SELL ONLINE^{TM}

SHIPPING MODULE

ARCHITECTURE DOCUMENT

Version 7.0
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1. Introduction

Objective   This document explains the technical requirements needed to integrate the Sell Online   Shipping Module with a client's electronic commerce application.   Major changes have been introduced to improve the communication between the client and the Sell Online shipping module server.   This paper is not an implementation user guide but a preliminary guide to enable clients to make a better business decision to implement Sell Online to their eCommerce sites.

The implementation user guide is a requisite to this paper.   Detailed implementation instructions are available on the developers website that will be made available at your request.

Basic Requirements   As outlined in the implementation guide, the retailer must capture the following information before the technical team attempts to integrate with the Sell Online   Shipping Module:

- Measurement and weight of each SKU or ready to ship item
- Measurement, weight and maximum weight capacity of all shipping boxes
- Warehouse postal code where goods are shipped from
- Canada Post pick-up time
- Warehouse turnaround time
- Canada Post Distribution contract

For the integration, your technical team requires:

- Delivery destination address (valid Canadian postal code, Country or State)
- One of the following
- HTTP post with XML
- Perl 5.003 or greater for the Perl Version.
- Java 1.1 or above for the Java version.
- the latest Microsoft Java VM for the COM version.

2. Overview of the Sell Online   Shipping Module

Consumer   Most eCommerce products implement a "pipeline purchasing

Navigation   process" whereby the purchase process is represented by a series of
clearly defined stages, each of which can be customized. In this
case, when a consumer is ready to buy, your eCommerce platform
sends to the Sell Online   Shipping Module information of the items
to be shipped. The Sell Online   Shipping Module processes this
information to its rate and service module and calculates the
shipping cost and delivery date. The results are then returned to
your eCommerce platform for display to your consumer. We
recommend calling the shipping module during the checkout process
before the payment is secured.

Basic   There are a number of supported communication methods with the
Functionality   Sell Online server:
                    Canada Post recommends an XML communication to Sell Online.
                    The old version without XML is still supported but full functionality
                    is not available without XML (ex. Flexible Delivery).

                    HTTP Post with XML data.
- Your program is required to prepare the data into the
  XML for posting to the Sell Online server.
- The post returns data in XML format that you need to
  parse and then display to the consumers. The returned
  information contains detailed information on boxes to
  use for packing and on delivery services.
- The consumer selects the shipping speed.
- Your program captures the selection and provides the
  information to your warehouse staff and to the shipping
  system for shipping label printing.

Direct TCP connection with XML data.
- Your program is required to prepare the data into the
  XML for posting to the Sell Online server.
- The server returns data in XML format that you need to
  parse and then display to the consumers. The returned
  information contains detailed information on boxes to
  use for packing and on delivery services.
- The consumer selects the shipping speed.
- Your program captures the selection and provides the
  information to your warehouse staff and to the shipping
  system for shipping label printing.

Application Program Interface code (API) is available if the above
recommended communication is not selected. The API's are
available in one of:
- COM

- Java
- Perl

Canada Post provides a front-end Application Program Interface (API) to facilitate the transfer of data between your eCommerce platform and the Sell Online Shipping Module server. Most of the system functionality is included in the sample code provided with the API code from our email. The steps of a basic functionality interface is as follows:

- The API is called with valid data
- The API returns the shipping choices to the consumer
- The consumer selects the shipping speed.
- The API gives the optimum packing box selection (this can be sent to the warehouse for fulfilment).
- The API gives the calculated weight of the parcel. The calculated parcel weight should be sent to your warehouse so they can include this information on the manifest to Canada Post.

In addition, the API provides some basic error checking capabilities. Some of the typical errors include:

- Invalid postal code. When an invalid postal code message is received, you will need to request your consumer to select a valid destination.
- Invalid data sent to Canada Post.   This error message can be avoided with proper testing and coding. To avoid invalid data messages it is recommended that all data related to new SKUs or ready to ship items are added at the same time.

If you are using the API without the HTML provided, then you need to convey error messages to your consumers in your codes.

3. Architecture

High Level Overview

The Sell Online Shipping Module interacts with your eCommerce platform by transferring the required purchasing and delivery information (detailed below) to the Sell Online Shipping Module. In turn, the shipping module provides the shipping costs and the expected delivery dates for the order.

