XEROX®

FreeFlow™

FreeFlow®
Web Services
Data Export
User Guide

Powered by **Press-sense**

Introduction

Data Export is an add-on module for *FreeFlow Web Services* that implements the concept of *Web Services* as an open system which can be easily integrated with and conveyed to the various peripheral systems existing in an organization (such as *Accounting* and *Estimating*).

This transference of data is "Event Driven", whereby data is transferred at the time that a specific event occurs. Data transference is accomplished by the establishment of links in the *Web Services* Job processing workflow.

Links

A *Link* is a point in the workflow where a specific event initializes the process of assembling a package of data that is related to the event. This package of data is then transferred to a *Receptor*, which is a software module, written by a software programmer and designed to receive the package and manipulate the data stored within. Each *Link* is uniquely defined by the information contained within the package that it sends and by the event that initializes it; however, the *Receptor* can be any software module written according to the specifications described in the *Implementation Guide*. The *Receptor* must receive the data according to the means dictated by the *Link* but once the package has been received, the *Receptor* component is free to process the data as seen fit.

Data Export, then, is a flexible system that any organization can implement in the way most suitable to the organization's needs.

Working with Data Export

In order to be able to integrate with any peripheral system, the *INS* (the *Data Export Nerve System*) must be installed on the *Web Services* server. When this component has been installed, the links are activated and *Web Services* begins exporting data using the existing links. Currently, there are four existing links (see: *The Four Existing Links* on page 5, for specific link information).

The activation of the links is protected by the Print Provider's licensing option. If the Print Provider's licensing option is not set for *Data Export*, the links will not be activated, even after the *INS* has been installed. In order to use *Data Export*, the correct licensing should be obtained. Existing customers, who wish to add the *Data Export* ability to their *Web Services*, should contact their distributor and request an activation file that will add the *Data Export* license to their current licensing option.

Xerox defines all of the parameters that will be transferred from *Web Services* to each *Link*. These parameters are then transferred to a *Receptor* for processing. An *Integrator* can create *Receptors*, for specific uses, in which case the logics implemented by the *Receptor* and the consequences of its action are the *Integrator's* responsibility. The details necessary, in order to create such *Receptors*, are provided in the *Implementation Guide* section (see page 9 of this document).

Note: While the logic and processes will be written and maintained by the *Integrator*, in specific instances outlined by agreement, Xerox personnel can write and maintain these logics and processes.

The Default Receptors

In situations where special processing is not needed for the exportation of information, *Xerox* provides a *Default Receptor* for each link, together with the initial installation of the *INS*. These *Receptors* simply write all of the information that was sent from the link to an *XML* file (a standard file format) and save the file in a designated folder. These files can later be accessed and processed manually or they can be processed by any software that supports the XML format.

