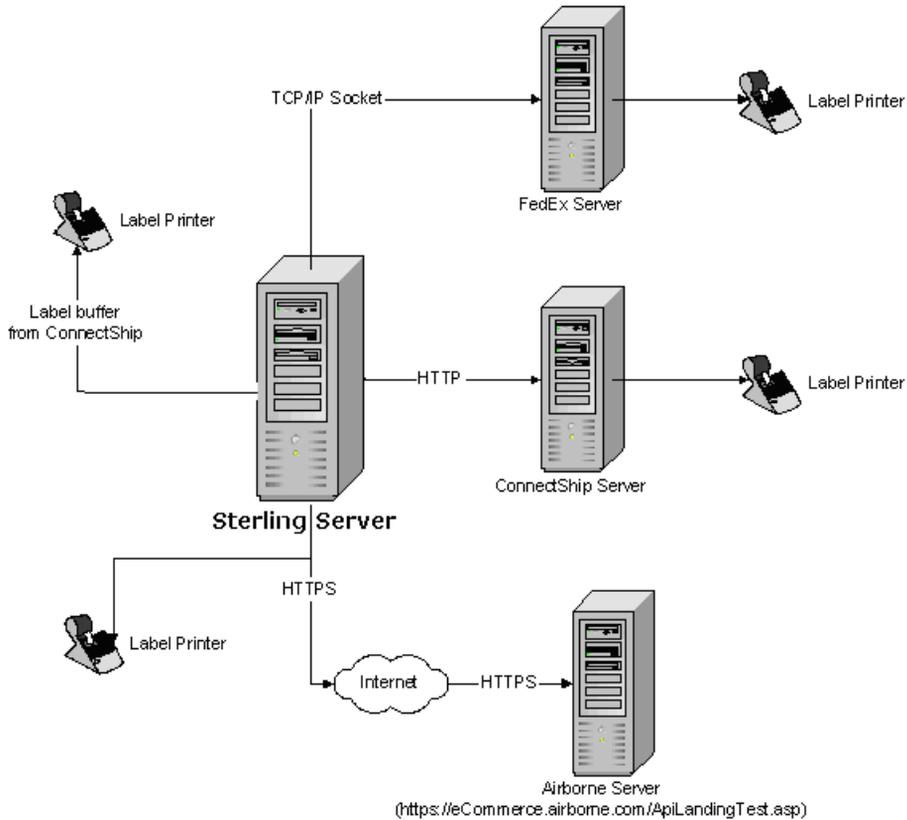
FedEx

The Carrier Adapter communicates with the FedEx PowerShip server (FSMS) through TCP/IP sockets. The FedEx Powership server and the Carrier Adapter 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 WMS or Carrier Adapter integration does not support printing this buffer.

Airborne

The Sterling Parcel Carrier Adapter communicates with Airborne through HTTPS over the internet. Airborne does not require any special installation at the warehouse. However, since Airborne server is

connected through internet, labels cannot be directly printed by Airborne. Instead Airborne always returns label buffer in PNG format and the Sterling Parcel Carrier Adapter prints this label.

ConnectShip (UPS)

The Sterling Parcel Carrier Adapter 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 Parcel Carrier Adapter. Labels can be printed directly from the ConnectShip server or saved in PNG format.

1.1.2 Printers

The Sterling Parcel Carrier Adapter supports the following default printers:

Table 1–1   Printers Supported

Carrier	Printer
FedEx	– Eltron LP2844
ConnectShip	– ConnectShip supports most printers. For more details about the ConnectShip supported printers, see Chapter 4, "Integrating the Sterling Parcel Carrier Adapter with Carrier Servers".
Airborne	– Airborne has no separate printer requirements and supports most standard printers.

1.2 Functionality Overview

The Sterling Parcel Carrier Adapter supports:

- ConnectShip Compliance Functionality

- FedEx Compliance Functionality

- Airborne Compliance Functionality

1.2.1 ConnectShip Compliance Functionality

The Sterling Parcel Carrier Adapter functionalities provided for ConnectShip compliance are:

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

ConnectShip is used for shipping UPS packages.

1.2.2 FedEx Compliance Functionality

The Sterling Parcel Carrier Adapter 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)

1.2.3 Airborne Compliance Functionality

The Sterling Parcel Carrier Adapter functionalities provided for Airborne compliance are:

- Generate Shipment (Request/Reply) transaction
- void Shipment (Request/Reply) transaction

2

Sterling Parcel Carrier Adapter Technical Details

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

The Sterling WMS 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 Sterling Parcel Carrier Adapter (Carrier Adapter). This layer abstracts the integration details to various carriers from the applications. The Carrier Adapter exposes internal APIs corresponding to the Sterling WMS carrier integration as listed (above) to the application layer. For example, in the Sterling WMS, the Carrier Adapter takes a standardized XML, use configuration data specific to carriers to massage the data and pass data to the carriers using specific protocols.

The Carrier Adapter is preconfigured to integrate directly with FedEx and AirBorne, and UPS through ConnectShip.

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

This chapter includes:

*   Introduction to the Sterling Parcel Carrier Adapter Tables

- Carrier Adapter Integration Details
- Integrating a New Carrier with the Sterling Parcel Carrier Adapter
- Field-Level Mapping for FedEx
- Field-Level Mapping for Airborne

2.1 Introduction to the Sterling Parcel Carrier Adapter Tables

The Carrier Adapter is 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 2–1 illustrates the Carrier Adapter tables.