4. External Application Program Interface

General   This section describes the inputs and outputs required to interact with the Sell Online Shipping Module.

Sell Online Shipping Module   To interface with the Sell Online Shipping Module, the following input is required:

DESCRIPTION	VARIABLE DETAILS	VARIABLE TYPE
Canada Post Reference Number		String
Number of items in the order	This indicates how many SKU or READY TO SHIP items compose the order and, indirectly, how many times the next section is repeated.	String
Item description **(This section repeated as many times as indicated in the previous field)**	This is composed of one long string separated by ':'. The various elements are: Quantity Weight Width Height Depth Description Essentially, this looks like: "qt:weight:width:height:depth:description"	 String String String String String String
Destination Postal Code	• Canadian postal code, or • " " (space) if sent outside Canada	String
Destination Province or State	• Canadian province, or • US State name, or • " " (space) if sent outside Canada and USA	String
Destination Country		String
Language desired	en = English, fr = French. Used for information returned by the API.	String
The directory where log files will be located	A string with the directory and using '/' as directory separators.	String

Debug flag	1 = true, 0 = false	String

Additional information that is required by the packing module is stored in the Retailer Profile. Retailers will maintain this information through an interface provided by Canada Post. The information includes:

1. The originating postal code from where the products will be shipped.
2. The turnaround time.
3. The handling charge.
4. The pickup cut-off time.
5. The list of boxes available for packing including their characteristics.

Once all of the calculations have been completed, the interface module will return to the calling program with the following additional information:

DESCRIPTION	VARIABLE DETAILS	VARIABLE TYPE
Result code	See Annex 1 for the list of result codes returned. This is all that is returned if an error is returned. However, if the request was a success or if a warning was returned, the rest of the information is returned.	String
Handling charge	The amount charged by the merchant for the handling of the merchandise. This is NOT included in the shipping costs returned further down and should be added by the ISP prior to presenting the amounts.	String
Comment	A comment field to be presented right below the Canada Post window.	String
Number of boxes	This indicates how many boxes required to pack the order and, indirectly, how many times the next section is repeated.	String
Box description **(This section repeated as many times as indicated in the previous field)**	This is a single string containing the description of the box as provided by the merchant followed by the weight (or MDW) of the packed box. In the case where multiple boxes are required for packing, a number indicating the number of items and the list of items for this box are appended to this field. The format uses single quotes for strings and spaces	String

	as delimiters. As example a box with a description of "Box A" weighting 8.5 kg when packed would appear as follows: 'Box A' 8.5 If we have multiple boxes and the first box contains 2 items, we have: 'Box A' 8.5 2 'ItemDesc#1' 'ItemDesc#1' ^ ^ ^ ^ (^ represents spaces used as delimiters).	
Number of Canada Post Services	The number of Canada Post Services returned and, indirectly, how many times the next section is repeated.	String
Name of Canada Post Service		String
Name of graphic file associated with this service	This equals "" if no file is associated with this service	String
Date indicator	This indicates if the date string contains an actual date (1) or a string (2). Ex actual date => "5/7/99", string=> "up to 4 days"	String
Date	The date which is an actual date such as "5/7/99" or a string like "up to 4 days".	String
AM Indicator	Indicates if the first product returned will arrive in the morning.	String
Shipping cost	This DOES NOT include the handling charge of the merchant.	String

5. Sell Online Shipping Module Implementation

The implementation guidelines are included with each of the packages sent by Sell Online as they are specific for each implementation.

The Sell Online XML DTD is available from the developers site.

6. Code Examples Using the API

Our test server 206.191.4.228 contains code examples for each implementation in the "Developer Resources" section.

7. Obtaining the API

Please send an email to eparcel@canadapost.ca requesting the API codes. When the Sell Online team receives your request, the API will be sent to your email address.

Annex 1 – Result Codes

This section provides a sample of the various error codes that are returned by the Canada Post module. Up to date result codes are available on our test server at 206.191.4.228 under "Developer Resources".   The sample should not be used for coding purposes because of updates on the Developer Resources page.

The error codes are returned when the module could not recover from the error and therefore these codes are the only information returned.

In the case of warnings, they are returned for information purposes. They indicate there were some problems with the Canada Post module but that the module was able to recover from it and therefore the information (rates, etc.) are also returned. Here again, codes –100 to –108 are returned by the API module while the rest come from the Sell Online server.