D:\Temp has been set as the default folder. However, the Print Provider can change this folder by entering any suitable target folder into the *Folder Path* field box found in the *Data Export* window (*Settings/Integrations/Data Export*).
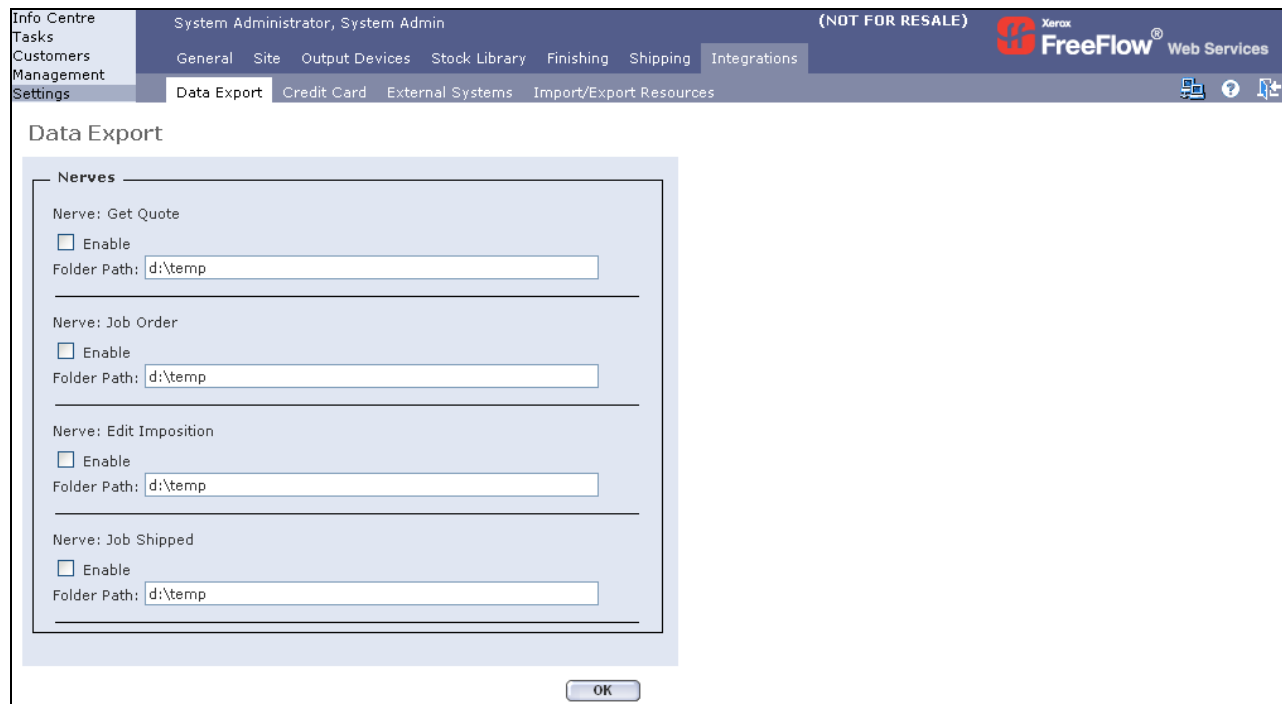
Note: The naming of the *XML* files, written by the default *Receptors*, follows a constant convention. The name of each file is in the following format:

idk_linkName_ddmmyyyy_hhmm_uniqueID.xml,

ddmmyyyy_hhmmss indicates the date and time of the event causing the export of the information. *uniqeID* is a random number given to the filename in order to prevent the file being overwritten.

The Four Existing Links

The following four links are currently provided with the *Data Export*:

- Get Quote
- Job Order
- Re-impose
- Job Shipped

Get Quote Link

The *Get Quote* link is activated when a Print Buyer-user requests a price for one or more Jobs in the *FreeFlow Web Services Shopping Cart*, by clicking the *Get Quote* button.

Job Order Link

The *Job Order* link is activated when the Print Buyer-user places an order by clicking on the *Place Your Order* button in the *Place the Order* window.

Edit Imposition Link

The *Edit Imposition* link is activated when the Print Provider-user modifies imposition parameters of a Job in the *Production* queue.

Job Shipped Link

The *Job Shipped* link is activated when the Print Provider-user approves Jobs for shipping in the *Delivery* queue by clicking on the *Approve Selected Deliveries* button.

Note: Each of these four links can be enabled or disabled independently (see the figure above). After installing *Data Export* on the server, all four links are disabled by default. To enable a link, checkmark the associated checkbox; all information can then be exported to an *XML* file, as explained in the *Default Receptor* paragraph.

The following table describes the set of data included in each of the four existing links:

	Print Buyer		Print Provider		Description of Link Element
	Get Quote	Job Order	Edit Imposition	Job Shipped	
1	Job ID	Job ID	Job ID	Job ID	The Job ID number assigned by the system
2	No. of Copies	No. of Copies		No. of Copies	The number of copies ordered for the Job
3	Flat Page Count	Flat Page Count			Number of flat pages in the Job, according to the Job's Properties
4	Urgency ID	Urgency ID		Urgency ID	Urgency factor for delivery time based on regular, express, or urgent values
5	Shipping Address Details	Shipping Address Details		Shipping Address Details	Details which include the first name, last name, full name, street, city, state, zip code, country, phone, fax, e-Mail, address notes, contact name, customer name
6		Billing Address Details			Same details as in shipping address
7	Customer Reference Code	Customer Reference Code		Customer Reference Code	The Customer Reference Code allocated to the Job
8	Template Name	Template Name	Template Name		When a Job has been created from a template; the name of the template that was used
9			Duplex Mode		Duplex mode requested for the impositioning of the Job
10	User ID	User ID		User ID	
11	Color Channels	Color Channels	Color Channels		Includes the following details: Color group, Black Channel count, Process Channels count, Spot Channels count. The Color group parameter's value is decided according to the Channels count and can be one of three: Black, Process, Custom
12	Flat Page Width	Flat Page Width	Flat Page Width		The width of the Job page when spread open
13	Flat Page Height	Flat Page Height	Flat Page Height		The height of the Job page when spread open
14	Printing Device	Printing Device	Printing Device		Name of printing device assigned to the Job
15	Print Quality	Print Quality			Print quality defined for the Job in the Edit Properties window
16	Flat Page Sides	Flat Page Sides			Indicates whether the Job is to be printed on one or two sides
17	No. of Passes	No. of Passes			Number of times that the Job must pass through the Output Device, as calculated by FreeFlow Web Services

	Print Buyer		Print Provider		Description of Link Element
	Get Quote	**Job Order**	**Edit Imposition**	**Job Shipped**	
18	Flat Page Size	Flat Page Size	Flat Page Size		Name of the size of the Job's flat page (A4, A5…)
19	Paper Type	Paper Type	Paper Type		Details include the following: Quality, Category, Texture, Type, Color, Weight
20	Run Sheet Size	Run Sheet Size	Run Sheet Size		Size of the run sheet to be used by the assigned Printing Device
21	Plate Count	Plate Count			Number of plates that would be run by the Output Device
22	Finishing Information	Finishing Information	Finishing Information		Assigned finishing types for the Job and various parameters for each type
23		Base Price		Base Price	Base price for the Job
24		Discount			Discount given to the base price according to the customer's special rate
25		Print Buyer's Price			Job price after adjustment, according to the Print Buyer's discount
26		Urgency Price			Modifier for the Print Buyer's price, according to the Job's Urgency ID
27		Total Price, excluding tax			Price after urgency considerations
28		Tax			Tax to be added to the price
29		Total Price, including tax			Price after urgency considerations and including taxes
30		Price Origin (Generic Price, Job Ticket)			Out of the following values: Generic, Template, Manual, Job Ticket
31		Order ID		Order ID	ID given by FreeFlow Web Services to the order that the Job is included in
32	Customer ID	Customer ID		Customer ID	ID given by FreeFlow Web Services to the Print Buyer that is ordering the Job
33		Order Date		Order Date	Date the Job was ordered
34		Order Date ISO		Order Date ISO	Date the Job was ordered in ISO date format
35				Shipping Date	Date the Job was shipped to the Print Buyer
36				Shipping Date ISO	Date the Job was shipped to the Print Buyer in ISO date format
37	Requested Date	Requested Date			Date requested for the Job's delivery
38	Requested Date ISO	Requested Date ISO			Date requested for the Job's delivery in ISO date format
39	Print Buyer Discount Rate	Print Buyer Discount Rate			Rate of Print Buyer discount
40	Tax Rate	Tax Rate			Rate of tax
41	Urgency Rate	Urgency Rate			

Note: All measurement units are in inches.

Description of the Technology (for Integrators)

At the core of the *Data Export* is the *INS* (the *FreeFlow Web Services Nerve System*). The *INS* serves as a mediator between requests for data processing and the implementation of the processing, so that the requesting component and the implementing component are independent of one another. The request for processing is called an *INS Event*. An *INS Event* is issued by the *Web Services* application, together with a data package that contains the relevant parameters for that event. For each *Event* implemented by the *INS*, there is a corresponding *Nerve*. A *Nerve* is a logical container within the *INS* that maintains the definition of which data is expected to be delivered with the *Event* and which *Receptor* is to process that data.

The *Receptors* are implemented as *COM* components. They can run on any machine over the network, thus enabling load management.

INS Components

Nerve

For each *Event* implemented by the *INS*, there is a corresponding *Nerve*. A *Nerve* is a logical container within the *INS* that coordinates the work for the implementation components, the *Receptors*. The *Nerve* maintains the definition of what data is expected to be delivered with the *Event*, and which *Receptor*, or *Receptors*, is to process that data.

It is possible to map more than one *Receptor* on a single *Nerve*. In such cases, the *Nerve* will initialize the *Receptors*, sequentially, transferring each returned value from one *Receptor* to the preceding *Receptor*.[1]

Receptors

Receptors perform the actual work in the *INS*. They are implemented as *COM* components and can run on any machine over the network, thus enabling load management. When an *INS Event* occurs and a *Nerve* is being implemented, the *Receptor* defined within the *Nerve* will be loaded by the *INS* and unloaded after it finishes carrying out the operations it is designed for. The *Receptor* will then return a value to the calling *Nerve*. With each notification, the *Receptor* will receive a data-set, specific for the *Event* being implemented at that time. The data is referred to as the *Event Context*.

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[1] This mode of operation has not yet been implemented in the *Data Export*.

Implementation Guide (Picking up info from the INS and placing it into a com object)

Overview

All links export Job-related information. The *Event Context* (set of data) is transported as a dictionary (Scripting, Dictionary Type). With the exception of the *Edit Imposition* link, the *Event* that takes place can be related to more than one Job; however, there will be one *Event* issued to the *INS* that will hold the data of all of the Jobs involved. In such cases, the dictionary being transferred will contain sub-dictionaries, where each sub-dictionary corresponds to one Job only.

The *Job Order* link also transfers order-related information. In this case, there will be two sub-dictionaries, one containing all order information and one containing all Job information.

The following figures describe the structure of the dictionary being passed in each link. The figures show the dictionary key names and the type of the values they hold.

The # sign at the start of the key designates that the actual name of the key varies in each event. It is followed by a description that implies the nature of the key (i.e. "#Job ID"). It also indicates that more than one parameter of this type can be present.

Get Quote Link

Dictionary:

```
Key name="#JobId" type="dictionary"
        Key name="id" type="string"
        Key name="urgencyid" type="string"
        Key name="customerid" type="string"
        Key name="copies" type="string"
        Key name="userID" type="string"
        Key name="template" type="string"
        Key name="customerRefCode" type="string"
        Key name="requestedDate" type="string"
        Key name="urgencyRate" type="string"
        Key name="taxRate" type="string"
        Key name="customerDiscountRate" type="string"
        Key name="shipping" type="dictionary"
                Key name="firstname" type="string"
                Key name="lastname" type="string"
                Key name="fullname" type="string"
                Key name="company" type="string"
                Key name="street" type="string"
                Key name="city" type="string"
                Key name="state" type="string"
                Key name="zipcode" type="string"
                Key name="country" type="string"
                Key name="phone" type="string"
                Key name="mobile" type="string"
                Key name="email" type="string"
```

```
                    Key name="addressnotes" type="string"
            Key name="flatPage" type="dictionary"
                    Key name="count" type="string"
                    Key name="width" type="string"
                    Key name="height" type="string"
                    Key name="size" type="string"
                    Key name="sides" type="string"
            Key name="channels" type="dictionary"
                    Key name="colorGroup" type="string"
                    Key name="blackCount" type="string"
                    Key name="processCount" type="string"
                    Key name="spotCount" type="string"
            Key name="production" type="dictionary"
                    Key name="outputDevice" type="string"
                    Key name="printQuality" type="string"
                    Key name="runSheets" type="string"
                    Key name="plateCount" type="string"
                    Key name="passCount" type="string"
            Key name="paper" type="dictionary"
                    Key name="quality" type="string"
                    Key name="category" type="string"
                    Key name="texture" type="string"
                    Key name="type" type="string"
                    Key name="color" type="string"
                    Key name="weight" type="string"
            Key name="finishing" type="dictionary"
                    Key name="oneside-flat-divby" type="string"
                    Key name="stapling" type="dictionary"
                    Key name="type" type="string"
                    Key name="position" type="string"
                    Key name="count" type="string"
                    Key name="comb-binding" type="dictionary"
                            Key name="position" type="string"
                            Key name="thickness" type="string"
                            Key name="type" type="string"
                    Key name="laminating" type="dictionary"
                            Key name="type" type="string"
                            Key name="sides" type="string"
                    Key name="drilling" type="dictionary"
                            Key name="position" type="string"
                            Key name="count" type="string"
                            Key name="radius" type="string"
                    Key name="collating" type="dictionary"
                            Key name="type" type="string"
                    Key name="perfect-binding" type="dictionary"
                            Key name="position" type="string"
                            Key name="type" type="string"
                    Key name="numbering" type="dictionary"
                            Key name="position" type="string"
                            Key name="start" type="string"
                            Key name="step" type="string"
```

```
                                    Key name="start-page" type="string"
                                    Key name="duplex" type="string"
                                    Key name="type" type="string"
                          Key name="fold-marks" type="dictionary"
                                    Key name="calc-y-mul" type="string"
                                    Key name="calc-y-offset" type="string"
                                    Key name="calc-x-mul" type="string"
                                    Key name="calc-x-offset" type="string"
                                    Key name="count" type="string"
                                    Key name="for-calc-job-size"
                                    type="string"
                                    Key name="#Fold" type="dictionary"
                                             Key name="orientation"
                                             type="string"
                                             Key name="pos-precentage"
                                             type="string"
                                             Key name="name" type="string"
                                             Key name="position"
                                             type="string"
                                             Key name="direction"
                                             type="string"
```

Job Order Link

Dictionary:

```
Key name="orderDict" type="dictionary"
        Key name="price" type="string"
        Key name="discount" type="string"
        Key name="customerPrice" type="string"
        Key name="urgencyID" type="string"
        Key name="urgency" type="string"
        Key name="totalNoTax" type="string"
        Key name="tax" type="string"
        Key name="total" type="string"
        Key name="id" type="long"
        Key name="CustomerID" type="string"
        Key name="UserID" type="string"
        Key name="OrderDate" type="string"
        Key name="requestedDate" type="string"
        Key name="taxRate" type="string"
        Key name="customerDiscountRate" type="string"
Key name="jobsDict" type="dictionary"
        Key name="#JobId" type="dictionary"
                Key name="id" type="string"
                Key name="cost" type="string"
                Key name="price" type="string"
                Key name="adjustedPrice" type="string"
                Key name="customerPrice" type="string"
                Key name="discountRate" type="string"
                Key name="discount" type="string"
                Key name="urgencyRate" type="string"
                Key name="urgencyPrice" type="string"
                Key name="taxRate" type="string"
                Key name="tax" type="string"
                Key name="totalNoTax" type="string"
                Key name="total" type="string"
                Key name="copies" type="string"
                Key name="referenceCode" type="string"
                Key name="template" type="string"
                Key name="origin" type="string"
                Key name="shipping" type="dictionary"
                        Key name="firstname" type="string"
                        Key name="lastname" type="string"
                        Key name="fullname" type="string"
                        Key name="street" type="string"
                        Key name="city" type="string"
                        Key name="state" type="string"
                        Key name="zipcode" type="string"
                        Key name="country" type="string"
                        Key name="phone" type="string"
                        Key name="fax" type="string"
```

```
                              Key name="email" type="string"
                              Key name="addressnotes" type="string"
                              Key name="contactname" type="string"
                              Key name="customername" type="string"
                  Key name="billing" type="dictionary"
                              Key name="firstname" type="string"
                              Key name="lastname" type="string"
                              Key name="fullname" type="string"
                              Key name="street" type="string"
                              Key name="city" type="string"
                              Key name="state" type="string"
                              Key name="zipcode" type="string"
                              Key name="country" type="string"
                              Key name="phone" type="string"
                              Key name="fax" type="string"
                              Key name="email" type="string"
                              Key name="addressnotes" type="string"
                              Key name="contactname" type="string"
                              Key name="customername" type="string"
                  Key name="flatPage" type="dictionary"
                              Key name="count" type="string"
                              Key name="width" type="string"
                              Key name="height" type="string"
                              Key name="size" type="string"
                              Key name="sides" type="string"
                  Key name="channels" type="dictionary"
                              Key name="colorGroup" type="string"
                              Key name="blackCount" type="string"
                              Key name="processCount" type="string"
                              Key name="spotCount" type="string"
                  Key name="production" type="dictionary"
                              Key name="outputDevice" type="string"
                              Key name="printQuality" type="string"
                              Key name="runSheets" type="string"
                              Key name="plateCount" type="string"
                              Key name="passCount" type="string"
                  Key name="paper" type="dictionary"
                              Key name="quality" type="string"
                              Key name="category" type="string"
                              Key name="texture" type="string"
                              Key name="type" type="string"
                              Key name="color" type="string"
                              Key name="weight" type="string"
                  Key name="finishing" type="dictionary"
                              Key name="oneside-flat-divby"
                              type="string"
                              Key name="stapling" type="dictionary"
                              Key name="type" type="string"
                              Key name="position" type="string"
                              Key name="count" type="string"
                              Key name="comb-binding"
```

```
                                    type="dictionary"
                                          Key name="position"
                                          type="string"
                                          Key name="thickness"
                                          type="string"
                                          Key name="type" type="string"
                         Key name="laminating"
                         type="dictionary"
                                          Key name="type" type="string"
                                          Key name="sides" type="string"
                         Key name="drilling" type="dictionary"
                                          Key name="position"
                                          type="string"
                                          Key name="count" type="string"
                                          Key name="radius" type="string"
                         Key name="collating" type="dictionary"
                                          Key name="type" type="string"
                         Key name="perfect-binding"
                         type="dictionary"
                                          Key name="position"
                                          type="string"
                                          Key name="type" type="string"
                         Key name="numbering" type="dictionary"
                                          Key name="position"
                                          type="string"
                                          Key name="start" type="string"
                                          Key name="step" type="string"
                                          Key name="start-page"
                                          type="string"
                                          Key name="duplex" type="string"
                                          Key name="type" type="string"
                         Key name="fold-marks"
                         type="dictionary"
                                          Key name="calc-y-mul"
                                          type="string"
                                          Key name="calc-y-offset"
                                          type="string"
                                          Key name="calc-x-mul"
                                          type="string"
                                          Key name="calc-x-offset"
                                          type="string"
                                          Key name="count" type="string"
                                          Key name="for-calc-job-size"
                                          type="string"
                                          Key name="#Fold"
                                          type="dictionary"
                                                Key name="orientation"
                                                type="string"
                                                Key name="pos-precentage"
                                                type="string"
                                                Key name="name"
```

```
type="string"
Key name="position"
type="string"
Key name="direction"
type="string"
```

Edit Imposition Link

Dictionary:

```
Key name="id" type="string"
Key name="template" type="string"
Key name="flatPage" type="dictionary"
        Key name="count" type="string"
        Key name="width" type="string"
        Key name="height" type="string"
        Key name="size" type="string"
        Key name="sides" type="string"
Key name="channels" type="dictionary"
        Key name="colorGroup" type="string"
        Key name="blackCount" type="string"
        Key name="processCount" type="string"
        Key name="spotCount" type="string"
Key name="paper" type="dictionary"
        Key name="quality" type="string"
        Key name="category" type="string"
        Key name="texture" type="string"
        Key name="type" type="string"
        Key name="color" type="string"
        Key name="weight" type="string"
Key name="production" type="dictionary"
        Key name="outputDevice" type="string"
        Key name="duplexMode" type="string"
        Key name="runSheets" type="string"
Key name="finishing" type="dictionary"
        Key name="oneside-flat-divby" type="string"
        Key name="stapling" type="dictionary"
                Key name="type" type="string"
                Key name="position" type="string"
                Key name="count" type="string"
        Key name="comb-binding" type="dictionary"
                Key name="position" type="string"
                Key name="thickness" type="string"
                Key name="type" type="string"
        Key name="laminating" type="dictionary"
                Key name="type" type="string"
                Key name="sides" type="string"
        Key name="drilling" type="dictionary"
                Key name="position" type="string"
                Key name="count" type="string"
                Key name="radious" type="string"
        Key name="collating" type="dictionary"
                Key name="type" type="string"
        Key name="perfect-binding" type="dictionary"
                Key name="position" type="string"
                Key name="type" type="string"
```

```
Key name="numbering" type="dictionary"
        Key name="position" type="string"
        Key name="start" type="string"
        Key name="step" type="string"
        Key name="start-page" type="string"
        Key name="duplex" type="string"
        Key name="type" type="string"
Key name="fold-marks" type="dictionary"
        Key name="calc-y-mul" type="string"
        Key name="calc-y-offset" type="string"
        Key name="calc-x-mul" type="string"
        Key name="calc-x-offset" type="string"
        Key name="count" type="string"
        Key name="for-calc-job-size" type="string"
Key name="#Fold" type="dictionary"
        Key name="orientation" type="string"
        Key name="pos-precentage" type="string"
        Key name="name" type="string"
        Key name="position" type="string"
        Key name="direction" type="string"
```

Job Shipped Link

Dictionary:

```
Key name="#JobId" type="dictionary"
        Key name="id" type="string"
        Key name="copies" type="string"
        Key name="urgencyid" type="string"
        Key name="customerRefCode" type="string"
        Key name="customerid" type="string"
        Key name="price" type="string"
        Key name="shippingDate" type="string"
        Key name="orderID" type="string"  Key name="orderDate"
        type="string"
        Key name="userID" type="string"
        Key name="shipping" type="dictionary"
                Key name="firstname" type="string"
                Key name="lastname" type="string"
                Key name="fullname" type="string"
                Key name="company" type="string"
                Key name="street" type="string"
                Key name="city" type="string"
                Key name="state" type="string"
                Key name="zipcode" type="string"
                Key name="country" type="string"
                Key name="phone" type="string"
                Key name="mobile" type="string"
                Key name="email" type="string"
                Key name="addressnotes" type="string"
```

Receptor Implementation

Receptors are primarily *COM* objects and therefore, in order to implement a *Receptor*, one must be familiar with *COM* programming. The minimal requirement is the implementation of a one-function call.

As *INS* works on top of *MTS*, it is preferable (but not compulsory) that *Receptors* be *MTS* aware. For better performance, *Receptors* should be implemented as *Apartment Neutral* (Aggregating FTM) or *Apartment Threaded* components.

The *INS* recognizes each *Receptor* by its program ID; therefore, *Receptors* must use a predefined program ID for registration. The following table shows Receptor Program ID associated with each of the existing links:

	Get Quote	Job Order	Edit Imposition	Job Shipped
Program ID	iway.idk_getPrice	iway.idk_orderExport	iway.idk_reImpose	iway.idk_shipJob

All *Receptors* must implement the following function:

VARIANT Notify (eventObject, Context, applicationContext, lastRet)

This function is called when an event is raised.

The following is a description of the parameters of the function:

Function Parameters

VARIANT eventObject

[in] a reference to **INS** Event object that provides information on the event

VARIANT Context

[in/out] The dictionary holding the exported data

VARIANT applicationContext

[in] A constant context passed to the *Receptor* that configures according to the applicator in the current *Nerve*

VARIANT lastRet

[in] The return value from the previous *Receptor* (if such a one exists)

Return Value

VARIANT

According to the *Receptor* implementation