Figure 2–1   The Sterling Parcel Carrier Adapter Tables
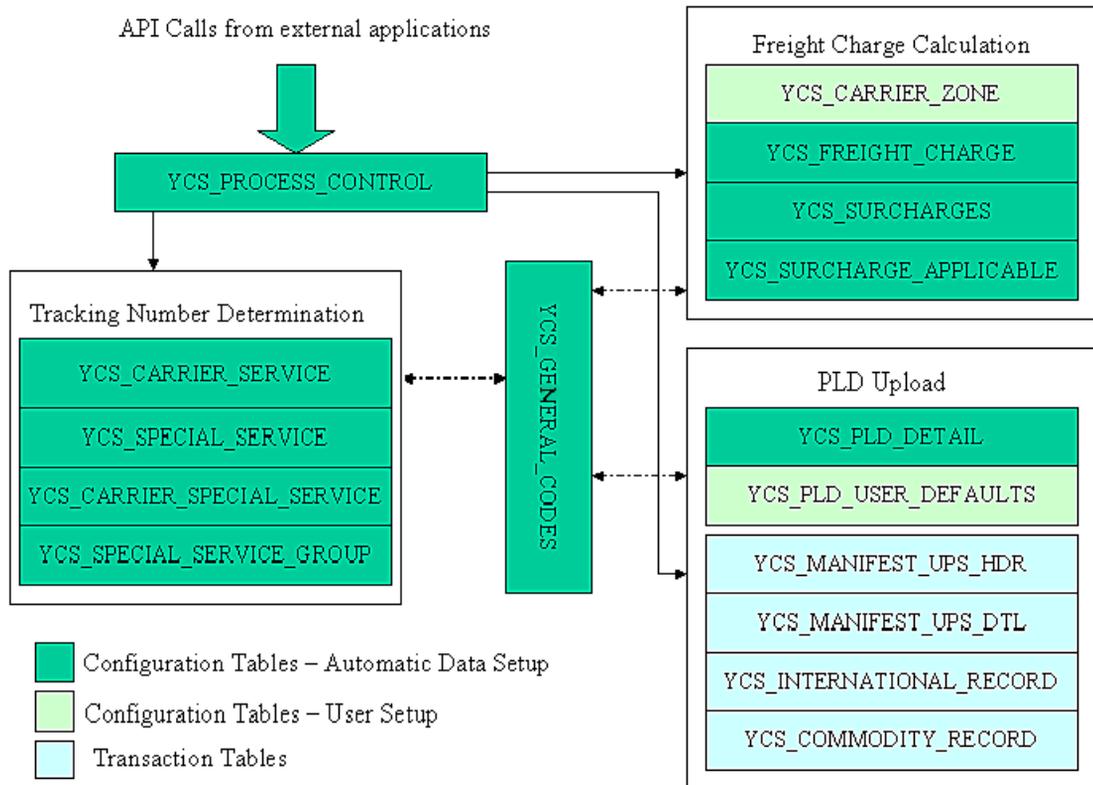
2.1.1 Configuration Tables

The Carrier Adapter uses 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

The Carrier Adapter Process Control table defines the mechanism or protocol for integrating the Sterling WMS to a carrier for a specific API.

Table 2–1   Carrier Adapter_Process_Control

Attribute	Description
CARRIER	Carrier Code same as in the Sterling WMS
API_NAME	Name of the Carrier Adapter 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)

Table 2–2   Logic switches for Carrier Integration

Sterling WMS API	Carrier Adapter API	FedEx	ConnectShip	AirBorne
openManifest	OPENMANIFEST	None	None	None
addContainerToManifest	SHIPCARTON	020	CS_SHIP	GENERATE_SHIPMENT
removeContainerFromManifest	DELETECARTON	023	CS_VOID	VOID_SHIPMENT
closeManifest	CLOSEMANIFEST	007	CS_CLOSE_MANIFEST	Not Supported

Table 2–3   Carrier Adapter_General_Codes

Attribute	Description
CARRIER	Carrier Code the same as in the Sterling WMS
CODE	A Data value passed to the Carrier Adapter that needs to be translated to the carrier specific value

Table 2–3   Carrier Adapter_General_Codes

Attribute	Description
VALUE	Carrier specific value to which a Carrier Adapter data value is translated to
DESCRIPTION	Value of Field_Name in YCS_Pld_Detail table

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

Table 2–4   Carrier Adapter_PLD_Detail

Attribute	Description
CARRIER	Carrier Code same as in the Sterling WMS
FIELD_NAME	Carrier Adapter API Attribute Name (It is either the complete XPATH to the Carrier Adapter input XML, for example ConnectShip or only the leafattribute value, for example, FEDX and AIRB.)
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	SYSTEM: Use the value specified in DEFAULT_VALUE column. MAPPING: Use the specified value passed in the Carrier Adapter input and get the value from YCS_General_Codes table. Blanks: No Defaulting. Use the value from the Carrier Adapter input XML.
DEFAULT_VALUE	Specific Value depending on DEFAULT_TYPE

Table 2–4   Carrier Adapter_PLD_Detail

Attribute	Description
CARRIER_FIELD_NAME	Used in AirBorne and ConnectShip, to specify the complete XML path. Both AirBorne and ConnectShip do not use element attributes. They only use Nodes with child nodes or Node values, as:
	<eCommerce>
	<Shipment>
	<Shipment Detail>
	<ShipDate>20051229</ShipDate>
	<Weight>12</Weight>
	</ShipmentDetail>
	<Receiver>
	<Address>
	<City>Boston</City>
	</Address>
	</Receiver>
	</Shipment>
	</eCommerce>
	For example,
	AirBorne: eCommerce/Shipment/ShipmentDetail/ShipDate
	ConnectShip: SHIPMENTREQUEST/DEFATTRIBUTES/SHIPDATE
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)

2.2 Carrier Adapter Integration Details

Generally, carriers are integrated with the Carrier Adapter when manifesting. The Sterling Warehouse Management System supports the following carriers:

- FedEx

- AirBorne

- UPS

During manifest, the Sterling WMS integrates a carrier as follows:

1. The Sterling Multi-Channel Fulfillment Solution 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 WMS calls the relevant Carrier Adapter API.

2. The Carrier Adapter sequentially checks for integration with each carrier. Each API that the Sterling WMS supports is known by an internal Carrier Adapter API name. A corresponding logic switch is defined for each carrier. Table 2–2 explains the logic switches for all carriers.

3. The logic switches determine the input and output XMLs passed between the carrier's server and the Carrier Adapter. If a specific integration is required between them, the Carrier Adapter creates input data needed for these XMLs based on the mapping details provided in Table 2–4, and sends it to the carrier's server.

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

2.3 Integrating a New Carrier with the Sterling Parcel Carrier Adapter

Although the Sterling Multi-Channel Fulfillment Solution, by default, supports carrier integrations for FedEx, UPS, and Airborne, this can be extended to provide carrier integrations for other carriers too.

Following are the two ways in which to integrate other carriers to the Sterling Parcel Carrier Adapter:

- Using ConnectShip

- Using User Exits

2.3.1 Using ConnectShip

The field-level mapping the for Carrier Adapter XML and the ConnectShip SHIPMENTREQUEST API input and output are provided in Table 2–5. Mapping is done between the Input XML that is passed to the Carrier Adapter 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). In our factory setup, this data has been duplicated with a few modifications for other UPS carriers (UPSC, UPSE, UPSA, UPSL).

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PKGWEIGHT/WEIGHTUNITS	UPSPLD/PackageLevelDetail@UOMWeight	Shipment.Carrier.Locale.WeightUOM
SHIPMENTREQUEST/PACKAGES/PKG/PKGWEIGHT/WEIGHTVALUE	UPSPLD/PackageLevelDetail@PackageActualWeight	Container.Container_Gross_Weight
SHIPMENTREQUEST/PACKAGES/PKG/DIMENSION/DIMUNITS	UPSPLD/PackageLevelDetail@UOMDim	Shipment.Carrier.Locale.DimensionUOM
SHIPMENTREQUEST/PACKAGES/PKG/DIMENSION/DIMVALUE	UPSPLD/PackageLevelDetail@PackageLength	Container.PackageLength
SHIPMENTREQUEST/PACKAGES/PKG/REFERENCE/MISCREFERENCE1	UPSPLD/PackageLevelDetail@ShipmentNumber	Shipment.ShipmentNo
SHIPMENTREQUEST/PACKAGES/PKG/TRACKINGNUMBER	UPSPLD/PackageLevelDetail@PackageTrackingNumber	Container.Tracking_No
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/SATDELIVERY	UPSPLD/PackageLevelDetail@SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/DECLAREDVALUE/CURRENCYCODE	UPSPLD/PackageLevelDetail@CurrencyCode	Shipment.Currency

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/DECLAREDVALUE/MONETARYVALUE	UPSPLD/PackageLevelDetail@DeclaredValueInsurance	Container.Declared_Value
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/COD/CODAMOUNT/CURRENCYCODE	UPSPLD/PackageLevelDetail@ShipmentCODCurrencyCode	Shipment.Currency
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/COD/CODAMOUNT/MONETARYVALUE	UPSPLD/PackageLevelDetail@CODAmount	Container.COD_Amount
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/COD/CODPAYMENTMETHOD	UPSPLD/PackageLevelDetail@CODFundsInd	Shipment.COD_Pay_Method
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/HAZARDOUS/HAZMAT	UPSPLD/AccessorialRecord@HazMat	Shipment.HazardousMaterialFlag
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/PRODUCTCODE	UPSPLD/CommodityRecord@PartNumber	Container.ContainerDetail.Item.Item_Id
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/QUANTITY	UPSPLD/CommodityRecord@LineQuantity	Container.ContainerDetail.Quantity
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/UNITMEASURE	UPSPLD/CommodityRecord@LineQtyUOM	Container.ContainerDetail.UOM

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/UNITWEIGHT	UPSPLD/CommodityRecord@CommodityWeight	Container.ContainerDetail.OrderLine.Item_Weight * Container.ContainerDetail.Quantity
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/UNITVALUE	UPSPLD/CommodityRecord@LineUnitAmtPrice	Container.ContainerDetail.OrderLine.Unit_Price * Container.ContainerDetail.Quantity
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/PRODUCTDESCRIPTION	UPSPLD/CommodityRecord@LineMerchDesc1	Container.ContainerDetail.Item.Description
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/ORIGINCOUNTRY	UPSPLD/CommodityRecord@LineOriginCountry	Container.ContainerDetail.Item.Country_Of_Origin
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/HARMONIZEDCODE	UPSPLD/CommodityRecord@CommodityCode	Container.ContainerDetail.Item.Harmonized_Code
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/LICENSENUMBER	UPSPLD/CommodityRecord@LineLicenseInfo	Container.Export_License_No
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/LICENSEEXPDATE	UPSPLD/CommodityRecord@LineLicenseExpDate	Container.Export_License_Exp_Date

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/ECCN	UPSPLD/CommodityRecord@ECCN	Container.ContainerDetail.Item.ECCN
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/DECLAREDVALUECUSTOMS	UPSPLD/InternationalRecord@ShipmentInsuranceDeclaredValue	Container.Declared_Value
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/ULTIMATEDESTCOUNTRY	UPSPLD/InternationalRecord@UltimateDestCountry	Shipment.ShipToPersonInfo.Country
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/INTL/INTLDESCRIPTION	UPSPLD/InternationalRecord@DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container.ContainerDetail.Item.NMFC_Class
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/SUNDAY_DELIVERY	UPSPLD/ExtraFieldsRecord@SunDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SUNDELI" exist, then the value is set to "1"
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/COMPANY	UPSPLD/PackageLevelDetail@ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/CONTACT	UPSPLD/PackageLevelDetail@ConsigneeAttention	Shipment.ShipToPersonInfo.Name
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/ADDRESS1	UPSPLD/PackageLevelDetail@ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/ADDRESS2	UPSPLD/PackageLevelDetail@ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/ADDRESS3	UPSPLD/PackageLevelDetail@ConsigneeAddress3	Shipment.ShipToPersonInfo.Address_Line3

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/CITY	UPSPLD/PackageLevelDetail@ConsigneeCity	Shipment.ShipToPersonInfo.City
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/STATEPROVINCE	UPSPLD/PackageLevelDetail@ConsigneeStateProv	Shipment.ShipToPersonInfo.State
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/POSTALCODE	UPSPLD/PackageLevelDetail@ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/RESIDENTIAL	UPSPLD/PackageLevelDetail@ResInd	If Shipment.ShipToPersonInfo.Company is "Blank", then value "1" is passed. Otherwise, value "0" is passed.
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/PHONE	UPSPLD/PackageLevelDetail@ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/COUNTRYSYMBOL	UPSPLD/PackageLevelDetail@ConsigneeCountry	Shipment.ShipToPersonInfo.Country
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/CONSIGNEEACCOUNT	UPSPLD/PackageLevelDetail@ConsigneeUPSAcctNumber	Shipment.CustCarrier_Account_No
SHIPMENTREQUEST/DEFATTRIBUTES/SHIPPERINFO/SHIPPER	UPSPLD/PackageLevelDetail@ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No
SHIPMENTREQUEST/PACKAGES/PKG/TERMS	UPSPLD/PackageLevelDetail@ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Carrier Adapter attribute is set to "COL". Otherwise, it is set to "PRE"
SHIPMENTREQUEST/DEFATTRIBUTES/SHIPDATE	UPSPLD/PackageLevelDetail@PickupDate	Container.Manifest.Manifest_Date
SHIPMENTREQUEST/PACKAGES/PKG/LABELPRINT/PORT	UPSPLD/ExtraFieldsRecord@ThermalLabelPrinterID	PrinterId for Carrier Label Document Id (FEDX_CARRIER_LABEL or UPSN_CARRIER_LABEL)
SHIPMENTREQUEST/SHIPMENTSERVICE/SCS	UPSPLD/PackageLevelDetail@UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNNUMBER_OR_EMAIL	UPSPLD/AdvisoryInformationRecord@SNEmailAddressDestination1	Shipment.ShipTo.PersonInfo.EmailId
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNADDRESS/CSNCOMPANY	UPSPLD/AdvisoryInformationRecord@SNCompanyName1	Shipment.ShipToPersonInfo.Company
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNADDRESS/CSNCONTACT	UPSPLD/AdvisoryInformationRecord@SNAttnName1	Shipment.ShipToPersonInfo.Name
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNADDRESS/CSNPHONE	UPSPLD/AdvisoryInformationRecord@SNContactPhone1	Shipment.ShipToPersonInfo.Day_Phone
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/PROOF/PROOFFLAG	UPSPLD/PackageLevelDetail@DCISType	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "DELCONF" exist, then the value is set to "1"
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/PROOF/PROOFSIGNATURE	UPSPLD/PackageLevelDetail@DCISType	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "DELCONF" exist, then the value is set to "2"
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/PROOF/PROOFADULTSIGNATURE	UPSPLD/PackageLevelDetail@DCISType	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "DELCONF" exist, then the value is set to "A"
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPCOMPANY	UPSPLD/AlternatePartyRecord@CompanyName	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Company

Table 2–5   Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPADDRESS1	UPSPLD/AlternatePartyRecord @Address1	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line1
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPADDRESS2	UPSPLD/AlternatePartyRecord @Address2	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line2
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPADDRESS3	UPSPLD/AlternatePartyRecord @Address3	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line3
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPCITY	UPSPLD/AlternatePartyRecord @City	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.City
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPSTATEPROVINCE	UPSPLD/AlternatePartyRecord @StateProv	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.State
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPPOSTALCODE	UPSPLD/AlternatePartyRecord @PostalCode	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Zip_Code
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPCOUNTRYSYMBOL	UPSPLD/AlternatePartyRecord @Country	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Country
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPPHONE	UPSPLD/AlternatePartyRecord @Phone	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Phone

Table 2–5 Field-Level Mapping for ConnectShip

Carrier Field Name	Carrier Adapter Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPACCOUNT	UPSPLD/AlternatePartyRecord@ID_AcctNumber	Shipment.ShipNode.SCACEX.Account1
SHIPMENTREQUEST/PACKAGES/PKG/REFERENCE/NOFN_SEQUENCE	UPSPLD/PackageLevelDetail@NOfNSequence	Sequence of Container within the shipment
SHIPMENTREQUEST/PACKAGES/PKG/REFERENCE/NOFN_TOTAL	UPSPLD/PackageLevelDetail@NOfNTotal	Total no of containers in shipment

2.3.2 Using User Exits

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

The following user exits are supported for the Carrier Adapter:

- YCSshipCartonUserExit

- YCScloseManifestUserExit

- YCSdeleteCartonUserExit

For more information about these user exits, see the *Sterling Multi-Channel Fulfillment Solution Javadocs*.

Implementation

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

For example: A user wants to use a user exit 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 Sterling Multi-Channel Fulfillment Solution Configurator. For more information about User Exit Management, see the *Sterling Multi-Channel Fulfillment Solution Platform Configuration Guide*.

2.4 Field-Level Mapping for FedEx

For FedEx integration, the following internal methods of the Carrier Adapter are invoked:

- openManifest
- shipCarton
- deleteCarton
- closeManifest

The field-level mappings for FedEx are provided in Table 2–6.

Table 2–6   Field-Level Mapping for FedEx

ID	Name	Carrier Adapter Attribute	Database Attribute
4	Shipper Company Name	ShipperCompanyName	Shipment.ShipFrom.Country
5	Shipper Address 1	ShipperAddress1	Shipment.ShipFrom.Address1
6	Shipper Address 2	ShipperAddress2	Shipment.ShipFrom.Address2
7	Shipper City	ShipperCity	Shipment.ShipFrom.ShipperCity
8	Shipper State	ShipperState	Shipment.ShipFrom.ShipperState
9	Shipper Postal Code	ShipperPostalCode	Shipment.ShipFrom.ShipperPostalCode
11	Recipient Company	ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
13	Recipient Address 1	ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
14	Recipient Address 2	ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
15	Recipient City	ConsigneeCity	Shipment.ShipToPersonInfo.City
16	Recipient State/Province	ConsigneeStateProv	Shipment.ShipToPersonInfo.State
17	Recipient Postal Code	ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
18	Recipient Phone Number	ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone

Table 2–6   Field-Level Mapping for FedEx

ID	Name	Carrier Adapter Attribute	Database Attribute
20	Payer or Account Number	ConsigneeUPSAcctNumber	Shipment.CustCarrier_Account_No
21-#	Package/Shipment Weight	PackageActualWeight	Container.Container_Gross_Weight
23	Payment Code	ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Carrier Adapter attribute is set to "COL". Otherwise, it is set to "PRE"
24	Ship Date	PickupDate	Container.Manifest.Manifest_Date
26	Declared / Carriage Value	DeclaredValueInsurance	Container.Declared_Value
27	COD Flag	CODInd	
32	Shipper Contact Name	ShipperContactName	Shipment.ShipFrom.ShipperContactName
50	Recipient Country Code	ConsigneeCountry	Shipment.ShipToPersonInfo.Country
53	COD Amount	CODAmount	Container.COD_Amount
57-#	Package height	PackageHeight	Container.PackageHeight
58-#	Package width	PackageWidth	Container.PackageWidth
59-#	Package length	PackageLength	Container.PackageLength
74	Country of Ultimate Destination	UltimateDestCountry	Shipment.ShipToPersonInfo.Country
79-#	Description	DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container.ContainerDetail.Item.NMFC_Class
80-#	Country of Manufacture	LineOriginCountry	Container.ContainerDetail.Item.Country_Of_Origin
82-#	Quantity	LineQuantity	Container.ContainerDetail.Quantity
117	Shipper Country	ShipperCountry	Shipment.ShipNodePersonInfo.Country
119	Total Customs Value	InvoiceLineTotals	Sum of ContainerDetail.Quantity* Unit_Price from OrderLine

Table 2–6   Field-Level Mapping for FedEx

ID	Name	Carrier Adapter Attribute	Database Attribute
183	Shipper Phone Number	ShipperPhoneNumber	Shipment.ShipFrom.ShipperPhoneNumber
440	Residential Delivery Flag	ResInd	If Shipment.ShipToPersonInfo.Company is set to "Blank", then the value is set to "1". Otherwise, it is set to "0"
498	Meter Number	ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No
537	Thermal Label Printer ID	ThermalLabelPrinterID	PrinterId for Carrier Label Document Id (FEDX_CARRIER_LABEL or UPSN_CARRIER_LABEL)
1139	Sender IRS/EIN Number	ShipperEIN	Container.Manifest.Ship_Node.Export_Taxpayer_Id
1204-#	Ship Alert Email Address	SNEmailAddressDestination1	Shipment.ShipTo.PersonInfo.EmailId
1248	Sunday Delivery Flag	SunDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SUNDELI" exist, then the value is set to "1"
1266	Saturday Delivery Flag	SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"
1274	Service Type	UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code

2.5 Field-Level Mapping for Airborne

For Airborne integration the following internal methods of the Carrier Adapter are invoked:

- shipCarton
- deleteCarton

The field-level mappings for Airborne are provided in Table 2–7.

Table 2–7   Field-Level Mapping for Airborne

Field Name	Carrier Adapter Attribute	Database Attribute
Shipment/ShippingCredentials/ShippingKey	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
Shipment/ShippingCredentials/AccountNbr	ShipperAccountNumber	Container.Manifest.Manifest.Shipper_Account_No
Shipment/ShipmentDetail/ShipDate	PickUpDate	Container.Manifest.Manifest_Date
Shipment/ShipmentDetail/Service/Code	UPSServiceType	Shipment.SCAC.SCACAndService.Electronic_Code
Shipment/ShipmentDetail/Weight	PackageActualWeight	Container.Container_Gross_Weight
Shipment/ShipmentDetail/ContentDesc	DescriptionOfGoods	Container.ContainerDetail.Item.NMFC_Code or Container.ContainerDetail.Item.NMFC_Class
Shipment/ShipmentDetail/Dimensions/Length	PackageLength	Container.PackageLength
Shipment/ShipmentDetail/Dimensions/Width	PackageWidth	Container.PackageWidth
Shipment/ShipmentDetail/Dimensions/Height	PackageHeight	Container.PackageHeight
Shipment/ShipmentDetail/AdditionalProtection/Value	Declared Value Insurance	Container.Declared_Value
Shipment/ShipmentDetail/SpecialServices/SpecialService/Code	SatDeliveryInd	Shipment.SpecialServiceRef.SpecialServiceCode. If a special service with value "SATDELI" exist, then the value is set to "1"

Table 2–7   Field-Level Mapping for Airborne

Field Name	Carrier Adapter Attribute	Database Attribute
Shipment/Billing/Party/Code	ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the Carrier Adapter attribute is set to "COL". Otherwise, it is set to "PRE"
Shipment/Billing/AccountNbr	ConsigneeUPSAcctNumber	Shipment.CustCarrier_Account_No
Shipment/Billing/CODPayment/Value	CODAmount	Container.COD_Amount
Shipment/Sender/PhoneNbr	SenderPhone	Shipment.ShipNodePersonInfo.Day_Phone
Shipment/Receiver/Address/CompanyName	ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
Shipment/Receiver/Address/Street	ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
Shipment/Receiver/Address/StreetLine2	ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2
Shipment/Receiver/Address/City	ConsigneeCity	Shipment.ShipToPersonInfo.City
Shipment/Receiver/Address/State	ConsigneeStateProv	Shipment.ShipToPersonInfo.State
Shipment/Receiver/Address/Country	ConsigneeCountry	Shipment.ShipToPersonInfo.Country
Shipment/Receiver/Address/PostalCode	ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
Shipment/Receiver/AttnTo	ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
Shipment/Receiver/PhoneNbr	ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone

3

Configuring the Sterling Parcel Carrier Adapter

This chapter describes the configuration of the Sterling Parcel Carrier Adapter (Carrier Adapter).

Although, the Carrier Adapter comes 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.

Configuring the Carrier Adapter involves the following:

- Setting Up the Sterling Parcel Carrier Adapter Properties
- Standard Configurations Packaged
- Pre-Configured Carriers

3.1 Setting Up the Sterling Parcel Carrier Adapter Properties

The Carrier Adapter requires relevant values for the following parameters:

- ConnectShip Server URL
- FedEx logon parameters
- AIRB logon parameters
- XML Logging
- Parameters for AIRB label print

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 modifying properties and the
`customer_overrides.properties` file, see the *Sterling Multi-Channel
Fulfillment Solution Installation Guide*.

3.2 Standard Configurations Packaged

As a part of the Carrier Adapter, factory setup data is provided for the
following carriers:

- Federal Express (FedEx)
- Airborne (AIRB)
- United Parcel Service United States (UPSN)
- United Parcel Service Canada (UPSC)
- United Parcel Service Europe (UPSE)
- United Parcel Service Asia Pacific (UPAC)
- United Parcel Service Latin America (UPSL)

3.3 Pre-Configured Carriers

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

- Federal Express (FedEx) Services and Special Services
- Airborne (AIRB) Services and Special Services
- United Parcel Service (UPS) Services and Special Services

3.3.1 Federal Express (FedEx) Services and Special Services

Services

The Carrier Adapter supports the following carrier services for FedEx:

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

Special Services

The Carrier Adapter supports the following special services for FedEx:

- Saturday Delivery
- Saturday Pickup
- COD
- Ship Alert
- Adult Signature Required
- Direct Signature Required
- Indirect Signature Required

3.3.2 Airborne (AIRB) Services and Special Services

Services

The Carrier Adapter supports the following carrier services for Airborne:

- Airborne Express Delivery
- Airborne Next Afternoon
- Airborne Second Day
- Airborne Ground

Special Services

The Carrier Adapter supports the following special services for Airborne:

- COD
- Saturday Delivery
- Hold At Airborne

3.3.3 United Parcel Service (UPS) Services and Special Services

United Parcel Service United States (UPSN)

Services

The Carrier Adapter supports the following carrier services for UPSN:

- UPS NEXT DAY AIR
- UPS NEXT DAY AIR SAVER
- UPS 2ND DAY AIR
- UPS 2ND DAY AIR A.M.
- UPS GROUND
- UPS 3 DAY SELECT
- UPS EARLY A.M.
- UPS WORLWIDE EXPEDITED

- UPS WORLWIDE EXPRESS
- UPS WORLWIDE EXPRESS PLUS

Special Services

The Carrier Adapter 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

United Parcel Service Canada (UPSC)

Services

The Carrier Adapter supports the following carrier services for UPSC:

- CANADA UPS EXPRESS
- CANADA UPS EXPRESS SAVER
- CANADA UPS EXPEDITED
- CANADA UPS STANDARD
- CANADA UPS EXPRESS EARLY A.M.

Special Services

The Carrier Adapter 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 Europe (UPSE)

Services
The Carrier Adapter supports the following carrier services for UPSE:

- EUROPE UPS EXPRESS

- EUROPE UPS EXPRESS SAVER

- EUROPE UPS EXPEDITED

- EUROPE UPS STANDARD

Special Services
The Carrier Adapter 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 Carrier Adapter supports the following carrier services for UPSA:

- APAC UPS EXPRESS

- APAC UPS WORLWIDE EXPEDITED

- APAC UPS WORLWIDE EXPRESS

- APAC UPS WORLWIDE EXPRESS PLUS

Special Services
The Carrier Adapter 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 Carrier Adapter supports the following carrier services for UPSL:

- LATAM UPS EXPRESS

- LATAM UPS WORLWIDE EXPEDITED

- LATAM UPS WORLWIDE EXPRESS

- LATAM UPS WORLWIDE EXPRESS PLUS

Special Services

The Carrier Adapter 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

4

Integrating the Sterling Parcel Carrier Adapter with Carrier Servers

This chapter explains the integration of the Sterling Parcel Carrier Adapter (Carrier Adapter) with carrier servers, ConnectShip for UPS, and PowerShip for FedEx. This chapter provides detailed information about:

- Integrating the Sterling Parcel Carrier Adapter with Connectship
- Integrating the Sterling Parcel Carrier Adapter with PowerShip

4.1 Integrating the Sterling Parcel Carrier Adapter with Connectship

ConnectShip provides a suite of products to integrate with various carriers. At the core of this product line is Progistics, which provides full functionality access to many parcel carriers (including UPS, USPS, Airborne, and FedEx) in a carrier independent approach. Progistics 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 Progistics features.

The Carrier Adapter uses APIs provided by ConnectShip Toolkit to integrate with all carriers, specifically UPS. For more information about ConnectShip capabilities, see http://www.connectship.com.

4.1.1 Installing ConnectShip Toolkit

ConnectShip Toolkit can be downloaded from '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.

4.1.2 Configuring ConnectShip

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

Some minimal configuration is required on ConnectShip, including creating Shippers, and registering the Shippers with Carriers. This configuration is available under Progistics configuration link.

In configuring a shipper, ensure that Shipper abbreviation is mapped to `ShipperAccountNumber` on the Carrier Adapter.

WMS sets the `ShipperAccountNumber` Carrier Adapter XML attribute with the Shipping Account Number in `ScacEx` setup for ShipNode & 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 Carrier Adapter (through `YCS_General_Codes` table) between `Abbreviation` on ConnectShip with `ShipperAccountNumber` from WMS.

4.1.3 Printing Labels and Documents

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 Carrier Adapter for printing. For more information about printing labels, Section 4.1.4.2.6, "Printing and Saving UPS Labels".

4.1.4 Software Components

4.1.4.1 Open Manifest

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 Carrier Adapter 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, if WMS/Carrier Adapter allows multiple open manifests for a given day, ConnectShip would not allow us to close the second manifest without adding at least one more carton to it. So, while integrating with ConnectShip, the Carrier Adapter ensures that only one open manifest exists for UPS for a given day. To identify if ConnectShip integration is being used, the Carrier Adapter checks the existence of Logic_Switch attribute with "CS_SHIP" and Api_Name attribute with SHIPCARTON in YCS_PROCESS_CONTROL.

4.1.4.2 Add Containers to Manifest

ConnectShip provides two APIs called `SHIPREQUEST` and `SHIPMENTREQUEST` for manifesting a package. Both have similar XMLs and the Carrier Adapter 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 Carrier Adapter 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.

By default, this integration is provided for UPS. FedEx and Airborne continue to communicate directly to PowerShip and Airborne servers respectively.

This component of the Carrier Adapter 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`.

4.1.4.2.1   Shipping international Shipments from USA

These are shipments originating from USA to a consignee in a different country. The Carrier Adapter 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 Carrier Adapter 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. `YCS_CARRIER_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 UPS Ground shipments would sometimes require Shipment level integration.

Other additional setup required is:

Mapping between Country codes sent by WMS and the Country Symbol code as required by ConnectShip. In `YCS_PLD_DETAILS` 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.

As a factory setup, the Carrier Adapter only provides the mapping for US, passed in the input XML by WMS, 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 WMS 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.

4.1.4.2.2 Shipments from Canada

UPS Carrier Code for Canada is `TANDATA_UPSCANADA.UPS`.

4.1.4.2.3 Shipments from Europe

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

4.1.4.2.4 Shipments from APAC

UPS Carrier Code for Shipments from Asia Pacific region is `TANDATA_ UPSAPAC.UPS`.

4.1.4.2.5 Shipments from Latin America (including Mexico)

UPS Carrier Code for Shipments from Latin America is `TANDATA_ UPSLATAM.UPS`.

4.1.4.2.6 Printing and Saving UPS Labels

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 WMS 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 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 4–1   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		TANDATA_UPS_MAXICODE_ CANADA.STANDARD
UPSE		TANDATA_STDLABEL.STANDARD
UPSA		TANDATA_STDLABEL.STANDARD
UPSL		TANDATA_STDLABEL.STANDARD

The label format to be printed is determined as follows:

- The Carrier Adapter internally sets the "UPSPLD/ExtraFieldsRecord@LabelFormatValue" input XML attribute to either DOMESTIC/INTERNATIONAL based on origin and destination countries.

- The Carrier Adapter 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.

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

ConnectShip values for various printer model are mentioned below:

- 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".

ConnectShip can also return the label string back to the Carrier Adapter 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" Carrier Adapter input XML attribute to get back the Printer string and print this UPS label as a part of a A4 Packing slip.

Table 4–2   PLD Factory Setup For Printing

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

4.1.4.2.7   Printing Other Documents

ConnectShip also prints shipment 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 Carrier Adapter prints these documents only when the last international package is being manifested.

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

4.1.4.2.8   Configuration Dependencies

YCS_Process_Control

Table 4–3   YCS Process Control

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

YCS_General_Codes

Table 4−4   YCS General Codes

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

4.1.4.3 Close Manifest

ConnectShip provides an API called "CloseOutRequest" to close the manifest. The Carrier Adapter accepts Carrier, Manifest#, and ShipperAccountNumber as inputs for closing a manifest. The Carrier Adapter changes the status of manifest and deletes all packages (`YCS_MANIFEST_UPS_DTL`) on the Carrier Adapter database and then calls ConnectShip's CloseOutRequest API.

The Carrier Adapter 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 WMS) 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 WMS. However, if user is trying to close the manifest even before all the packages in a shipment are manifested, then the Carrier Adapter automatically calls ConnectShip's `SHIPMENTREQUEST` API to close all these shipments. Note that WMS 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 WMS fails to specify the last package to the Carrier Adapter. This would typically happen if the last package was deleted from WMS before it was manifested.

4.1.4.3.1 Configuration Dependencies

YCS_Process_Control

Table 4–5 YCS Process Control

Carrier	API Name	Logic Switch
UPSN	CLOSEMANIFEST	CS_CLOSE_MANIFEST

YCS_General_Codes

Table 4–6 YCS General Codes

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

YCS_Pld_Details

Table 4–7 YCS Pld Details

Carrier: UPSN	Transaction: CS_ CLOSE_MANIFEST	Sub Transaction: Request
Carrier Field Name	**Field Name**	**Default Value**
CLOSEOUTREQUEST/LOGIN/ LOGINID		TEST
CLOSEOUTREQUEST/LOGIN/ PASSWORD		TEST
CLOSEOUTREQUEST/CLOSE OUT/SC	Manifest@Carrier	
CLOSEOUTREQUEST/CLOSE OUT/SHIPPER	Manifest@ShipperAccountNumber	
CLOSEOUTREQUEST/CLOSE OUT/CLOSEOUTITEM	Manifest@PickupDate	

4.1.4.4 Remove Containers From Manifest

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.

4.1.4.4.1   Configuration Dependencies

YCS_Process_Control

Table 4–8   YCS Process Control

Carrier	API Name	Logic Switch
UPSN	VOIDCARTON	CS_VOID

YCS_General_Codes

Table 4–9   YCS General Codes

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

YCS_Pld_Details

ConnectShip/Carrier Adapter XML mapping is mentioned below. Mapping is done from getXML output of the YCS_UPS_Pld_Detail table (for the Tracking # passed in input XML to the Carrier Adapter) to input required for ConnectShip. Root node for YCS_UPS_Pld_Detail.getXML is the same as input XML passed to the Carrier Adapter.

Table 4–10   YCS Pld Details

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

4.1.4.5 Print Container Labels

The Carrier Adapter component generates Tracking # and prints the carton label without actually manifesting it. WMS 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, Carrier Adapter 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

4.1.4.5.1 Configuration Dependencies

YCS_Process_Control

Table 4–11   YCS Process Control

Carrier	API Name
UPSN	TRACK_AND_PRINT

YCS_Pld_Details

Since this component internally calls ConnectShip's SHIPMENTREQUEST API, the Carrier Adapter uses "CS_SHIP" transaction's PLD setup. For more information, see Section 4.1.4.2, "Add Containers to Manifest".

4.1.5 ConnectShip Integration for Other Carriers

The Sterling Multi-Channel Fulfillment Solution supports integration with ConnectShip for UPS carriers and many other parcel carriers, such as, USPS, Purolator, and BAX Global. The Sterling Multi-Channel Fulfillment Solution can be easily configured to integrate with ConnectShip to support any carrier. To integrate the Carrier Adapter with ConnectShip for other carriers:

1. Copy all records from the YCS_Pld_Detail table with Carrier code as UPSC and modify the Carrier to the new Carrier.

2. Copy all records from the YCS_Process_Control table with Carrier code as UPSC and modify the Carrier to the new Carrier.

3. Copy all records from the YCS_General_Codes table with Carrier code as UPSC and modify the Carrier to the new Carrier.

4. The YCS_General_Codes table provides translation of the Sterling Multi-Channel Fulfillment Solution XML attribute values to ConnectShip-specific values for some of the attributes. Most of these attributes like Sunday Delivery required, Residential Flag, Consignee Country are not specific to any particular carrier, and can be copied from UPSC. However, attributes like Carrier Service code is specific to each carrier and such records must be modified with appropriate ConnectShip values. Table 4–12 lists attributes to be updated with ConnectShip carrier specific values. For more information about ConnectShip capabilities, see

http://www.connectship.com.

Table 4–12   Additional Mapping Configuration in YCS General Codes

ConnectShip Attribute	Sterling Multi-Channel Fulfillment Solution 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 Multi-Channel Fulfillment Solution data for Carrier Service Code to ConnectShip data.
EODFILEREQUEST/SHIPMENT/SC	Manifest@Carrier	This record translates the Sterling Multi-Channel Fulfillment Solution data for Carrier Code to ConnectShip data when the manifest is closed on the Sterling Multi-Channel Fulfillment Solution.

Table 4–12   Additional Mapping Configuration in YCS General Codes

ConnectShip Attribute	Sterling Multi-Channel Fulfillment Solution Attribute	Description
CLOSEOUTREQUEST/CLOSEOUT/SC	Manifest@Carrier	This record translates the Sterling Multi-Channel Fulfillment Solution data for Carrier Code to ConnectShip data when the manifest is closed on the Sterling Multi-Channel Fulfillment Solution.
VOIDREQUEST/SC	DelPackage@Carrier	This record translates the Sterling Multi-Channel Fulfillment Solution data for Carrier Code to ConnectShip data when a package is removed from the Manifest on the Sterling Multi-Channel Fulfillment Solution.

4.2 Integrating the Sterling Parcel Carrier Adapter with PowerShip

This section explains the integration of the Carrier Adapter with the FedEx PowerShip server.

4.2.1 Software Components

4.2.1.1 Open Manifest

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 Carrier Adapter allows you to open multiple manifests for a given day, whereas PowerShip allows only

one open manifest for a shipper for a given day. To open a second manifest, the first manifest must be closed. PowerShip does not allow you to close the second manifest without adding at least one more carton to the manifest. Therefore, when integrating with PowerShip, the Carrier Adapter ensures that only one open manifest exists for FedEx for a given day.

4.2.1.2 Add Containers to Manifest

PowerShip provides string-based transaction 020 for manifesting a package.

The Carrier Adapter exposes transaction 020 (in the YCS_PLD_DETAIL table and Logic_Switch in YCS_PROCESS_CONTROL table).

This component of the Carrier Adapter 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.

4.2.1.2.1   Shipping International Shipments from USA

These are shipments originating from USA to a consignee in a different country. The Carrier Adapter 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 Carrier Adapter uses open shipping method of PowerShip to manifest shipments that requires shipment level integration.

4.2.1.2.2 Printing and Saving FedEx Labels

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 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 Carrier Adapter 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 Multi-Channel Fulfillment Solution Platform Configuration Guide*.

- The Carrier Adapter 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, athough different physical devices are available to print the carrier label.

4.2.1.2.3 Configuration Dependencies

YCS_Process_Control

Table 4−13   YCS Process Control

Carrier	API Name	Logic Switch
FEDX	SHIPCARTON	020

4.2.1.3 Close Manifest
PowerShip provides transaction 007 to close a manifest.

4.2.1.3.1 Configuration Dependencies

YCS_Process_Control

Table 4−14   YCS Process Control

Carrier	API Name	Logic Switch
FEDX	CLOSEMANIFEST	007

YCS_Pld_Details

Table 4–15   YCS Pld Details

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

4.2.1.4 Remove Containers From Manifest

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.

4.2.1.4.1   Configuration Dependencies

YCS_Process_Control

Table 4–16   YCS Process Control

Carrier	API Name	Logic Switch
FEDX	VOIDCARTON	023

YCS_Pld_Details

PowerShip/Carrier Adapter mapping is mentioned below.

Table 4–17   YCS Pld Details

Carrier: FEDX	Transaction: 023	Sub Transaction: Request
Field Location	**Field Name**	**Default Value**
0	TransactionType	023

Table 4−17   YCS Pld Details

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

4.2.1.5 Print Container Labels

The Carrier Adapter component generates the tracking number and prints the carton label without manifesting the carton. WMS 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 Carrier Adapter verifies if the package is modified after printing it. To determine this, the Carrier Adapter checks whether the following attributes are changed:

- PackageActualWeight
- ConsigneeAddress1
- ConsigneeAddress2
- ConsigneeCity
- PickupDate

If the package is modified, the Carrier Adapter throws an error. To reprint the package, you must void it.

4.2.1.5.1   Configuration Dependencies

YCS_Process_Control

Table 4−18   YCS Process Control

Carrier	API Name
FEDX	TRACK_AND_PRINT

YCS_Pld_Details

As this component internally calls transaction 020 of PowerShip, the Carrier Adapter uses the PLD setup of transaction 020. For more information about the PLD setup of transaction 020, see Section 4.2.1.2, "Add Containers to Manifest".

5

Troubleshooting Connectivity Issues

This chapter describes some issues that are commonly encountered with the Sterling Parcel Carrier Adapter (Carrier Adapter). It also includes some tips discovered during the development of the Carrier Adapter Framework.

5.1 Dumping inXML on the Carrier Adapter

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

For additional information about modifying properties and the `customer_overrides.properties` file, see the *Sterling Multi-Channel Fulfillment Solution Installation Guide*.

5.2 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.

5.3 FedEx Issues

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

5.3.1 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.

5.3.2 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.

5.3.3 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.

5.3.4 Label Not Getting Reprinted

Label is not getting reprinted.

Cause A

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.

5.3.5 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.

5.4 Airborne Issues

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

5.4.1 Dumping the Airborne Input XML

The flag for dumping the inXML and outXML 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 "AIRB" and the CODE value of "AIRBINXMLDUMP".

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 `AIRB0000201001.txt`

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

The file is dumped into the `XMLlog` directory.

5.4.2 Dumping the AIRB Output XML

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 "AIRB" and the CODE value of "AIRBREPLYDUMP".

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 `AIRB0000201001.txt`

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

The file is dumped into the `XMLlog` directory.

5.4.3 Invalid Shipping Key

The cause for this may be that the account number in the carrier code setup is wrong or the shipping key mapping in the YCS_GENERAL_CODES table is wrong. The Account ID 2 in the carrier setup is not linked to the shipping key in the YCS_GENERAL_CODES tables.

5.4.4 Service Code Invalid

The cause for this may be that the service code is not set up properly in the carrier code setup.

5.4.5 COD Return Tracking Number Error

An error "COD Return Tracking number" is shown.

Cause

If you get this error, also check the response XML. This error may be due to an incorrect user ID or password.

5.4.6 Global Ship Transaction Invoke Failed

The cause of this failure may be that the URL to connect to the Airborne server is not correct, or the Airborne server is down.

5.4.7 Carton Getting Manifested But Label Not Printing

Cause A

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

Cause B

The printer is not online or is out of labels.

Cause C

The Label type is not set to "PNG" or the Network Print Enabled flag is not set to "Y".

5.5 ConnectShip Issues

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

5.5.1 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 Carrier Adapter 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.

5.5.2 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.

5.5.3 Cancellation of Last Carton in an International Shipment After Rest of Them are Manifested

For international shipments, all the labels are printed only when the last package is manifested. However, if after manifesting all but one package in the shipment, the last package is deleted, then the labels for the remaining packages are printed only when the manifest is closed.

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