No error

1 = Ok (everything went well with the processing of information).

Errors

-1 =   Destination postal code invalid.
-2 =   Missing arguments when calling the module. (The call to the module was missing some arguments or had some illegal values).
-3 =   Could not get merchant information.
-4 =   Illegal merchant information.
-5 =   No item to ship.
-6 =   Illegal item weight.
-7 =   Illegal item dimension.
-10 =   More item to ship than the number declared to the API.
-11 =   Less item to ship than the number declared to the API.
-12 =   Could not access the configuration file.
-13 =   Too many items in order. Request was not processed.
-14 =   Illegal destination type. Please contact the Sell Online support team.

-31 =   Illegal origin postal code.
-35 =   Parcel overweight.
-42 =   MAS unable to pack the items. No valid box provided.
-44 =   MAS unable to pack the items. Item too large.
-60 =   Unable to retrieve merchant information (Merchant ID not found).
-77 =   Internal API problem. Please contact Sell Online support team.

Warnings

-100 = The connection timed out.
-101 = The connection timed out. This may be due to large size of order.

-102 = Invalid connection.
-103 = Connection closed unexpectedly.
-104 = Could not open connection.
-105 = Could not close connection.
-106 = Could not connect to socket.
-107 = Delivery date occur before current date.
-108 = Null status code received from server.

-110 = DLL general error
-120 = MAS unable to contact RSSS server.
-130 = Communication break between MAS and RSSS.
-140 = MAS unable to pack the items. General error.
-141 = MAS unable to pack the items. Time out error.

NOTE:

In the event of an outage, it is required that you display your own flat rates to your customers; these could be the same as the default rates in your profile. This will enable your customers to complete their purchases in the event of service outage.

Annex 2 – List of countries

The following are the English and French list of countries as they are to be sent to the Canada Post interface module. The XML release has allowed the use of ISO country codes to replace this list. The ISO link is available from the developers site. The following list is available in csv format on our test server at http://eparcel.magma.ca under "Developer Resources" and "Sell Online Module Integration Documentation". Canada Post cannot accept country codes yet. Please use the full name until our future release handles them

English List

United States				
Abu Dhabi	Admiralty Islands	Afghanistan	Aland Islands	Albania
Algeria	Alofi Islands	American Samoa	Andaman Islands	Andorra
Angola	Anguilla	Antigua & Barbuda	Argentina	Armenia
Aruba	Ascension	Australia	Austria	Azerbaijan
Azores	Bahamas	Bahrain	Balearic Islands	Bali
Bangladesh	Banka	Banks Islands	Barbados	Belarus
Belgium	Belize	Benin	Bermuda	Bhutan
Billiton Island	Bismark Archipelago		Bolivia	Bonaire
Bophuthatswana	Bosnia & Herzegovina	Botswana	Brazil	Brunei Darussalam
Bulgaria	Burkina Faso	Burma	Burundi	Cambodia
Cameroon	Canary Islands	Cape Verde	Cayman Islands	Celebes
Central African Rep.		Ceuta	Chad	Chafarinas
Channel Islands	Chile	China	Christmas Islands	Ciskei
Coloane	Colombia	Comoros (Fed. Islamic Rep.)		Congo (Dem. Rep.)
Congo (People's Rep.)		Cook Islands	Corfu	Corsica
Costa Rica	Cote d'Ivoire	Crete	Croatia	Cuba
Curacao	Cyprus	Czech Republic	Daito Island	Denmark
Djibouti	Dodecanese Island	Dominica	Dominican Republic	Dubai
East Timor	Ecuador	Egypt	El Salvador	England
Equatorial Guinea	Eritrea	Estonia	Ethiopia	Falkland Islands
Fanning Island	Faroe Islands	Fiji	Finland	France
French Guiana	French Polynesia	Fujairah	Futuna Islands	Gabon
Gambia	Georgia	Germany	Ghana	Gibraltar
Gilbert Islands	Great Britain	Greece	Greenland	Grenada
Guadeloupe	Guam	Guatemala	Guernsey	Guinea
Guinea-Bissau	Guyana	Haiti	Hervey Islands	Hokkaido Island
Honduras	Hong Kong	Honshu Island	Hunan Islands	Hungary
Iceland	India	Indonesia	Iran	Iraq
Ireland (Northern)	Ireland (Republic)	Isle of Man	Isle of Pines	Israel
Italy	Jadu	Jamaica	Japan	Java
Jersey	Jordan	Kazakhstan	Kenya	Kiribati
Korea North	Korea South	Kuwait	Kyrgystan	Kyushu Island
Lagosta	Lao	Latvia	Lebanon	Leeward Islands (British)
Leeward Islands (French)		Lesotho	Liberia	Libyan Jamahiriya
Liechtenstein	Lithuania	Loyalty Islands	Luxembourg	Macao
Macedonia	Madagascar	Madeira	Madura Island	Malawi
Malaysia	Maldives	Mali	Malta	Manus Island
Marshall Islands	Marquesas Island	Martinique	Mauritania	Mauritius
Mayotte	Mexico	Moldova	Moluccas Islands	Monaco
Mongolia	Montserrat	Morocco	Mozambique	Myanmar
Namibia	Nauru	Nepal	Netherlands	Netherlands Antilles
New Britain	New Caledonia	New Ireland	New Zealand	Nicaragua
Nicobar Islands	Niger	Nigeria	Niue Islands	Norfolk Islands
North Korea	Northern Ireland	Norway	Ocean Island	Oman
Pakistan	Palau	Panama	Papua New Guinea	Paraguay
Peru	Philippines	Pitcairn Islands	Poland	Portugal
Puerto Rico	Qatar	Rarotonga Islands	Réunion	Rhio Island
Rodriguez Island	Romania	Russian Federation	Rwanda	Ryukyu Island
Saba	Saint Christopher & Nevis		Saint Vincent & the Grenadines	
Saint Lucia	Saipan	Samoa	San Marino (Rep.)	Sao Tome & Principe

