



Carrier Server Guide

Release 7.5 SP1

May 2006



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Carrier Server Guide, Release 7.5 SP1

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Preface

This document describes how to use Yantra 7x Carrier Server Release 7.5 SP1 (YCS 7.5 SP1).

Intended Audience

This document is intended for use by application developers, system administrators, and users who use Yantra 7x Carrier Server to provide carrier-related functionalities in a central place.

Structure

This document contains the following sections:

Chapter 1, "Introduction"

This chapter introduces the Yantra 7x Carrier Server and its architecture.

Chapter 2, "Configuring Yantra 7x Carrier Server"

This chapter provides a detailed description about configuring Yantra 7x Carrier Server.

Chapter 3, "Yantra 7x Carrier Server Technical Details"

This chapter describes the programming components of the Yantra 7x Carrier Server.

Chapter 4, "Integrating Yantra 7x Carrier Server with ConnectShip"

This chapter describes the integration of Yantra 7x Carrier Server with ConnectShip.

Chapter 5, "Troubleshooting Connectivity Issues"

This chapter provides information for solving problems that can occur using Yantra 7x Carrier Server.

Yantra 7x Documentation

For more information about the Yantra[®] 7x components, see the following manuals in the Yantra[®] 7x documentation set:

- *Yantra[®] 7x Release Notes*
- *Yantra[®] 7x Installation Guide*
- *Yantra[®] 7x Upgrade Guide*
- *Yantra[®] 7x Performance Management Guide*
- *Yantra[®] 7x High Availability Guide*
- *Yantra[®] 7x System Management Guide*
- *Yantra[®] 7x Localization Guide*
- *Yantra[®] 7x Customization Guide*
- *Yantra[®] 7x Integration Guide*
- *Yantra[®] 7x Product Concepts*
- *Yantra[®] 7x Warehouse Management System Concepts Guide*
- *Yantra[®] 7x Platform Configuration Guide*
- *Yantra[®] 7x Distributed Order Management Configuration Guide*
- *Yantra[®] 7x Supply Collaboration Configuration Guide*
- *Yantra[®] 7x Inventory Synchronization Configuration Guide*
- *Yantra[®] 7x Product Management Configuration Guide*
- *Yantra[®] 7x Logistics Management Configuration Guide*
- *Yantra[®] 7x Reverse Logistics Configuration Guide*
- *Yantra[®] 7x Warehouse Management System Configuration Guide*
- *Yantra[®] 7x Platform User Guide*
- *Yantra[®] 7x Distributed Order Management User Guide*
- *Yantra[®] 7x Supply Collaboration User Guide*

- *Yantra® 7x Inventory Synchronization User Guide*
- *Yantra® 7x Logistics Management User Guide*
- *Yantra® 7x Reverse Logistics User Guide*
- *Yantra® 7x Warehouse Management System User Guide*
- *Yantra® 7x Mobile Application User Guide*
- *Yantra® 7x Analytics Guide*
- *Yantra® 7x Javadocs*
- *Yantra® 7x Glossary*
- *Yantra® 7x Carrier Server Guide*
- *Yantra® 7x Application Server Installation Guide* (for optional component)

Conventions

The following conventions may be used in this manual:

Convention	Meaning
. . .	An ellipsis represents information that has been omitted.
< >	Angle brackets indicate user-supplied input.
mono-spaced text	Mono-spaced text indicates a file name, an API name, or a code example.
/ 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.

Introduction

Yantra 7x Carrier Server (YCS) 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.

Yantra 7x Carrier Server 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](#)

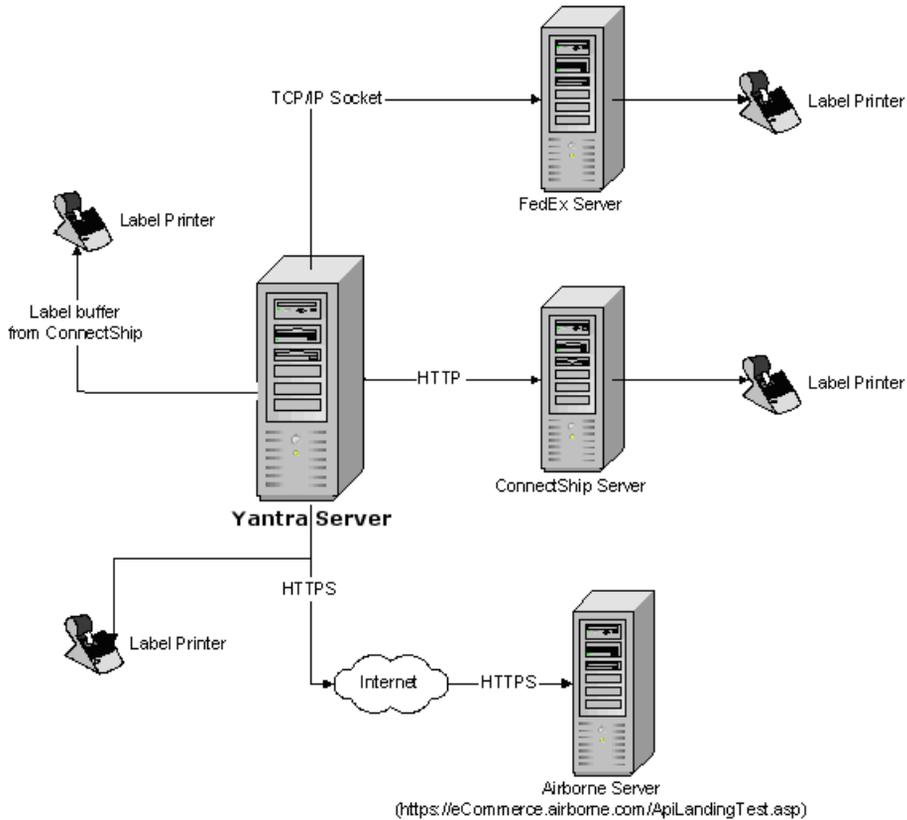
1.1 Technology Overview

This section explains the YCS architecture and default printers that YCS supports.

1.1.1 Yantra 7x Carrier Server Architecture

[Figure 1–1](#) illustrates YCS integration with FedEx, Airborne, and ConnectShip server through TCIP/IP socket and HTTP.

Figure 1-1 YCS Architecture



FedEx

YCS communicates with the FedEx PowerShip server (FXRS0563) through TCP/IP sockets. The FedEx Powership server and YCS are part of same LAN/WAN. Labels can be printed directly from the FedEx server. The FedEx server can also return a label buffer, but the current WMS or YCS integration does not support printing this buffer.

Airborne

Yantra 7x Carrier Server 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 a PNG format and Yantra 7x Carrier Server prints this label.

ConnectShip (UPS)

Yantra 7x Carrier Server 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 Yantra 7x Carrier Server. Labels can be printed directly from the ConnectShip server.

1.1.2 Printers

The Yantra 7x Carrier Server 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 Yantra 7x Carrier Server with ConnectShip" .
Airborne	– Airborne has no separate printer requirements and supports most standard printers.

1.2 Functionality Overview

Yantra 7x Carrier Server supports:

- [ConnectShip Compliance Functionality](#)
- [FedEx Express Compliance Functionality](#)
- [Airborne Compliance Functionality](#)

1.2.1 ConnectShip Compliance Functionality

The Yantra 7x Carrier Server 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 Express Compliance Functionality

The Yantra 7x Carrier Server 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)

1.2.3 Airborne Compliance Functionality

The Yantra 7x Carrier Server functionalities provided for Airborne compliance are:

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

Configuring Yantra 7x Carrier Server

This chapter describes the configuration of Yantra 7x Carrier Server (YCS).

Although, YCS comes with pre-installed carrier configuration data. Carriers may modify their service offerings based on business plans. This may require you to modify the configuration data at such times.

Configuring YCS deals with:

- [Setting Up the Yantra 7x Carrier Server Properties](#)
- [Standard Configurations Packaged](#)
- [Pre-Configured Carriers](#)

2.1 Setting Up the Yantra 7x Carrier Server Properties

YCS 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 `<YFS_HOME>/Resources/ycs.properties` file. To modify these parameters, edit this file or rerun the install script.

2.2 Standard Configurations Packaged

As a part of YCS, 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)

2.3 Pre-Configured Carriers

The YCS 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](#)

2.3.1 Federal Express (FedEx) Services and Special Services

Services

YCS 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

YCS supports the following special services for FedEx:

- Saturday Delivery
- Saturday Pickup
- Sunday Delivery flag
- COD
- Ship Alert

2.3.2 Airborne (AIRB) Services and Special Services

Services

YCS supports the following carrier services for Airborne:

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

Special Services

YCS supports the following special services for Airborne:

- COD
- Saturday Delivery
- Hold At Airborne

2.3.3 United Parcel Service (UPS) Services and Special Services

United Parcel Service United States (UPSN)

Services

YCS 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

YCS 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

YCS 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

YCS 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

YCS supports the following carrier services for UPSE:

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

Special Services

YCS 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

YCS 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

YCS 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

YCS 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

YCS 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

Yantra 7x Carrier Server Technical Details

Yantra 7x Warehouse Management System provides the ability to integrate parcel carriers as a part of the manifesting process within a node.

Yantra 7x 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 Yantra 7x Carrier Server (YCS). This layer abstracts the integration details to various carriers from the applications. YCS exposes internal APIs corresponding to the Yantra 7x WMS carrier integration as listed (above) to the application layer. For example, in Yantra 7x WMS, YCS takes a standardized XML, use configuration data specific to carriers to massage the data and pass data to the carriers using specific protocols.

YCS is preconfigured to integrate directly with FedEx and AirBorne, and UPS through ConnectShip.

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

This chapter includes:

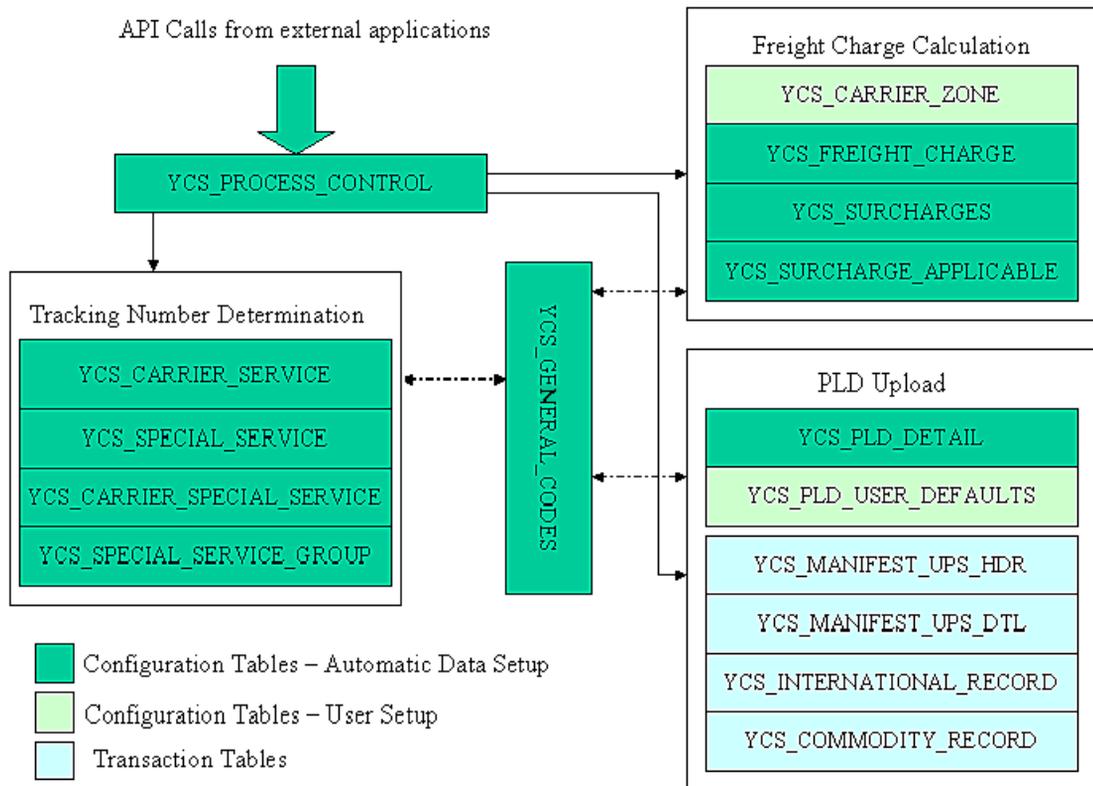
- [Introduction to Yantra 7x Carrier Server Tables](#)
- [Carrier Server Integration Details](#)
- [Integrating a New Carrier with Yantra 7x Carrier Server](#)

- [Field-Level Mapping for FedEx](#)
- [Field-Level Mapping for Airborne](#)

3.1 Introduction to Yantra 7x Carrier Server Tables

The YCS 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 3–1](#) illustrates the YCS tables.

Figure 3–1 Yantra 7x Carrier Server Tables



3.1.1 Configuration Tables

YCS 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 YCS Process Control table defines the mechanism or protocol for integration of Yantra 7x WMS to a carrier for a specific API.

Table 3–1 YCS_Process_Control

Attribute	Description
CARRIER	Carrier Code same as in Yantra 7x WMS
API_NAME	Name of the YCS 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 3–2 Logic switches for Carrier Integration

Yantra 7x WMS API	YCS 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 3–3 YCS_General_Codes

Attribute	Description
CARRIER	Carrier Code same as in Yantra 7x WMS
CODE	A Data value passed to YCS that needs to be translated to the carrier specific value

Table 3–3 YCS_General_Codes

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

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

Table 3–4 YCS_PLD_Detail

Attribute	Description
CARRIER	Carrier Code same as in Yantra 7x WMS
FIELD_NAME	YCS API Attribute Name (It is either the complete XPATH to the YCS 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 YCS input and get the value from YCS_General_Codes table. Blanks: No Defaulting. Use the value from YCS input XML.
DEFAULT_VALUE	Specific Value depending on DEFAULT_TYPE

Table 3–4 YCS_PLD_Detail

Attribute	Description
CARRIER_FIELD_NAME	<p>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:</p> <pre data-bbox="611 425 1063 928"> <eCommerce> <Shipment> <ShipmentDetail> <ShipDate>20051229</ShipDate> <Weight>12</Weight> </ShipmentDetail> </Shipment> </eCommerce> </pre> <p>For example, AirBorne: eCommerce/Shipment/ShipmentDetail/ShipDate ConnectShip: SHIPMENTREQUEST/DEFATTRIBUTES/SHIPDATE</p>
TXN	<p>Transaction or Process. Primarily Logic switches corresponding to Add/Remove package, Open/Close Manifest.</p>
SUB_TXN	<p>Send or Receive Input or Output Data (Request/Reply)</p>

3.2 Carrier Server Integration Details

Generally, carriers are integrated with YCS when manifesting. Yantra 7x Warehouse Management System supports the following carriers:

- FedEx

- AirBorne
- UPS

During manifest, Yantra 7x WMS integrates a carrier as follows:

1. Yantra 7x 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, Yantra 7x WMS calls the relevant YCS API.
2. YCS sequentially checks for integration with each carrier. Each API that Yantra 7x WMS supports is known by an internal YCS API name. A corresponding logic switch is defined for each carrier. [Table 3–2](#) explains the logic switches for all carriers.
3. The logic switches determine the input and output XMLs passed between the carrier's server and YCS. If a specific integration is required between them, YCS creates input data needed for these XMLs based on the mapping details provided in [Table 3–4](#), and sends it to the carrier's server.

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

3.3 Integrating a New Carrier with Yantra 7x Carrier Server

Although Yantra 7x, by default, supports carrier integrations for FedEx, UPS and Airborne. This can be extended to provide carrier integrations for other carriers too.

The two ways to integrate other carriers to Yantra 7x Carrier Server:

- [Using ConnectShip](#)
- [Using User Exits](#)

3.3.1 Using ConnectShip

The field-level mapping for YCS XML and the ConnectShip SHIPMENTREQUEST API input and output are provided in [Table 3–5](#). Mapping is done between the Input XML that is passed to YCS 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 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS 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/MISREFERENCE1	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
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/DECLAREDVALUE/MONETARYVALUE	UPSPLD/PackageLevelDetail@DeclaredValueInsurance	Container.Declared_Value

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/COD/CODAMOUNT/CURRENCYCODE	UPSPLD/PackageLevelDetail@ShipmentCODCurrencyCode	Shipment.Currency
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/COD/CODAMOUNT/MONETARYVALUE	UPSPLD/PackageLevelDetail@CODAmount	Container.COD_Amount
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/COD/CODPAYMENTMETHOD	UPSPLD/PackageLevelDetail@CODFundsInd	Shipment.COD_Pay_Method
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/HAZARDOUS/HAZMAT	UPSPLD/AccessorialRecord@HazMat	Shipment.HazardousMaterialFlag
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/PRODUCTCODE	UPSPLD/CommodityRecord@PartNumber	Container.ContainerDetail.Item.Item_Id
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/QUANTITY	UPSPLD/CommodityRecord@LineQuantity	Container.ContainerDetail.Quantity
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/UNITMEASURE	UPSPLD/CommodityRecord@LineQtyUOM	Container.ContainerDetail.UOM
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/COMMODITYCONTENTS/CONTENT/UNITWEIGHT	UPSPLD/CommodityRecord@CommodityWeight	Container.ContainerDetail.OrderLine.Item_Weight * Container.ContainerDetail.Quantity

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/UNITVALUE	UPSPLD/CommodityRecord@LineUnitAmtPrice	Container.ContainerDetail.OrderLine.Unit_Price * Container.ContainerDetail.Quantity
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/PRODUCTDESCRIPTION	UPSPLD/CommodityRecord@LineMerchDesc1	Container.ContainerDetail.Item.Description
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/ORIGINCOUNTRY	UPSPLD/CommodityRecord@LineOriginCountry	Container.ContainerDetail.Item.Country_Of_Origin
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/HARMONIZED CODE	UPSPLD/CommodityRecord@CommodityCode	Container.ContainerDetail.Item.Harmonized_Code
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/LICENSENUMBER	UPSPLD/CommodityRecord@LineLicenseInfo	Container.Export_License_No
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/LICENSEEXPI DATE	UPSPLD/CommodityRecord@LineLicenseExpDate	Container.Export_License_Exp_Date
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/INTL/ COMMODITYCONTENTS/ CONTENT/ECCN	UPSPLD/CommodityRecord@ECCN	Container.ContainerDetail.Item.ECCN

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
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
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/CITY	UPSPLD/PackageLevelDetail@ConsigneeCity	Shipment.ShipToPersonInfo.City
SHIPMENTREQUEST/PACKAGES/PKG/CONSIGNEE/STATEPROVINCE	UPSPLD/PackageLevelDetail@ConsigneeStateProv	Shipment.ShipToPersonInfo.State

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
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 YCS 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
SHIPMENTREQUEST/PACKAGES/PKG/SHIPNOTIFICATION/CARRIERSHIPNOTIFICATION/CSNNUMBER_OR_EMAIL	UPSPLD/AdvisoryInformationRecord@SNEmailAddressDestination1	Shipment.ShipTo.PersonInfo.EmailId

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
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
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGESERVICEOPTIONS/BILLTHIRDPARTY/BTPADDRESS1	UPSPLD/AlternatePartyRecord@Address1	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line1

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPADDRESS2	UPSPLD/AlternatePartyRecord @Address2	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line2
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPADDRESS3	UPSPLD/AlternatePartyRecord @Address3	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Address_Line3
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPCITY	UPSPLD/AlternatePartyRecord @City	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.City
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPSTATEPROVINCE	UPSPLD/AlternatePartyRecord @StateProv	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.State
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPPOSTAL CODE	UPSPLD/AlternatePartyRecord @PostalCode	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Zip_Code
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPCOUNTRYSYMBOL	UPSPLD/AlternatePartyRecord @Country	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Country
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/BTPPHONE	UPSPLD/AlternatePartyRecord @Phone	Shipment.ShipNode.SCACEX.THIRDPARTYORGANIZATION.Phone

Table 3–5 Field-Level Mapping for ConnectShip

Carrier Field Name	YCS Attribute	Database Attribute
SHIPMENTREQUEST/PACKAGES/PKG/PACKAGE SERVICEOPTIONS/BILLT HIRDPARTY/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

3.3.2 Using User Exits

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

The following user exits are supported for YCS:

- YCSshipCartonUserExit
- YCScloseManifestUserExit
- YCSdeleteCartonUserExit

For more information about these user exits, see the *Yantra 7x 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 Yantra 7x Configurator. For more information about User Exit Management, see the *Yantra 7x Platform Configuration Guide*.

3.4 Field-Level Mapping for FedEx

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

- openManifest
- shipCarton
- deleteCarton
- closeManifest

The field-level mappings for FedEx are provided in [Table 3–6](#).

Table 3–6 *Field-Level Mapping for FedEx*

ID	Name	YCS Attribute	Database Attribute
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
20	Payer or Account Number	ConsigneeUPSAccountNumber	Shipment.CustCarrier_Account_Number
21-#	Package/Shipment Weight	PackageActualWeight	Container.Container_Gross_Weight
23	Payment Code	ShipmentChgType	Shipment.FreightTerms.ChargesPaid By. If this value is "BUYER", then the YCS attribute is set to "COL". Otherwise, it is set to "PRE"
24	Ship Date	PickupDate	Container.Manifest.Manifest_Date

Table 3–6 Field-Level Mapping for FedEx

ID	Name	YCS Attribute	Database Attribute
26	Declared / Carriage Value	DeclaredValueInsurance	Container.Declared_Value
27	COD Flag	CODInd	
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
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

Table 3–6 Field-Level Mapping for FedEx

ID	Name	YCS Attribute	Database Attribute
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.Elctronic_Code

3.5 Field-Level Mapping for Airborne

For Airborne integration the following internal methods of YCS are invoked:

- shipCarton
- deleteCarton

The field-level mappings for Airborne are provided in [Table 3–7](#).

Table 3–7 Field-Level Mapping for Airborne

Field Name	YCS 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 will have 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

Table 3–7 Field-Level Mapping for Airborne

Field Name	YCS Attribute	Database Attribute
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"
Shipment/Billing/Party/Code	ShipmentChgType	Shipment.FreightTerms.ChargesPaidBy. If this value is "BUYER", then the YCS attribute is set to "COL". Otherwise, it is set to "PRE"
Shipment/Billing/AccountNumber	ConsigneeUPSAccountNumber	Shipment.CustCarrier_Account_No
Shipment/Billing/CODPayment/Value	CODAmount	Container.COD_Amount
Shipment/Sender/PhoneNumber	SenderPhone	Shipment.ShipNodePersonInfo.Day_Phone
Shipment/Receiver/Addresses/CompanyName	ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
Shipment/Receiver/Addresses/Street	ConsigneeAddress1	Shipment.ShipToPersonInfo.Address_Line1
Shipment/Receiver/Addresses/StreetLine2	ConsigneeAddress2	Shipment.ShipToPersonInfo.Address_Line2

Table 3–7 Field-Level Mapping for Airborne

Field Name	YCS Attribute	Database Attribute
Shipment/Receiver/Addresses/City	ConsigneeCity	Shipment.ShipToPersonInfo.City
Shipment/Receiver/Addresses/State	ConsigneeStateProv	Shipment.ShipToPersonInfo.State
Shipment/Receiver/Addresses/Country	ConsigneeCountry	Shipment.ShipToPersonInfo.Country
Shipment/Receiver/Addresses/PostalCode	ConsigneePostalCode	Shipment.ShipToPersonInfo.Zip_Code
Shipment/Receiver/AttnTo	ConsigneeCompanyName	Shipment.ShipToPersonInfo.Company
Shipment/Receiver/PhoneNumber	ConsigneePhone	Shipment.ShipToPersonInfo.Day_Phone

Integrating Yantra 7x Carrier Server with ConnectShip

This chapter explains the integration of Yantra 7x Carrier Server (YCS) with ConnectShip for UPS.

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, USPS, Airborne, and FedEx) 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.

YCS use 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 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, like Eltron, Zebra, and Windows Printer.

4.2 Configuring ConnectShip for use with Yantra 7x Carrier 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 ConnectShip, 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 YCS.

WMS sets the ShipperAccountNumber YCS 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 YCS (through YCS_General_Codes table) between Abbreviation on ConnectShip with ShipperAccountNumber from WMS.

4.3 Printing Labels and Documents in 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 YCS for printing. For more information about printing labels, [Section 4.4.2.6, "Printing UPS labels"](#).

4.4 Software Components for Yantra 7x Carrier Server

4.4.1 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 YCS 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, first one has to be closed. So, if WMS/YCS 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, YCS will ensure that only one open manifest exists for UPS for a given day. And to identify if ConnectShip integration is being used, YCS will check the existence of Logic_Switch attribute with "CS_SHIP" and Api_Name attribute with SHIPCARTON in YCS_PROCESS_CONTROL.

4.4.2 Add Containers to Manifest

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

YCS 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 will be called.

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

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

4.4.2.1 Shipping international Shipments from USA

These are shipments originating from USA to a consignee in a different country. YCS 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.

YCS 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 `IsShipment_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, YCS 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.

4.4.2.2 Shipments from Canada

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

4.4.2.3 Shipments from Europe

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

4.4.2.4 Shipments from APAC

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

4.4.2.5 Shipments from Latin America (including Mexico)

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

4.4.2.6 Printing 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.

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:

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

4.4.2.7 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. YCS 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. YCS provides printing of Commercial Invoice in the Factory setup. Additional documents can just be similarly added. The

attribute `ShipmentDocumentPrinterID` added to YCS input XML, obtains the printer details for printing these documents.

4.4.2.8 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.

4.4.3 Close Manifest

ConnectShip provides an API called “CloseOutRequest” to close the manifest. YCS accepts Carrier, Manifest#, and ShipperAccountNumber as inputs for closing a manifest. YCS changes the status of manifest and also deletes all packages (YCS_MANIFEST_UPS_DTL) on YCS database and then calls ConnectShip’s CloseOutRequest API.

YCS additionally checks to see if all printed packages are manifested. If any of the packages have not been manifested, this API will throw an error. Such packages will 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 YCS will automatically call

ConnectShip’s SHIPMENTREQUEST API to close all these shipments. Note that WMS will actually disallow closure of Manifest if all packages are not manifested. But this will help in situations where all packages in a Shipment are manifested by user and when WMS fails to specify the last package to YCS. This would typically happen if the last package was deleted from WMS before it was manifested.

4.4.3.1 Configuration Dependencies

YCS_Process_Control

Table 4–5 YCS Process Control

Carrier	API Name	Logic Switch
UPSN	VOIDCARTON	CS_SHIP

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_PId_Details

Table 4–7 YCS PId 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/CLOSEOUT/SC	Manifest@Carrier	

Table 4–7 YCS Pld Details

Carrier: UPSN	Transaction: CS_CLOSE_MANIFEST	Sub Transaction: Request
Carrier Field Name	Field Name	Default Value
CLOSEOUTREQUEST/CLOSEOUT/SHIPPER	Manifest@ShipperAccountNumber	
CLOSEOUTREQUEST/CLOSEOUT/CLOSEOUTITEM	Manifest@PickupDate	

4.4.4 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.

4.4.4.1 Configuration Dependencies

YCS_Process_Control

Table 4–8 YCS Process Control

Carrier	API Name	Logic Switch
UPSN	VOIDCARTON	CS_SHIP

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/YCS 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 YCS) to input required for ConnectShip. Root node for YCS_UPS_Pld_Detail.getXML is the same as input XML passed to YCS.

Table 4–10 YCS Pld Details

Carrier: UPSN	Transaction: CS_SHIP	Sub Transaction: Request
Carrier Field Name	Field Name	Default Value
VOIDREQUEST/LOGIN/LOGI NID		TEST
VOIDREQUEST/LOGIN/PASS WORD		TEST
VOIDREQUEST/SC	DelPackage@Carrier	
VOIDREQUEST/SHIPPER	DelPackage@ShipperAcco untNumber	

4.4.5 Print Container Labels

The YCS component generates tracking # and prints the carton label without actually manifesting it. WMS implementations could want Carrier Carton labels to be printed during Wave release itself 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 it using SHIPMENTREQUEST API in a special mode (by omitting CLOSEOUTMODE element). But it does not generate any package label in this mode. YCS calls ConnectShip in this mode.

During actual manifestation, YCS 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

4.4.5.1 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, YCS uses "CS_SHIP" transaction's PLD setup. For more information, see [Section 4.4.2, "Add Containers to Manifest"](#).

4.5 ConnectShip Integration for Other Carriers

Yantra 7x provides support for integrating with ConnectShip for UPS carriers. ConnectShip also provides integration for many other parcel carriers, for example, USPS, Purolator, and BAX Global. Yantra 7x can be easily configured to integrate with ConnectShip to support any carriers. For Yantra 7x integration with ConnectShip for any other carriers:

4. Copy all records from the YCS_Pld_Detail table with Carrier code as UPSC and modify the Carrier to the new Carrier.
5. Copy all records from the YCS_Process_Control table with Carrier code as UPSC and modify the Carrier to the new Carrier.
6. Copy all records from the YCS_General_Codes table with Carrier code as UPSC and modify the Carrier to the new Carrier.
7. The YCS_General_Codes table provides translation of Yantra 7x 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	Yantra 7x Attributes	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 Yantra 7x data for Carrier Service Code to ConnectShip data.
EODFILEREQUEST/SHIPMENT/SC	Manifest@Carrier	This record translates Yantra 7x data for Carrier Code to ConnectShip data when the manifest is closed on Yantra 7x.
CLOSEOUTREQUEST/CLOSEOUT/SC	Manifest@Carrier	This record translates Yantra 7x data for Carrier Code to ConnectShip data when the manifest is closed on Yantra 7x.
VOIDREQUEST/SC	DelPackage@Carrier	This record translates Yantra 7x data for Carrier Code to ConnectShip data when a package is removed from the Manifest on Yantra 7x.

Troubleshooting Connectivity Issues

This chapter describes some issues that are commonly encountered with Yantra 7x Carrier Server (YCS). It also includes some tips discovered during the development of the YCS Framework.

5.1 Dumping inXML on Carrier Server

The following setup is required for dumping inXML on the carrier server:

1. Go to the `<YFS_HOME>/Resources` directory

```
cd <YFS_HOME>/Resources
```

The `ycs.properties` file exists in this directory.

2. Open the `ycs.properties` file. Ensure that the `ycs.xmlDump.directory` property points to the directory, where you want the inXML file to be dumped.

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.

5.3.4 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, then YCS 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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