Sardinia
Saudi Arabia
Scotland
Senegal
Seychelles
Shikoku Island
Sierra Leone
Singapore
Slovakia
Slovenia
Society Islands
Solomon Islands
Somalia
South Africa
South Korea
Spain
Spanish Territories of North Africa
Spitzbergen
Sri Lanka
St. Helena
St. Croix
St. Eustatius
St. John
St. Maarten
St. Pierre & Miquelon
St. Thomas
Sudan
Sumatra Island
Suriname
Svalbard
Swaziland
Sweden
Switzerland
Syrian Arab Rep.
Tahiti
Taipa
Taiwan
Tajikistan
Tanzania
Tarawa Islands
Thailand
Togo
Tokelau Islands
Tonga Islands
Torres Islands
Tortola Island
Touamotu Islands
Transkei
Trinidad & Tobago
Tristan da Cunha
Tubuai Islands
Tunisia
Turkey
Turkmenistan
Turks & Caicos Islands
Tuvalu
Uganda
Ukraine
United Arab Emirates
Upolu Island
Uruguay
Uzbekistan
Vanuatu
Vatican
Venda
Venezuela
Viet Nam
Virgin Gorda
Virgin Islands (British)
Virgin Islands (U.S.)
Wales
Wallis Island
Washington Island
Yemen
Yugoslavia
Zaire
Zambia
Zimbabwe

French List

États-Unis
Abu Dhabi
Açores
Afghanistan
Afrique du Sud
Albanie
Algérie
Allemagne
Andorre
Angeeterre
Angola
Anguilla
Antigua et Barbuda
Antilles néerlandaises
Arabie saoudite
Archipel Bismark
Argentine
Arménie
Aruba
Ascension
Australie
Austriche
Azerbaïdjan
Bahamas
Bahrain
Bali
Bangladesh
Banka
Barbade
Bélarus
Belgique
Belize
Bénin
Bermudes
Bhoutan
Bolivie
Bonaire
Bophuthatswana
Bosnie-Herzégovine
Botswana
Brésil
Brunei Darussalam
Bulgarie
Burkina Faso
Burma
Burundi
Cambodge
Cameroun
Cap-Vert
Centrafrique
Ceuta
Chafarinas
Chili
Chine
Chypre
Ciskei
Coloane
Colombie
Comoros
Congo
Congo (Rép. Dém.)
Corée du Nord
Corée du Sud
Corfu
Corse
Costa-Rica
Côte d'Ivoire
Crète
Croatie
Cuba
Curaçao
Danemark
Djibouti
Dominique
Dubai
Écosse
Égypte
El Salvador
Émirats arabes unis
Équateur
Érythrée
Espagne
Estonie
Éthiopie
Fédération de Russie
Fidji
Finlande
France
Fujairah
Gabon
Galles
Gambie
Géorgie
Ghana
Gibraltar
Grande-Bretagne
Grèce
Grenade
Groenland
Guadeloupe
Guam
Guatémala
Guernesey
Guinée
Guinée equatoriale
Guinée-Bissau
Guyane
Guyane française
Haïti
Honduras
Hongkong
Hongrie
Île Billiton
Île Christmas
Île Daito
Île de Man
Île Dodécanèse
Île Fanning
Île Kyushu
Île Madura
Île Manus
Île Marquesas
Île Océan
Île Rhio
Île Rodriguez
Île Ryukyu
Île Shikoku
Île Sumatra
Île Tortola
Île Upolu
Île Wallis
Île Washington
Îles Aland
Îles Alofi
Îles Andaman
Îles Baléares
Îles Banks
Îles Canaries
Îles Cayman
Îles Célèbes
Îles Cooke
Îles de l'Amirauté
Îles de la Manches
Îles des Pins
Îles Falkland
Îles Féroé
Îles Futuna
Îles Gilbert
Îles Hervey
Îles Hokkaido
Îles Honshu
Îles Hunan
Îles Leeward britannique
Îles Leeward française
Îles Loyauté
Îles Marshall
Îles Molusques
Îles Nicobar
Îles Niue
Îles Norfolk
Îles Pitcairn
Îles Rarotonga
Îles Salomon
Îles Société
Îles Tarawa
Îles Tokelau
Îles Tonga
Îles Torres
Îles Tuamotu
Îles Tubuai
Îles Turques & Caïques
Îles Vierges (É.-U.)
Îles Vierges britanniques
Inde
Indonésie
Iran
Iraq
Irlande
Irlande du Nord
Islande
Israël
Italie
Jadu
Jamahiriya libyenne
Jamaïque
Japon
Java
Jersey
Jordanie
Kazakhstan
Kenya
Kiribati
Kuwait
Kyrghizistan
Lagosta
Lao
Lesotho
Lettonie
Liban
Libéria
Liechtenstein
Lituanie
Luxembourg
Macao
Macédoine
Madagascar
Madère
Malaisie
Malawi
Maldives
Mali
Malte
Maroc
Martinique
Maurice
Mauritanie
Mayotte
Mexique
Moldova
Monaco
Mongolie
Montserrat
Mozambique
Myanmar
Namibie
Nauru
Népal
New Ireland
Nicaragua

Niger	Nigéria	Norvège	Nouvelle-Calédonie	Nouvelle-Zélande
Nouvelle-Bretagne	Oman	Ouganda	Ouzbékistan	Pakistan
Palau	Panama	Papousie-Nouvelle Guinée		Paraguay
Pays-Bas	Pérou	Philippines	Pologne	Polynésie française
Porto-Rico	Portugal	Qatar	Rép. arabe Syrienne	
Rép. San Marino	République Dominicaine		République Tchéque	
Réunion	Romanie	Rwanda	Saba	Saint-Christophe-et-Nevis
Saint-Eustatius	Saint-Lucie	Saint-Maarten	Saint-Pierre et Miquelon	
Saint-Thomas	Saint-Vincent-et-Grenadines		Sainte-Croix	Sainte-Hélèna
Saipan	Samoa	Samoa américaine	Sao Tomé-et-Principe	
Sardaigne	Sénégal	Seychelles	Sierra Leone	Singapour
Slovaquie	Slovénie	Somalie	Soudan	Spitzberg
Sri Lanka	St. John	Suède	Suisse	Suriname
Svalbard	Swaziland	Tahiti	Taipa	Taïwan
Tajikistan	Tanzanie	Tchad	Territoires espagnols de l'Afrique Sud	
Thaïlande	Timor Oriental	Togo	Transkei	Trinité-et-Tobago
Tristan da Cunha	Tunisie	Turkménistan	Turquie	Tuvalu
Ukraine	Uruguay	Vanuatu	Vatican	Venda
Vénézuéla	Viet Nam	Virgin Gorda	Yémen	Yogoslavie
Zaire	Zambie	Zimbabwe		

Annex 3 – List of State Names

The following are the US State Names that can be handles by the Sell Online Shipping API module:

Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana

Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming