



INTEGRATION STRATEGIES GUIDE

Descartes® Route Planner™

17.05

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Descartes® Route Planner™

17.05

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Welcome to Descartes Route Planner

Introduction

This guide is intended for Descartes® Route Planner™ (formerly known as LNOS Fleetwise™) implementers. It provides an overview of the different methodologies that should be adopted when integrating Descartes Route Planner with external systems as well as extracting data from LNOS Applications.

External Systems can include:

- External Order Management Systems
- External Databases
- External Asset Management Systems
- Reporting Engines
- Other Descartes Systems Group (DSG) Applications such as Descartes Transportation Manager™, Transport Order Entry, Descartes Visibility & Event Management™, Descartes Wireless/GPS™, etc.

This guide includes integration methodologies recommended by DSG.

Definitions

Descartes Route Planner refers to the Descartes suite of Routing applications developed on the Logistics Network Operating System™ (LNOS) Architecture. Descartes Route Planner takes advantage of the scalability, and multi-threading capabilities of the LNOS Architecture as well as the standard communication protocols that every DSG Application developed in LNOS uses.

Descartes Route Planner will only be able to receive and transmit data in the form of Logistics Business Documents. A Logistics Business Document represents a Document that can be easily understood by internal and external applications to DSG and contain the most common and standard elements used by the industry.

You need to be aware of these terms before you begin Integrating Descartes Route Planner with other systems.

Application— a Descartes Systems Group product that forms a solution for a customer, either by itself or in collaboration with other products, i.e. Transportation Management, Descartes Route Planner, etc.

Publishing— placing data into an external physical location so that it can be distributed to other applications, according to subscription and rule settings.

XML— extensible markup language; a flexible way to create common information formats and share both the format and the data.

XSL— extensible stylesheet language; a language for creating style sheets that describe how XML data is presented to a user.

The Logistics Business Documents of Descartes Route Planner include:

- **Bill of Ladings:** A Bill of Lading (BOL) lists only the requirements for one or multiple Transportation Orders. The elements of a Bill of Lading include, Origin/Destination Addresses, Billing Information, Goods details of what needs to be transported, pickup and delivery date/time information as well as additional planning instructions. A BOL represents a feasible transportation request to Descartes Route Planner so that it can be planned and executed.
- **Resources:** A Resource represents a group of entities that can be used in the planning and execution of Bill of Ladings. A Resource usually is identified by a group of physical entities that will work on a Bill of Lading and have characteristics such as Capacity, Costs, Availability, and Restrictions. An example of a Resource is a Truck, a truck/trailer driver, etc.
- **Buckets:** Buckets represent the Service Time Window intervals that are used to offer Reservation slots to customers. Buckets are specified in the form of date/times and its length will depend on the service level that a company would like to offer to its customers.
- **Address Data:** Address Data documents represent Location that can be used throughout LNOS Applications. Locations represent Geographic points that can be used as Origins and Destinations in BOL documents as well as Starting and Ending Locations for Resources.
- **Routes:** Route Documents represent a collection of BOL's optimally sequenced serviced by a Resource at specific times in the planning horizon. Routes are Logistic Documents that can be extracted from the Descartes Route Planner application.
- **DocRequestTask:** The DocRequestTask document allows users to submit requests to Descartes Route Planner to be executed. The purpose of this document is to allow the definition of a criteria set to be used in order to execute the requested task.

Integration Process Overview

The most common way of integrating with the Descartes Route Planner suite is using synchronous posts via http to specialized listeners that manage the logic of transforming a business document into the format that LNOS Descartes Route Planner will understand.

These listeners allow users to handle complicated calls with one single business document.

Integrating incoming Logistics Business Documents

This section will address the recommended way of integrating Logistics Business Documents. Business standards are utilized as basis to incoming documents. This business standard document then will get transformed into the format that an LNOS application will be able to interpret.

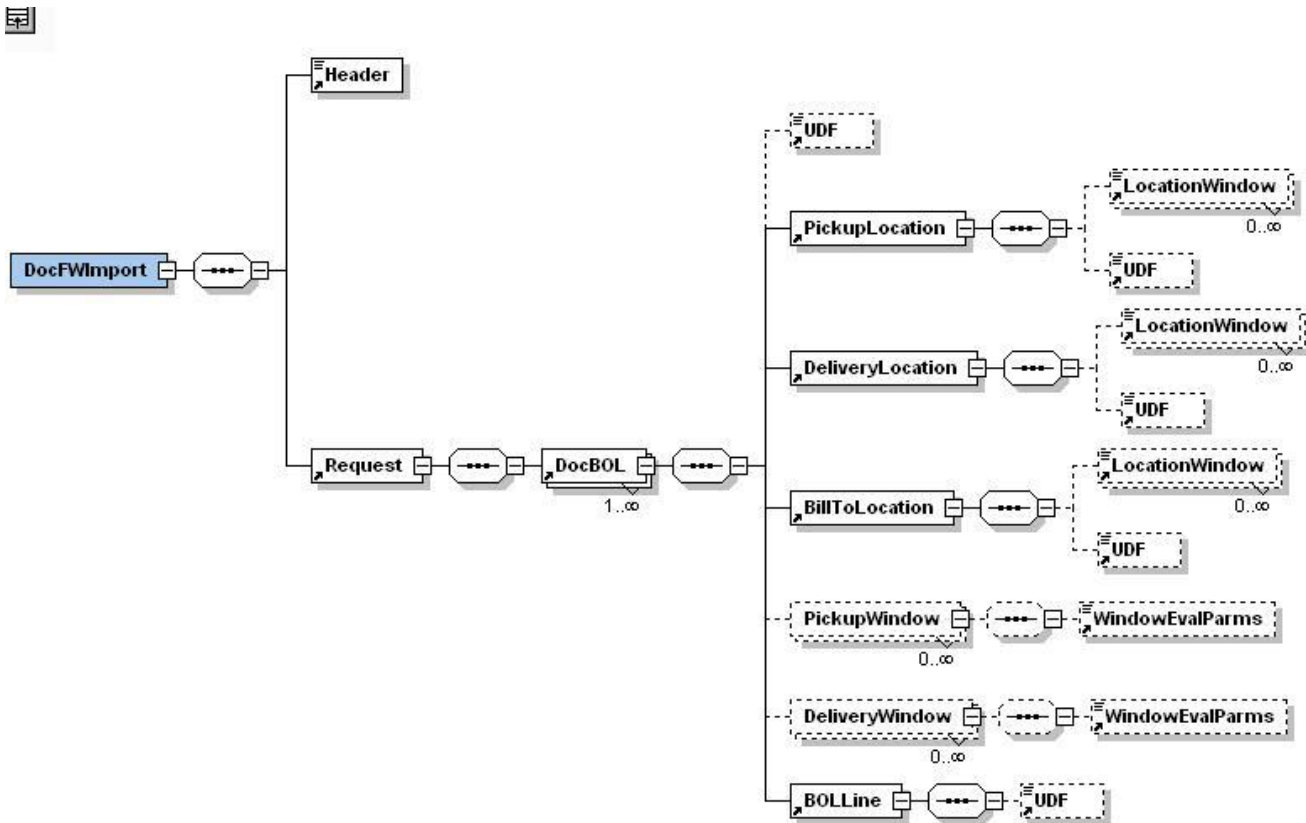
The preferred method to integrate documents into Descartes Route Planner is using XML Documents.

The preferred communication protocol is http.

Other protocols such as local folders, MSMQueue, MQSeries, http and ftp are supported using Dataflow. For more information on how to configure Dataflow, please contact Customer Support.

Incoming XML Document Schema

The following picture depicts the components that an incoming Standard Business Document should have:



Header: Includes header information with elements such as Sender and Receiver identity information as well as document control data such as date time and document ID and integrations user credentials.

Header XML Example:

```
- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

+ <Request>

  - <DocBOL MessagePurpose="Required" ProcessCode="Required
    in Reservations model" ScheduleKey="Required in
    Advise" StartDate="" EndDate="" MaxSlots="Required in
    Advise" ReturnRoutes="Required in Advise" BOLID=""
```

```

BOLNumber="Required" WBNumber="" BOLCreateDate=""
ShpTADCreateDate="" CarrierID="" CarrierName=""
CarrierOrgID="" StatusDescription="" RelOrderNumber=""
ModifyDate="" ModifiedBy="" PONumbers="" SONumbers=""
CreatedBy="" TADCreateDate="" ShipperRefNo=""
PlannerID="" PlannerName="" PlannerOrgID=""
ShipperID="" ShipperName="" ShipperOrgID="" Comment=""
BillToLocationID="" PickupLocationID=""
DelLocationID="" PublishedDateTime=""
ApprovedDateTime="">

<UDF UDFFieldID="" DocCategory="" DocRecordID=""
  UDF1="" UDF2="" UDF3="" UDF4="" UDF5="" UDF6=""
  UDF7="" UDF8="" UDF9="" UDF10="" UDF11="" UDF12=""
  UDF13="" UDF14="" UDF15="" UDF16="" UDF17=""
  UDF18="" UDF19="" UDF20="" UDF21="" UDF22=""
  UDF23="" UDF24="" UDF25="" UDF26="" UDF27=""
  UDF28="" ModifiedBy="" ModifyDate="" />

- <PickupLocation LocationID=""
  LocationRefNo="Required" CompanyName=""
  LocationType="" Description="" Address="Required
  if no Long and Lat" Address2="" City="Required if
  no Long and Lat" State="Required if no Long and
  Lat" Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat" TimeZone=""
  ContactName="" EmailAddress="" PhoneNumber=""
  FaxNumber="" Longitude="Required if no full
  address" Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone="" AddressType=""
  ServiceDuration="" WorkgroupValue="" ModifiedBy=""
  ModifyDate="" LocationName="" Comment=""
  LocationCode="" Territory="Required in the
  Reservations Model" GeoSource="" GeoScore=""
  GeoOneCell="" GeoRelativePosition="" GeoFlags="">

- <LocationWindow TimeWindowID=""
  ParentRecordID="" ParentRecordType=""
  TimeWindowType="" EarliestDateTime=""
  LatestDateTime="" EarliestTime=""
  LatestTime="" EarliestDate="" LatestDate=""
  Frequency="" Comment="" ProfitFactor=""
  VariationProfitFactor="" VariationDuration=""
  ModifiedBy="" ModifyDate="">

```

```

    <WindowEvalParms RouteID="Output
      Reservations Model"
      PrecedingStopID="Output Reservations
      Model" Profitability="Output Reservations
      Model" Availability="Output Reservations
      Model" Flexibility="Output Reservations
      Model" Score="Output Reservations Model"
      StopNumber="Output Reservations Model" />

  </LocationWindow>

  <UDF UDFFieldID="" DocCategory="" DocRecordID=""
    UDF1="" UDF2="" UDF3="" UDF4="" UDF5=""
    UDF6="" UDF7="" UDF8="" UDF9="" UDF10=""
    UDF11="" UDF12="" UDF13="" UDF14="" UDF15=""
    UDF16="" UDF17="" UDF18="" UDF19="" UDF20=""
    UDF21="" UDF22="" UDF23="" UDF24="" UDF25=""
    UDF26="" UDF27="" UDF28="" ModifiedBy=""
    ModifyDate="" />

  </PickupLocation>

- <DeliveryLocation LocationID=""
  LocationRefNo="Required" CompanyName=""
  LocationType="" Description="" Address="Required
  if no Long and Lat" Address2="" City="Required if
  no Long and Lat" State="Required if no Long and
  Lat" Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat" TimeZone=""
  ContactName="" EmailAddress="" PhoneNumber=""
  FaxNumber="" Longitude="Required if no full
  address" Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone="" AddressType=""
  ServiceDuration="" WorkgroupValue="" ModifiedBy=""
  ModifyDate="" LocationName="" Comment=""
  LocationCode="" Territory="Required in the
  Reservations Model" GeoSource="" GeoScore=""
  GeoOneCell="" GeoRelativePosition="">

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  TimeWindowType="" EarliestDateTime="Required
  for Confirm Model" LatestDateTime="Required
  for Confirm Model" EarliestTime=""
  LatestTime="" EarliestDate="" LatestDate=""

```

```

Frequency="" Comment="" ProfitFactor=""
VariationProfitFactor="" VariationDuration=""
ModifiedBy="" ModifyDate="">

<WindowEvalParms RouteID="Output Advise,
  Required for Confirm Model"
  PrecedingStopID="Output Advise, Required
  for Confirm Model" Profitability="Output
  Reservations Model" Availability="Output
  Reservations Model" Flexibility="Output
  Reservations Model" Score="Output
  Reservations Model" StopNumber="Output
  Advise, Required for Confirm Model" />

</LocationWindow>

<UDF UDFFieldID="" DocCategory="" DocRecordID=""
  UDF1="" UDF2="" UDF3="" UDF4="" UDF5=""
  UDF6="" UDF7="" UDF8="" UDF9="" UDF10=""
  UDF11="" UDF12="" UDF13="" UDF14="" UDF15=""
  UDF16="" UDF17="" UDF18="" UDF19="" UDF20=""
  UDF21="" UDF22="" UDF23="" UDF24="" UDF25=""
  UDF26="" UDF27="" UDF28="" ModifiedBy=""
  ModifyDate="" />

</DeliveryLocation>

- <BillToLocation LocationID=""
  LocationRefNo="Required" CompanyName=""
  LocationType="" Description="" Address="Required
  if no Long and Lat" Address2="" City="Required if
  no Long and Lat" State="Required if no Long and
  Lat" Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat" TimeZone=""
  ContactName="" EmailAddress="" PhoneNumber=""
  FaxNumber="" Longitude="Required if no full
  address" Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone="" AddressType=""
  ServiceDuration="" WorkgroupValue="" ModifiedBy=""
  ModifyDate="" LocationName="" Comment=""
  LocationCode="" Territory="Required in the
  Reservations Model" GeoSource="" GeoScore=""
  GeoOneCell="" GeoRelativePosition="">

<LocationWindow TimeWindowID=""
  ParentRecordID="" ParentRecordType=""

```

```

TimeWindowType="" EarliestDateTime=""
LatestDateTime="" EarliestTime=""
LatestTime="" EarliestDate="" LatestDate=""
Frequency="" Comment="" ProfitFactor=""
VariationProfitFactor="" VariationDuration=""
ModifiedBy="" ModifyDate="" />

<UDF UDFFieldID="" DocCategory="" DocRecordID=""
UDF1="" UDF2="" UDF3="" UDF4="" UDF5=""
UDF6="" UDF7="" UDF8="" UDF9="" UDF10=""
UDF11="" UDF12="" UDF13="" UDF14="" UDF15=""
UDF16="" UDF17="" UDF18="" UDF19="" UDF20=""
UDF21="" UDF22="" UDF23="" UDF24="" UDF25=""
UDF26="" UDF27="" UDF28="" ModifiedBy=""
ModifyDate="" />

</BillToLocation>

<PickupWindow TimeWindowID="" ParentRecordID=""
ParentRecordType="" TimeWindowType=""
EarliestDateTime="" LatestDateTime=""
EarliestTime="" LatestTime="" EarliestDate=""
LatestDate="" Frequency="" Comment=""
ProfitFactor="" VariationProfitFactor=""
VariationDuration="" ModifiedBy="" ModifyDate=""
/>

<DeliveryWindow TimeWindowID="" ParentRecordID=""
ParentRecordType="" TimeWindowType=""
EarliestDateTime="" LatestDateTime=""
EarliestTime="" LatestTime="" EarliestDate=""
LatestDate="" Frequency="" Comment=""
ProfitFactor="" VariationProfitFactor=""
VariationDuration="" ModifiedBy="" ModifyDate=""
/>

- <BOLLine BOLLineItemID="" BOLID=""
BOLLineNumber="Required" ShipperID=""
ShipperOrgID="" ItemQty="Required" ItemQtyUOM=""
PONumber="" TONumber="" POLineNumber=""
TOLineNumber="" ReleaseNo="" NumCasesShipped=""
TotalWeight="" WeightUOM="" TotalVolume=""
VolumeUOM="" ModifiedBy="" ModifyDate=""
BuyerID="" BuyerOrgID="" BuyerName=""
BuyerInternalOrgID="" SellerID="" SellerName=""

```

```

UPCCCode="" SellerItemNo="" BuyerItemNo=""
PlannerItemNo="" ItemDescription="" ItemPrice=""
ItemPriceUOM="" FreightClass="">

<UDF UDFFieldID="" DocCategory="" DocRecordID=""
  UDF1="" UDF2="" UDF3="" UDF4="" UDF5=""
  UDF6="" UDF7="" UDF8="" UDF9="" UDF10=""
  UDF11="" UDF12="" UDF13="" UDF14="" UDF15=""
  UDF16="" UDF17="" UDF18="" UDF19="" UDF20=""
  UDF21="" UDF22="" UDF23="" UDF24="" UDF25=""
  UDF26="" UDF27="" UDF28="" ModifiedBy=""
  ModifyDate="" />

</BOLLine>

</DocBOL>

</Request>

</DocFWImport>

```

Where:

SenderID (optional): Value to identify the Source.

ReceiverID (optional): Value to identify the Destination.

SendDateTime (optional): Date/Time stamp

extDocControlID (Optional): Value to identify the Document.

CompanyName (Required): Identifies the company that will import this data. Used for credentials in LNOS applications.

LoginName (Required): Identifies the user that will be used to import this data.

Password (Required): Password for the user used to import the data.

Request: This is the heart of the XML File that contains the documents to integrate to Descartes Route Planner and the action you would like to execute on such documents. Within this Request, only one document type can be included.

BOL, Shipment Status, Resources, Address Data and Buckets may be one of the documents types included in the **Request** node. Shipment Status information can come from other systems such as wireless. Additional documents can be added in this node that other applications besides Descartes Route Planner may be interested.

Further down in this guide you will find examples of how the XML document could look. It is important to mention that these will only be examples and Descartes Route Planner integrators are not forced to use the format presented here. However, other DSG applications already use this format and it will minimize the amount of

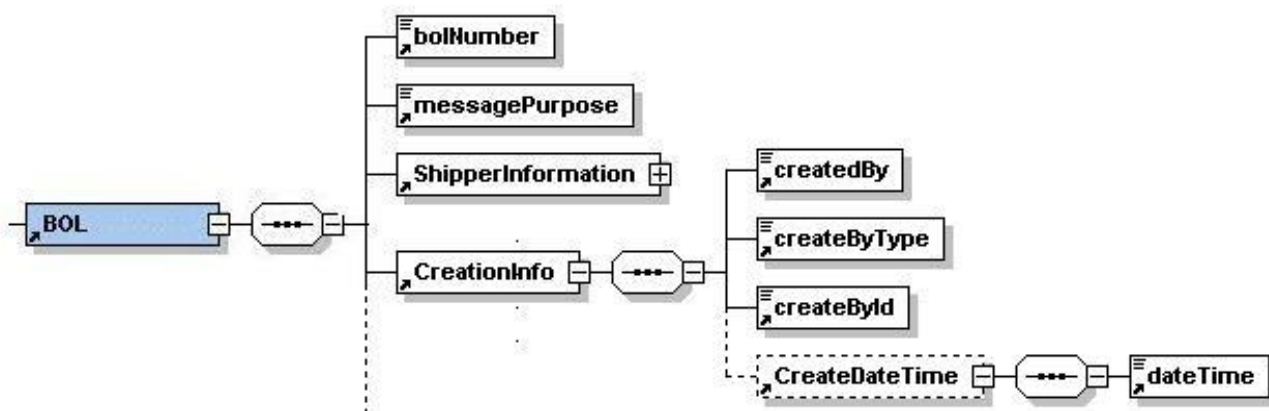
work to do during integration efforts. Therefore, the Business document can have a different structure. When published and transformed, the XSL used in Drawbridge will convert it into a format that Recipient applications are able to understand. Descartes Route Planner installations will come with standard XSL's used for the recommended formats presented here. If other formats are used, the integration team is responsible for developing specialized XSL's.

Processing Business Documents

When this document is received, Rules should be defined on how to treat the content of this document. These rules will live in Drawbridge. Please refer to the Drawbridge user guide for more details. In order to do this, there are some important elements that play a significant role in the handling of a document:

- Message Purpose
- Process Code

As shown in the picture below, these attributes are part of the Request Document. In this example, they are part of the BOL:



Message Purpose:

LNOS documents are to be processed according to the intent of the document owner. The MessagePurpose Attribute in business documents identifies the business intent from the document owner's perspective. The Message Purpose logic represents a consistent methodology across LNOS Applications to indicate the purpose of the document.

The current MessagePurpose codes are:

MessagePurpose	Code	Notes
Add	1002	It will save the document and validate it. If invalid, it will be shown in the list of Invalid BOL's, otherwise in the list of Draft BOL's.
Delete	1003	Deletes the identified business document. The owner is declaring that the business request is being deleted and should be completely removed. Delete is typically used in a "correction" situation and may be followed up with a new "original" document.
Change	1004	Document contains changes to an existing business document. Only the "changed" lines will be provided.
Retrieve	1005	This Message Purpose will allow users to retrieve data from the DSG applications.
Save	1007	This Message Purpose will allow users to save an order. If the order does not exist, it will create it, otherwise will update it.

Process Code

In addition to the message purpose, additional instructions can be submitted for processing the creation or edition of a BOL. This ProcessCode will only apply when MessagePurpose = 1002 and 1004.

ProcessCode	Code	Notes
Geocode	10	This processCode value geocodes the document in addition to the applicable messagePurpose action (1000, 1002, 1004, and 1005).
Geocode and Publish	20	This processCode geocodes and Publishes the document in addition to the applicable messagePurpose action (1000, 1002, 1004, and 1005). The "publish" is done in the Application Configuration of Descartes Route Planner Location where other DSG applications will be able to have access to it (i.e. Wireless devices, Visibility, etc.).

Light Update	21	This process will only work with Message Purpose 1004 (update) and it will update only the Order information without affecting the Route/Stop optimization related data when assigned to a Route. Only BOLs can use this process code.
Publish	25	This process code will allow users to get publishing data into the location specified in the Application Configuration section of Descartes Route Planner. It works with the following message purposes: 1002, 1005, and 1004
Advise	30	This process will Geocode the Locations of a BOL as well as request an Advise call. LNOS Descartes Route Planner will return the available Time Windows for the Advise call.
Suggest	35	This process code will Geocode the Locations of a BOL as well as request a Suggest call to multiple schedules. Descartes Route Planner will return the available Routes and Route Positions for the Suggest call.
Confirm	40	This process will confirm the Time Windows information on a BOL.
Advise and Confirm	50	This process will validate, if not geocoded, geocode and make an advise call. This process will select the best Time Window based on profitability and confirm that Time window, all on the same call and publish back the BOL to Drawbridge.
Re-Confirm (Re-Schedule)	60	This process will update an existing Order in Descartes Route Planner only for the Reservations model.
Get Directions	70	This process code will Calculate and retrieve directions for a full Route or a set of Stops.
Move Schedule	80	This process code will Move a set of Data (Routes and/or Stops) from one Schedule to another.
Unassign	90	This process code will Unassign an Order of a Route

Assign/reassign	95	This process code works in conjunction with the PreferredResourceKey and PreferredResourceKeyInd attributes in the DocBOL. If the Preferred Resource functionality is used, then Descartes Route Planner will try to execute the following logic when creating or deleting an order: • For new orders, this process code is identical to saving an order with Process Code =20 or 25. • Existing Orders: • If a new preferred resource is specified and Preferred Resource functionality is used in that schedule, an order will be tried for assignment to the incoming preferred resource. • Otherwise, an order will be tried for auto-assign. • If the a new Preferred resource is specified, a schedulekey is passed in and AllowUpdSchedule=1, this will allow Descartes Route Planner to move the route to the incoming schedule and assign it to the preferred resource if it exists in the target schedule. For your example, the result depends on the value of AllowUpdSchedule. If it is 0, then the order will remain on the current route and the route will be refreshed. If it is 1, (assuming conditions are met for applying preferred resource) the order will be assigned to the new preferred resource.
-----------------	----	--

Creation Information:

This element contains the following information:

- **CreatedBy:** This element provides information of the entity (i.e. user) that created the document.
- **CreateByType:** This element provides information of the entity type that created the document. This entity could be an internal LNOS Application or an external system.
- **CreatedById:** This element provides the unique ID that will identify the creator entity.

- **CreateDateTime:** Date/Time of document creation

Specialized Fields

In addition to the message purpose and Process Code, there are specialized fields that may change the backend logic to process a document. These fields are listed below:

Special Field	Default/ Values	Business Document and Node	Description
ApplyToFWOnly	false	DocBOL	Possible Values: True False This flag will make sure that the insertion of the record takes place only in the Descartes Route Planner application. In the past Shipper TAD (a legacy application) used to also insert this field. The recommended value is True
EchoData	false	Header	This field will allow users to receive the input document as part of the response.
ReturnCommandXMLOnly	false	DocBOL, DocResource, DocLocation	Possible Values: True False This flag is for debugging purposes only. It logs an xml file with the command xml that was sent to Descartes Route Planner. The Command xml is the translation of the Business document to Descartes Route Planner format. This command xml will be published in the \LNOS FW UI\Generated Files\Published folder

Retry	1	DocBOL	This variable can be used to set the number of retries on posting an xml when confirming or creating/updating orders. It defaults to one (1), but users can set this value in the DocBOL node of the order
TaskName	null	DocBOL	Special attribute to indicate the business logic when saving or updating an Order in Descartes Route Planner. Possible values: UPDATEROUTEASYNCR: Use this value in conjunction with the Batch Processor service. This attribute allows RP process the data transaction without the business logic. The batch processor updates the route asynchronously. Useful when Preferred resource and Route Position SAVEORDERONLY: Use this value in conjunction with the Batch Processor service. This value is used to save the order without applying any business logic to the transaction. This call only saves or updates the order without updating the route if assigned. UPDATEONLY: Use this value in conjunction with the Batch Processor

			service. This value is used to update the order without applying any business logic to the transaction. This call only saves or updates the order without updating the route if assigned. SAVEONLY: Use this value in conjunction with the Batch Processor service. This value is used to save the order without applying any business logic to the transaction. This call only saves or updates the order without updating the route if assigned.
AllowUpdSchedule			This attribute will indicate if the schedule key should be updated in the existing order. 0- Will not update the schedulekey of the order and will perform a normal save 1- Will update the order AND the ScheduleKey of the existing order If the order is assigned, this attribute will allow Descartes Route Planner to unassign it and move it to the Schedulekey defined in the incoming DocBOL

Backhaul		DocAdvise Request	When enabled, Descartes Route Planner will add 10 to the SameStopSlot. The advise will return a Score value of 5 for all Score value 4 slots with Location Key matches.
PrefResForNewOrderOnly		DocOrder Task	When enabled, the SaveOrder will ignore Preferred Resource for existing orders.
PrePlannedOrder		DocOrder	When enabled, the backend will remove any preplanned orders from the master route that match the order's pickup or drop off locations.

Incoming Logistics Business Documents

Every Document that is being imported into the LNOS Network needs to be transformed into a format that is understood by LNOS Applications.

As mentioned before, in the case of Descartes Route Planner, the type of documents to be transformed are Bill of Ladings, Resources, and Buckets.

Bill of Lading Document

In order to integrate external Order Management Systems with Descartes Route Planner, validation of the imported documents should be executed.

LNOS Descartes Route Planner uses Shipper TAD (also known as TOE) as an application that allows users to create and/or validate Bill of Lading documents before they are shared across Descartes Route Planner. Below is the format of the DocMasterBOL XML Document. For XSD information about this document, go to [Appendix A](#):

```
- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

- <DocMasterBOL>

  - <DocBOL MessagePurpose="Required"
    ProcessCode="Required in Reservations model"
    ScheduleKey="Required in Reservations Model"
    AdviseType=" Required in Reservations Model"
    StartDate="" EndDate="" MaxSlots=""
    ReturnRoutes="" BOLID="" BOLNumber="Required to
    add a BOL in the system (in Confirm/Re-Confirm) "

    <UDF />

  - <PickupLocation LocationID=""
    LocationRefNo="Required (to add a BOL in the
    System) in Confirm/Re-Confirm" CompanyName=""
    LocationType="" Description=""
    Address="Required if no Long and Lat"
    Address2="" City="Required if no Long and Lat"
    State="Required if no Long and Lat"
    Zip="Required if no Long and Lat"
    Country="Required if no Long and Lat"
```

```

TimeZone="" ContactName="" EmailAddress=""
PhoneNumber="" FaxNumber=""
Longitude="Required if no full address"
Latitude="Required if no full address"
GeocodingPolicy="" LocationZone=""
AddressType="" ServiceDuration=""
WorkgroupValue="" ModifiedBy="" ModifyDate=""
LocationName="" Comment="" LocationCode=""
Territory="Required in the Reservations Model
if IgnoreTerritoryInd is off" GeoSource=""
GeoScore="" GeoOneCell=""
GeoRelativePosition="" GeoFlags="">

<LocationWindow TimeWindowType=""
  EarliestDateTime="" LatestDateTime=""
  EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor=""
  VariationDuration="" OpenDateTime=""
  CloseDateTime="" Category="" />

<UDF />

</PickupLocation>

- <DeliveryLocation LocationID=""
  LocationRefNo="Required (to add a BOL in the
  System) in Confirm/Re-Confirm" CompanyName=""
  LocationType="" Description=""
  Address="Required if no Long and Lat"
  Address2="" City="Required if no Long and Lat"
  State="Required if no Long and Lat"
  Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat"
  TimeZone="" ContactName="" EmailAddress=""
  PhoneNumber="" FaxNumber=""
  Longitude="Required if no full address"
  Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone=""
  AddressType="" ServiceDuration=""
  WorkgroupValue="" ModifiedBy="" ModifyDate=""
  LocationName="" Comment="" LocationCode=""
  Territory="Required in the Reservations Model
  if IgnoreTerritoryInd is off" GeoSource=""

```

```

GeoScore="" GeoOneCell=""
GeoRelativePosition="">

<LocationWindow TimeWindowType=""
  EarliestDateTime="" LatestDateTime=""
  EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor=""
  VariationDuration="" OpenDateTime=""
  CloseDateTime="" Category="" />

<UDF />

</DeliveryLocation>

- <PickupWindow TimeWindowType=""
  EarliestDateTime="Required for Confirm/Re-
  Confirm Model for a Pickup"
  LatestDateTime="Required for Confirm/Re-
  Confirm Model for a Pickup" EarliestTime=""
  LatestTime="" EarliestDate="" LatestDate=""
  Frequency="" Comment="" ProfitFactor=""
  VariationProfitFactor="" VariationDuration=""
  Measure1="" Measure2="" Measure3=""
  Measure4="" Measure5="" Measure6=""
  Measure7="" Measure8="" Measure9=""
  OpenDateTime="" CloseDateTime="" >

  <WindowEvalParms RouteID="Output
    Reservations Model and Required for
    Confirm" PrecedingStopID="Output
    Reservations Model and Required for
    Confirm" Profitability="Output
    Reservations Model" Availability="Output
    Reservations Model" Flexibility="Output
    Reservations Model" Score="Output
    Reservations Model" StopNumber="Output
    Reservations Model" />

  </PickupWindow>

- <DeliveryWindow TimeWindowID=""
  ParentRecordID="" ParentRecordType=""
  TimeWindowType="" EarliestDateTime="Required

```

```

    for Confirm/Re-Confirm Model for a Delivery"
    LatestDateTime="Required for Confirm/Re-
    Confirm Model for a Delivery" EarliestTime=""
    LatestTime="" EarliestDate="" LatestDate=""
    Frequency="" Comment="" ProfitFactor=""
    VariationProfitFactor="" VariationDuration=""
    Measure1="" Measure2="" Measure3=""
    Measure4="" Measure5="" Measure6=""
    Measure7="" Measure8="" Measure9=""
    OpenDateTime="" CloseDateTime="">

    <WindowEvalParms RouteID="Output
    Reservations Model and Required for
    Confirm/Re-Confirm" PrecedingStopID=" "
    Profitability="Output Reservations Model"
    Availability="Output Reservations Model"
    Flexibility="Output Reservations Model"
    Score="Output Reservations Model"
    StopNumber="Output Reservations Model and
    Required for Confirm/Re-Confirm" />

</DeliveryWindow>

- <BOLLine BOLLineItemID="" BOLID=""
    BOLLineNumber="Required for Confirm/Re-
    Confirm" ShipperID="" ShipperOrgID=""
    ItemQty="Required for Confirm/Re-Confirm"
    ItemQtyUOM="" TotalWeight="" TotalVolume=""
    ItemDescription=""

    <UDF />

        <BOLLineDetail BOLLineDetailID=""
        BOLLineDetailKey=""

        <UDF />

    </BOLLineDetail>

    </BOLLine>

</DocBOL>

</DocMasterBOL>

</Request>

</DocFWImport>

```

As mentioned above, the DocMasterBOL document accepts UDF fields in some of its nodes. Depending on the node type, the UDF can take multiple names and it can also depend on the UDF configuration done in TOE.

A previous configuration of UDFs in ShipperTAD or TOE is not necessary, however if users wish to store these UDF values in both the TOE and the Descartes Route Planner Database, then TOE must be configured to do so.

There are cases, where users don't want to save UDF values in the TOE database, only the Descartes Route Planner database. The simple fact of sending in a Descartes Route Planner attribute in the UDF node, will save its value in the Descartes Route Planner database as long as the attribute name exists in the database.

Here are some of the UDF fields that can be used in each UDF node:

DocBOL\UDF:

CustomerOrder	nvarchar	50
Comment	nvarchar	500
Company	nvarchar	50
PreferredResourceKey	nvarchar	50
PreferredResourceInd	bit	1
Profit	float	8
Requirements	nvarchar	255
Commodities	nvarchar	255
Criteria	nvarchar	512
RestrictPreferredResource	bit	1
CustomerStopNumber	smallint	2
DeliveryRatio1	float	8
DeliveryRatio2	float	8
DeliveryRatio3	float	8
DeliveryRatio4	float	8
DeliveryRatio5	float	8
DeliveryRatio6	float	8
DeliveryRatio7	float	8
DeliveryRatio8	float	8
DeliveryRatio9	float	8

OnLoadPosition	tinyint	1	
InterspersableInd	bit	1	
AllowConsolidationInd	bit	1	
SpecialHandling	tinyint	1	
ProfitDepreciationPerHour	float	8	
RequirementSetKey	int	4	1
UDFString1	nvarchar	500	1
UDFString2	nvarchar	500	1
UDFString3	nvarchar	500	1
UDFString4	nvarchar	500	1
UDFString5	nvarchar	500	1
UDFString6	nvarchar	500	1
UDFString7	nvarchar	500	1
UDFString8	nvarchar	500	1
UDFString9	nvarchar	500	1
UDFInteger1	int	4	1
UDFInteger2	int	4	1
UDFInteger3	int	4	1
UDFNumber1	float	8	1
UDFNumber2	float	8	1
UDFNumber3	float	8	1
ServiceDuration	int	4	1
PreServiceDuration	int	4	1
PUServiceDuration	int	4	1
PUPreServiceDuration	int	4	1
DeliveryServiceDuration	int	4	1
DeliveryPreServiceDuration	int	4	1

DocLocation\UDF

Comment	nvarchar	500
---------	----------	-----

Company	nvarchar	50
Measure1RechargeRate	float	8
Measure2RechargeRate	float	8
Measure3RechargeRate	float	8
Measure4RechargeRate	float	8
Measure5RechargeRate	float	8
Measure6RechargeRate	float	8
Measure7RechargeRate	float	8
Measure8RechargeRate	float	8
Measure9RechargeRate	float	8
PreServiceDuration	int	4
ServiceDuration	int	4
Profit	float	8
Requirements	nvarchar	255
Territory	nvarchar	50
Measure1	float	8
Measure2	float	8
Measure3	float	8
Measure4	float	8
Measure5	float	8
Measure6	float	8
Measure7	float	8
Measure8	float	8
Measure9	float	8
Name	nvarchar	255
Commodities	nvarchar	255
Recharge	bit	1
RechargeRate	float	8
RechargeDuration	int	4
EarliestRecharge	datetime	8

LatestRecharge	datetime	8	
UDFString1	nvarchar	500	1
UDFString2	nvarchar	500	1
UDFString3	nvarchar	500	1
UDFString4	nvarchar	500	1
UDFString5	nvarchar	500	1
UDFString6	nvarchar	500	1
UDFInteger1	int	4	1
UDFInteger2	int	4	1
UDFInteger3	int	4	1
UDFNumber1	float	8	1
UDFNumber2	float	8	1
UDFNumber3	float	8	1
ServiceFactor	float	8	1
RequirementSetKey	int	4	1
UDFString7	nvarchar	500	1
UDFString8	nvarchar	500	1
UDFString9	nvarchar	500	1

DocBOLLine\UDF

Comment	nvarchar	500
Quantity	float	8
PreServiceDuration	int	4
ServiceDuration	int	4
Profit	float	8
Requirements	nvarchar	255
Measure1	float	8
Measure1Factor	float	8
Measure2	float	8
Measure2Factor	float	8

Measure3	float	8	
Measure3Factor	float	8	
Measure4	float	8	
Measure4Factor	float	8	
Measure5	float	8	
Measure5Factor	float	8	
Measure6	float	8	
Measure6Factor	float	8	
Measure7	float	8	
Measure7Factor	float	8	
Measure8	float	8	
Measure8Factor	float	8	
Measure9	float	8	
Measure9Factor	float	8	
VendorName	nvarchar	255	
Commodities	nvarchar	255	
ProductName	nvarchar	255	
RechargeRate	float	8	1
RechargeDuration	int	4	1
EarliestRecharge	datetime	8	1
LatestRecharge	datetime	8	1
GeocodeFlags	nvarchar	255	1
UDFString1	nvarchar	500	1
UDFString2	nvarchar	500	1
UDFString3	nvarchar	500	1
UDFString4	nvarchar	500	1
UDFString5	nvarchar	500	1
UDFString6	nvarchar	500	1
UDFInteger1	int	4	1
UDFInteger2	int	4	1

UDFInteger3	int	4	1
UDFNumber1	float	8	1
UDFNumber2	float	8	1
UDFNumber3	float	8	1
ServiceFactor	float	8	1
LockLatLong	bit	1	0
UDFString7	nvarchar	500	1
UDFString8	nvarchar	500	1
UDFString9	nvarchar	500	1

➡ **Note**— For additional fields, please review the Administrators Guide Appendix section.

Adding and Updating a DocMasterBOL

If MessagePurpose="1002" - Add, then an insert will take place in Descartes Route Planner.

➡ **Note**— The new BOLNo must be unique.

If Message Purpose="1004" - Update, then an update will take place. The DocMasterBOL must have an existing BOLNo.

If MessagePurpose="1007" - Save, then an insert or update will take place in Descartes Route Planner depending on whether the Order already exists or not.

The process can be done via Drawbridge as described in the previous section or synchronously.

Adding, removing and updating a DocMasterBOL via Drawbridge:

Listener: `http://<serverName>/STAD/Listener/DocBOLListener.asp`

Input: DocMasterBOL

MessagePurpose="1002, 1003 or 1004 and 1007"

ProcessCode="20 or 25"

```
<DocFWImport><Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="1/17/2006 5:51:10 PM"
extDocControlID="LNOSFWAnalyzer" CompanyName="FW" LoginName="FW-
Admin" Password="cs"></Header><Request><DocMasterBOL><DocBOL
MessagePurpose="1002" ProcessCode="20" BOLNumber="Order2669"
AdviseType="2" ScheduleKey="DefaultSchedule"
ApplyFWOnly="true"><UDF ServiceDuration="600"
CompanyName="Name2669" Profit="1000" DistanceRanking="668"
```

```

Random="0.03" /><PickupLocation LocationRefNo="Customer2669"
Territory="TC1" Address="2310 3RD ST NE" Address2=""
City="MINNEAPOLIS" State="MN" Zip="55418" ServiceDuration="600"
Latitude="" Longitude="" GeocodingPolicy="0" ><LocationWindow
EarliestTime="1900-01-01T8:00" LatestTime="1900-01-01T17:00"
EarliestDate="1900-01-01T" LatestDate="1900-01-01T" Type=""
Frequency="" /><UDF Company="Name2669" ParkingTime="" Comment1=""
Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="668"
Random=" 0.59 " Flags="" /></PickupLocation><DeliveryLocation
LocationRefNo="Customer2669" Territory="TC1" Address="2310 3RD ST
NE" Address2="" City="MINNEAPOLIS" State="MN" Zip="55418"
ServiceDuration="600" Latitude="" Longitude=""
GeocodingPolicy="0" ><UDF Company="Name2669" ParkingTime=""
Comment1="" Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="668"
Random=" 0.59 " Flags="" /></DeliveryLocation><BillToLocation
><UDF /></BillToLocation><BOLLine BOLLineNumber="1" ItemQty="1"
ItemDescription="" TotalWeight="10" TotalVolume="0" ><UDF
Profit="125" ServiceDuration="600" Requirements=""
ProductKey="Product D" Random=" 0.76 " /></BOLLine>
</DocBOL></DocMasterBOL></Request></DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
<ListenerName>DocFWBOLListener</ListenerName>
<ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
<ResultTime>09-01-30 15:21:12 EDT</ResultTime>
<CommandNo>CMD19FFDC3CD31F4E228759A9CC4D5FF4EA</CommandNo>
<AuthServer>STORRES-ATL:LNOSFW_1</AuthServer>
<DataServer>STORRES-ATL:DCF_1</DataServer>
<ElapsedTime>1781</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
<EchoData></EchoData>

```

```
</DocResponse>
</Status></Execute></Command>
```

Adding, Removing and updating a DocMasterBOL Synchronously:

Listener: `http://<serverName>/STAD/Listener/DocFWBOLListener.asp`

Input: DocMasterBOL

Adding: MessagePurpouse = 1002

Updating: Message Purpose = 1004

Saving: Message Purpose = 1007

Removing: Message Purpose = 1003

Process Codes 20 or 25 will work in all cases.

When updating an order in FW, users must sent the entire order again with a MessagePurpose=1004

Example of Removing a DocBOL:

```
<DocFWImport><Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="1/17/2006 5:51:10 PM" extDocControlID="LNOSFWAnalyzer"
CompanyName="FW" LoginName="FW-Admin"
Password="cs"></Header><Request>

<DocMasterBOL><DocBOL MessagePurpose="1003" ProcessCode="20"
BOLNumber="Order2669" ><UDF /><PickupLocation ><LocationWindow /><UDF
/></PickupLocation><DeliveryLocation ><UDF
/></DeliveryLocation><BillToLocation ><UDF
/></BillToLocation><BOLLine><UDF/></BOLLine>
</DocBOL></DocMasterBOL></Request></DocFWImport>
```

Output:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
    <ListenerName>DocFWBOLListener</ListenerName>
    <ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
    <ResultTime>09-01-30 15:23:08 EDT</ResultTime>
    <CommandNo>CMD5B7D57B8E7724E1694E1CB3C46E4920F</CommandNo>
    <AuthServer>STORRES-ATL:LNOSFW_1</AuthServer>
```

```

<DataServer>STORRES-ATL:DCF_1</DataServer>
<ElapsedTime>672</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
<EchoData></EchoData>
</DocResponse>
</Status></Execute></Command>

```

Sending multiple DocMasterBOL's in the same XML document

The DocMasterBOL supports multiple documents in the same call. This is important when PreferredResourceKey and RoutePosition attributes are in use. Performance will be improved when several documents are sent in the same XML document.

To send multiple DocMasterBOL in the same document, they must be defined within the same <Request> node.

The MessagePurpose must be passed in as an attribute of the Request node.

The new structure looks like:

```

<DocFWImport>
  <Request MessagePurpose="1002">
    <DocMasterBOL>
      .
      .
      .
    <DocMasterBOL>
  </Request>
</DocFWImport>

```

See below an example:

```

<DocFWImport><Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"

SendDateTime="9/29/2005 8:21:00 AM" extDocControlID="LNOSFWAnalyzer"

CompanyName="FW" LoginName="FW-Admin" Password="cs" >
</Header>

```

```

<Request MessagePurpose="1002" ProcessCode="10"
ReturnCommandXMLOnly="true" >

<DocMasterBOL MessagePurpose="1002" ProcessCode="10"><DocBOL

ReturnCommandXMLOnly="true" ApplyFWOnly="true" MaxSlots="10" Force=""
BOLNumber="CCC"

  AdviseType="0" ScheduleKey="DefaultSchedule" Comment="RANDOM [Slot
8]"><UDF

PreferredResourceKey="RESOURCE15_05-20050227" PreferredResourceInd="1"

RoutePosition="1" RestrictPreferredResource="1"
RestrictRoutePosition="1"

ServiceDuration="600" CompanyName="Name0758" Profit="1000"
DistanceRanking="190"

Random="0.79" />
<PickupLocation LocationRefNo="Customer0758" Territory="TC2"
Address="1085 E.

HYACINTH" Address2="" City="SAINT PAUL" State="MN" Zip="55106"
ServiceDuration="600"

Latitude="" Longitude="" GeocodingPolicy="0" ><LocationWindow

EarliestTime="1900-01-01T8:00" LatestTime="1900-01-01T17:00"

EarliestDate="1900-01-01T" LatestDate="1900-01-01T" Type=""
Frequency="" /><UDF

Company="Name0758" PreServiceDuration="" Comment1=""

```

```
Profit="2500" GeocodeScore="" GeocodeLatitude="" GeocodeLongitude=""
GeocodeSource=""
```

```
DistanceRanking="190" Random=" 0.66 " Flags=""/></PickupLocation>
<DeliveryLocation LocationRefNo="Customer0758" Territory="TC2"
Address="1085 E.
```

```
HYACINTH" Address2="" City="SAINT PAUL" State="MN" Zip="55106"
ServiceDuration="600"
```

```
Latitude="" Longitude="" GeocodingPolicy="0" ><UDF Company="Name0758"
```

```
PreServiceDuration="" Comment1="" Profit="2500"
```

```
GeocodeScore="" GeocodeLatitude="" GeocodeLongitude="" GeocodeSource=""
```

```
DistanceRanking="190" Random=" 0.66 " Flags="" /></DeliveryLocation>
<BillToLocation ><UDF /></BillToLocation>
<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9"
```

```
TotalVolume="1" ><UDF Profit="125" ServiceDuration="600"
Requirements=""
```

```
ProductKey="Product C" Random=" 0.32 " /></BOLLine>
<DeliveryWindow EarliestDateTime="2005-09-28T10:00:00"
```

```
LatestDateTime="2005-09-28T12:00:00"></DeliveryWindow>
</DocBOL></DocMasterBOL>
```

```
<DocMasterBOL MessagePurpose="1002" ProcessCode="10"><DocBOL
MaxSlots="10" Force=""
```

```
ApplyFWOnly="true" BOLNumber="DDD" AdviseType="0"
ScheduleKey="DefaultSchedule"
```

```
Comment="RANDOM [Slot 4]"><UDF PreferredResourceKey="RESOURCE15_05-20050227"
```

```
PreferredResourceInd="1" RoutePosition="2"
RestrictPreferredResource="1"
```

```
RestrictRoutePosition="1" ServiceDuration="600" CompanyName="Name0075"
Profit="1000"
```

```
DistanceRanking="19" Random="0.15" />
```

```
<PickupLocation LocationRefNo="Customer0075" Territory="TC3"
Address="2015
```

```
HERITAGE DR" Address2="" City="SHAKOPEE" State="MN" Zip="55379"
ServiceDuration="600"
```

```
Latitude="" Longitude="" GeocodingPolicy="0" ><LocationWindow
```

```
EarliestTime="1900-01-01T8:00" LatestTime="1900-01-01T17:00"
```

```
EarliestDate="1900-01-01T" LatestDate="1900-01-01T" Type=""
Frequency="" /><UDF
```

```
Company="Name0075" PreServiceDuration="" Comment1=""
```

```
Profit="2500" GeocodeScore="" GeocodeLatitude="" GeocodeLongitude=""
GeocodeSource=""
```

```
DistanceRanking="19" Random=" 0.68 " Flags="" /></PickupLocation>
```

```
<DeliveryLocation LocationRefNo="Customer0075" Territory="TC3"
Address="2015
```

```
HERITAGE DR" Address2="" City="SHAKOPEE" State="MN" Zip="55379"
ServiceDuration="600"
```

```

Latitude="" Longitude="" GeocodingPolicy="0" ><UDF Company="Name0075"

PreServiceDuration="" Comment1="" Profit="2500"

GeocodeScore="" GeocodeLatitude="" GeocodeLongitude="" GeocodeSource=""

DistanceRanking="19" Random=" 0.68 " Flags="" /></DeliveryLocation>
<BillToLocation ><UDF /></BillToLocation><BOLLine BOLLineNumber="1"
ItemQty="1"

ItemDescription="" TotalWeight="11" TotalVolume="2" ><UDF Profit="125"

ServiceDuration="600" Requirements="" ProductKey="Product E" Random="
0.90 "

/></BOLLine> <DeliveryWindow EarliestDateTime="2005-09-28T10:00:00"

LatestDateTime="2005-09-28T14:00:00" ></DeliveryWindow>
</DocBOL></DocMasterBOL>
</Request></DocFWImport>

```

Response:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>2</TotalDocumentsRead>
    <DocumentsAccepted>2</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
    <ListenerName>DocFWBOLListener</ListenerName>
    <ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
    <ResultTime>09-01-28 13:26:48 EDT</ResultTime>
    <CommandNo>CMD249599D35C9D49658EC131625DFA1C1D</CommandNo>
    <AuthServer>STORRES-ATL:LNOSFW_1</AuthServer>

```

```

<DataServer>STORRES-ATL:DCF_1</DataServer>
<ElapsedTime>11422</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
<EchoData></EchoData>
</DocResponse>
</Status></Execute></Command>

```

Suggest call using DocMasterBOL:

Suggested Listener: DocBOLAdviceConfirmListener.asp

MessagePurpose=1002

ProcessCode=35

This listener will allow users to request a suggest call to Descartes Route Planner using Order information. The suggest call should work on multiple schedules.

Input:

The input is a normal DocMasterBOL, just like a create order.

A Sample of this document would be as shown below.

Notice that:

- Message Purpose="1002"
- ProcessCode="35"
- Time Windows must be passed in
- And it can suggest against multiple schedules only when ScheduleKeyX is passed in, when x=1...9

```

<DocFWImport>

  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE" SendDateTime="17/08/2006 3:12:14 PM" extDocControlID="LNOSFWAnalyzer" CompanyName="FW" LoginName="FW-Admin" Password="cs" />

  <Request>

    <DocMasterBOL>

      <DocBOL MessagePurpose="1002" ProcessCode="35" BOLNumber="Order0064" AdviseType="0" ScheduleKey="AVLDemo" ScheduleKey1="FleetConsolidateDemo" Comment="BEST" ApplyFWOnly="true">

        <UDF ServiceDuration="600" CompanyName="Name0064" Profit="1000" />

```

```

    <PickupLocation LocationRefNo="Customer0064" Territory=""
    Address="3915 66TH ST" Address2="" City="INVER GROVE HEIGHTS"
    State="MN" Zip="55076" ServiceDuration="600" >

        <LocationWindow EarliestTime="1900-01-01T08:00:00"
        LatestTime="1900-01-01T17:00:00" EarliestDate="2007-01-
        01T00:00:00" LatestDate="2007-01-01T23:59:59" />

        <UDF Company="Name0064" ParkingTime="" Comment1=""
        Profit="2500" />

    </PickupLocation>

    <DeliveryLocation LocationRefNo="Customer0064" Territory="TC4"
    Address="3915 66TH ST" Address2="" City="INVER GROVE HEIGHTS"
    State="MN" Zip="55076" ServiceDuration="600" >

        <UDF Company="Name0064" ParkingTime="" Comment1=""
        Profit="2500" />

    </DeliveryLocation>

    <DeliveryWindow EarliestTime="1900-01-01T08:00:00"
    LatestTime="1900-01-01T17:00:00" EarliestDate="2007-01-23T00:00:00"
    LatestDate="2007-01-23T23:59:59" Type="" Frequency="" />

    <BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
    TotalWeight="9" TotalVolume="2">

        <UDF Profit="125" ServiceDuration="600" Requirements=""
        ProductKey="Product C" Random="0.24" />

    </BOLLine>

</DocBOL>

</DocMasterBOL>

</Request>

</DocFWImport>

```

Output:

The output is the same as the input with the addition of the response. Notice that now:

- The response has as many DocSuggest nodes as returned by the suggest call. In this case, it has 2 DocSuggest, since rmpi only returned one for each schedule
- The DocSuggest nodes must be sorted by profit in an ascending mode

```

<?xml version="1.0"?><Command><Execute><Status>

<DocResponse>

```

```

<TotalDocumentsRead>1</TotalDocumentsRead>
<DocumentsAccepted>1</DocumentsAccepted>
<DocumentsRejected>0</DocumentsRejected>
<ListenerName>DocBOLAdviceConfirmListener</ListenerName>
<ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
<ResultTime>09-01-30 15:41:48 EDT</ResultTime>
<CommandNo>CMD77E450EE49014FC1A8F343E8CA224DF4</CommandNo>
<AuthServer>STORRES-ATL:LNOSFW_1</AuthServer>
<DataServer>STORRES-ATL:DCF_1</DataServer>
<ElapsedTime>7200</ElapsedTime>
<Message></Message>
<STADMessage><Request><DocBOL MessagePurpose="1002" ProcessCode="35"
  BOLNumber="Order0064" AdviseType="0" ScheduleKey="AVLDemo"
  ScheduleKey1="FleetConsolidateDemo" Comment="BEST"
  ApplyFWOnly="true" ExtDocControlID="LNOSFWAnalyzer">
    <UDF ServiceDuration="600" CompanyName="Name0064"
      Profit="1000"/>
    <PickupLocation LocationRefNo="Customer0064"
      Territory="*" Address="3915 66TH ST" Address2=""
      City="INVER GROVE HEIGHTS" State="MN" Zip="55076"
      ServiceDuration="600" GeocodeAddress=""
      GeocodeCity="" GeocodeState="" GeocodeZip="55076"
      Longitude="-93.034900054335594"
      Latitude="44.842400103807449" GeocodeLongitude="-
      93.034900054335594"
      GeocodeLatitude="44.842400103807449"
      GeocodeType="BYPOSTALCODE" GeocodeScore="2550"
      GeocodeSource="usa.lzb" GeocodeQuality="0"
      GeocodeFlags="" Country="US">
      <LocationWindow EarliestTime="1900-01-
      01T08:00:00" LatestTime="1900-01-01T17:00:00" EarliestDate="2007-
      01-01T00:00:00" LatestDate="2007-01-01T23:59:59"/>
      <UDF Company="Name0064" ParkingTime=""
      Comment1="" Profit="2500"/>
    </PickupLocation>
  </Request>
</STADMessage>

```

```

        <DeliveryLocation LocationRefNo="Customer0064"
Territory="TC4" Address="3915 66TH ST" Address2="" City="INVER
GROVE HEIGHTS" State="MN" Zip="55076" ServiceDuration="600"
GeocodeAddress="" GeocodeCity="" GeocodeState="" GeocodeZip="55076"
Longitude="-93.034900054335594" Latitude="44.842400103807449"
GeocodeLongitude="-93.034900054335594"
GeocodeLatitude="44.842400103807449" GeocodeType="BYPOSTALCODE"
GeocodeScore="2550" GeocodeSource="usa.lzb" GeocodeQuality="0"
GeocodeFlags="" Country="US">

        <UDF Company="Name0064" ParkingTime=""
Comment1="" Profit="2500"/>

    </DeliveryLocation>

    <DeliveryWindow EarliestTime="1900-01-01T08:00:00"
LatestTime="1900-01-01T17:00:00" EarliestDate="2007-01-23T00:00:00"
LatestDate="2007-01-23T23:59:59" Type="" Frequency=""/>

    <BOLLine BOLLineNumber="1" ItemQty="1"
ItemDescription="" TotalWeight="9" TotalVolume="2">

        <UDF Profit="125" ServiceDuration="600"
Requirements="" ProductKey="Product C" Random="0.24"/>

    </BOLLine>

    <DocSuggest Sequence="1" ScheduleKey="AVLDemo"
RouteID="4062" ResourceKey="Resource-75" Territory="TC1"
Requirements="Basic"
SuggestedProfit="1111.000976562500000"><DocOrder Sequence="1"
OrderKey="Order0064" ItineraryOrderType="0" Tasks="1"><FWTask
Sequence="1" Rank="" Pos="2" PosH="2" Arrival="2008-12-16T13:32:33"
Predecessor=""
PredecessorRank=""/></DocOrder></DocSuggest><DocSuggest
Sequence="2" ScheduleKey="AVLDemo" RouteID="4061"
ResourceKey="Resource-74" Territory="TC1" Requirements="Basic"
SuggestedProfit="-1465350.000000000000000"><DocOrder Sequence="2"
OrderKey="Order0064" ItineraryOrderType="0" Tasks="1"><FWTask
Sequence="2" Rank="" Pos="5" PosH="5" Arrival="2008-11-20T10:26:36"
Predecessor=""
PredecessorRank=""/></DocOrder></DocSuggest><DocSuggest
Sequence="3" ScheduleKey="AVLDemo" RouteID="4061"
ResourceKey="Resource-74" Territory="TC1" Requirements="Basic"
SuggestedProfit="-1470750.000000000000000"><DocOrder Sequence="3"

```

```

OrderKey="Order0064" ItineraryOrderType="0" Tasks="1"><FWTask
Sequence="3" Rank="" Pos="6" PosH="6" Arrival="2008-11-20T10:59:48"
Predecessor=""
PredecessorRank=""/></DocOrder></DocSuggest><DocSuggest
Sequence="4" ScheduleKey="AVLDemo" RouteID="4061"
ResourceKey="Resource-74" Territory="TC1" Requirements="Basic"
SuggestedProfit="-4482449.0000000000000000"><DocOrder Sequence="4"
OrderKey="Order0064" ItineraryOrderType="0" Tasks="1"><FWTask
Sequence="4" Rank="" Pos="3" PosH="3" Arrival="2008-11-17T08:54:43"
Predecessor=""
PredecessorRank=""/></DocOrder></DocSuggest><DocSuggest
Sequence="5" ScheduleKey="AVLDemo" RouteID="4061"
ResourceKey="Resource-74" Territory="TC1" Requirements="Basic"
SuggestedProfit="-4482449.0000000000000000"><DocOrder Sequence="5"
OrderKey="Order0064" ItineraryOrderType="0" Tasks="1"><FWTask
Sequence="5" Rank="" Pos="4" PosH="4" Arrival="2008-11-17T08:54:43"
Predecessor=""
PredecessorRank=""/></DocOrder></DocSuggest><Status><Result>"SUCCESS"
</Result><Message>

<Text>"BOL has been suggested"</Text>

</Message></Status></DocBOL>

</Request>
</STADMessage>
<Result>SUCCESS</Result>
<EchoData></EchoData>
</DocResponse>
</Status></Execute></Command>

```

If no suggestions found, then the answer would look as follows:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>

```

```

<ListenerName>DocFWBOLListener</ListenerName>
<ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
<ResultTime>09-01-30 15:23:08 EDT</ResultTime>
<CommandNo>CMD5B7D57B8E7724E1694E1CB3C46E4920F</CommandNo>
<AuthServer>STORRES-ATL:LNOSFW_1</AuthServer>
<DataServer>STORRES-ATL:DCF_1</DataServer>
<ElapsedTime>672</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
<EchoData></EchoData>
</DocResponse>
</Status></Execute></Command>

```

SuggestConfirm using a DocMasterBOL:

This call will be used to confirm a selected suggestion from rmpi. This call will create the order confirmed in the selected route. Very similar to a confirm call used in reservations.

Suggested Listener: DocBOLAdviceConfirmListener.asp

MessagePurpose=1002

ProcessCode=45

Input:

```

<DocFWImport>

  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE" SendDateTime="17/08/2006 3:12:14 PM" extDocControlID="LNOSFWAnalyzer" CompanyName="FW" LoginName="FW-Admin" Password="cs" />

  <Request>

    <DocMasterBOL>

      <DocBOL MessagePurpose="1002" ProcessCode="45" BOLNumber="Order0064" AdviseType="0" ScheduleKey="AVLDemo" ScheduleKey1="FleetConsolidateDemo" Comment="BEST" ApplyFWOnly="true">

        <UDF ServiceDuration="600" CompanyName="Name0064" Profit="1000" />

        <PickupLocation LocationRefNo="Customer0064" Territory="" Address="3915 66TH ST" Address2="" City="INVER GROVE HEIGHTS" State="MN" Zip="55076" ServiceDuration="600" >

```

```

        <LocationWindow EarliestTime="1900-01-01T08:00:00"
LatestTime="1900-01-01T17:00:00" EarliestDate="2007-01-01T00:00:00"
LatestDate="2007-01-01T23:59:59" />

        <UDF Company="Name0064" ParkingTime="" Comment1=""
Profit="2500" />

    </PickupLocation>

    <DeliveryLocation LocationRefNo="Customer0064" Territory="TC4"
Address="3915 66TH ST" Address2="" City="INVER GROVE HEIGHTS" State="MN" Zip="55076"
ServiceDuration="600" >

        <UDF Company="Name0064" ParkingTime="" Comment1=""
Profit="2500" />

    </DeliveryLocation>

    <DeliveryWindow EarliestTime="1900-01-01T08:00:00"
LatestTime="1900-01-01T17:00:00" EarliestDate="2007-01-23T00:00:00"
LatestDate="2007-01-23T23:59:59" Type="" Frequency="" />

    <BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="2">

        <UDF Profit="125" ServiceDuration="600" Requirements=""
ProductKey="Product C" Random="0.24" />

    </BOLLine>

    <DocSuggest Sequence="1" ScheduleKey="AVLDemo" RouteID="4062"
ResourceKey="Resource-75" Territory="TC1" Requirements="Basic"
SuggestedProfit="1111.000976562500000">

        <DocOrder Sequence="1" OrderKey="Order0064"
ItineraryOrderType="0" Tasks="1">

            <FWTask Sequence="1" Rank="" Pos="2" PosH="2"
Arrival="2008-12-16T13:32:33" Predecessor="" PredecessorRank="" />

        </DocOrder>

    </DocSuggest>

</DocBOL>

</DocMasterBOL>

</Request>

</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>

```

```

    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>

    <ListenerName>DocBOLAdviceConfirmListener</ListenerName>
    <ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
    <ResultTime>09-01-30 15:45:59 EDT</ResultTime>
    <CommandNo>CMD41FE2ABD9B554849B4FCCEF2FD2215DF</CommandNo>
    <AuthServer>STORRES-ATL:LNOSFW_1</AuthServer>
    <DataServer>STORRES-ATL:DCF_1</DataServer>
    <ElapsedTime>3593</ElapsedTime>
    <Message></Message>

    <STADMessage><Request><DocBOL MessagePurpose="1002" ProcessCode="45"
      BOLNumber="Order0064" AdviseType="0" ScheduleKey="AVL Demo"
      ScheduleKey1="FleetConsolidateDemo" Comment="BEST"
      ApplyFWOnly="true" ExtDocControlID="LNOSFWAnalyzer">
        <UDF ServiceDuration="600" CompanyName="Name0064"
          Profit="1000"/>
        <PickupLocation LocationRefNo="Customer0064"
          Territory="*" Address="3915 66TH ST" Address2="" City="INVER GROVE
          HEIGHTS" State="MN" Zip="55076" ServiceDuration="600"
          GeocodeAddress="" GeocodeCity="" GeocodeState="" GeocodeZip="55076"
          Longitude="-93.034900054335594" Latitude="44.842400103807449"
          GeocodeLongitude="-93.034900054335594"
          GeocodeLatitude="44.842400103807449" GeocodeType="BYPOSTALCODE"
          GeocodeScore="2550" GeocodeSource="usa.lzb" GeocodeQuality="0"
          GeocodeFlags="" Country="US">
            <LocationWindow EarliestTime="1900-01-
            01T08:00:00" LatestTime="1900-01-01T17:00:00" EarliestDate="2007-
            01-01T00:00:00" LatestDate="2007-01-01T23:59:59"/>
            <UDF Company="Name0064" ParkingTime=""
              Comment1="" Profit="2500"/>
          </PickupLocation>
          <DeliveryLocation LocationRefNo="Customer0064"
            Territory="TC4" Address="3915 66TH ST" Address2="" City="INVER
            GROVE HEIGHTS" State="MN" Zip="55076" ServiceDuration="600"
            GeocodeAddress="" GeocodeCity="" GeocodeState="" GeocodeZip="55076"

```

```

Longitude="-93.034900054335594" Latitude="44.842400103807449"
GeocodeLongitude="-93.034900054335594"
GeocodeLatitude="44.842400103807449" GeocodeType="BYPOSTALCODE"
GeocodeScore="2550" GeocodeSource="usa.lzb" GeocodeQuality="0"
GeocodeFlags="" Country="US">

        <UDF Company="Name0064" ParkingTime=""
Comment1="" Profit="2500"/>

    </DeliveryLocation>

        <DeliveryWindow EarliestTime="1900-01-01T08:00:00"
LatestTime="1900-01-01T17:00:00" EarliestDate="2007-01-23T00:00:00"
LatestDate="2007-01-23T23:59:59" Type="" Frequency=""/>

        <BOLLine BOLLineNumber="1" ItemQty="1"
ItemDescription="" TotalWeight="9" TotalVolume="2">

            <UDF Profit="125" ServiceDuration="600"
Requirements="" ProductKey="Product C" Random="0.24"/>

        </BOLLine>

        <DocSuggest Sequence="1" ScheduleKey="AVLDemo"
RouteID="4062" ResourceKey="Resource-75" Territory="TC1"
Requirements="Basic" SuggestedProfit="1111.000976562500000">

            <DocOrder Sequence="1" OrderKey="Order0064"
ItineraryOrderType="0" Tasks="1">

                <FWTask Sequence="1" Rank="" Pos="2"
PosH="2" Arrival="2008-12-16T13:32:33" Predecessor=""
PredecessorRank=""/>

            </DocOrder>

        </DocSuggest>

        <Status><Result>"SUCCESS"</Result><Message>

            <Text>"BOL has been suggested and
saved"</Text>

        </Message></Status></DocBOL>

</Request>

</STADMessage>

<Result>SUCCESS</Result>

```

```

<EchoData></EchoData>

</DocResponse>

</Status></Execute></Command>

```

Resources and Buckets

Resources and Buckets are simpler documents to handle. These documents are Descartes Route Planner specific documents. These documents can be imported into Descartes Route Planner either using Drawbridge or they could go directly to Descartes Route Planner.

Below is an example of a Resource document (for more information on the definition of this document please refer to [Appendix B](#):

```

- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

- <Request>

  <DocResource MessagePurpose="Required" ProcessCode=""
    ResourceID="" RouteTemplateID="" UserGroupID=""
    UserGroupKey="" ResourceKey="Required"
    RouteTemplateKey="Required"
    FinalLocationKey="Required"
    InitialLocationKey="Required" ModifiedBy=""
    ModifyDate="" AllowEarlyRest="" BreakDuration=""
    BreakTimeOnDutyInd="" Comment="" Company=""
    CompletedFullBonus="" CreatedBy="" CreatedDate=""
    DriverPayPerOrder="" EarliestEndDate=""
    EarliestServiceDate="" EarliestStartDate="Required"
    EarlyRestTimeThreshold="" EarlyRestWaitThreshold=""
    FirstStopTimeThreshold="" FullThreshold=""
    WaitTimePenalty="" LatestEndDate="Required"
    LatestEndPenalty="" LatestServiceDate=""
    LatestStartDate="" MaxDrivingTimeBeforeBreak=""
    MaxDrivingTimeBeforeRest="" MaxElapsedDuration=""
    MaxDwellDuration="" MaxElapsedTimeBeforeBreak=""
    MaxElapsedTimeBeforeRest="" MaxDistance=""
    MaxNumberOfBreaks="" MaxStops="" Measure1=""
    Measure1Factor="" Measure1RechargeRate="" Measure2=""

```

```

Measure2Factor="" Measure2RechargeRate="" Measure3=""
Measure3Factor="" Measure3RechargeRate="" Measure4=""
Measure4Factor="" Measure4RechargeRate="" Measure5=""
Measure5Factor="" Measure5RechargeRate="" Measure6=""
Measure6Factor="" Measure6RechargeRate="" Measure7=""
Measure7Factor="" Measure7RechargeRate="" Measure8=""
Measure8Factor="" Measure8RechargeRate="" Measure9=""
Measure9Factor="" Measure9RechargeRate=""
MinPaidOrders="" MinTravelDistance=""
MissedWindowPenalty="" Name="" PreServiceDuration=""
PartialFullPenalty="" Profit="" Requirements=""
RestDuration="" SameStopBonus="" ServiceDuration=""
ServiceSpeedFactor="" Speed1="" Speed1Threshold=""
Speed2="" Speed2Threshold="" Speed3=""
Speed3Threshold="" Speed4="" Speed4Threshold=""
Speed5="" Speed5Threshold="" Speed6=""
Speed6Threshold="" Speed7="" Speed7Threshold=""
SpeedFactor="" Status="" UseFullWaitAsRestInd=""
WaitTime="" Work1Penalty="" Work1Duration=""
Work2Penalty="" Work2Duration="" Work3Penalty=""
Work3Duration="" Work4Penalty="" Work4Duration=""
Work5Penalty="" Work5Duration="" Work6Penalty=""
Work6Duration="" Work7Penalty="" Work7Duration=""
PenaltyPerMeter="" ServicePenalty=""
RechargeDuration="" Territory=""
RoutingParmameterKey="" InitialServiceDuration=""
OpportunisticEarlyRest="" ScheduleKey="" Type=""
DriverKey="" TrailerKey="" TractorKey=""
Commodities="" DiscountInitialLeg=""
DiscountFinalLeg="" UDFString1="" UDFString2=""
UDFString3="" UDFString4="" UDFString5=""
UDFString6="" UDFInteger1="" UDFInteger2=""
UDFInteger3="" UDFNumber1="" UDFNumber2=""
UDFNumber3="" DynamicZoningDistance=""
MaxDrivingTime="" AdapiDrivingTimeFactor=""
LastDateWorked="" WorkWeekLength="" WorkWeekLimit=""
WeeklyRestLength="" WorkWeekResetTime=""
WorkWeekHistory1="" WorkWeekHistory2=""
WorkWeekHistory3="" WorkWeekHistory4=""
WorkWeekHistory5="" WorkWeekHistory6=""
WorkWeekHistory7="" WorkWeekHistory8=""
WorkWeekHistory9="" WorkWeekHistory10=""

```

```

        WorkWeekHistory11="" WorkWeekHistory12=""
        WorkWeekHistory13="" WorkWeekHistory14=""
        MasterRoute="" MaxRedispatches="" MaxRedispatchTime=""
        TruckKey="" CostPerDistance="" RequirementSetKey=""
        UDFString7="" UDFString8="" UDFString9="" />
    </Request>
</DocFWImport>

```

Finally, the following document represents the Bucket Document:

```

- <DocFWImport>
    <Header senderID="SFFODLL" ReceiverID="MyCompany001"
        SendDateTime="10/14/2004 2:10:04 PM"
        extDocControlID="zzBOLSourceMessageID"
        CompanyName="MyCompany001" LoginName="RMoore"
        Password="zzPassword"/>
- <Request>
    <FWBucket MessagePurpose="" BucketID="" ScheduleID=""
        UserGroupID="" UserGroupKey="" ScheduleKey="Required"
        TimeZoneKey="" ModifiedBy="" ModifyDate=""
        Description="" EarliestDate="Required" LatestDate=""
        Status="" Type="" Territory="" Comment="" Company=""
        CreatedBy="" CreatedDate="" />
    </Request>
</DocFWImport>

```

Adding and Updating a DocResource

If MessagePurpose="1002" – Add or update for Resources only, then an insert will take place in Descartes Route Planner if the Resource does not exist. Otherwise, it will update it.

The new ResourceKey must be unique.

If Message Purpose="1004" - Update, then an update will take place.

Adding, removing and updating a DocResource Synchronously:

Listener: <http://<serverName>/STAD/Listener/DocFWResourceListener.asp>

Input: DocResource

MessagePurpose="1002, 1003, or 1004"

Example:

```

<DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
    LoginName="FW-Admin" Password="cs"/>

  <Request>

    <DocResource Name="D1_V1" InitialLocationKey="Store5"
      FinalLocationKey="Store5" EarliestStartDate="2005-06-
        08T07:00" LatestStartDate="2005-06-08T09:00"
      EarliestServiceDate="2005-06-08T08:00"
      LatestServiceDate="2005-06-08T17:00"
      EarliestEndDate="2005-06-08T07:00"
      LatestEndDate="2005-06-08T18:00"
      ServiceSpeedFactor="1" SpeedFactor="1"
      Territory="TC1" Requirements="A" MaxStops="20"
      DynamicZoningDistance="20000"
      MaxElapsedTimeBeforeBreak="14400"
      BreakDuration="3600" MaxNumberOfBreaks="1"
      BreakTimeOnDutyInd="1" ServicePenalty="10"
      LatestEndPenalty="5000" MissedWindowPenalty="100"
      Work1Penalty="100" Work1Duration="3600"
      Work2Penalty="10" Work2Duration="39600"
      Work3Penalty="0" Measure1="250" Measure2="20"
      InitialServiceDuration="900"
      MaxElapsedDuration="39600" ResourceKey="Sample222"
      RouteTemplateKey="DefaultRouteTemplate"
      ScheduleKey="DefaultSchedule" MessagePurpose="1002"
      DriverKey="Driver1">

    </DocResource>

  </Request>

</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
<ResultTime></ResultTime>

```

```

<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

Update Example: MessagePurpose="1004"

Input:

```

<DocFWImport>
  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
  SendDateTime="10/14/2004 2:10:04 PM"
  extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
  LoginName="FW-Admin" Password="cs"/>
  <Request>
    <DocResource Measure1="1000" Measure2="20"
    ResourceKey="Sample222" ScheduleKey="DefaultSchedule"
    MessagePurpose="1004" DriverKey="Driver2">
  </DocResource>
  </Request>
</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
<ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>

```

```

<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage>ResourceID:5304</STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

Remove Example (MessagePurpose="1003")

Input:

```

<DocFWImport>
  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
  SendDateTime="10/14/2004 2:10:04 PM"
  extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
  LoginName="FW-Admin" Password="cs"/>
  <Request>
    <DocResource ResourceKey="Sample222"
    MessagePurpose="1003">
  </DocResource>
  </Request>
</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
<ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>

```

```
<Message></Message>  
<STADMessage>ResourceID:5304</STADMessage>  
<Result>SUCCESS</Result>  
</DocResponse>  
</Status></Execute></Command>
```

Adding a Resource with Routing Parameters

Input:

```
<DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
  SendDateTime="10/14/2004 2:10:04 PM"
  extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
  LoginName="FW-Admin" Password="cs"/>

  <Request>

    <DocResource Name="D1_V1" InitialLocationKey="Store5"
    FinalLocationKey="Store5" EarliestStartDate="2005-06-
    08T07:00" LatestStartDate="2005-06-08T09:00"
    EarliestServiceDate="2005-06-08T08:00"
    LatestServiceDate="2005-06-08T17:00"
    EarliestEndDate="2005-06-08T07:00"
    LatestEndDate="2005-06-08T18:00"
    ServiceSpeedFactor="1" SpeedFactor="1"
    Territory="TC1" Requirements="A" MaxStops="20"
    DynamicZoningDistance="20000"
    MaxElapsedTimeBeforeBreak="14400"
    BreakDuration="3600" MaxNumberOfBreaks="1"
    BreakTimeOnDutyInd="1" ServicePenalty="10"
    LatestEndPenalty="5000" MissedWindowPenalty="100"
    Work1Penalty="100" Work1Duration="3600"
    Work2Penalty="10" Work2Duration="39600"
    Work3Penalty="0" Measure1="250" Measure2="20"
    InitialServiceDuration="900"
    MaxElapsedDuration="39600" ResourceKey="Sample222"
    RouteTemplateKey="DefaultRouteTemplate"
    ScheduleKey="DefaultSchedule" MessagePurpose="1002"
    DriverKey="Driver1">

      <DocResRteParms StartTime="2005-07-22T8:00:00"
      EndTime="2005-07-22T9:30:00">

        <DocRouteParms RouteParmsKey="DEFAULTS" />

      </DocResRteParms>

      <DocResRteParms StartTime="2005-07-23T6:00:00"
      EndTime="2005-07-23T8:00:00">

        <DocRouteParms RouteParmsKey="PMRUSH" />

      </DocResRteParms>

    </DocResource>

  </Request>

</DocFWImport>
```

Output:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
<ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage>ResourceID:5304</STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>
```

Adding and Updating a DocBucket

If MessagePurpose="1002" - Add, then an insert will take place in Descartes Route Planner.

The new BucketKey must be unique.

If Message Purpose="1004" - Update, then an update will take place.

 **Note**—For Removing Buckets, refer to the DocRequestTask section of this document.

Adding, removing and updating a DocBucket Synchronously:

Listener: `http://<serverName>/STAD/Listener/DocFWBucketListener.asp`

Input: DocBucket

MessagePurpose="1002 or 1004"

ProcessCode="30"

Example:

Input:

```
<DocFWImport><Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="1/17/2006 5:43:28 PM"
extDocControlID="LNOSFWAnalyzer" CompanyName="FW" LoginName="FW-
Admin" Password="cs"></Header><Request>

<FWBucket MessagePurpose="1002" ScheduleKey="RecyclingSchedule"
EarliestDate="2006-01-18T08:00:00" LatestDate="2006-01-
18T12:00:00" Territory="TC1" Type="" />

<FWBucket MessagePurpose="1002" ScheduleKey="RecyclingSchedule"
EarliestDate="2006-01-18T08:00:00" LatestDate="2006-01-
18T12:00:00" Territory="TC2" Type="" />

<FWBucket MessagePurpose="1002" ScheduleKey="RecyclingSchedule"
EarliestDate="2006-01-18T08:00:00" LatestDate="2006-01-
18T12:00:00" Territory="TC3" Type="" />

<FWBucket MessagePurpose="1002" ScheduleKey="RecyclingSchedule"
EarliestDate="2006-01-18T08:00:00" LatestDate="2006-01-
18T12:00:00" Territory="TC4" Type="" />

</Request></DocFWImport>
```

Output:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
</ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage>ResourceID:5304</STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>
```

Assets, Cost Profiles, Requirement Sets and Product Types

Descartes Route Planner users can define Drivers, Trucks and Trailers as assets and assign them to Routes and Route Templates and set relationships between them like Default Driver for Trucks.

Each of these asset types can be sent to Descartes Route Planner using Business documents.

Drivers are the entities that will operate/execute a route.

Trailers are the entities that can be attached to a Resource object adding capacity to the one already defined in the Resource itself.

Trucks are the entities that can be assigned to a Resource object replacing the Resource capacity and other attributes.

The Business documents for the following objects for integration purposes can be posted into the Descartes Route Planner application using the:

- Driver with Cost Profile
- Tractors with Cost Profile and RequirementSet
- Trucks with Cost Profile and RequirementSet
- Product Types and RequirementSet
- Requirement Set Definition
- Cost Profile

Listener:

`http://<servername>/stad/listener/DocFWConfigListener.asp`

The following business documents are defined to create the objects defined above.

DocDriver

```
<DocFWImport>
```

```
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
  SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
  CompanyName="FW" LoginName="FW-Admin" Password="cs" />
```

```
<Request>
```

```
<DocDriver MessagePurpose="" ProcessCode="" DriverKey="" DriverName=""
DeviceKey="" LocationKey="" LicenseNumber="" LicenseIssueDate=""
LicenseExpDate="" EarliestStartTime="" LatestStartTime=""
```

```

EarliestEndTime="" LatestEndTime="" Active="" CostProfileKey=""
Email="" Certificates="">

<DocCostProfile CostProfileKey="" CostProfileDescription=""
StartupCost="">

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="" />

</DocCostProfile>

</DocDriver>

</Request>

</DocFWImport>

```

DocTrailer

```

<DocFWImport>

    <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
CompanyName="FW" LoginName="FW-Admin" Password="cs" />

<Request>

<DocTrailer MessagePurpose="" ProcessCode="" TrailerKey="" Comment=""
Company="" Measure1="" Measure1Factor="" Measure1RechargeRate=""
Measure2="" Measure2Factor="" Measure2RechargeRate="" Measure3=""
Measure3Factor="" Measure3RechargeRate="" Measure4="" Measure4Factor=""
Measure4RechargeRate="" Measure5="" Measure5Factor=""
Measure5RechargeRate="" Measure6="" Measure6Factor=""
Measure6RechargeRate="" Measure7="" Measure7Factor=""
Measure7RechargeRate="" Measure8="" Measure8Factor=""
Measure8RechargeRate="" Measure9="" Measure9Factor=""
Measure9RechargeRate="" Name="" PreServiceDuration="" Requirements=""
ServiceDuration="" RechargeDuration="" UDFString1="" UDFString2=""
UDFString3="" UDFString4="" UDFString5="" UDFString6="" UDFString7=""
UDFString8="" UDFString9="" UDFInteger1="" UDFInteger2=""
UDFInteger3="" UDFNumber1="" UDFNumber2="" UDFNumber3="" Commodities=""
LicenseNumber="" LicenseIssueDate="" LicenseExpDate=""
CostProfileKey="" ModifiedBy="" ModifyDate="" FinalLocationKey=""
InitialLocationKey="" Height="" Length="" Width="" VehicleType=""
MobileNumber="" HeightLoadCapacity="" WidthLoadCapacity=""
LengthLoadCapacity="" Owner="" RequirementSetKey="">

<DocCostProfile CostProfileKey="" CostProfileDescription=""
StartupCost="">

```

```

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
    UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance=""
    LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="" />

    </DocCostProfile>

    <DocRequirementSet RequirementSetKey="" Name="" Description=""
    Comment="" CreatedBy="" CreatedDate="">

        <FWRequirement RequirementKey="" Name="" Description="" Comment="" />

    </DocRequirementSet>

    </DocTrailer>

</Request>

</DocFWImport>

```

DocTruck

```

<DocFWImport>

    <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />

    <Request>

    <DocTruck MessagePurpose="" ProcessCode="" TruckKey="" Comment=""
    Company="" FirstStopTimeThreshold="" FullThreshold=""
    WaitTimePenalty="" MaxDistance="" MaxStops="" Measure1=""
    Measure1Factor="" Measure1RechargeRate="" Measure2="" Measure2Factor=""
    Measure2RechargeRate="" Measure3="" Measure3Factor=""
    Measure3RechargeRate="" Measure4="" Measure4Factor=""
    Measure4RechargeRate="" Measure5="" Measure5Factor=""
    Measure5RechargeRate="" Measure6="" Measure6Factor=""
    Measure6RechargeRate="" Measure7="" Measure7Factor=""
    Measure7RechargeRate="" Measure8="" Measure8Factor=""
    Measure8RechargeRate="" Measure9="" Measure9Factor=""
    Measure9RechargeRate="" Name="" PartialFullPenalty="" Requirements=""
    ServiceDuration="" RechargeDuration="" Territory="" Commodities=""
    DiscountInitialLeg="" DiscountFinalLeg="" UDFString1="" UDFString2=""
    UDFString3="" UDFString4="" UDFString5="" UDFString6="" UDFString7=""
    UDFString8="" UDFString9="" UDFInteger1="" UDFInteger2=""
    UDFInteger3="" UDFNumber1="" UDFNumber2="" UDFNumber3=""
    DynamicZoningDistance="" LicenseNumber="" LicenseIssueDate=""
    LicenseExpDate="" CostProfileKey="" FinalLocationKey=""
    InitialLocationKey="" TerritoryKey="" Height="" Length="" Width=""
    VehicleType="" MobileNumber="" HeightLoadCapacity=""
    WidthLoadCapacity="" LengthLoadCapacity="" Owner="" DriverKey=""
    TrailerKey="" RequirementSetKey="">

```

```

<DocCostProfile CostProfileKey="" CostProfileDescription=""
StartupCost="">
  <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="" />
</DocCostProfile>
<DocRequirementSet RequirementSetKey="" Name="" Description=""
Comment="" CreatedBy="" CreatedDate="">
  <FWRequirement RequirementKey="" Name="" Description="" Comment="" />
</DocRequirementSet>
</DocTruck>
</Request>
</DocFWImport>

```

DocProductType

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
CompanyName="FW" LoginName="FW-Admin" Password="cs" />
<Request>
  <DocProductType MessagePurpose="" ProcessCode="" ProductTypeKey=""
ProductTypeName="" Measure1="" Measure2="" Measure3="" Measure4=""
Measure5="" Measure6="" Measure7="" Measure8="" Measure9=""
Measure1Factor="" Measure2Factor="" Measure3Factor="" Measure4Factor=""
Measure5Factor="" Measure6Factor="" Measure7Factor="" Measure8Factor=""
Measure9Factor="" ServiceRate="" ApplyToMeasure=""
PreServiceDuration="" ServiceDuration="" PUPreServiceDuration=""
PUServiceDuration="" DeliveryPreServiceDuration=""
DeliveryServiceDuration="" Profit="" Requirements="" Commodities=""
Comment="" RequirementSetKey="">
  <DocRequirementSet RequirementSetKey="" Name="" Description=""
Comment="" CreatedBy="" CreatedDate="">
    <FWRequirement RequirementKey="" Name="" Description="" Comment="" />
  </DocRequirementSet>
</DocProductType>
</Request>
</DocFWImport>

```

DocRequirementSet

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocRequirementSet MessagePurpose="" ProcessCode=""
      RequirementSetKey="" Name="" Description="" Comment="" CreatedBy=""
      CreatedDate="">
      <FWRequirement RequirementKey="" Name="" Description="" Comment="" />
    </DocRequirementSet>
  </Request>
</DocFWImport>

```

DocCostProfile

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocCostProfile CostProfileKey="" CostProfileDescription=""
      StartupCost="">
      <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
        UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance=""
        LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="" />
    </DocCostProfile>
  </Request>
</DocFWImport>

```

Address Data

Addresses or Locations can also be imported into Descartes Route Planner via http using the Location business document or they could be created when importing an order. This is the recommended way of importing them into Descartes Route Planner.

Addresses or Locations will be imported, validated, and geocoded. Below is an example of the Location XML Document:

```

- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

- <Request>

  - <DocLocation MessagePurpose="Required" ProcessCode=""
    TaskName="" LocationID="" LocationRefNo="Required"
    CompanyName="" LocationType="" Description=""
    Address="Required if no Long and Lat" Address2=""
    City="Required if no Long and Lat" State="Required if
    no Long and Lat" Zip="Required if no Long and Lat"
    Country="Required if no Long and Lat" TimeZone=""
    ContactName="" EmailAddress="" PhoneNumber=""
    FaxNumber="" Longitude="Required if no full address"
    Latitude="Required if no full address"
    GeocodingPolicy="" LocationZone="" AddressType=""
    ServiceDuration="" WorkgroupValue="" ModifiedBy=""
    ModifyDate="" LocationName="" Comment=""
    LocationCode="" Territory="" GeoSource="" GeoScore=""
    GeoOneCell="" GeoRelativePosition="" GeoFlags="">

    <LocationWindow TimeWindowType=""
      EarliestDateTime="" LatestDateTime=""
      EarliestTime="" LatestTime="" EarliestDate=""
      LatestDate="" Frequency="" Comment=""
      ProfitFactor="" VariationProfitFactor=""
      VariationDuration="" OpenDateTime=""
      CloseDateTime="" Category=""/>

    <UDF />

  </DocLocation>

</Request>

</DocFWImport>

```

Notice that this document contains the MessagePurpose and ProcessCode attributes. In the case of Locations, the only ProcessCodes that apply are either 10 or 20. If the ProcessCode is 20, the publishing will be done to Descartes Route Planner.

Processcode=10 will validate and geocode the document

Adding and Updating a DocLocation

If MessagePurpose="1002" – Add, then an insert will take place in Descartes Route Planner.

The new LocationRefNo must be unique.

If Message Purpose="1004" - Update, then an update will take place.

Adding and Updating a DocLocation without Removing Time Windows or Notes

Users can configure location updates without overwriting location time windows or notes by using the following values for the DocLocation business document.

```
<DocLocation MessagePurpose="1002" ProcessCode="10" TaskName="UpdateOnly"
...>
```

This feature only applies if the submitted document contains no time windows or note values. If time windows or note values are included, this feature does not apply.

Adding, removing and updating a DocLocation Synchronously:

Listener: <http://<serverName>/STAD/Listener/DocFWLocationListener.asp>

Input: DocLocation

MessagePurpose="1002, 1003, or 1004"

ProcessCode="optional"

Example of an Add:

```
<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 8:11:27 AM" extDocControlID="LNOSFWAnalyzer"
CompanyName="defaultOrganization" LoginName="defaultOrganization-
FWAdmin" Password="cs"></Header>

<Request>

<DocLocation MessagePurpose="1002" ProcessCode="20"
LocationRefNo="Depot1" Name="Depot1" Address="5925 Earle Brown
Drive" City="Brooklyn Center" State="MN" Zip="55430" Country="US"
Territory="TC1" ScheduleKey="DefaultSchedule" Status="MASTER"
Type="DEPOT" />

<DocLocation MessagePurpose="1002" ProcessCode="20"
LocationRefNo="Depot2" Name="Depot2" Address="1885 E. County Rd. D"
City="Maplewood" State="MN" Zip="55109" Country="US" Territory="TC2"
ScheduleKey="DefaultSchedule" Status="MASTER" Type="DEPOT" />

</Request>

</DocFWImport>
```

Output:

```

<?xml version="1.0"?>
<Command>
  <Execute>
    <Status>
      <DocResponse>
        <TotalDocumentsRead>1</TotalDocumentsRead>
        <DocumentsAccepted>1</DocumentsAccepted>
        <DocumentsRejected>0</DocumentsRejected>
        <ResultTime>
          </ResultTime>
        <CommandNo>
          </CommandNo>
        <AuthServer>
          </AuthServer>
        <DataServer>
          </DataServer>
        <ElapsedTime>
          </ElapsedTime>
        <Message>
          </Message>
        <STADMessage>
          <Status>
            <Result>SUCCESS</Result>
            <Count>0</Count>
            <ResultTime>05-12-09 08:36:45 EST</ResultTime>
            <CommandNo>CMD06BD245B0F0000000EE043997A5D0000000A</CommandNo>
            <AuthServer>SVRATFLEET2:LNOSFW</AuthServer>
            <DataServer>SVRATFLEET2:DCF</DataServer>
            <ElapsedTime>344</ElapsedTime>
          </Status>
        </STADMessage>
      </DocResponse>
    </Status>
  </Execute>
</Command>

```

```

        </STADMessage>
        <Result>SUCCESS</Result>
    </DocResponse>
</Status>
</Execute>
</Command>

```

Example of an Update:

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 8:11:27 AM"
    extDocControlID="LNOSFWAnalyzer"
    CompanyName="defaultOrganization" LoginName="defaultOrganization-
    FWAdmin" Password="cs"></Header>
  <Request>
    <DocLocation MessagePurpose="1004" ProcessCode="20"
      LocationRefNo="Depot1" Name="Depot1" Address="5925 Earle Brown
      Drive" City="Brooklyn Center" State="MN" Zip="55430" Country="US"
      Territory="STL" ScheduleKey="DefaultSchedule" Status="MASTER"
      Type="DEPOT" />
    <DocLocation MessagePurpose="1004" ProcessCode="20"
      LocationRefNo="Depot2" Name="Depot2" Address="1885 E. County Rd.
      D" City="Maplewood" State="MN" Zip="55109" Country="US"
      Territory="STL" ScheduleKey="DefaultSchedule" Status="MASTER"
      Type="DEPOT" />
  </Request>
</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
  <DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
  <ResultTime></ResultTime>
  <CommandNo></CommandNo>

```

```

<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>

<STADMessage><Status><Result>SUCCESS</Result><Count>0</Count><ResultTime>05-12-09 08:44:48
EST</ResultTime><CommandNo>CMD06BD245B0F0000000EE043997C400000001
6</CommandNo><AuthServer>SVRATFLEET2:LNOSFW</AuthServer><DataServer>SVRATFLEET2:DCF</DataServer><ElapsedTime>157</ElapsedTime></Status></STADMessage>

<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

Example of a Remove:

```

<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 8:11:27 AM"
extDocControlID="LNOSFWAnalyzer"
CompanyName="defaultOrganization" LoginName="defaultOrganization-FWAdmin" Password="cs"></Header>

<Request>

<DocLocation MessagePurpose="1003" LocationRefNo="Depot1"/>

</Request>

</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
<ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>

```

```

<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage><Status><Result>SUCCESS</Result><Count>0</Count><ResultTime>05-12-09 08:58:26
EST</ResultTime><CommandNo>CMD06BD245B0F000000EE043997F720000002
2</CommandNo><AuthServer>SVRATFLEET2:LNOSFW</AuthServer><DataServer>SVRATFLEET2:DCF</DataServer><ElapsedTime>328</ElapsedTime></Status></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

Geocoding Locations Synchronously

Locations can also be geocoded synchronously.

Example (notice that more than one location can be geocoded in the same call):

Listener: `http://<servername>/stad/listener/DocFWLocationListener.asp`

Input: DocLocation

MessagePurpose="1002"

ProcessCode="10"

```

<DocFWImport>
<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 8:11:27 AM" extDocControlID="LNOSFWAnalyzer"
CompanyName="FW" LoginName="FW-Admin" Password="cs"></Header>
<Request>
<DocLocation MessagePurpose="1002" ProcessCode="10"
LocationRefNo="Depot1" Name="Depot1" Address="5925 Earle Brown Drive"
City="Brooklyn Center" State="MN" Zip="55430" Country="US"
Territory="TC1" ScheduleKey="DefaultSchedule" Status="MASTER"
Type="DEPOT" />
<DocLocation MessagePurpose="1002" ProcessCode="10"
LocationRefNo="Depot1" Name="Depot1" Address="5925 Earle Brown Drive"
City="Brooklyn Center" State="MN" Zip="55430" Country="US"
Territory="TC1" ScheduleKey="DefaultSchedule" Status="MASTER"
Type="DEPOT" />
</Request>
</DocFWImport>

```

Output:

The response will contain the geocoding results in the response.

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>2</TotalDocumentsRead>
    <DocumentsAccepted>2</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
<ListenerName>DocFWLocationListener</ListenerName>
<ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage><DocLocation Status="MASTER" Type="DEPOT"
MessagePurpose="1002" ProcessCode="10" LocationKey="Depot1"
Name="Depot1" ShipStreetName="5925 Earle Brown Drive" Address="5925
Earle Brown Drive" ShipCity="Brooklyn Center" City="Brooklyn Center"
ShipState="MN" State="MN" ShipZipcode="55430" Zip="55430"
ShipCountry="US" Country="US" Territory="TC1"
ScheduleKey="DefaultSchedule" GeocodeAddress="" GeocodeCity=""
GeocodeState="" GeocodeZip="55430" Longitude="-93.300399854779243"
Latitude="45.061500035226345" GeocodeLongitude="-93.300399854779243"
GeocodeLatitude="45.061500035226345" GeocodeType="BYPOSTALCODE"
GeocodeScore="2550" GeocodeSource="usa.lzb" GeocodeQuality="0"
GeocodeFlags=""></DocLocation><DocLocation Status="MASTER" Type="DEPOT"
MessagePurpose="1002" ProcessCode="10" LocationKey="Depot1"
Name="Depot1" ShipStreetName="5925 Earle Brown Drive" Address="5925
Earle Brown Drive" ShipCity="Brooklyn Center" City="Brooklyn Center"
ShipState="MN" State="MN" ShipZipcode="55430" Zip="55430"
ShipCountry="US" Country="US" Territory="TC1"
ScheduleKey="DefaultSchedule"></DocLocation></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>
```

The Reservations Model:

In the Reservations world, there are five types of functions that are required to complete a Reservation:

Geocode—Requests a valid location (latitude and longitude values) from a given text address.

Advise—Evaluates and recommends the different possible service opportunities; can also make scheduling recommendations in real-time.

Confirm—Validates and updates the database with the appropriate details and scheduled service time opportunity.

Re-Confirm—Changes and updates the database with a new scheduled service time on an existing order.

All these functions must be executed before a BOL is confirmed and ready to publish to the LNOS Community.

The ProcessCode attribute will allow the different LNOS applications to process the document appropriately.

The process flow of business documents within LNOS for a Reservations model follows exactly the same process described above.

The following are use cases considered in a Reservations Model:

- Advising on BOL's
- Confirming BOL's
- Advising and Confirming on BOL's
- Re-Advise on BOL's
- Re-Confirm on BOL's

Each of these use cases are discussed in the next section.

Advising on BOL's

The Message Purpose in this case is '1002' or '1004' ('Add/Change') and the Process Code is '30' (Advise).

Elements Required:

DocFWImport

|__Header

|__Request

|__DocMasterBOL

|__DocBOL

|__PickupLocation
 |__DeliveryLocation
 |__BOLLine

Below are the minimum required fields when making this call.

Advise Type

Notice that the attribute AdviseType will specify if it is a Delivery, Pickup and Delivery, or Pickup advise call. The valide values are:

- **0** - Delivery
- **1** - Pickup and Delivery
- **2** - Pickup
- **3** - Multi-Task (Multiple Pickups, 1 Delivery)

Defaulted to **0** if empty:

```

- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

- <Request>

  - <DocMasterBOL>

    - <DocBOL MessagePurpose="Required"
      ExistingOrder="false" ProcessCode="Required in
      Reservations model" ScheduleKey="Required in
      Advise" AdviseType=" Required in Reservations
      Model" StartDate=" Required in Reservations Model
      " EndDate=" Required in Reservations Model"
      MaxSlots="" ReturnRoutes="" BOLID=""
      BOLNumber="Not Required for Advise calls"
      WBNumber="" BOLCreateDate="" ShpTADCreateDate=""
      CarrierID="" CarrierName="" CarrierOrgID=""
      StatusDescription="" RelOrderNumber=""
      ModifyDate="" ModifiedBy="" PONumbers=""
      SONumbers="" CreatedBy="" TADCreateDate=""
      ShipperRefNo="" PlannerID="" PlannerName=""
      PlannerOrgID="" ShipperID="" ShipperName=""
      ShipperOrgID="" Comment="" BillToLocationID=""
  
```

```

PickupLocationID="" DelLocationID=""
PublishedDateTime="" ApprovedDateTime="">

<UDF />

- <PickupLocation LocationID="" LocationRefNo="Not
  Required for Advise calls " CompanyName=""
  LocationType="" Description=""
  Address="Required if no Long and Lat"
  Address2="" City="Required if no Long and Lat"
  State="Required if no Long and Lat"
  Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat"
  TimeZone="" ContactName="" EmailAddress=""
  PhoneNumber="" FaxNumber=""
  Longitude="Required if no full address"
  Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone=""
  AddressType="" ServiceDuration=""
  WorkgroupValue="" ModifiedBy="" ModifyDate=""
  LocationName="" Comment="" LocationCode=""
  Territory="Required in the Reservations Model
  if IgnoreTerritoryInd is off" GeoSource=""
  GeoScore="" GeoOneCell=""
  GeoRelativePosition="" GeoFlags="">

  <LocationWindow TimeWindowType=""
    EarliestDateTime="" LatestDateTime=""
    EarliestTime="" LatestTime=""
    EarliestDate="" LatestDate="" Frequency=""
    Comment="" ProfitFactor=""
    VariationProfitFactor=""
    VariationDuration="" />

  <UDF />

</PickupLocation>

- <DeliveryLocation LocationID="" LocationRefNo="
  Not Required for Advise calls " CompanyName=""
  LocationType="" Description=""
  Address="Required if no Long and Lat"
  Address2="" City="Required if no Long and Lat"
  State="Required if no Long and Lat"
  Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat"

```

```

TimeZone="" ContactName="" EmailAddress=""
PhoneNumber="" FaxNumber=""
Longitude="Required if no full address"
Latitude="Required if no full address"
GeocodingPolicy="" LocationZone=""
AddressType="" ServiceDuration=""
WorkgroupValue="" ModifiedBy="" ModifyDate=""
LocationName="" Comment="" LocationCode=""
Territory="Required in the Reservations Model
if IgnoreTerritoryInd is off" GeoSource=""
GeoScore="" GeoOneCell=""
GeoRelativePosition="">

<LocationWindow TimeWindowType=""
    EarliestDateTime="" LatestDateTime=""
    EarliestTime="" LatestTime=""
    EarliestDate="" LatestDate="" Frequency=""
    Comment="" ProfitFactor=""
    VariationProfitFactor=""
    VariationDuration="" />

<UDF />

</DeliveryLocation>

- <PickupWindow TimeWindowID="" ParentRecordID=""
    ParentRecordType="" TimeWindowType=""
    EarliestDateTime="Required for Confirm/Re-
Confirm Model" LatestDateTime="Required for
Confirm/Re-Confirm Model" EarliestTime=""
LatestTime="" EarliestDate="" LatestDate=""
Frequency="" Comment="" ProfitFactor=""
VariationProfitFactor="" VariationDuration=""
ModifiedBy="" ModifyDate="">

<WindowEvalParms RouteID="Output
Reservations Model and Required for
Confirm/Re-Confirm"
    PrecedingStopID="Output Reservations Model
and Required for Confirm/Re-Confirm"
    Profitability="Output Reservations Model"
    Availability="Output Reservations Model"
    Flexibility="Output Reservations Model"
    Score="Output Reservations Model"
    StopNumber="Output Reservations Model" />

```

```

</PickupWindow>

- <DeliveryWindow EarliestDateTime="Required for Confirm/Re-Confirm Model"
  LatestDateTime="Required for Confirm/Re-Confirm Model" EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor="" VariationDuration=""
  >

  <WindowEvalParms RouteID="Output Reservations Model and Required for Confirm/Re-Confirm"
    PrecedingStopID="Output Reservations Model and Required for Confirm/Re-Confirm"
    Profitability="Output Reservations Model"
    Availability="Output Reservations Model"
    Flexibility="Output Reservations Model"
    Score="Output Reservations Model"
    StopNumber="Output Reservations Model and Required for Confirm/Re-Confirm" />

  </DeliveryWindow>

- <BOLLine BOLLineItemID="" BOLID=""
  BOLLineNumber=" Not Required for Advise calls
  " ShipperID="" ShipperOrgID=""
  ItemQty="Required for Confirm/Re-Confirm"
  ItemQtyUOM="" PONumber="" TONumber=""
  POLineNumber="" TOLineNumber="" ReleaseNo=""
  NumCasesShipped="" TotalWeight=" Required for Confirm/Re-Confirm" WeightUOM=""
  TotalVolume="" VolumeUOM="" >

  <UDF />

</BOLLine>

</DocBOL>

</DocMasterBOL>

</Request>

</DocFWImport>

```

The response will be found in the Pickup/Delivery Time Window node as several records within the DocBOL in the following format. Note that many Pickup/DeliveryWindows can come back as an answer. A Reservations user is to select only one of them and pass it when the confirm CALL is to take place:

```
- <DeliveryWindow SlotID="2" AdviseResponseID="1"
  EarliestDateTime="2004-05-13T12:00:00"
  LatestDateTime="2004-05-13T16:00:00" RouteID="883"
  PrecedingStopID="1405" Profitability="862.605010758142160"
  Availability="698.0000000000000000"
  Flexibility="0.5000000000000000" Score="2" StopNumber="1"
  Type="" ResourceKey="D2_V1-20051107" Territory="TC3"
  ScheduleKey="DefaultSchedule"
  IncDrivingDist="66260.910207317342000"
  IncDrivingTime="3308" ProjectedElapsedTime=""
  ProjectedBreakTime="" ProjectedRestTime=""
  ProjectedTimeDriven="" TruckType="" TrailerType=""
  CrewCount="" ProjectedDistance="">

  <WindowEvalParms RouteID="883" PrecedingStopID="1405"
    Profitability="862.605010758142160"
    Availability="698.0000000000000000"
    Flexibility="0.5000000000000000" Score="2"
    StopNumber="1" />

</DeliveryWindow>
```

Example of an Advise:

Listener: <http://<servername>/stad/listener/DocBOLAdviceConfirmListener.asp>

Input: DocMasterBOL

MessagePurpose="1002"

ProcessCode="30"

Delivery Order -AdviseType="0" example:

```
<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
  SendDateTime="11/7/2005 12:33:51 PM"
  extDocControlID="LNOSFWAnalyzer"
  CompanyName="defaultOrganization" LoginName="defaultOrganization-
  FWAdmin" Password="cs"/>

<Request>

<DocMasterBOL>
```

```

<DocBOL MessagePurpose="1002" ProcessCode="30" MaxSlots="10"
BOLNumber="Order0622" AdviseType="0"
ScheduleKey="DefaultSchedule" StartDate="2007-01-24T012:00:00"
EndDate="2007-01-24T14:00:00" >

    <UDF ServiceDuration="600" CompanyName="Name0622"
    Profit="1000" DistanceRanking="156" Random="0.49" />

    <PickupLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600" Latitude=""
    Longitude="" GeocodingPolicy="0">

        <LocationWindow EarliestTime="1900-01-01T8:00"
        LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
        LatestDate="1900-01-01T" Type="" Frequency="" />

        <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random="0.13" Flags="" />

    </PickupLocation>

    <DeliveryLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600" Latitude=""
    Longitude="" GeocodingPolicy="0">

        <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random="0.13" Flags="" />

    </DeliveryLocation>

    <BillToLocation>

        <UDF />

    </BillToLocation>

    <BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
    TotalWeight="9" TotalVolume="1">

        <UDF Profit="125" ServiceDuration="600" Requirements=""
        ProductKey="Product C" Random="0.12" />

    </BOLLine>

    <BOLLine BOLLineNumber="2" ItemQty="1" ItemDescription=""
    TotalWeight="10" TotalVolume="2">

        <UDF Profit="125" ServiceDuration="600" Requirements=""
        ProductKey="Product D" Random="0.70" />

    </BOLLine>

```

```

</DocBOL>
</DocMasterBOL>
</Request>
</DocFWImport>

```

Output:

```

<Request>
  <DocBOL MessagePurpose="1002" ProcessCode="30" MaxSlots="10"
    BOLNumber="Order0622" AdviseType="0"
    ScheduleKey="DefaultSchedule" StartDate="2007-01-24T012:00:00"
    EndDate="2007-01-24T14:00:00" >
    <UDF ServiceDuration="600" CompanyName="Name0622"
      Profit="1000" DistanceRanking="156" Random="0.49" />
    <PickupLocation LocationRefNo="Customer0622" Territory="TC2"
      Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
      State="MN" Zip="55127" ServiceDuration="600"
      Latitude="45.064625479280949" Longitude="-93.079163208603859"
      GeocodingPolicy="0" GeocodeAddress="510 County Highway F E"
      GeocodeCity="Vadnais Heights" GeocodeState="MN"
      GeocodeZip="55127" GeocodeLongitude="-93.079163208603859"
      GeocodeLatitude="45.064625479280949" GeocodeType="NORMAL"
      GeocodeScore="4200" GeocodeSource="DCA3456789.lmb"
      GeocodeQuality="128"
      GeocodeRelativePosition="0.275700926780701"
      GeocodeFlags="WRONGSTREETSUFFIX" Country="US">
      <LocationWindow EarliestTime="1900-01-01T8:00"
        LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
        LatestDate="1900-01-01T" Type="" Frequency="" />
      <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random=" 0.13 " Flags="" />
    </PickupLocation>
    <DeliveryLocation LocationRefNo="Customer0622"
      Territory="TC2" Address="510 E CO RD F" Address2=""
      City="VADNAIS HEIGHTS" State="MN" Zip="55127"
      ServiceDuration="600" Latitude="45.064625479280949"
      Longitude="-93.079163208603859" GeocodingPolicy="0"
      GeocodeAddress="510 County Highway F E" GeocodeCity="Vadnais
      Heights" GeocodeState="MN" GeocodeZip="55127"
      GeocodeLongitude="-93.079163208603859"
      GeocodeLatitude="45.064625479280949" GeocodeType="NORMAL"

```

```

GeocodeScore="4200" GeocodeSource="DCA3456789.lmb"
GeocodeQuality="128"
GeocodeRelativePosition="0.275700926780701"
GeocodeFlags="WRONGSTREETSUFFIX" Country="US">
    <UDF Company="Name0622" PreServiceDuration="" Comment1=""
    Profit="2500" GeocodeScore="" GeocodeLatitude=""
    GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
    Random=" 0.13 " Flags="" />
</DeliveryLocation>
<BillToLocation>
    <UDF />
</BillToLocation>
<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="1">
    <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product C" Random=" 0.12 " />
</BOLLine>
<BOLLine BOLLineNumber="2" ItemQty="1" ItemDescription=""
TotalWeight="10" TotalVolume="2">
    <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product D" Random=" 0.70 " />
</BOLLine>
<DeliveryWindow SlotID="1" AdviseResponseID="1"
EarliestDateTime="2005-11-07T08:00:00" LatestDateTime="2005-
11-07T10:00:00" RouteID="2910" PrecedingStopID="56856"
Profitability="3748.172697960858400"
Availability="3.0000000000000000"
Flexibility="0.076972901782956" Score="3" StopNumber="1"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey="DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="" >
    <WindowEvalParms RouteID="2910" PrecedingStopID="56856"
    Profitability="3748.172697960858400"
    Availability="3.0000000000000000"
    Flexibility="0.076972901782956" Score="3" StopNumber="1" />
</DeliveryWindow>
<DeliveryWindow SlotID="2" AdviseResponseID="1"
EarliestDateTime="2005-11-07T10:00:00" LatestDateTime="2005-

```

```

11-07T12:00:00" RouteID="2910" PrecedingStopID="57087"
Profitability="3747.781457932508600"
Availability="5.000000000000000"
Flexibility="0.154012828689811" Score="3" StopNumber="2"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey=" DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="" >

  <WindowEvalParms RouteID="2910" PrecedingStopID="57087"
    Profitability="3747.781457932508600"
    Availability="5.000000000000000"
    Flexibility="0.154012828689811" Score="3" StopNumber="2" />
</DeliveryWindow>

<DeliveryWindow SlotID="3" AdviseResponseID="1"
EarliestDateTime="2005-11-08T12:00:00" LatestDateTime="2005-
11-08T14:00:00" RouteID="2932" PrecedingStopID="57055"
Profitability="3747.666012890721500"
Availability="4.000000000000000"
Flexibility="0.096222243992060" Score="3" StopNumber="4"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey=" DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="">

  <WindowEvalParms RouteID="2932" PrecedingStopID="57055"
    Profitability="3747.666012890721500"
    Availability="4.000000000000000"
    Flexibility="0.096222243992060" Score="3" StopNumber="4" />
</DeliveryWindow>

</DeliveryWindow>

/DocBOL>

</Request>

```

Advise type – passing multiple schedule keys

Currently Descartes Route Planner supports passing multiple schedule keys in Advise Calls. ScheduleKey is then replaced by ScheduleGroup.

Example of an Advise passing multiple schedule keys:

Listener: `http://<servername>/stad/listener/DocBOLAdviceConfirmListener.asp`

Input: DocMasterBOL

MessagePurpose="1002"

ProcessCode="30"

Delivery Order -AdviseType="0" example:

```
<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="11/7/2005 12:33:51 PM"
extDocControlID="LNOSFWAnalyzer"
CompanyName="defaultOrganization" LoginName="defaultOrganization-
FWAdmin" Password="cs"/>

<Request>

<DocMasterBOL>

<DocBOL MessagePurpose="1002" ProcessCode="30" MaxSlots="10"
BOLNumber="Order0622" AdviseType="0" ScheduleGroup="DefaultGroup"
StartDate="2007-01-24T012:00:00" EndDate="2007-01-24T14:00:00" >

    <UDF ServiceDuration="600" CompanyName="Name0622"
    Profit="1000" DistanceRanking="156" Random="0.49" />

    <PickupLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600" Latitude=""
    Longitude="" GeocodingPolicy="0">

        <LocationWindow EarliestTime="1900-01-01T8:00"
        LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
        LatestDate="1900-01-01T" Type="" Frequency="" />

        <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random="0.13" Flags="" />

    </PickupLocation>

    <DeliveryLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600" Latitude=""
    Longitude="" GeocodingPolicy="0">

        <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random="0.13" Flags="" />

    </DeliveryLocation>
```

```

<BillToLocation>
    <UDF />
</BillToLocation>

<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="1">
    <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product C" Random="0.12" />
</BOLLine>

<BOLLine BOLLineNumber="2" ItemQty="1" ItemDescription=""
TotalWeight="10" TotalVolume="2">
    <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product D" Random="0.70" />
</BOLLine>
</DocBOL>
</DocMasterBOL>
</Request>
</DocFWImport>

```

Output:

```

<Request>

<DocBOL MessagePurpose="1002" ProcessCode="30" MaxSlots="10"
BOLNumber="Order0622" AdviseType="0"
ScheduleGroup="DefaultGroup" StartDate="2007-01-24T012:00:00"
EndDate="2007-01-24T14:00:00" >

    <UDF ServiceDuration="600" CompanyName="Name0622"
    Profit="1000" DistanceRanking="156" Random="0.49" />

    <PickupLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600"
    Latitude="45.064625479280949" Longitude="-93.079163208603859"
    GeocodingPolicy="0" GeocodeAddress="510 County Highway F E"
    GeocodeCity="Vadnais Heights" GeocodeState="MN"
    GeocodeZip="55127" GeocodeLongitude="-93.079163208603859"
    GeocodeLatitude="45.064625479280949" GeocodeType="NORMAL"
    GeocodeScore="4200" GeocodeSource="DCA3456789.lmb"
    GeocodeQuality="128"
    GeocodeRelativePosition="0.275700926780701"
    GeocodeFlags="WRONGSTREETSUFFIX" Country="US">

```

```

<LocationWindow EarliestTime="1900-01-01T8:00"
LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
LatestDate="1900-01-01T" Type="" Frequency="" />

<UDF Company="Name0622" PreServiceDuration="" Comment1=""
Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
Random=" 0.13 " Flags="" />

</PickupLocation>

<DeliveryLocation LocationRefNo="Customer0622"
Territory="TC2" Address="510 E CO RD F" Address2=""
City="VADNAIS HEIGHTS" State="MN" Zip="55127"
ServiceDuration="600" Latitude="45.064625479280949"
Longitude="-93.079163208603859" GeocodingPolicy="0"
GeocodeAddress="510 County Highway F E" GeocodeCity="Vadnais
Heights" GeocodeState="MN" GeocodeZip="55127"
GeocodeLongitude="-93.079163208603859"
GeocodeLatitude="45.064625479280949" GeocodeType="NORMAL"
GeocodeScore="4200" GeocodeSource="DCA3456789.lmb"
GeocodeQuality="128"
GeocodeRelativePosition="0.275700926780701"
GeocodeFlags="WRONGSTREETSUFFIX" Country="US">

  <UDF Company="Name0622" PreServiceDuration="" Comment1=""
  Profit="2500" GeocodeScore="" GeocodeLatitude=""
  GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
  Random=" 0.13 " Flags="" />

</DeliveryLocation>

<BillToLocation>

  <UDF />

</BillToLocation>

<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="1">

  <UDF Profit="125" ServiceDuration="600" Requirements=""
  ProductKey="Product C" Random=" 0.12 " />

</BOLLine>

<BOLLine BOLLineNumber="2" ItemQty="1" ItemDescription=""
TotalWeight="10" TotalVolume="2">

  <UDF Profit="125" ServiceDuration="600" Requirements=""
  ProductKey="Product D" Random=" 0.70 " />

</BOLLine>

<DeliveryWindow SlotID="1" AdviseResponseID="1"
EarliestDateTime="2005-11-07T08:00:00" LatestDateTime="2005-

```

```

11-07T10:00:00" RouteID="2910" PrecedingStopID="56856"
Profitability="3748.172697960858400"
Availability="3.0000000000000000"
Flexibility="0.076972901782956" Score="3" StopNumber="1"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey="DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="" >

  <WindowEvalParms RouteID="2910" PrecedingStopID="56856"
    Profitability="3748.172697960858400"
    Availability="3.0000000000000000"
    Flexibility="0.076972901782956" Score="3" StopNumber="1" />
</DeliveryWindow>

<DeliveryWindow SlotID="2" AdviseResponseID="1"
EarliestDateTime="2005-11-07T10:00:00" LatestDateTime="2005-
11-07T12:00:00" RouteID="2910" PrecedingStopID="57087"
Profitability="3747.781457932508600"
Availability="5.0000000000000000"
Flexibility="0.154012828689811" Score="3" StopNumber="2"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey=" DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="" >

  <WindowEvalParms RouteID="2910" PrecedingStopID="57087"
    Profitability="3747.781457932508600"
    Availability="5.0000000000000000"
    Flexibility="0.154012828689811" Score="3" StopNumber="2" />
</DeliveryWindow>

<DeliveryWindow SlotID="3" AdviseResponseID="1"
EarliestDateTime="2005-11-08T12:00:00" LatestDateTime="2005-
11-08T14:00:00" RouteID="2932" PrecedingStopID="57055"
Profitability="3747.666012890721500"
Availability="4.0000000000000000"
Flexibility="0.096222243992060" Score="3" StopNumber="4"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey=" DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="">

```

```

        <WindowEvalParms RouteID="2932" PrecedingStopID="57055"
        Profitability="3747.666012890721500"
        Availability="4.000000000000000"
        Flexibility="0.096222243992060" Score="3" StopNumber="4" />
    </DeliveryWindow>
</DeliveryWindow>
/DocBOL>
</Request>

```

Advise type – passing multiple BucketTypes

Currently Descartes Route Planner supports passing multiple BucketTypes in Advise Calls.

Example of an Advise passing multiple BucketTypes:

Listener: http://<servername>/stad/listener/DocBOLAdviceConfirmListener.asp

Input: DocMasterBOL

MessagePurpose="1002"

ProcessCode="30"

```

<DocFWImport>
  <Header CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocMasterBOL>
      <DocBOL MessagePurpose="1002" ProcessCode="30" BOLNumber="pickup111"
      AdviseType="2" ScheduleKey="TA_2016_010_Schedule" StartDate="2017-01-
      01T008:00:00" EndDate="2017-01-10T009:00:00" ApplyFWOnly="true"
      BucketType="5Hour,2Hour,1Hour" >
        <UDF Territory=" TA_2016_territory " Profit="2500" />
        <PickupLocation LocationRefNo="TA_2016_010_Location_10" />
      </DocBOL>
    </DocMasterBOL>
  </Request>
</DocFWImport>

```

Advise call on Pickup portion of Double ended jobs

Now, in Advise call can specified when the response should be made available for the pickup end versus the delivery end of the order.

Possible Values:

- ScheduleSource="true": The advise call will apply to the Pickup portion of the Shipment
- ScheduleSource="false" or NULL or if the Attribute is not passed at all: The advise call will apply to the Delivery portion of the Shipment

Example of an Advise passing multiple schedule keys:

Listener: <http://<servername>/stad/listener/DocBOLAdviceConfirmListener.asp>

Input: DocMasterBOL

MessagePurpose="1002"

ProcessCode="30"

Pickup and Delivery Order - AdviseType="1" example:

```
<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="11/7/2005 12:33:51 PM"
extDocControlID="LNOSFWAnalyzer"
CompanyName="defaultOrganization" LoginName="defaultOrganization-
FWAdmin" Password="cs"/>

<Request>

<DocMasterBOL>

<DocBOL MessagePurpose="1002" ProcessCode="30" MaxSlots="10"
BOLNumber="Order0622" AdviseType="1" ScheduleSource="true"
ScheduleKey="DefaultSchedule" StartDate="2007-01-24T012:00:00"
EndDate="2007-01-24T14:00:00" >

    <UDF ServiceDuration="600" CompanyName="Name0622"
    Profit="1000" DistanceRanking="156" Random="0.49" />

    <PickupLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600" Latitude=""
    Longitude="" GeocodingPolicy="0">

        <LocationWindow EarliestTime="1900-01-01T8:00"
        LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
        LatestDate="1900-01-01T" Type="" Frequency="" />

        <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random="0.13" Flags="" />

    </PickupLocation>

    <DeliveryLocation LocationRefNo="Customer0622" Territory="TC2"
    Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
    State="MN" Zip="55127" ServiceDuration="600" Latitude=""
    Longitude="" GeocodingPolicy="0">

        <UDF Company="Name0622" PreServiceDuration="" Comment1=""
        Profit="2500" GeocodeScore="" GeocodeLatitude=""
```

```

        GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
        Random="0.13" Flags="" />
    </DeliveryLocation>
<BillToLocation>
    <UDF />
</BillToLocation>
<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="1">
    <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product C" Random="0.12" />
</BOLLine>
<BOLLine BOLLineNumber="2" ItemQty="1" ItemDescription=""
TotalWeight="10" TotalVolume="2">
    <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product D" Random="0.70" />
</BOLLine>
</DocBOL>
</DocMasterBOL>
</Request>
</DocFWImport>

```

Output:

```

<Request>
    <DocBOL MessagePurpose="1002" ProcessCode="30" MaxSlots="10"
    BOLNumber="Order0622" AdviseType="1" ScheduleSource="true"
    ScheduleKey="DefaultSchedule" StartDate="2007-01-24T012:00:00"
    EndDate="2007-01-24T14:00:00" >
        <UDF ServiceDuration="600" CompanyName="Name0622"
        Profit="1000" DistanceRanking="156" Random="0.49" />
        <PickupLocation LocationRefNo="Customer0622" Territory="TC2"
        Address="510 E CO RD F" Address2="" City="VADNAIS HEIGHTS"
        State="MN" Zip="55127" ServiceDuration="600"
        Latitude="45.064625479280949" Longitude="-93.079163208603859"
        GeocodingPolicy="0" GeocodeAddress="510 County Highway F E"
        GeocodeCity="Vadnais Heights" GeocodeState="MN"
        GeocodeZip="55127" GeocodeLongitude="-93.079163208603859"
        GeocodeLatitude="45.064625479280949" GeocodeType="NORMAL"
        GeocodeScore="4200" GeocodeSource="DCA3456789.lmb"

```

```

GeocodeQuality="128"
GeocodeRelativePosition="0.275700926780701"
GeocodeFlags="WRONGSTREETSUFFIX" Country="US">

  <LocationWindow EarliestTime="1900-01-01T8:00"
    LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
    LatestDate="1900-01-01T" Type="" Frequency="" />

  <UDF Company="Name0622" PreServiceDuration="" Comment1=""
    Profit="2500" GeocodeScore="" GeocodeLatitude=""
    GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
    Random=" 0.13 " Flags="" />
</PickupLocation>

<DeliveryLocation LocationRefNo="Customer0622"
Territory="TC2" Address="510 E CO RD F" Address2=""
City="VADNAIS HEIGHTS" State="MN" Zip="55127"
ServiceDuration="600" Latitude="45.064625479280949"
Longitude="-93.079163208603859" GeocodingPolicy="0"
GeocodeAddress="510 County Highway F E" GeocodeCity="Vadnais
Heights" GeocodeState="MN" GeocodeZip="55127"
GeocodeLongitude="-93.079163208603859"
GeocodeLatitude="45.064625479280949" GeocodeType="NORMAL"
GeocodeScore="4200" GeocodeSource="DCA3456789.lmb"
GeocodeQuality="128"
GeocodeRelativePosition="0.275700926780701"
GeocodeFlags="WRONGSTREETSUFFIX" Country="US">

  <UDF Company="Name0622" PreServiceDuration="" Comment1=""
    Profit="2500" GeocodeScore="" GeocodeLatitude=""
    GeocodeLongitude="" GeocodeSource="" DistanceRanking="156"
    Random=" 0.13 " Flags="" />
</DeliveryLocation>

<BillToLocation>

  <UDF />
</BillToLocation>

<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="1">

  <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product C" Random=" 0.12 " />
</BOLLine>

<BOLLine BOLLineNumber="2" ItemQty="1" ItemDescription=""
TotalWeight="10" TotalVolume="2">

  <UDF Profit="125" ServiceDuration="600" Requirements=""
    ProductKey="Product D" Random=" 0.70 " />

```

```

</BOLLine>

<DeliveryWindow SlotID="1" AdviseResponseID="1"
EarliestDateTime="2005-11-07T08:00:00" LatestDateTime="2005-
11-07T10:00:00" RouteID="2910" PrecedingStopID="56856"
Profitability="3748.172697960858400"
Availability="3.0000000000000000"
Flexibility="0.076972901782956" Score="3" StopNumber="1"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey="DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="" >

  <WindowEvalParms RouteID="2910" PrecedingStopID="56856"
  Profitability="3748.172697960858400"
  Availability="3.0000000000000000"
  Flexibility="0.076972901782956" Score="3" StopNumber="1" />

</DeliveryWindow>

<DeliveryWindow SlotID="2" AdviseResponseID="1"
EarliestDateTime="2005-11-07T10:00:00" LatestDateTime="2005-
11-07T12:00:00" RouteID="2910" PrecedingStopID="57087"
Profitability="3747.781457932508600"
Availability="5.0000000000000000"
Flexibility="0.154012828689811" Score="3" StopNumber="2"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey=" DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""
ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="" >

  <WindowEvalParms RouteID="2910" PrecedingStopID="57087"
  Profitability="3747.781457932508600"
  Availability="5.0000000000000000"
  Flexibility="0.154012828689811" Score="3" StopNumber="2" />

</DeliveryWindow>

<DeliveryWindow SlotID="3" AdviseResponseID="1"
EarliestDateTime="2005-11-08T12:00:00" LatestDateTime="2005-
11-08T14:00:00" RouteID="2932" PrecedingStopID="57055"
Profitability="3747.666012890721500"
Availability="4.0000000000000000"
Flexibility="0.096222243992060" Score="3" StopNumber="4"
Type="" ResourceKey="D2_V1-20051107" Territory="TC2"
ScheduleKey=" DefaultSchedule"
IncDrivingDist="66260.910207317342000" IncDrivingTime="3308"
ProjectedElapsedTime="" ProjectedBreakTime=""

```

```

ProjectedRestTime="" ProjectedTimeDriven="" TruckType=""
TrailerType="" CrewCount="" ProjectedDistance="">

  <WindowEvalParms RouteID="2932" PrecedingStopID="57055"
  Profitability="3747.666012890721500"
  Availability="4.000000000000000"
  Flexibility="0.096222243992060" Score="3" StopNumber="4" />
</DeliveryWindow>
</DeliveryWindow>
/DocBOL>

</Request>

```

Confirming BOL's

When confirming BOL's, each BOL should already be geocoded and validated.

The Message Purpose in this case is 'Add/Change' and the Process Code is 'Confirm'. This will Add/Change the BOL in Descartes Route Planner and if Time Windows exist for this BOL, it will remove any other time windows that are not passed along with the 'Confirm'.

In this case, only one PickupWindow or DeliveryWindow node should be passed. This will represent the Selected pickup/delivery slot that the Reservations user has selected.

```

- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
  SendDateTime="10/14/2004 2:10:04 PM"
  extDocControlID="zzBOLSourceMessageID"
  CompanyName="MyCompany001" LoginName="RMoore"
  Password="zzPassword"/>

- <Request>

  - <DocMasterBOL>

    - <DocBOL MessagePurpose="Required"
      ProcessCode="Required in Reservations model"
      ScheduleKey="Required in Reservations Model"
      AdviseType=" Required in Reservations Model"
      StartDate="" EndDate="" MaxSlots=""
      ReturnRoutes="" BOLID="" BOLNumber="Required for
      Confirm/Re-Confirm" ShipperID="" ShipperName=""
      Comment=""

    < />

```

```

- <PickupLocation LocationID=""
  LocationRefNo="Required for Confirm/Re-
  Confirm" CompanyName="" LocationType=""
  Description="" Address="Required if no Long
  and Lat" Address2="" City="Required if no Long
  and Lat" State="Required if no Long and Lat"
  Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat"
  TimeZone="" ContactName="" EmailAddress=""
  PhoneNumber="" FaxNumber=""
  Longitude="Required if no full address"
  Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone=""
  AddressType="" ServiceDuration=""
  WorkgroupValue="" ModifiedBy="" ModifyDate=""
  LocationName="" Comment="" LocationCode=""
  Territory="Required in the Reservations Model
  if IgnoreTerritoryInd is off" GeoSource=""
  GeoScore="" GeoOneCell=""
  GeoRelativePosition="" GeoFlags="">

  <LocationWindow TimeWindowType=""
    EarliestDateTime="" LatestDateTime=""
    EarliestTime="" LatestTime=""
    EarliestDate="" LatestDate="" Frequency=""
    Comment="" ProfitFactor=""
    VariationProfitFactor=""
    VariationDuration="" />

  <UDF />

</PickupLocation>

- <DeliveryLocation LocationID=""
  LocationRefNo="Required for Confirm/Re-
  Confirm" CompanyName="" LocationType=""
  Description="" Address="Required if no Long
  and Lat" Address2="" City="Required if no Long
  and Lat" State="Required if no Long and Lat"
  Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat"
  TimeZone="" ContactName="" EmailAddress=""
  PhoneNumber="" FaxNumber=""
  Longitude="Required if no full address"
  Latitude="Required if no full address"

```

```

GeocodingPolicy="" LocationZone=""
AddressType="" ServiceDuration=""
WorkgroupValue="" ModifiedBy="" ModifyDate=""
LocationName="" Comment="" LocationCode=""
Territory="Required in the Reservations Model
if IgnoreTerritoryInd is off" GeoSource=""
GeoScore="" GeoOneCell=""
GeoRelativePosition="">

<LocationWindow TimeWindowType=""
  EarliestDateTime="" LatestDateTime=""
  EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor=""
  VariationDuration="" />

<UDF />

</DeliveryLocation>

- <PickupWindow EarliestDateTime="Required for
  Confirm/Re-Confirm Model"
  LatestDateTime="Required for Confirm/Re-
  Confirm Model" EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor="" VariationDuration=""
  ModifiedBy="" ModifyDate="">

  <WindowEvalParms RouteID="Output
    Reservations Model and Required for
    Confirm/Re-Confirm"
    PrecedingStopID="Output Reservations Model
    and Required for Confirm/Re-Confirm"
    Profitability="Output Reservations Model"
    Availability="Output Reservations Model"
    Flexibility="Output Reservations Model"
    Score="Output Reservations Model"
    StopNumber="Output Reservations Model and
    Required for Confirm/Re-Confirm" />

</PickupWindow>

- <DeliveryWindow TimeWindowID=""
  ParentRecordID="" ParentRecordType=""

```

```

TimeWindowType="" EarliestDateTime="Required
for Confirm/Re-Confirm Model"
LatestDateTime="Required for Confirm/Re-
Confirm Model" EarliestTime="" LatestTime=""
EarliestDate="" LatestDate="" Frequency=""
Comment="" ProfitFactor=""
VariationProfitFactor="" VariationDuration=""

<WindowEvalParms RouteID="Output
Reservations Model and Required for
Confirm/Re-Confirm"
PrecedingStopID="Output Reservations Model
and Required for Confirm/Re-Confirm"
Profitability="Output Reservations Model"
Availability="Output Reservations Model"
Flexibility="Output Reservations Model"
Score="Output Reservations Model"
StopNumber="Output Reservations Model and
Required for Confirm/Re-Confirm" />

</DeliveryWindow>

- <BOLLine BOLLineItemID="" BOLID=""
  BOLLineNumber="Required for Confirm/Re-
Confirm" ShipperID="" ShipperOrgID=""
ItemQty="Required for Confirm/Re-Confirm"
ItemQtyUOM="" PONumber="" TONumber=""
POLineNumber="" TOLineNumber="" ReleaseNo=""
NumCasesShipped="" TotalWeight="Required for
Confirm/Re-Confirm" WeightUOM=""
TotalVolume="" VolumeUOM="" ModifiedBy=""
ModifyDate="" BuyerID="" BuyerOrgID=""
BuyerName="" BuyerInternalOrgID="" SellerID=""
SellerName="" UPCCode="" SellerItemNo=""
BuyerItemNo="" PlannerItemNo=""
ItemDescription="" ItemPrice=""
ItemPriceUOM="" FreightClass="">

<UDF UDFFieldID="" DocCategory=""
  DocRecordID="" UDF1="" UDF2="" UDF3=""
  UDF4="" UDF5="" UDF6="" UDF7="" UDF8=""
  UDF9="" UDF10="" UDF11="" UDF12=""
  UDF13="" UDF14="" UDF15="" UDF16=""
  UDF17="" UDF18="" UDF19="" UDF20=""
  UDF21="" UDF22="" UDF23="" UDF24=""

```

```

        UDF25="" UDF26="" UDF27="" UDF28=""
        ModifiedBy="" ModifyDate="" />
    </BOLLine>
</DocBOL>
</DocMasterBOL>
</Request>
</DocFWImport>

```

The response on this command will be the same BOL, with a Success or Failure Message as well as an explanation if it failed. See [Appendix A](#) for the list of possible responses.

Here is also a sample response on this command:

```

- <Request>
- <DocBOL MessagePurpose="1002" ProcessCode="40" MaxSlots="10"
  AdviseType="0" ScheduleKey="DefaultSchedule"
  BOLNumber="STORDER_88">
  <UDF />
- <PickupLocation Territory="TC3" Address="3116 Emerson
  Ave S" City="Minneapolis" State="MN" Zip="55408"
  GeocodingPolicy="0" ServiceDuration="9795"
  LocationRefNo="LOC_88" Longitude="-93.294373266398907"
  Latitude="44.946273677051067" Country="US">
  <UDF />
</PickupLocation>
- <DeliveryLocation Territory="TC3" Address="3116 Emerson
  Ave S" City="Minneapolis" State="MN" Zip="55408"
  GeocodingPolicy="0" ServiceDuration="9795"
  LocationRefNo="LOC_88" Longitude="-93.294373266398907"
  Latitude="44.946273677051067" Country="US">
  <UDF />
</DeliveryLocation>
- <BillToLocation>
  <UDF />
</BillToLocation>

```

```

- <BOLLine ItemQty="1">
    <UDF />
</BOLLine>
- <DeliveryWindow SlotID="1" AdviseResponseID="1"
    EarliestDateTime="2005-01-26T08:00:00"
    LatestDateTime="2005-01-26T12:00:00" RouteID="3043"
    PrecedingStopID="57438"
    Profitability="0.0000000000000000"
    Availability="22.0000000000000000"
    Flexibility="0.122045068292166" Score="3"
    StopNumber="2" Type="">
    <WindowEvalParms RouteID="3043"
        PrecedingStopID="57438"
        Profitability="0.0000000000000000"
        Availability="22.0000000000000000"
        Flexibility="0.122045068292166" Score="3"
        StopNumber="2" />
</DeliveryWindow>
- <Output>
    <parmTaskStatus>OK</parmTaskStatus>
</Output>
- <Status>
    <Result>"SUCCESS"</Result>
- <Message>
    <Text>"BOL has been confirmed and saved"</Text>
</Message>
</Status>
</DocBOL>
</Request>

```

Example of a Confirm:

Listener:

<http://<server-name>/stad/listener/DocBOLAdviceConfirmListener.asp>

Input: DocMasterBOL

MessagePurpose="1002"

ProcessCode="40"

Delivery AdviseType="0" example:

```
<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM"
extDocControlID="LNOSFWAnalyzer"
CompanyName="defaultOrganization" LoginName="defaultOrganization-
FWAdmin" Password="cs"></Header>

<Request>

<DocMasterBOL><DocBOL MessagePurpose="1002" ProcessCode="40"
MaxSlots="10" BOLNumber="Order1558" AdviseType="0"
ScheduleKey="DefaultSchedule" Comment="RANDOM [Slot 3]"><UDF
ServiceDuration="600" CompanyName="Name1558" Profit="1000"
DistanceRanking="390" Random="0.03" /><PickupLocation
LocationRefNo="Customer1558" Territory="TC2" Address="1263
LEALAND RD" Address2="" City="MAPLEWOOD" State="MN" Zip="55109"
ServiceDuration="600" Latitude="" Longitude=""
GeocodingPolicy="0" ><LocationWindow EarliestTime="1900-01-
01T8:00" LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
LatestDate="1900-01-01T" Type="" Frequency="" /><UDF
Company="Name1558" ParkingTime="" Comment1="" Profit="2500"
GeocodeScore="" GeocodeLatitude="" GeocodeLongitude=""
GeocodeSource="" DistanceRanking="390" Random=" 0.20 " Flags=""
/></PickupLocation><DeliveryLocation LocationRefNo="Customer1558"
Territory="TC2" Address="1263 LEALAND RD" Address2=""
City="MAPLEWOOD" State="MN" Zip="55109" ServiceDuration="600"
Latitude="" Longitude="" GeocodingPolicy="0" ><UDF
Company="Name1558" ParkingTime="" Comment1="" Profit="2500"
GeocodeScore="" GeocodeLatitude="" GeocodeLongitude=""
GeocodeSource="" DistanceRanking="390" Random=" 0.20 " Flags=""
/></DeliveryLocation><BillToLocation ><UDF
/></BillToLocation><BOLLine BOLLineNumber="1" ItemQty="1"
ItemDescription="" TotalWeight="9" TotalVolume="2" ><UDF
Profit="125" ServiceDuration="600" Requirements=""
ProductKey="Product C" Random=" 0.34 " /></BOLLine>

<DeliveryWindow SlotID="3" AdviseResponseID="1"
EarliestDateTime="2005-02-27T12:00:00" LatestDateTime="2005-02-
27T16:00:00" RouteID="3346" PrecedingStopID="58035"
Profitability="3623.669717689545500"
Availability="5.000000000000000" Flexibility="0.260874245104210"
Score="3" StopNumber="3" Type="" ResourceKey="RESOURCE7_01-
20050227"><WindowEvalParms RouteID="3346" PrecedingStopID="58035"
```

```

Profitability="3623.669717689545500"
Availability="5.000000000000000" Flexibility="0.260874245104210"
Score="3" StopNumber="3"
/></DeliveryWindow></DocBOL></DocMasterBOL>

</Request><
/DocFWImport>

```

Output:

```

<?xml version="1.0"?>
<Command>
  <Execute>
    <Status>
      <DocResponse>
        <TotalDocumentsRead>1</TotalDocumentsRead>
        <DocumentsAccepted>1</DocumentsAccepted>
        <DocumentsRejected>0</DocumentsRejected>
        <ResultTime>
          </ResultTime>
        <CommandNo>
          </CommandNo>
        <AuthServer>
          </AuthServer>
        <DataServer>
          </DataServer>
        <ElapsedTime>
          </ElapsedTime>
        <Message>
          </Message>
        <STADMessage>
          <Request>
            <DocBOL MessagePurpose="1002" ProcessCode="40" MaxSlots="10"
            BOLNumber="Order1558" AdviseType="0"
            ScheduleKey="DefaultSchedule" Comment="RANDOM [Slot 3]">

```

```

<UDF ServiceDuration="600" CompanyName="Name1558"
Profit="1000" DistanceRanking="390" Random="0.03" />

<PickupLocation LocationRefNo="Customer1558" Territory="TC2"
Address="1263 LEALAND RD" Address2="" City="MAPLEWOOD"
State="MN" Zip="55109" ServiceDuration="600"
Latitude="45.007480010390282" Longitude="-93.047183901071548"
GeocodingPolicy="0" GeocodeAddress="1263 Lealand Rd"
GeocodeCity="Maplewood" GeocodeState="MN" GeocodeZip="55109"
GeocodeLongitude="-93.047183901071548"
GeocodeLatitude="45.007480010390282" GeocodeType="NORMAL"
GeocodeScore="100" GeocodeSource="DCA3456789.lmb"
GeocodeQuality="0"
GeocodeRelativePosition="0.403225809335709" GeocodeFlags=""
Country="US">

  <LocationWindow EarliestTime="1900-01-01T8:00"
LatestTime="1900-01-01T17:00" EarliestDate="1900-01-01T"
LatestDate="1900-01-01T" Type="" Frequency="" />

  <UDF Company="Name1558" ParkingTime="" Comment1=""
Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="390"
Random=" 0.20 " Flags="" />

</PickupLocation>

<DeliveryLocation LocationRefNo="Customer1558"
Territory="TC2" Address="1263 LEALAND RD" Address2=""
City="MAPLEWOOD" State="MN" Zip="55109"
ServiceDuration="600" Latitude="45.007480010390282"
Longitude="-93.047183901071548" GeocodingPolicy="0"
GeocodeAddress="1263 Lealand Rd" GeocodeCity="Maplewood"
GeocodeState="MN" GeocodeZip="55109" GeocodeLongitude="-
93.047183901071548" GeocodeLatitude="45.007480010390282"
GeocodeType="NORMAL" GeocodeScore="100"
GeocodeSource="DCA3456789.lmb" GeocodeQuality="0"
GeocodeRelativePosition="0.403225809335709"
GeocodeFlags="" Country="US">

  <UDF Company="Name1558" ParkingTime="" Comment1=""
Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="390"
Random=" 0.20 " Flags="" />

</DeliveryLocation>

<BillToLocation>

<UDF />

</BillToLocation>

```

```

<BOLLine BOLLineNumber="1" ItemQty="1" ItemDescription=""
TotalWeight="9" TotalVolume="2">

<UDF Profit="125" ServiceDuration="600" Requirements=""
ProductKey="Product C" Random=" 0.34 " />

</BOLLine>

<DeliveryWindow SlotID="3" AdviseResponseID="1"
EarliestDateTime="2005-02-27T12:00:00"
LatestDateTime="2005-02-27T16:00:00" RouteID="3346"
PrecedingStopID="58035"
Profitability="3623.669717689545500"
Availability="5.000000000000000"
Flexibility="0.260874245104210" Score="3" StopNumber="3"
Type="" ResourceKey="RESOURCE7_01-20050227">

<WindowEvalParms RouteID="3346" PrecedingStopID="58035"
Profitability="3623.669717689545500"
Availability="5.000000000000000"
Flexibility="0.260874245104210" Score="3" StopNumber="3"
/>

</DeliveryWindow>

<Output>

<parmTaskStatus>OK</parmTaskStatus>

</Output>

<Status>

<Result>"SUCCESS"</Result>

  <Message>

    <Text>"BOL has been confirmed and saved"</Text>

  </Message>

</Status>

</DocBOL>

</Request>

</STADMessage>

<Result>SUCCESS</Result>

</DocResponse>

</Status>

</Execute>

</Command>

```

Advising and Confirming BOL's

BOL Documents can be Advised and Confirmed. In this case, the Message Purpose is 'Add/Change' and the Process Code is '50'.

The Confirm will be done using the best Time Slot returned during the Advise call.

If successful, Shipper TAD will return the BOL with a success message. If failed, only the BOL failure message will be returned.

```
- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword" />

- <Request>

  - <DocMasterBOL>

    - <DocBOL MessagePurpose="Required"
      ProcessCode="Required in Reservations model"
      ScheduleKey="Required in Reservations Model"
      AdviseType=" Required in Reservations Model"
      StartDate="" EndDate="" MaxSlots=""
      ReturnRoutes="" BOLID="" BOLNumber="Required" >

      <UDF />

    - <PickupLocation LocationID=""
      LocationRefNo="Required" CompanyName=""
      LocationType="" Description=""
      Address="Required if no Long and Lat"
      Address2="" City="Required if no Long and Lat"
      State="Required if no Long and Lat"
      Zip="Required if no Long and Lat"
      Country="Required if no Long and Lat"
      TimeZone="" ContactName="" EmailAddress=""
      PhoneNumber="" FaxNumber=""
      Longitude="Required if no full address"
      Latitude="Required if no full address"
      GeocodingPolicy="" LocationZone=""
      AddressType="" ServiceDuration=""
      WorkgroupValue="" ModifiedBy="" ModifyDate=""
      LocationName="" Comment="" LocationCode=""
```

```

Territory="Required in the Reservations Model
if IgnoreTerritoryInd is off" GeoSource=""
GeoScore="" GeoOneCell=""
GeoRelativePosition="" GeoFlags="">

<LocationWindow TimeWindowType=""
  EarliestDateTime="" LatestDateTime=""
  EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor=""
  VariationDuration="" />

<UDF />

</PickupLocation>

- <DeliveryLocation LocationID=""
  LocationRefNo="Required" CompanyName=""
  LocationType="" Description=""
  Address="Required if no Long and Lat"
  Address2="" City="Required if no Long and Lat"
  State="Required if no Long and Lat"
  Zip="Required if no Long and Lat"
  Country="Required if no Long and Lat"
  TimeZone="" ContactName="" EmailAddress=""
  PhoneNumber="" FaxNumber=""
  Longitude="Required if no full address"
  Latitude="Required if no full address"
  GeocodingPolicy="" LocationZone=""
  AddressType="" ServiceDuration=""
  WorkgroupValue="" ModifiedBy="" ModifyDate=""
  LocationName="" Comment="" LocationCode=""
  Territory="Required in the Reservations Model
  if IgnoreTerritoryInd is off" GeoSource=""
  GeoScore="" GeoOneCell=""
  GeoRelativePosition="">

<LocationWindow TimeWindowType=""
  EarliestDateTime="" LatestDateTime=""
  EarliestTime="" LatestTime=""
  EarliestDate="" LatestDate="" Frequency=""
  Comment="" ProfitFactor=""
  VariationProfitFactor=""
  VariationDuration="" />

```

```

    <UDF />

  </DeliveryLocation>

- <PickupWindow TimeWindowID="" ParentRecordID=""
  ParentRecordType="" TimeWindowType=""
  EarliestDateTime="Required for Confirm Model"
  LatestDateTime="Required for Confirm Model"
  EarliestTime="" LatestTime="" EarliestDate=""
  LatestDate="" Frequency="" Comment=""
  ProfitFactor="" VariationProfitFactor=""
  VariationDuration="" ModifiedBy=""
  ModifyDate="">

  <WindowEvalParms RouteID="Output
    Reservations Model and Required for
    Confirm" PrecedingStopID="Output
    Reservations Model and Required for
    Confirm" Profitability="Output
    Reservations Model" Availability="Output
    Reservations Model" Flexibility="Output
    Reservations Model" Score="Output
    Reservations Model" StopNumber="Output
    Reservations Model" />

  </PickupWindow>

- <DeliveryWindow TimeWindowType=""
  EarliestDateTime="Required for Confirm Model"
  LatestDateTime="Required for Confirm Model"
  EarliestTime="" LatestTime="" EarliestDate=""
  LatestDate="" Frequency="" Comment=""
  ProfitFactor="" VariationProfitFactor=""
  VariationDuration="" >

  <WindowEvalParms RouteID="Output
    Reservations Model and Required for
    Confirm" PrecedingStopID="Output
    Reservations Model and Required for
    Confirm" Profitability="Output
    Reservations Model" Availability="Output
    Reservations Model" Flexibility="Output
    Reservations Model" Score="Output
    Reservations Model" StopNumber="Output
    Reservations Model and Required for
    Confirm" />

```

```

        </DeliveryWindow>

        - <BOLLine BOLLineNumber="Required"
          ItemQty="Required" TotalWeight=" Required"
          TotalVolume="" >

          <UDF />

        </BOLLine>

    </DocBOL>

</DocMasterBOL>

</Request>

</DocFWImport>

```

Example of an Advise/Confirm:

Listener:

<http://<server-name>/stad/listener/DocBOLAdviceConfirmListener.asp>

Input: DocMasterBOL

MessagePurpose="1002"

ProcessCode="50"

Delivery AdviseType="0" example:

```

<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM"
extDocControlID="LNOSFWAnalyzer"
CompanyName="defaultOrganization" LoginName="defaultOrganization-
FWAdmin" Password="cs"></Header>

<Request>

<DocMasterBOL><DocBOL MessagePurpose="1002" ProcessCode="50"
MaxSlots="10" BOLNumber="STRLLL" AdviseType="0"
ScheduleKey="DefaultSchedule" StartDate="2007-01-23T012:00:00"
EndDate="2007-01-23T14:00:00"><UDF ServiceDuration="600"
CompanyName="Name1558" Profit="1000" DistanceRanking="390"
Random="0.03" /><PickupLocation LocationRefNo="Customer1558"
Territory="TC2" Address="1263 LEALAND RD" Address2=""
City="MAPLEWOOD" State="MN" Zip="55109" ServiceDuration="600"
Latitude="" Longitude="" GeocodingPolicy="0" ><LocationWindow
EarliestTime="1900-01-01T8:00" LatestTime="1900-01-01T17:00"
EarliestDate="1900-01-01T" LatestDate="1900-01-01T" Type=""
Frequency="" /><UDF Company="Name1558" ParkingTime="" Comment1=""

```

```

Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="390"
Random=" 0.20 " Flags="" /></PickupLocation><DeliveryLocation
LocationRefNo="Customer1558" Territory="TC2" Address="1263
LEALAND RD" Address2="" City="MAPLEWOOD" State="MN" Zip="55109"
ServiceDuration="600" Latitude="" Longitude=""
GeocodingPolicy="0" ><UDF Company="Name1558" ParkingTime=""
Comment1="" Profit="2500" GeocodeScore="" GeocodeLatitude=""
GeocodeLongitude="" GeocodeSource="" DistanceRanking="390"
Random=" 0.20 " Flags="" /></DeliveryLocation><BillToLocation
><UDF /></BillToLocation><BOLLine BOLLineNumber="1" ItemQty="1"
ItemDescription="" TotalWeight="9" TotalVolume="2" ><UDF
Profit="125" ServiceDuration="600" Requirements=""
ProductKey="Product C" Random=" 0.34 " /></BOLLine>
</DocBOL></DocMasterBOL>

</Request>

</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
</ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage><Status><Result>SUCCESS</Result><Count>0</Count><Res
ultTime>05-12-09 08:58:26
EST</ResultTime><CommandNo>CMD06BD245B0F000000EE043997F720000002
2</CommandNo><AuthServer>SVRATFLEET2:LNOSFW</AuthServer><DataServ
er>SVRATFLEET2:DCF</DataServer><ElapsedTime>328</ElapsedTime></St
atus></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

Requesting Tasks to be executed via Business Documents

Descartes Route Planner allows users to request specific tasks to be executed via Business Documents. These tasks can consist of multiple commands in one single request.

The current Request Tasks that Descartes Route Planner supports are:

Request for **Moving** Data from one Schedule Key to Another. The most common use for this task includes the idea of moving Routes and Orders in a phased schedule model. For example, users may have Schedules for Reservations, Planning, Execution, and Archive. When data needs to move from Reservations to Planning, or to Execution, the Request Task document comes very handy.

Supported Documents include:

- DocRoute
- DocMasterBOL (will move unassigned orders)

Request for **Removing** Data given a criteria set. This request allows users to remove a data set given a set of criteria. For example, users may want to remove any data that belongs to a given schedule key, or certain date value.

Supported Documents include

- DocResource
- DocMasterBOL
- DocBucket

Request for **Retrieving** Data given a criteria set. Similar to the task above, users can retrieve data that match a given criteria set.

Supported Documents include:

- DocResource
- DocMasterBOL
- DocBucket
- DocSchedule
- DocRouteWDirections

Request for **Unassigning** Orders given a criteria set. Users can unassign Orders that match a given criteria set.

Supported Documents include:

- DocMasterBOL

The Request Task is also considered a Business Document in the Descartes Route Planner environment.

Below is a brief description of the DocRequestTask xml Business Document.

DocRequestTask

The DocRequestTask document allows users to submit requests to Descartes Route Planner to be executed. The purpose of this document is to allow the definition of a criteria set to be used in order to execute the requested task.

Here is a quick definition of what a DocRequestTask might look like:

```
- <DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

- <Request>
  - <DocRequestTask ScheduleKey="" MessagePurpose="1003,
    1004 or 1005" ProcessCode="">

    - <DocCriteria>

      <DocRoute Note: This node could be either of the
        Documents Supported (described above)/>

    </DocCriteria>

  </DocRequestTask>

</Request>

</DocFWImport>
```

The DocCriteria node may include:

- DocRoute
- DocRoutewDirections
- DocStop
- DocMasterBOL
- DocBucket
- DocSchedule

There are some special fields that can be used with any of the above documents (only for Message Purpose = "1005" and "1003", Retrieve and Remove):

- **Criteria**
 - Allows users to specify advanced SQL statements (i.e. `FieldName='FieldValue'`, `FieldName LIKE '%FieldValue'`, Where statements, etc.).
- **Date1, DateOperator1, DateValue1, Date2, DateOperator2, and DateValue2**
 - This specific field allows you to query data based on the date portion of a datetime field. This is typically used when data based on date ranges is requested to be retrieved or removed.
 - Date1 or 2: Contains the name of the datetime attribute to be used in the query.
 - DateOperator1 or 2: Contains the name of the operator to be used in the query. Valid values include:
 - LT - Less than
 - LTEQ - Less than or Equal
 - GT - Greater than
 - GTEQ - Greater than or Equal
 - EQ - Equal
 - DateValue1 or 2:
 - This field takes the actual field value to use when executing the query. The date format should be in ISO standards:YYYY-MM-DD.

The logic to apply the DocCriteria node will be illustrated by the following example:

```
<DocCriteria>
  <DocRoute EarliestStartDate="10/14/2004 8:00:00
    AM " InitialLocationKey="Depot1"/>
  <DocRoute EarliestStartDate="10/15/2004 8:00:00
    AM " InitialLocationKey="Depot1"/>
</DocCriteria>
```

In the above example the criteria set is asking for:

Find all Routes where

*{EarliestStartDate="10/14/2004 8:00:00 AM" AND
InitialLocationKey="Depot1"}*

OR

*{EarliestStartDate="10/15/2004 8:00:00 AM" AND
InitialLocationKey="Depot1"}*

So, any attributes defined within the document (Route) will be "And" SQL statements and, if more than one document (Route) is passed then the "OR" SQL statement is applied.

It is important to mention that only the same document type is supported within the DocCriteria node.

Here is a more advanced example that can be used to match the requested task on more complex queries:

```
<DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
    Password="zzPassword"/>

<Request>

  <DocRequestTask ScheduleKey="" MessagePurpose="1005"
    ProcessCode="">

    <DocCriteria>

      <DocBucket ScheduleKey="" Criteria="bucketid<>3443" Date1="
        EarliestDate" DateOperator1="GTEQ" DateValue1="2005-03-25"
        Date2=" EarliestDate " DateOperator2=" LTEQ "
        DateValue2="2005-03-26" />

    </DocCriteria>

  </DocRequestTask>

</Request>

</DocFWImport>
```

The above example represents a DocRequestTask that will perform the following operations:

- **MessagePurpose:** 1005 -Retrieve
- **ProcessCode:** empty -Will operate synchronously
- **DocCriteria:** DocBucket -Retrieves Buckets from FW using the following criteria:
 - **Criteria:** BucketID<>3443 (Retrieve Buckets different from ID 3443)
 - **Date Fields:** Will Return Buckets where BucketID<>3443 and EarliestDate is between 2005-03-25 and 2005-03-26.

The DocRequestTask document is multi-purpose. Drawbridge will take this document and post it to the intended application, in this case Fleetwise, to execute the requested task.

The ShipperTAD Listeners will take care of processing this information and executing the required tasks in FW and publish back a result when required.

The DocRequestTask business document may contain the following nodes:

DocRequestTask node. This node will contain the ScheduleKey to be used when selecting data as well as the task logic to be executed. Required Fields:

- ScheduleKey
- MessagePurpose
- ProcessCode
- DocCriteria Supports
- DocRoute

The DocRoute attributes specified in this node will be used as a criteria set to query the routes to retrieve. If more than one attribute is passed in, then this will be interpreted as a 'And' clause. If multiple DocRoute nodes are passed in, then the several DocRoute nodes will be interpreted as an "Or" clause.

DocStop

The DocStop attributes specified in this node will be used as a criteria set exactly the same way as described above for the DocRoute. It cannot be used in combination with a ProcessCode= "25".

DocRequestTask Using Specified Criteria Set

With the DocRequestTask business document, users can also request resources using a specified criteria set.

The process of Retrieving Resources can be performed via HTTP post. A DocRequestTask.xml document should be posted to the specified Listener below. The response is a DocRouteDetail.xml document. The publish location is based on the application configuration path specified in Descartes Route Planner.

Input

TOE Listener: DocRequestTaskCombinedListener.asp

The following file can be used as input to request routes. In the example below, the Request node contains:

DocRequestTask node: This node contains the ScheduleKey to be used when retrieving data as well as the task to be executed.

The required fields are:

- **ScheduleKey**

- **MessagePurpose** (1005 = Retrieve)
- **ProcessCode** (25=Publish or Empty)
- **DocCriteria Supports DocResource:** The DocResource attributes specified in this node are used as a criteria set to query the resources for retrieval. If more than one attribute is passed in, then this will be interpreted as an "And" clause. If multiple DocResources nodes are passed in, then several DocResource nodes will be interpreted as an "Or" clause.

```
<DocFWImport>
  <Header senderID="PYLE"    SendDateTime="09/09/2014 2:10:04 PM"
    CompanyName="mci2" LoginName="FW-Admin" Password="cs"/>
  <Request>
    <DocRequestTask ScheduleKey="AVLDemo_14.1.3.8" MessagePurpose="1005"
      ProcessCode="25">
      <DocCriteria>
        <DocResource ScheduleKey="AVLDemo_14.1.3.8 " Criteria="
          ResourceKey='ResABC ' and DriverKey = 'Dumy_driver1' " />
      </DocCriteria>
    </DocRequestTask>
  </Request>
</DocFWImport>
```

Output

The following metrics are included in the output XML.

FWResource

- ResourceKey
- Name
- InitialLocationKey
- FinalLocationKey
- Territory
- DriverKey
- TrailerKey
- TractorKey
- EarliestStartDate
- LatestStartDate
- EarliestEndDate
- LatestEndDate
- Measure1-9
- Measure1-9Factor
- Measure1-9RechargeRate

- MaxStops
- Requirements
- Profit
- MaxElapsedDuration
- MaxDistance

FWRouteTemplate

- HazMatType
- Weight
- Height
- Length
- Width

FWRoute

- ScheduleKey
- RouteID
- ProjectedTerritory
- ProjectedProfit
- ProjectedDistance
- ProjectedOnBoard(1-9)
- ProjectedElapsedTime
- ProjectedSlackTime
- ProjectedTimeDriven
- ProjectedWorkTime
- NumberOfStops
- ProjectedDepartedDate
- ProjectedArrivedDate
- PlannedDepartedDate
- PlannedArrivedDate
- ActualDepartedDate
- ActualArrivedDate
- ProjectedBreakTime
- ProjectedRestTime
- ProjectedWaitTime
- PlannedTimeDriven
- PlannedDistance
- PlannedElapsedTime
- ActualDistance
- ActualElapsedTime
- ProfileCost

- OnBoardMeasure1-9

Removal of Routes by Criteria Using DocRequestTask

The DocRequestTaskListener allows users to remove routes by criteria request. The following file can be used as input to remove routes.

Listener: DocRequestTaskListener.asp

MessagePurpose: 1003

ProcessCode: 25

Input:

```
<DocFWImport>
<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM" extDocControlID="zzBOLSourceMessageID"
CompanyName="MyCompany001" LoginName="RMoore" Password="zzPassword"/>
<Request>
<DocRequestTask ScheduleKey="Required" MessagePurpose="1003"
ProcessCode="Empty or 25">
<DocCriteria>
<DocRoute Criteria="Territory='A' and ScheduleKey='Testing'" Date1=""
DateOperator1="" DateValue1="" Date2="" DateOperator2="" DateValue2=""/>
</DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>
```

Move Routes from One Schedule to Another

Users have the ability of requesting moving Routes from one Schedule to another using a criteria set.

The process of executing this task will be:

A DocRequestTask.xml document should be posted to the STAD Listener.

STAD will connect to the backend of FW and execute the move of Routes from one Schedule to another.

Input:

TOE Listener: DocRequestTaskListener.asp

The following file can be used as input to request the move of Routes. In the example below the Request node contains:

- **DocRequestTask node** - This node will contain the ScheduleKey to be used when retrieving data as well as the task to be executed.

Required Fields:

- **ScheduleKey** (This will be the Target Schedule)
- **MessagePurpose** (1004 = Change)
- **ProcessCode** (80=Move Schedule)
- **DocCriteria**
 - Supports DocRoute and DocStop - The DocRoute or DocStop attributes specified in this node will be used as a criteria set to query the routes for retrieval. If more than one attribute is passed in, this action will be interpreted as an 'And' clause. Several DocRoute nodes will be interpreted as an "Or" clause.

Example of a DocRoute:**Input:**

```

<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM"
extDocControlID="LNOSFWAnalyzer" CompanyName="FW" LoginName="FW-
Admin" Password="cs"></Header>

<Request>

<DocRequestTask ScheduleKey="RecyclingSchedule"
MessagePurpose="1004" ProcessCode="80">

<DocCriteria>

<DocRoute ScheduleKey="DispatchingSchedule"
Criteria="Territory='TC1'" Datel="" DateOperator1=""
DateValue1="" Date2="" DateOperator2="" DateValue2="" >
</DocRoute>
</DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
<TotalDocumentsRead>1</TotalDocumentsRead>
<DocumentsAccepted>1</DocumentsAccepted>

```

```

        <DocumentsRejected>0</DocumentsRejected>
    <ResultTime>06-01-30 16:57:30 EST</ResultTime>
    <CommandNo>CMD06BD245B0F000000032043DE7DB700000031</CommandNo>
    <AuthServer>SVRATFLEET2:LNOSFW</AuthServer>
    <DataServer>SVRATFLEET2:DCF</DataServer>
    <ElapsedTime>2875</ElapsedTime>
    <Message></Message>
    <STADMessage></STADMessage>
    <Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

Example of a DocStop:

Input:

```

<DocFWImport>
    <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM"
    extDocControlID="LNOSFWAnalyzer"
    CompanyName="defaultOrganization" LoginName="defaultOrganization-
    FWAdmin" Password="cs"></Header>
    <Request>
        <DocRequestTask ScheduleKey="DispatchingSchedule"
        MessagePurpose="1004" ProcessCode="80">
            <DocCriteria>
                <DocStop ScheduleKey="DefaultSchedule"
                Criteria="orderkey='order_48'" Date1="" DateOperator1=""
                DateValue1="" Date2="" DateOperator2="" DateValue2="" >
            </DocStop>
            </DocCriteria>
        </DocRequestTask>
    </Request>
</DocFWImport>

```

Output:

The DocRequestTask will update any Routes/Stops that match the input criteria with the new ScheduleKey. The following message is returned:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
<ResultTime>06-01-30 16:40:48 EST</ResultTime>
<CommandNo>CMD06BD245B0F000000032043DE79CE0000001E</CommandNo>
<AuthServer>SVRATFLEET2:LNOSFW</AuthServer>
<DataServer>SVRATFLEET2:DCF</DataServer>
<ElapsedTime>1672</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>
```

Move Routes from One Schedule to Another and Publish

Same as the first case, the only difference in this case is the process code is now '25'.

Input:

TOE Listener: DocRequestTaskPublishListener.asp

```
<DocFWImport>

<Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM"
extDocControlID="LNOSFWAnalyzer" CompanyName="FW" LoginName="FW-
Admin" Password="cs"></Header>

<Request>

<DocRequestTask ScheduleKey="DispatchingSchedule"
MessagePurpose="1004" ProcessCode="25">

<DocCriteria>

<DocRoute ScheduleKey="RecyclingSchedule"
Criteria="Territory='TC1'" Datel="" DateOperator1=""
DateValue1="" Date2="" DateOperator2="" DateValue2="" >
```

```

</DocRoute>
</DocCriteria>
</DocRequestTask>
  </Request>
</DocFWImport>

```

Output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
<ResultTime>06-01-30 17:01:25 EST</ResultTime>
<CommandNo>CMD06BD245B0F000000032043DE7EA300000037</CommandNo>
<AuthServer>SVRATFLEET2:LNOSFW</AuthServer>
<DataServer>SVRATFLEET2:DCF</DataServer>
<ElapsedTime>1750</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

This DocRequestTask will also publish all the Routes affected by this update and publish the DocRoute file with the following name structure:

DocRoutePlanner-3309608968.2682.xml

See an example of this file in process number 3.

Request Routes

Users have the ability of requesting routes using a criteria set that will allow them to retrieve Routes using the DocRequestTask.

The process of Retrieving Routes can be done via http post.

A DocRequestTask.xml document should be posted to the specified Listener below and its response is a DocRouteDetail.xml document.

The publish location is based on the application configuration path specified in Descartes Route Planner.

Input:

TOE Listener: DocRouteRequestListener.asp

The following file can be used as input to request Routes. In the example below the Request node contains:

- **DocRequestTask node** - This node will contain the ScheduleKey to be used when retrieving data as well as the task to be executed.
Required Fields:
 - **ScheduleKey**
 - **MessagePurpose** (1005 = Retrieve)
 - **ProcessCode** (25=Publish)
 - **DocCriteria**
 - Supports DocRoute - The DocRoute attributes specified in this node will be used as a criteria set to query the routes for retrieval. If more than one attribute is passed in, then this will be interpreted as an 'And' clause. If multiple DocRoute nodes are passed in, then several DocRoute nodes will be interpreted as an "Or" clause.

```
<?xml version="1.0" encoding="utf-8"?><DocFWImport>
<Header CompanyName="FW" LoginName="FW-Admin" Password="cs"
ReceiverID="Drawbridge" SendDateTime="2006-02-
07T14:28:15.46+01:00" extDocControlID="zzBOLSourceMessageID"
senderID="LNOSFWSimulator"/>
<DocRequestTask MessagePurpose="1005" ProcessCode="25"
ScheduleKey="Testing">
<DocCriteria>
<DocRoute Criteria="Territory='A' and ScheduleKey='Testing'"
Date1="" DateOperator1="" DateValue1="" Date2="" DateOperator2=""
DateValue2=""/>
</DocCriteria>
</DocRequestTask>
</DocFWImport>
```

Output:

The listener will return this output:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>2</TotalDocumentsRead>
  <DocumentsAccepted>2</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
  <ResultTime>06-01-30 17:21:02 EST</ResultTime>
  <CommandNo>CMD06BD245B0F000000032043DE833D00000049</CommandNo>
  <AuthServer>SVRATFLEET2:LNOSFW</AuthServer>
  <DataServer>SVRATFLEET2:DCF</DataServer>
  <ElapsedTime>1812</ElapsedTime>
  <Message></Message>
  <STADMessage></STADMessage>
  <Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>
```

This DocRequestTask will retrieve a list of all the Routes that Match ScheduleKey= "DefaultSchedule" and Territory= "TC1" or Territory= "TC2" and publish the DocRoute file with the following name:

DocRoutePlanner-3309608968.2682.xml

Here is a sample file:

```
<DocFWImport><Header senderID="planner"
receiverID="planner"/><Request><DocRoute RouteID="2878" ScheduleID="1"
ResourceID="4239" ScheduleKey="DefaultSchedule"
ResourceKey="RESOURCE9_01-20041105" CreatedBy="1" CreatedDate="2004-11-
05T14:36:54" ProjectedDistance="0" EarliestEndDate="2004-11-
05T22:35:00" EarliestStartDate="2004-11-05T06:00:00"
EarlyRestWaitThreshold="1" ProjectedElapsedTime="0"
LastReportedDate="1901-01-01T00:00:00" LatestEndDate="2004-11-
05T22:35:00" LatestEndPenalty="1000" LatestStartDate="2004-11-
05T06:00:00" MaxDwellDuration="35999999" MaxElapsedDuration="35999999"
MaxNumberOfBreaks="1" MaxStops="1000" Measure1="50000"
Measure1Factor="1" Measure2Factor="1" Measure3Factor="1"
Measure4Factor="1" Measure5Factor="1" Measure6Factor="1"
Measure7Factor="1" Measure8Factor="1" Measure9Factor="1"
```

```

MinTravelDistance="150" ProjectedBreaks="0" ProjectedRests="0"
ProjectedDepartedDate="2004-11-05T06:00:00" ProjectedArrivedDate="2004-
11-05T06:00:00" Requirements="A" ServiceSpeedFactor="1"
ProjectedBreakTime="0" ProjectedRestTime="0" ProjectedSlackTime="0"
SpeedFactor="0" ProjectedTimeDriven="0" UseFullWaitAsRestInd="True"
ProjectedWaitTime="0" ProjectedWorkTime="0" Territory="TC1"
ProjectedViolation="0" ProjectedProfit="0" ModifyCount="16"><FWStop
StopID="56792" RouteID="2878" GeoStopNumber="0" StopNumber="0"
ResourceKey="RESOURCE9_01-20041105" LocationKey="Store9" CreatedBy="1"
CreatedDate="2004-11-05T14:36:54" ProjectedDeltaPenalty="0"
CustomerStopNumber="0" DeliveryRatio1="1" DeliveryRatio2="1"
DeliveryRatio3="1" DeliveryRatio4="1" DeliveryRatio5="1"
DeliveryRatio6="1" DeliveryRatio7="1" DeliveryRatio8="1"
DeliveryRatio9="1" ProjectedDistance="0" Latitude="45.0632344186306"
Longitude="-93.306680917739868" ProjectedBreaks="0" ProjectedRests="0"
PreServiceDuration="0" ServiceDuration="0" PhysicalStopNumber="0"
ProjectedArrivalDate="2004-11-05T06:00:00" ProjectedBegunDate="2004-11-
05T06:00:00" ProjectedCompletedDate="2004-11-05T06:00:00"
ProjectedDeltaElapsedTime="0" ProjectedDeltaDistance="0"
ProjectedDepartDate="2004-11-05T06:00:00" ProjectedElapsedTime="0"
Status="1" ProjectedTimeDriven="0" Type="0" ProjectedBreakTime="0"
ProjectedRestTime="0" ProjectedWaitTime="0" ProjectedWorkTime="0"
ProjectedSlackTime="0" Territory="TC1" ProjectedDeltaTimeDriven="0"
ProjectedProfit="0" ProjectedViolation="0" LocationType="CUSTOMER"
State="1" OnBoardMeasure1="0" OnBoardMeasure2="0" OnBoardMeasure3="0"
OnBoardMeasure4="0" OnBoardMeasure5="0" OnBoardMeasure6="0"
OnBoardMeasure7="0" OnBoardMeasure8="0"
OnBoardMeasure9="0"></FWStop><FWStop StopID="56793" RouteID="2878"
GeoStopNumber="0" StopNumber="1" ResourceKey="RESOURCE9_01-20041105"
LocationKey="Store9" CreatedBy="1" CreatedDate="2004-11-05T14:36:54"
ProjectedDeltaPenalty="0" CustomerStopNumber="0" DeliveryRatio1="1"
DeliveryRatio2="1" DeliveryRatio3="1" DeliveryRatio4="1"
DeliveryRatio5="1" DeliveryRatio6="1" DeliveryRatio7="1"
DeliveryRatio8="1" DeliveryRatio9="1" ProjectedDistance="0"
Latitude="45.0632344186306" Longitude="-93.306680917739868"
ProjectedBreaks="0" ProjectedRests="0" PreServiceDuration="0"
ServiceDuration="0" PhysicalStopNumber="0" ProjectedArrivalDate="2004-
11-05T06:00:00" ProjectedBegunDate="2004-11-05T06:00:00"
ProjectedCompletedDate="2004-11-05T06:00:00"
ProjectedDeltaElapsedTime="0" ProjectedDeltaDistance="0"
ProjectedDepartDate="2004-11-05T06:00:00" ProjectedElapsedTime="0"
Status="1" ProjectedTimeDriven="0" Type="1" ProjectedBreakTime="0"
ProjectedRestTime="0" ProjectedWaitTime="0" ProjectedWorkTime="0"
ProjectedSlackTime="0" Territory="TC1" ProjectedDeltaTimeDriven="0"
ProjectedProfit="0" ProjectedViolation="0" LocationType="CUSTOMER"
State="1" OnBoardMeasure1="0" OnBoardMeasure2="0" OnBoardMeasure3="0"
OnBoardMeasure4="0" OnBoardMeasure5="0" OnBoardMeasure6="0"
OnBoardMeasure7="0" OnBoardMeasure8="0"
OnBoardMeasure9="0"></FWStop></DocRoute></DocRequest></DocFWImport>

```

Request Route Directions

This DocRequest task works the same as above. The only difference is the ProcessCode= "70".

Input:

TOE Listener: DocRouteDirectionsListener.asp

```
<DocFWImport>
  <Header
    senderID="Mycompany001"
    ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
    LoginName="FW-Admin" Password="cs">
  </Header>
    <Request>
      <DocRequestTask ScheduleKey="DefaultSchedule"
        MessagePurpose="1005" ProcessCode="70">
        <DocCriteria>
          <DocRouteWithDirections
            ResourceKey="RESOURCE15_02-20050225"/>
        </DocCriteria>
      </DocRequestTask>
    </Request>
  </DocFWImport>
```

Output:

The listener will return this output:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
  <ResultTime>06-01-30 17:31:07 EST</ResultTime>
  <CommandNo>CMD06BD245B0F000000032043DE859B0000005A</CommandNo>
```

```

<AuthServer>SVRATFLEET2:LNOSFW</AuthServer>
<DataServer>SVRATFLEET2:DCF</DataServer>
<ElapsedTime>1000</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

This DocRequestTask will retrieve a list of all the Routes that Match ScheduleKey= "DefaultSchedule" and ResourceKey= "RESOURCE15_02-20050225" and publish the DocDirections file with the follo following name:

DocDirectionsPlanning-3309617564.66693.xml

Here is a sample file:

```

<DocFWImport>
<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID" CompanyName="MyCompany001"
LoginName="RMoore" Password="zzPassword"/>
<Request>
<parmDocDirections>
<DocDirections RouteID="2833" ResourceKey="test23"
ScheduleKey="DefaultSchedule" DriverKey="testDriver" LegID="1"
FromStopID="56705" ToStopID="56707" FromOrderKey="123.87654.OD"
ToOrderKey="" FromLatitude="40.815656337142002" FromLongitude="-
73.9497470000000002" ToLatitude="40.8757409999999998" ToLongitude="-
73.9115180000000001" Distance="5.761648411688000" _nodeID="0"
_parentNodeID="">
  <FWSequence SequenceNumber="1" LegID="1"
StartLatitude="40.815653018653393" StartLongitude="-
73.949730992317200" EndLatitude="40.814129859209061" EndLongitude="-
73.950850144028664" Distance="0.0000000000000000" Time="0"
SeqDescription="Depart from St Nicholas Ter, heading S." _nodeID="0"
_parentNodeID="0" /> ...
  <FWSequence SequenceNumber="18" LegID="1"
StartLatitude="40.875741541385651" StartLongitude="-
73.911517560482025" EndLatitude="40.815653018653393" EndLongitude="-
73.949730992317200" Distance="5.761648411688000" Time="27"
SeqDescription="Arrive at Fort Charles Pl, heading E." _nodeID="17"
_parentNodeID="0" />

```

```

</DocDirections> ...

  <DocDirections RouteID="2833" ResourceKey="test23"
    ScheduleKey="DefaultSchedule" DriverKey="testDriver" LegID="2"
    FromStopID="56707" ToStopID="56708" FromOrderKey="" ToOrderKey=""
    FromLatitude="40.875740999999998" FromLongitude="-
    73.911518000000001" ToLatitude="40.701697000000003" ToLongitude="-
    74.012924999999996" Distance="19.869081373128004" _nodeID="1"
    _parentNodeID="">

    <FWSequence SequenceNumber="1" LegID="2"
      StartLatitude="40.875741541385651" StartLongitude="-
      73.911517560482025" EndLatitude="40.876209922134876" EndLongitude="-
      73.909710086882114" Distance="0.000000000000000" Time="0"
      SeqDescription="Depart from Fort Charles Pl, heading E." _nodeID="0"
      _parentNodeID="1" />

    <FWSequence SequenceNumber="18" LegID="2"
      StartLatitude="40.701698362827301" StartLongitude="-
      74.012925513088703" EndLatitude="40.875741541385651" EndLongitude="-
      73.911517560482025" Distance="14.107432961440002" Time="64"
      SeqDescription="Arrive at State St / Peter Minuit Plz, heading E."
      _nodeID="17" _parentNodeID="1" />

  </DocDirections>

</parmDocDirections>

</Request>

</DocFWImport>

```

Request Route By Criteria

This DocRequest task requests a route without publishing it:

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE" SendDateTime="12/9/2005
  9:35:19 AM" extDocControlID="LNOSFWAnalyzer" CompanyName="fw"
  LoginName="fw-Admin"
  Password="cs"></Header>
  <Request>
    <!-- target schedule -->
    <DocRequestTask MessagePurpose="1005"
      ProcessCode="20" ReturnCommandXMLOnly="false">
      <DocCriteria ReturnCommandXMLOnly="true">>
      <DocRoute Criteria="ResourceKey in ('JMTEST1','456','789')"/>
    </DocCriteria>
  </DocRequestTask>
</Request>
</DocFWImport>

```

Request Stop to Stop Directions

This DocRequest task works the same as above. The only difference is the ProcessCode= "70" and the Criteria node now contains the From and To DocStop.

Input:**TOE Listener: DocStopDirectionsListener.asp**

```
<DocFWImport>

<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID" CompanyName="MyCompany001"
LoginName="RMoore" Password="zzPassword"/>

</Header>

<Request>

<DocRequestTask

ScheduleKey="DefaultSchedule"

MessagePurpose="1005"

ProcessCode="70">

<DocCriteria>

<DocStop StopId="Required if no X,Y or Order Key"
OrderKey="Required if no X,Y or StopId" Longitude="Required if no
OrderKey or StopId" Latitude="Required if no OrderKey or StopId">

</DocStop>

<DocStop StopId="Required if no X,Y or Order Key"
OrderKey="Required if no X,Y or StopId" Longitude="Required if no
OrderKey or StopId" Latitude="Required if no OrderKey or StopId">

</DocStop>

</DocCriteria>

</DocRequestTask>

</Request>

</DocFWImport>
```

Example**Input:**

```
<DocFWImport>
```

```

<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
LoginName="FW-Admin" Password="cs"/>
</Header>
<Request>
<DocRequestTask ScheduleKey="DefaultSchedule"
MessagePurpose="1005"
ProcessCode="70">
<DocCriteria>
<DocStop OrderKey="ORDER_3">
</DocStop>
<DocStop OrderKey="ORDER_186">
</DocStop>
</DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>

```

Output:

The listener will return this output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocImportResults>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
</DocImportResults><Result>SUCCESS</Result>
</Status></Execute></Command>

```

If there are any errors, the DocImportResults node will have the failure message.

This DocRequestTask will retrieve a list of all the Stops that Match the passed criteria and publish the DocDirections file with the following name:

DocDirectionsPlanning-3309617564.66693.xml

Here is a sample file:

```

<DocFWImport>
  <Header senderID="Planning" receiverID="Planning" />
<Request>
  <parmDocDirections>
    <DocDirections RouteID="2833" ResourceKey="test23"
      ScheduleKey="DefaultSchedule" DriverKey="testDriver" LegID="1"
      FromStopID="56705" ToStopID="56707" FromOrderKey="123.87654.OD"
      ToOrderKey="" FromLatitude="40.815656337142002" FromLongitude="-
      73.949747000000002" ToLatitude="40.875740999999998" ToLongitude="-
      73.911518000000001" Distance="5.761648411688000" _nodeID="0"
      _parentNodeID="">
      <FWSequence SequenceNumber="1" LegID="1"
        StartLatitude="40.815653018653393" StartLongitude="-
        73.949730992317200" EndLatitude="40.814129859209061" EndLongitude="-
        73.950850144028664" Distance="0.000000000000000" Time="0"
        SeqDescription="Depart from St Nicholas Ter, heading S." _nodeID="0"
        _parentNodeID="0" /> ...
      <FWSequence SequenceNumber="18" LegID="1"
        StartLatitude="40.875741541385651" StartLongitude="-
        73.911517560482025" EndLatitude="40.815653018653393" EndLongitude="-
        73.949730992317200" Distance="5.761648411688000" Time="27"
        SeqDescription="Arrive at Fort Charles Pl, heading E." _nodeID="17"
        _parentNodeID="0" />
    </DocDirections>
  </parmDocDirections>
</Request>
</DocFWImport>

```

Retrieving Documents using advanced SQL Queries

In this DocRequestTask version, the Message Purpose is 1005 (Retrieve) and the ProcessCode is 25 (publish). These two values will allow users to retrieve data for the following document types:

- DocBucket
- DocResource
- DocMasterBOL

Input:

TOE Listener: DocRequestTaskCombinedListener.asp

```
<DocFWImport>
```

```

<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
LoginName="FW-Admin" Password="cs"/>

<Request>

<DocRequestTask ScheduleKey="" MessagePurpose="1005"
ProcessCode="25">

<DocCriteria>

  <DocResource ScheduleKey="" Criteria="ScheduleKey='Atlanta' "
  Date1="EarliestStartDate" DateOperator1="GTEQ"
  DateValue1="2/27/2005" Date2="EarliestStartDate"
  DateOperator2="LTEQ" DateValue2="2/27/2005" />

</DocCriteria>

</DocRequestTask>

</Request>

</DocFWImport>

```

Output:

If the ProcessCode= "25", the listener will return this output:

```

<?xml version="1.0"?><Command><Execute><Status>

<DocResponse>

  <TotalDocumentsRead>1</TotalDocumentsRead>

  <DocumentsAccepted>1</DocumentsAccepted>

  <DocumentsRejected>0</DocumentsRejected>

<ResultTime></ResultTime>

<CommandNo></CommandNo>

<AuthServer></AuthServer>

<DataServer></DataServer>

<ElapsedTime></ElapsedTime>

<Message></Message>

<STADMessage><?xml version="1.0"?>

<Output>

<Result>SUCCESS</Result>

<Message>Document(s) published successfully.</Message>

</Output></STADMessage>

```

```

<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

And the document will be published at the location where Descartes Route Planner has been configured. In the above example, the document is a DocResource:

Name: DocResourcePlanning-3347632421.0952.xml

```

<DocFWImport>
<Header senderID="SFFODLL" ReceiverID="MyCompany001"
  SendDateTime="10/14/2004 2:10:04 PM"
  extDocControlID="zzBOLSourceMessageID" CompanyName="MyCompany001"
  LoginName="RMoore" Password="zzPassword"/>
<Request>
  <FWResource ResourceID="4784" ResourceKey="RESOURCE15_01-20050225"
    RouteTemplateKey="DefaultRouteTemplate" FinalLocationKey="Store15"
    InitialLocationKey="Store15" ModifiedBy="0" ModifyDate="2005-02-
    25T13:31:46" AllowEarlyRest="False" BreakDuration="0"
    BreakTimeOnDutyInd="True" CompletedFullBonus="0"
    PenaltyPerOrder="0" EarliestEndDate="2005-02-25T17:00:00"
    EarliestStartDate="2005-02-25T07:00:00" EarlyRestWaitThreshold="0"
    .../>
  <FWResource ResourceID="4785" ResourceKey="RESOURCE15_02-20050225"
    RouteTemplateKey="DefaultRouteTemplate" FinalLocationKey="Store15"
    InitialLocationKey="Store15" ModifiedBy="0" ModifyDate="2005-02-
    25T13:31:46" AllowEarlyRest="False" BreakDuration="0"
    BreakTimeOnDutyInd="True" CompletedFullBonus="0"
    PenaltyPerOrder="0" EarliestEndDate="2005-02-25T17:00:00"
    EarliestStartDate="2005-02-25T07:00:00" EarlyRestWaitThreshold="0"
    FirstStopTimeThreshold="0" FullThreshold="0" WaitTimePenalty="0"
    LatestEndDate="2005-02-25T17:00:00" LatestEndPenalty="1000"
    LatestStartDate="2005-02-25T07:00:00" MaxElapsedDuration="0"
    MaxDwellDuration="0" MaxElapsedTimeBeforeBreak="0"
    MaxElapsedTimeBeforeRest="0" MaxDistance="0" MaxNumberOfBreaks="10"
    Measure1="0" Measure1Factor="1" Measure1RechargeRate="0"
    Measure2="0" Measure2Factor="1" ... />
</Request>
</DocFWImport>

```

If the ProcessCode= "", the listener will return this output:

```
<DocFWImport>

  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID" CompanyName="MyCompany001"
    LoginName="RMoore" Password="zzPassword"/>

<Request>

  <FWResource ResourceID="4784" ResourceKey="RESOURCE15_01-20050225"
    RouteTemplateKey="DefaultRouteTemplate" FinalLocationKey="Store15"
    InitialLocationKey="Store15" ModifiedBy="0" ModifyDate="2005-02-
    25T13:31:46" AllowEarlyRest="False" BreakDuration="0"
    BreakTimeOnDutyInd="True" CompletedFullBonus="0"
    PenaltyPerOrder="0" EarliestEndDate="2005-02-25T17:00:00"
    EarliestStartDate="2005-02-25T07:00:00" EarlyRestWaitThreshold="0"
    .../>

  <FWResource ResourceID="4785" ResourceKey="RESOURCE15_02-20050225"
    RouteTemplateKey="DefaultRouteTemplate" FinalLocationKey="Store15"
    InitialLocationKey="Store15" ModifiedBy="0" ModifyDate="2005-02-
    25T13:31:46" AllowEarlyRest="False" BreakDuration="0"
    BreakTimeOnDutyInd="True" CompletedFullBonus="0"
    PenaltyPerOrder="0" EarliestEndDate="2005-02-25T17:00:00"
    EarliestStartDate="2005-02-25T07:00:00" EarlyRestWaitThreshold="0"
    FirstStopTimeThreshold="0" FullThreshold="0" WaitTimePenalty="0"
    LatestEndDate="2005-02-25T17:00:00" LatestEndPenalty="1000"
    LatestStartDate="2005-02-25T07:00:00" MaxElapsedDuration="0"
    MaxDwellDuration="0" MaxElapsedTimeBeforeBreak="0"
    MaxElapsedTimeBeforeRest="0" MaxDistance="0" MaxNumberOfBreaks="10"
    Measure1="0" Measure1Factor="1" Measure1RechargeRate="0"
    Measure2="0" Measure2Factor="1" ... />

</Request>

</DocFWImport>
```

Removing Documents using advanced SQL Queries

In this DocRequestTask version, the Message Purpose is 1003 (Remove) and the ProcessCode is not required. These two values will allow users to remove data for the following document types:

- DocBucket

- DocResource
- DocMasterBOL

Input:**TOE Listener:** DocRequestTaskCombinedListener.asp

```

<DocFWImport>

<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
LoginName="FW-Admin" Password="cs"/>

<Request>

<DocRequestTask ScheduleKey="" MessagePurpose="1003"
ProcessCode="">

<DocCriteria>

  <DocResource ResourceKey="RESOURCE245_03-20050227" Criteria=""
  Date1="" DateOperator1="" DateValue1="" Date2=""
  DateOperator2="" DateValue2="" />

</DocCriteria>

</DocRequestTask>

</Request>

</DocFWImport>

```

Output:

The listener will return this output:

```

<?xml version="1.0"?>
<Output>
<Result>SUCCESS</Result>
<Message>Resource have been removed successfully.</Message>
</Output>

```

Request Route Templates and Generate Resources from a Template

Descartes Route Planner allows users to use Business Documents to Return a list of Route Templates and to Generate Resources from a Template

TOE Listener: DocRequestTaskCombinedListener.asp**Message Purpose:** 1005**Process Code:** 25

Examples:

```
<DocFWImport>
<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM" extDocControlID="zzBOLSourceMessageID"
CompanyName="FW" LoginName="FW-Admin" Password="cs"/>
<Request>
<DocRequestTask ScheduleKey="" MessagePurpose="1005" ProcessCode="25">
<DocCriteria>
<DocRouteTemplate ScheduleKey="" Criteria="ScheduleKey='Atlanta'"
Criteria="" RouteTemplateKey="" />
</DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>
```

Output:

```
<DocFWImport>
<Header senderID="SFFODLL" ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM" extDocControlID="zzBOLSourceMessageID"
CompanyName="MyCompany001" LoginName="RMoore" Password="zzPassword"/>
<Request>
<FWRouteTemplate RouteTemplateID="4784" RouteTemplateKey="RESOURCE15_01-
20050225" .../>
```

Generating Resources using Route Templates

```
<DocFWImport>
<Header senderID="SFFODLL"
ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID"
CompanyName="fw"
LoginName="fw-admin"
Password="cs"/>
<Request>
<DocRequestTask ReturnCommandXMLOnly="true"
MessagePurpose="1002"
ProcessCode="100">
<DocCriteria>
<DocResource
RouteTemplateKey="DefaultRouteTemplate"
MasterRoute="0"
KeyWizardKey="DefaultRscKeyWizard">
<FWResourceItems
```

```

FromDate="2011-7-20T00:00"
ToDate="2011-7-20T00:00"
NoResources="1"/>
</DocResource>
</DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>

```

Generating Resources using ResourceTemplateSets:

```

<DocFWImport>
<Header senderID="SFFODLL"
ReceiverID="MyCompany001"
SendDateTime="10/14/2004 2:10:04 PM"
extDocControlID="zzBOLSourceMessageID"
CompanyName="fw"
LoginName="fw-admin"
Password="cs"/>
<Request>
<DocRequestTask ReturnCommandXMLOnly="true"
MessagePurpose="1002"
ProcessCode="100">
<DocCriteria>
<DocResource
ResourceTemplateSetKey="AB_2"
MasterRoute="0"
KeyWizardKey="DefaultRscKeyWizard">
<FWResourceItems
FromDate="2011-7-20T00:00"
ToDate="2011-7-20T00:00"
NoResources="1"/>
</DocResource>
</DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>

```

Retrieve Order Routing and Execution Information

DocRequestTask can return routing and execution information for orders.

TOE Listener: DocRequestTaskListener.asp

MessagePurpose: 1005 (Retrieve)

ProcessCode: 26

The parameters are described in the following table:

Name	Type	Description
OrderKey="12345"	Nvarchar(50)	The order key that will be used to select the route history
LocationKey="12345"	Nvarchar(50)	This attribute will be used if OrderKey is not passed in. The request will return the Orders history that match this location key within the Start and EndDate range
StartDate="20150101"	datetime	Date/time attribute to define the start of the date range of the order selection
EndDate="20150102"	datetime	Date/time attribute to define the end of the date range of the order selection
ReturnImage="0 or 1"	int	This attribute will determine if the response will return images captured in Field Data attributes. - Will not return images - Will return images
SkipRouteHist="0 or 1"	int	This attribute will determine if the response will return Route History records at all. - Will return Route History - Will not return Route History

Please note the following:

- The range between the StartDate and EndDate values cannot be greater than seven days
- For rescheduled orders, the output will return missed and unassigned orders remaining on the route

Input:

```
<DocFWImport>
  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
  SendDateTime="10/14/2004 2:10:04 PM"
  extDocControlID="zzBOLSourceMessageID"
    CompanyName="MyCompany001" LoginName="RMoore"
  Password="zzPassword"/>
  <Request>
    <DocRequestTask MessagePurpose="1005" ProcessCode="26">
      <DocCriteria>
        <DocMasterBOL OrderKey="12345" LocationKey="12345"
        StartDate="20150101" EndDate="20150102" ReturnImage="0 or 1"
        SkipRouteHist="0 or 1" />
      </DocCriteria>
    </DocRequestTask>
  </Request>
</DocFWImport>
```

Output:

```
<DocResponse TotalDocumentsRead="1" DocumentsAccepted="1"
DocumentsRejected="0" ListenerName="Request_WebService"
ExtDocControlID="zzBOLSourceMessageID" ResultTime="15-10-26 21:24:36
RTT" CommandNo="CMDC1718572426C4D37B90D3F0E1F1A0EB0"
AuthServer="SVRATDV12\sql2008:LNOSFW"
DataServer="SVRATDV12\sql2008:DCF" ElapsedTime="420" Message=""
Result="SUCCESS" RPWSVersion="1.0.0.2">
  <Request>
```

```

    <DocBOL OrderKey="ZSV_Order_X_Test_11444" ScheduleKey="A"
    Type="PICKUP" ItineraryOrderType="0"
    RootOrderKey="ZSV_Order_X_Test_11444">

        <DocStop GeoStopNumber="1" StopNumber="1" ScheduleKey="a"
        OrderKey="ZSV_Order_X_Test_11444" LocationKey="XML_016_TTCustomer1053"
        CreatedDate="5/19/2015 7:45:30 AM" CompletedDate="4/15/2015 1:50:00 PM"
        DepartedDate="4/15/2015 1:50:00 PM" PlannedArrivedDate="5/24/2015
        4:25:11 PM" PlannedBegunDate="5/24/2015 4:26:11 PM"
        PlannedCompletedDate="5/24/2015 4:33:11 PM"
        PlannedDepartedDate="5/24/2015 4:33:11 PM"
        ProjectedDeltaPenalty="3798.183333333333"
        ProjectedArrivalDate="4/15/2015 1:50:00 PM"
        ProjectedBegunDate="4/15/2015 1:50:00 PM"
        ProjectedCompletedDate="4/15/2015 1:50:00 PM"
        ProjectedDepartDate="4/15/2015 1:50:00 PM" Status="3" Type="2"
        ProjectedWaitTime="0" ProjectedSlackTime="36599"
        ProjectedDeltaTimeDriven="455782" ProjectedProfit="1569.957666666667"
        ProjectedViolation="790569" ActualMeasure1="86" ActualMeasure2="93"
        ActualMeasure3="0" ActualMeasure4="0" ActualMeasure5="0"
        ActualMeasure6="0" ActualMeasure7="0" ActualMeasure8="0"
        ActualMeasure9="0" LocationType="CUSTOMER" PlannedStopNumber="1"
        PlannedDistance="7129836" PlannedTimeDriven="455782"
        PlannedElapsedTime="456262" ActualDistance="0" ActualElapsedTime="0"
        PerfElapsedTime="0" ActualTravelTime="0" PerfTravelTime="0"
        DeltaDistance="-7129836" PerfDistance="0" DeltaTravelTime="-455782"
        DeltaElapsedTime="-456262" DeltaActualDistance="0"
        DeltaActualTravelTime="0">

            <DocRouteHist Latitude="44.8128884285688" Longitude="-
            93.323087990284" Status="3" ActualMeasure1="12345"
            CreatedDate="5/19/2015 8:03:49 AM" ActualQuantity="33" Source="0"
            MessageDate="4/15/2015 1:50:00 PM" />

            <DocStopLocation LocationKey="XML_016_TTCustomer1053"
            Type="CUSTOMER" />

            <DocOrderLine ProductKey="NoProdType" CreatedDate="5/19/2015
            8:03:49 AM" Comment="OrderLine Alert" Quantity="9">

                <DocRouteHist Latitude="44.8128884285688" Longitude="-
                93.323087990284" Status="3" ActualMeasure1="11" CreatedDate="5/19/2015
                8:03:49 AM" ActualQuantity="9" Source="0" ProductKey="NoProdType"
                MessageDate="4/15/2015 1:50:00 PM" ActualTotalMeasure1="0"
                ActualTotalMeasure2="0" ActualTotalMeasure3="0" ActualTotalMeasure4="0"

```

```

ActualTotalMeasure5="0" ActualTotalMeasure6="0" ActualTotalMeasure7="0"
ActualTotalMeasure8="0" ActualTotalMeasure9="0">

    <DocFieldDataHist Value="Fruits Delivered" />

</DocRouteHist>

    <DocOrderLineDetail ProductKey="Apple"
ProductTypeKey="ProductTypeKey" Comment="OrderLineDetail Alert">

        <DocRouteHist Latitude="44.8128884285688" Longitude="-
93.323087990284" Status="3" CreatedDate="5/19/2015 8:03:49 AM"
ActualQuantity="3" Source="0" ProductTypeKey="ProductTypeKey"
ProductKey="Apple" MessageDate="4/15/2015 1:50:00 PM"
ActualTotalMeasure1="78" ActualTotalMeasure2="81"
ActualTotalMeasure3="0" ActualTotalMeasure4="0" ActualTotalMeasure5="0"
ActualTotalMeasure6="0" ActualTotalMeasure7="0" ActualTotalMeasure8="0"
ActualTotalMeasure9="0">

            <DocFieldDataHist Value="Apple Delivered" />

        </DocRouteHist>

    </DocOrderLineDetail>

<!--...continued...-->

</DocOrderLine>

<!--...continued...-->

    </DocStop>

</DocBOL>

</Request>

</DocResponse>

```

Saving and Removing Drivers, Trucks and Trailers

Descartes Route Planner allows user to add, update and remove Drivers, Trucks and Trailers using xml business documents.

The following Listener supports the following calls:

<http://<servername>/STAD/Listener/DocFWConfigListener.asp>

MessagePurpose:

- 1002 Save: It will insert or update a record(s)
- 1003 Remove: It will remove a record(s)

ProcessCode: 20**Examples:****Driver:**

```
<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocDriver MessagePurpose="1002" ProcessCode="20" DriverKey="ListDriver"
      DriverName="LisatenerDriver" CostProfileKey="CostTest" >
    </DocDriver>
  </Request>
</DocFWImport>
```

Truck:

```
<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocTruck MessagePurpose="1002" ProcessCode="20" TruckKey="TruckListener"
      Comment="ListenerTruck" Company="Truck" Measure1="10" Name="ListTruckName"
      DriverKey="SergioDriver" TrailerKey="NewTrailer" RequirementSetKey="RS1">
    </DocTruck>
  </Request>
</DocFWImport>
```

Trailer:

```
<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocTrailer MessagePurpose="1002" ProcessCode="20" TrailerKey="ListTrailer"
      Comment="CommentListTrailer" Measure1="54" Name="ListTrailer"
      RequirementSetKey="RS1">
    </DocTrailer>
  </Request>
</DocFWImport>
```

Adding an asset with a Cost Profile Definition:

Assets in Descartes Route Planner can have a cost profile attached. This cost profile defines the cost calculation formula to report a real cost when an asset is assigned to a Route.

Descartes Route Planner supports adding Drivers, Trucks and Trailers with a Cost Profile definition using Business documents.

Below is an example of a Driver with Cost Profile Definition attached:

```
<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
  SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
  CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocDriver MessagePurpose="1002" ProcessCode="20" DriverKey="Sergio_Driver"
    DriverName="Sergio_Driver" DeviceKey="Device_Sergio" LocationKey=""
    LicenseNumber="" LicenseIssueDate="" LicenseExpDate="" EarliestStartTime=""
    LatestStartTime="" EarliestEndTime="" LatestEndTime="" Active=""
    CostProfileKey="" Email="" Certificates="">
    <DocCostProfile CostProfileKey="Listener" CostProfileDescription="Testing
    Listener" StartupCost="1500">

      <FWCostProfileDefinition CostDuration="14400" LowerBoundHourOfDay=""
      UpperBoundHourOfDay="" CostPerSecond="0.002" CostPerDistance=""
      LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Listener" />

      <FWCostProfileDefinition CostDuration="28800" LowerBoundHourOfDay=""
      UpperBoundHourOfDay="" CostPerSecond="0.001" CostPerDistance=""
      LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Listener" />

      <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay="06:00"
      UpperBoundHourOfDay="10:00" CostPerSecond="0.002" CostPerDistance=""
      LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Listener" />

      <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay="10:00"
      UpperBoundHourOfDay="18:00" CostPerSecond="0.001" CostPerDistance=""
      LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Listener" />

      <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay="18:00"
      UpperBoundHourOfDay="03:00" CostPerSecond="0.004" CostPerDistance=""
      LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Listener" />

      <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
      UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance="0.002"
```

```

LowerBoundDistance="0" UpperBoundDistance="100000"
CostProfileKey="Listener" />

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance="0.004"
LowerBoundDistance="100000" UpperBoundDistance="1000000"
CostProfileKey="Listener" />

</DocCostProfile>
</DocDriver>
</Request>
</DocFWImport>

```

Response Example:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
<ListenerName>DocFWConfigListener</ListenerName>
<ExtDocControlID>LNOSFWAnalyzer</ExtDocControlID>
<ResultTime>11-11-03 17:48:20 EDT</ResultTime>
<CommandNo>CMD1AD5BE772EFC4FFABD1D667B1A4F83EA</CommandNo>
<AuthServer>L00198\SQL2008:LNOSFW</AuthServer>
<DataServer>L00198\SQL2008:DCF</DataServer>
<ElapsedTime>10408</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
<EchoData></EchoData>
</DocResponse>
</Status></Execute></Command>

```

SaveOrder Logic for Backhaul Orders

This section describes the creation or update of an order with a preferred resource through the API DocOrderTask.SaveOrder.

In the given context, Descartes Route Planner assigns the order to the designated preferred resource if conditions favor such an assignment. These conditions include the following:

- Preferred resource is enabled by schedule setting

- Associated routes shouldn't be frozen or finished
- The order is not executed
- The order and its preferred resource are on the same schedule

The assignment occurs whether the order is new or existing, assigned or unassigned. In particular, if the order is assigned, it is first unassigned from the current route and then reassigned to the new preferred resource.

For backhaul orders, users can configure the following attributes to modify the behavior of the SaveOrder functionality:

- Users can set the DocOrderTask.PrefResForNewOrderOnly attribute to "1" in the command XML to restrict the assignment logic to new orders only; i.e., existing orders will continue to remain unassigned or assigned to the current route.
- Users can set the DocOrder.PrePlannedOrder attribute to "1" to instruct Descartes Route Planner not only to assign the order to its preferred route, but also attempt to replace matching placeholders orders on the route.
Placeholder orders are cloned from master orders on the master route, but do not represent "real" user orders. These orders are identified by the FWOrder.ClonedFromMR flag (1).

If more than one placeholders match, all are removed and replaced by the given order. The order will take the stop positions of the placeholder which has the greatest stop number among the multiple matches. A placeholder order *matches* a given order if the number of stops and set of location keys per type are the same on both orders.

Additional Objects Supported by the DocFWConfigListener

In addition to Drivers, Trucks and Trailers, the DocFWConfigListener allows users to save and remove the following objects:

- Cost Profiles
- Requirements Sets
- Product Types
- Territories
- Territory Swaps

Examples:

Cost Profiles:

```
<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
</Request>
```

```

<DocCostProfile MessagePurpose="1002" ProcessCode="20"
CostProfileKey="Cost_Listener" CostProfileDescription="Testing Listener"
StartupCost="1500">

    <FWCostProfileDefinition CostDuration="14400" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="0.002" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Cost_Listener"
/>

    <FWCostProfileDefinition CostDuration="28800" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="0.001" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Cost_Listener"
/>

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay="06:00"
UpperBoundHourOfDay="10:00" CostPerSecond="0.002" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Cost_Listener"
/>

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay="10:00"
UpperBoundHourOfDay="18:00" CostPerSecond="0.001" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Cost_Listener"
/>

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay="18:00"
UpperBoundHourOfDay="03:00" CostPerSecond="0.004" CostPerDistance=""
LowerBoundDistance="" UpperBoundDistance="" CostProfileKey="Cost_Listener"
/>

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance="0.002"
LowerBoundDistance="0" UpperBoundDistance="100000"
CostProfileKey="Cost_Listener" />

    <FWCostProfileDefinition CostDuration="" LowerBoundHourOfDay=""
UpperBoundHourOfDay="" CostPerSecond="" CostPerDistance="0.004"
LowerBoundDistance="100000" UpperBoundDistance="1000000"
CostProfileKey="Cost_Listener" />

</DocCostProfile>
</Request>
</DocFWImport>

```

Requirements Sets

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocRequirementSet MessagePurpose="1002" ProcessCode="20"
      RequirementSetKey="ListenerAB" Name="AB" Description="ListAB" Comment="AB"
    >
      <FWRequirement RequirementKey="A" Name="A" Description="A" Comment="A" />
      <FWRequirement RequirementKey="B" Name="B" Description="B" Comment="B" />
    </DocRequirementSet>
  </Request>
</DocFWImport>

```

Product Types

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocProductType MessagePurpose="1002" ProcessCode="20"
      ProductTypeKey="ListenerTest" ProductTypeName="ProdNameList" Measure1="10"
      RequirementSetKey="RS1">
    </DocProductType>
  </Request>
</DocFWImport>

```

Territories

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer"
    ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM"
    extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW"
    LoginName="FW-Admin"
    Password="cs" />
  <Request>
    <DocTerritory MessagePurpose="1002"
      ProcessCode=""
      ReturnCommandXMLOnly=""
      Name="Ter1"
    >

```

```

TerritoryKey="Zone1"
ColorCode="Orange"
Description=""
TerritoryID=""
DefaultInd=""
SetCenterCity=""
SetCenterState=""
SetCenterCountry=""
SetCenterZipCode=""
ScheduleKey="TerritoryDemo"
PrefDateFmt="">
<FWTerritoryVertex Key="Zone1"
Latitude="44.950029132619783"
Longitude="-
93.521584995752121" />
<FWTerritoryVertex Key="Zone1"
Latitude="44.950029132619783"
Longitude="-
93.195685812946394" />
<FWTerritoryVertex Key="Zone1"
Latitude="45.162677131601022"
Longitude="-
93.196952002943675" />
<FWTerritoryVertex Key="Zone1"
Latitude="45.15267800939187"
Longitude="-
93.52025617636464" />
</DocTerritory>
</Request>
</DocFWImport>

```

Territory Swaps

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
CompanyName="FW" LoginName="FW-Admin" Password="cs" />
<Request>
  <DocTerritorySwapSet MessagePurpose="" ProcessCode=""
TerritorySwapSetKey="" AllowSwapForAll="">
  <FWTerritorySwap Description="" TerritorySwapKey="" TerritoryKey=""
TerritorySwapType="" TerritorySwapDef="" >

```

```

</FWTerritorySwap>
</DocTerritorySwapSet>
</Request>
</DocFWImport>

```

Importing Routes

Descartes Route Planner users can also import Routes using Business documents. The DocRouteDetail schema is applicable here.

Listener: DocFWRouteListener

MessagePurpose: 1002

Example:

```

<DocFWImport>
  <Header senderID="LNOSFWAnalyzer" ReceiverID="TOE"
    SendDateTime="12/9/2005 9:35:19 AM" extDocControlID="LNOSFWAnalyzer"
    CompanyName="FW" LoginName="FW-Admin" Password="cs" />
  <Request>
    <DocRouteDetail MessagePurpose="1002" ProcessCode="20" RouteID="3728"
      ScheduleID="10" ResourceID="5349" ResourceKey="RC_D3_V1_24" ModifiedBy="4"
      ModifyDate="2009-10-20T14:46:37" CreatedBy="1" CreatedDate="2007-01-
      24T12:47:57" ProjectedDistance="59885.470907140101"
      ProjectedElapsedTime="5218" LastReportedDate="2009-10-20T11:02:00"
      LastReportedLatitude="45.015317760407925" LastReportedLongitude="-
      93.323368616402149" NumberOfStops="2" ProjectedBreaks="0"
      ProjectedRests="0" ProjectedDepartedDate="2009-10-20T10:00:00"
      ProjectedArrivedDate="2009-10-20T11:26:58" PlannedDepartedDate="2007-01-
      24T09:00:00" PlannedArrivedDate="2007-01-24T12:14:34"
      ActualDepartedDate="2009-10-20T10:00:00" ProjectedOnBoard1="23"
      ProjectedBreakTime="0" ProjectedRestTime="0" ProjectedSlackTime="0"
      ProjectedTimeDriven="3826" ProjectedWaitTime="0" ProjectedWorkTime="3876"
      ProjectedViolation="791056" ProjectedProfit="3823.1644106201343"
      LastReportedStatus="3" ModifyCount="42" OptFlag="1" PublishRoute="1"
      DriverID="1" ProjectedCompletedDate="2009-10-20T11:02:00"
      ProjectedBegunDate="2009-10-20T10:24:12" MasterRoute="0"
      ProjectedTerritory="" AVLCounter="0" AVLStatus="0" FreezeInd="False"
      ProjectedOnBoard2="27" ProjectedOnBoard3="1000" ProjectedOnBoard4="0"
      ProjectedOnBoard5="0" ProjectedOnBoard6="0" ProjectedOnBoard7="0"
      ProjectedOnBoard8="0" ProjectedOnBoard9="0" PlannedNumberOfStops="2"
      PlannedTimeDriven="3826" PlannedDistance="59885" PlannedElapsedTime="11674"
      PlannedWorkTime="1980" InTransitInd="True" ProjectedWorkUnits="0"
      AllowEarlyRest="False" BreakDuration="2700" BreakTimeOnDutyInd="True"
    >
  </Request>
</DocFWImport>

```

```

CompleteFullBonus="0" PenaltyPerOrder="0" EarliestEndDate="2007-01-
24T07:00:00" EarliestServiceDate="2007-01-24T08:00:00"
EarliestStartDate="2007-01-24T07:00:00" EarlyRestWaitThreshold="0"
FirstStopTimeThreshold="0" FullThreshold="0" InitialLocationKey="RC_Depot3"
FinalLocationKey="RC_Depot3" WaitTimePenalty="0" LatestEndDate="2007-01-
24T18:00:00" LatestEndPenalty="20000" LatestServiceDate="2007-01-
24T17:00:00" LatestStartDate="2007-01-24T09:00:00"
MaxElapsedDuration="39600" MaxDwellDuration="0"
MaxElapsedTimeBeforeBreak="16200" MaxElapsedTimeBeforeRest="0"
MaxDistance="0" MaxNumberOfBreaks="1" Measure1="50" Measure1Factor="1"
Measure1RechargeRate="0" Measure2="30" Measure2Factor="1"
Measure2RechargeRate="0" Measure3="1000" Measure3Factor="1"
Measure3RechargeRate="0" Measure4="0" Measure4Factor="1"
Measure4RechargeRate="0" Measure5="0" Measure5Factor="1"
Measure5RechargeRate="0" Measure6="0" Measure6Factor="1"
Measure6RechargeRate="0" Measure7="0" Measure7Factor="1"
Measure7RechargeRate="0" Measure8="0" Measure8Factor="1"
Measure8RechargeRate="0" Measure9="0" Measure9Factor="1"
Measure9RechargeRate="0" MinPaidOrders="0" MinTravelDistance="0"
MissedWindowPenalty="100" PreServiceDuration="0" PartialFullPenalty="0"
Profit="0" Requirements="Install Rpair" RestDuration="0"
SameStopBonus="100" ServiceDuration="0" ServiceSpeedFactor="0" Speed1="0"
Speed2="0" Speed3="0" Speed4="0" Speed5="0" Speed6="0" Speed7="0"
Speed1Threshold="0" Speed2Threshold="0" Speed4Threshold="0"
Speed5Threshold="0" Speed6Threshold="0" Speed7Threshold="0"
UseFullWaitAsRestInd="True" Work1Penalty="2.7777777699999999E-2"
Work2Penalty="2.7777777699999999E-3" Work3Penalty="2.7777777699999999E-2"
Work4Penalty="1" Work5Penalty="0" Work6Penalty="0" Work7Penalty="0"
Work1Duration="7200" Work2Duration="28800" Work3Duration="39600"
Work4Duration="43200" Work5Duration="0" Work6Duration="0" Work7Duration="0"
ServicePenalty="40" RechargeDuration="0" Territory="TC3"
InitialServiceDuration="0" OpportunisticEarlyRest="True"
DiscountInitialLeg="0" DiscountFinalLeg="0" DriverKey="testDriver"
TruckKey="DummyTruck" WorkWeekLength="0" LastDateWorked="1901-01-
01T00:00:00" WorkWeekLimit="0" WeeklyRestLength="0" WorkWeekResetTime="0"
WorkWeekHistory1="0" WorkWeekHistory2="0" WorkWeekHistory3="0"
WorkWeekHistory4="0" WorkWeekHistory5="0" WorkWeekHistory6="0"
WorkWeekHistory7="0" WorkWeekHistory8="0" WorkWeekHistory9="0"
WorkWeekHistory10="0" WorkWeekHistory11="0" WorkWeekHistory12="0"
WorkWeekHistory13="0" WorkWeekHistory14="0" Name="Truck"
ProjectedPctUtilization1="46" DriverName="Driver Driver"
MobileNumber="24699971">
<DocStop StopID="59301" RouteID="3728" ScheduleID="8" GeoStopNumber="0"
StopNumber="0" ScheduleKey="RechargeDemo" LocationKey="RC_Depot3"
ModifiedBy="4" ModifyDate="2009-10-20T14:46:37" CreatedBy="1"
CreatedDate="2007-01-24T12:47:57" DepartedDate="2009-10-20T10:00:00"
PlannedArrivedDate="2007-01-24T09:00:00" PlannedBegunDate="2007-01-
24T09:00:00" PlannedCompletedDate="2007-01-24T09:00:00"
PlannedDepartedDate="2007-01-24T09:00:00" ProjectedDeltaPenalty="0"

```

```

CustomerStopNumber="0" ProjectedDistance="0" ProjectedBreaks="0"
ProjectedRests="0" PhysicalStopNumber="0" ProjectedArrivalDate="2009-10-
20T10:00:00" ProjectedBegunDate="2009-10-20T10:00:00"
ProjectedCompletedDate="2009-10-20T10:00:00" ProjectedDeltaElapsedTime="0"
ProjectedDeltaDistance="0" ProjectedDepartDate="2009-10-20T10:00:00"
ProjectedElapsedTime="0" Status="15" ProjectedTimeDriven="0" Type="0"
ProjectedBreakTime="0" ProjectedRestTime="0" ProjectedWaitTime="0"
ProjectedWorkTime="0" ProjectedSlackTime="0" ProjectedDeltaTimeDriven="0"
ProjectedProfit="0" ProjectedViolation="0" LocationType="DEPOT"
OnBoardMeasure1="0" MasterRoute="0" AVLStatus="0" OnBoardMeasure2="0"
OnBoardMeasure3="0" OnBoardMeasure4="0" OnBoardMeasure5="0"
OnBoardMeasure6="0" OnBoardMeasure7="0" OnBoardMeasure8="0"
OnBoardMeasure9="0" PlannedStopNumber="0" PlannedDistance="0"
PlannedTimeDriven="0" PlannedElapsedTime="0" LocationID="57158"
PlannedWorkTime="0" ProjectedWorkUnits="0" Latitude="44.862376190721989"
Longitude="-93.292273096740246" ResourceKey="RC_D3_V1_24">
  <FWStopLocation StopLocationID="59301" StopID="59301"
Latitude="44.862376190721989" Longitude="-93.292273096740246"
LocationKey="RC_Depot3" GeocodeScore="4500" GeocodeQuality="0"
GeocodeSource="n7mn_hennepin_county.lmb" GeocodeType="NORMAL"
ShipStreetName="1000 West 78th Street" ShipCity="Richfield" ShipState="MN"
ShipZipcode="55423" Type="DEPOT" Status="MASTER" ModifiedBy="4"
ModifyDate="2008-03-02T11:44:37" ProjectedTimeUtilPct="218209.090909091"
Name="RC_Depot3" LocationServiceDuration="0" />
  <DocLocation LocationID="57158" LocationKey="RC_Depot3" ModifiedBy="4"
ModifyDate="2008-03-02T11:44:37" Latitude="44.862376190721989" Longitude="-
93.292273096740246" GeocodeFilter="0" GeocodeLatitude="44.862376190721989"
GeocodeLongitude="-93.292273096740246" GeocodeQuality="0"
GeocodeScore="4500" GeocodeSource="n7mn_hennepin_county.lmb"
GeocodeType="NORMAL" Measure1RechargeRate="0" Measure2RechargeRate="0"
Measure3RechargeRate="0" Measure4RechargeRate="0" Measure5RechargeRate="0"
Measure6RechargeRate="0" Measure7RechargeRate="0" Measure8RechargeRate="0"
Measure9RechargeRate="0" PreServiceDuration="0" ServiceDuration="0"
ShipCity="Richfield" ShipState="MN" ShipStreetName="1000 West 78th Street"
ShipZipcode="55423" Status="MASTER" Type="DEPOT" Measure1="0" Measure2="0"
Measure3="0" Measure4="0" Measure5="0" Measure6="0" Measure7="0"
Measure8="0" Measure9="0" Name="RC_Depot3" Recharge="True"
RechargeDuration="1800" EarliestRecharge="1900-12-30T08:00:00"
LatestRecharge="1900-12-30T16:00:00" UDFString6="6" LockLatLong="False" />
  </DocStop>
  <DocStop StopID="63241" RouteID="3728" ScheduleID="8" ActivityID="54723"
GeoStopNumber="1" StopNumber="1" ScheduleKey="RechargeDemo"
OrderKey="Order-1-1" LocationKey="RCCustomer0357" ModifiedBy="4"
ModifyDate="2009-10-20T14:46:37" CompletedDate="2009-10-20T10:00:00"
DepartedDate="2009-10-20T10:00:00" PlannedArrivedDate="2007-01-24T09:23:12"
PlannedBegunDate="2007-01-24T11:00:00" PlannedCompletedDate="2007-01-
24T11:18:00" PlannedDepartedDate="2007-01-24T11:18:00"
ProjectedDeltaPenalty="11.603044561099381" CustomerStopNumber="1"

```

```

ProjectedDistance="27898.947174044242" ProjectedBreaks="0"
ProjectedRests="0" PhysicalStopNumber="1" ProjectedArrivalDate="2009-10-
20T10:23:12" ProjectedBegunDate="2009-10-20T10:24:12"
ProjectedCompletedDate="2009-10-20T10:00:00" ProjectedDeltaElapsedTime="0"
ProjectedDeltaDistance="27898.947174044242" ProjectedDepartDate="2009-10-
20T10:00:00" ProjectedElapsedTime="0" Status="3" ProjectedTimeDriven="1392"
Type="66" ProjectedBreakTime="0" ProjectedRestTime="0"
ProjectedWaitTime="0" ProjectedWorkTime="-1452" ProjectedSlackTime="0"
ProjectedDeltaTimeDriven="1392" ProjectedProfit="1968.3979554389007"
ProjectedViolation="791056" ActualMeasure1="27" ActualMeasure2="3"
ActualMeasure3="0" ActualMeasure4="0" ActualMeasure5="0" ActualMeasure6="0"
ActualMeasure7="0" ActualMeasure8="0" ActualMeasure9="0"
LocationType="CUSTOMER" OnBoardMeasure1="27" MasterRoute="0" AVLStatus="0"
OnBoardMeasure2="3" OnBoardMeasure3="0" OnBoardMeasure4="0"
OnBoardMeasure5="0" OnBoardMeasure6="0" OnBoardMeasure7="0"
OnBoardMeasure8="0" OnBoardMeasure9="0" PlannedStopNumber="1"
PlannedDistance="27898" PlannedTimeDriven="1392" PlannedElapsedTime="8280"
OrderID="54212" LocationID="57183" PlannedWorkTime="1080"
ProjectedWorkUnits="0" RelatedStopIDs="63242" Measure1="9" Measure2="1"
Measure3="0" Measure4="0" Measure5="0" Measure6="0" Measure7="0"
Measure8="0" Measure9="0" PreServiceDuration="60" ServiceDuration="900"
PreferredResource="" PreferredResourceInd="False" Profit="2000"
Requirements="Install" Territory="TC1" ActivityKey="Order-1-
1_RCCustomer0357_PICKUP" RestrictPreferredResource="False"
RestrictRoutePosition="False" ProfitDepreciationPerHour="0"
Latitude="45.026931390166283" Longitude="-93.40175986289978"
ResourceKey="RC_D3_V1_24" UDFString9="0.945962783140077">
  <FWStopLocation StopLocationID="63241" StopID="63241"
Latitude="45.026931390166283" Longitude="-93.40175986289978"
LocationKey="RCCustomer0357" ContactPhone="555-Name0357"
GeocodeScore="4500" GeocodeQuality="0"
GeocodeSource="n7mn_hennepin_county.lmb" GeocodeType="NORMAL"
ShipStreetName="3905 LANCASTER LANE" ShipCity="PLYMOUTH" ShipState="MN"
ShipZipcode="55441" ShipCountry="US" Type="CUSTOMER" Status="MASTER"
ModifiedBy="4" ModifyDate="2007-01-24T14:47:42" Company="FC Name0357"
UDFString9="0.945962783140077" OnBoardMeasurePct1="300"
ProjectedTimeUtilPct="218209.09090909091" LocationServiceDuration="180" />
  <FWStopOrderLine OrderLineID="3420" OrderID="54212" ProductKey="Product
C" ModifyDate="2009-10-19T10:50:03" Quantity="1" PreServiceDuration="60"
ServiceDuration="900" Profit="0" Requirements="Install" Measure1="9"
Measure2="1" ActivityID="54723" ActivityKey="Order-1-
1_RCCustomer0357_PICKUP" OrderKey="Order-1-1" StopID="63241"
ActualQuantity="3" ActualMeasure1="300" />
  <FWActivityWindow ActivityWindowID="45313" ActivityID="54723"
CreatedDate="2009-10-19T10:50:03.710000000" Type="ARRIVE" ModifyDate="2009-
10-19T10:50:03" OpenDateTime="2007-01-24T11:00:00" CloseDateTime="2007-01-
24T18:00:00" />

```

```

<DocLocation LocationID="57183" LocationKey="RCCustomer0357"
ModifiedBy="4" ModifyDate="2007-01-24T14:47:42" Company="FC Name0357"
ContactPhone="555-Name0357" Latitude="45.026931390166283" Longitude="-
93.40175986289978" GeocodeFilter="0" GeocodeLatitude="45.026931390166283"
GeocodeLongitude="-93.40175986289978" GeocodeQuality="0"
GeocodeScore="4500" GeocodeSource="n7mn_hennepin_county.lmb"
GeocodeType="NORMAL" Measure1RechargeRate="0" Measure2RechargeRate="0"
Measure3RechargeRate="0" Measure4RechargeRate="0" Measure5RechargeRate="0"
Measure6RechargeRate="0" Measure7RechargeRate="0" Measure8RechargeRate="0"
Measure9RechargeRate="0" PreServiceDuration="0" ServiceDuration="180"
ShipCity="PLYMOUTH" ShipCountry="US" ShipState="MN" ShipStreetName="3905
LANCASTER LANE" ShipZipcode="55441" Status="MASTER" Type="CUSTOMER"
Territory="TC1" Measure1="0" Measure2="0" Measure3="0" Measure4="0"
Measure5="0" Measure6="0" Measure7="0" Measure8="0" Measure9="0"
LockLatLong="False" />
</DocStop>
<DocStop StopID="63242" RouteID="3728" ScheduleID="8" ActivityID="54722"
GeoStopNumber="2" StopNumber="2" ScheduleKey="RechargeDemo"
OrderKey="Order-1-1" LocationKey="AVLCustomer1181" ModifiedBy="4"
ModifyDate="2009-10-20T14:46:37" CompletedDate="2009-10-20T11:00:00"
DepartedDate="2009-10-20T11:00:00" PlannedArrivedDate="2007-01-24T11:33:36"
PlannedBegunDate="2007-01-24T11:34:36" PlannedCompletedDate="2007-01-
24T11:49:36" PlannedDepartedDate="2007-01-24T11:49:36"
ProjectedDeltaPenalty="7.8038955384477511" CustomerStopNumber="2"
ProjectedDistance="36842.582969874187" ProjectedBreaks="0"
ProjectedRests="0" PhysicalStopNumber="2" ProjectedArrivalDate="2009-10-
20T10:15:36" ProjectedBegunDate="2009-10-20T10:16:36"
ProjectedCompletedDate="2009-10-20T11:00:00"
ProjectedDeltaElapsedTime="3600" ProjectedDeltaDistance="8943.635795829945"
ProjectedDepartDate="2009-10-20T11:02:00" ProjectedElapsedTime="3600"
Status="3" ProjectedTimeDriven="2328" Type="67" ProjectedBreakTime="0"
ProjectedRestTime="0" ProjectedWaitTime="0" ProjectedWorkTime="2604"
ProjectedSlackTime="0" ProjectedDeltaTimeDriven="936"
ProjectedProfit="3880.5950601804534" ProjectedViolation="791056"
ActualMeasure1="18" ActualMeasure2="2" ActualMeasure3="0"
ActualMeasure4="0" ActualMeasure5="0" ActualMeasure6="0" ActualMeasure7="0"
ActualMeasure8="0" ActualMeasure9="0" LocationType="CUSTOMER"
OnBoardMeasure1="0" MasterRoute="0" AVLStatus="0" OnBoardMeasure2="0"
OnBoardMeasure3="0" OnBoardMeasure4="0" OnBoardMeasure5="0"
OnBoardMeasure6="0" OnBoardMeasure7="0" OnBoardMeasure8="0"
OnBoardMeasure9="0" PlannedStopNumber="2" PlannedDistance="8943"
PlannedTimeDriven="936" PlannedElapsedTime="1896" OrderID="54212"
LocationID="58013" PlannedWorkTime="900" ProjectedWorkUnits="0"
RelatedStopIDs="63241" Measure1="9" Measure2="1" Measure3="0" Measure4="0"
Measure5="0" Measure6="0" Measure7="0" Measure8="0" Measure9="0"
PreServiceDuration="60" ServiceDuration="900" PreferredResource=""
PreferredResourceInd="False" Profit="2000" Requirements="Install"
Territory="TC1" ActivityKey="Order-1-1_AVLCustomer1181_DROPOFF"

```

```

RestrictPreferredResource="False" RestrictRoutePosition="False"
ProfitDepreciationPerHour="0" Latitude="45.015317760407925" Longitude="-
93.323368616402149" ResourceKey="RC_D3_V1_24"
UDFString9="0.945962783140077">
  <FWStopLocation StopLocationID="63242" StopID="63242"
Latitude="45.015317760407925" Longitude="-93.323368616402149"
LocationKey="AVLCustomer1181" ContactPhone="555-Name1181"
GeocodeScore="4500" GeocodeQuality="0"
GeocodeSource="n7mn_hennepin_county.lmb" GeocodeType="NORMAL"
ShipStreetName="3327 ABBOTT AVE N" ShipCity="ROBBINSDALE" ShipState="MN"
ShipZipcode="55422" ShipCountry="US" Type="CUSTOMER" Status="MASTER"
ModifiedBy="4" ModifyDate="2007-01-31T12:49:25" Company="AVL Name1181"
UDFString9="0.945962783140077" OnBoardMeasurePct1="0"
ProjectedTimeUtilPct="218218.18181818179" LocationServiceDuration="0" />
  <FWStopOrderLine OrderLineID="3420" OrderID="54212" ProductKey="Product
C" ModifyDate="2009-10-19T10:50:03" Quantity="1" PreServiceDuration="60"
ServiceDuration="900" Profit="0" Requirements="Install" Measure1="9"
Measure2="1" ActivityID="54723" ActivityKey="Order-1-
1_RCCustomer0357_PICKUP" OrderKey="Order-1-1" StopID="63242"
ActualQuantity="2" ActualMeasure1="200" />
  <FWActivityWindow ActivityWindowID="45314" ActivityID="54722"
CreatedDate="2009-10-19T10:50:03.710000000" Type="ARRIVE" ModifyDate="2009-
10-19T10:50:03" OpenDateTime="2007-01-24T11:00:00" CloseDateTime="2007-01-
24T18:00:00" />
  <DocLocation LocationID="58013" LocationKey="AVLCustomer1181"
ModifiedBy="4" ModifyDate="2007-01-31T12:49:25" Company="AVL Name1181"
ContactPhone="555-Name1181" Latitude="45.015317760407925" Longitude="-
93.323368616402149" GeocodeFilter="0" GeocodeLatitude="45.015317760407925"
GeocodeLongitude="-93.323368616402149" GeocodeQuality="0"
GeocodeScore="4500" GeocodeSource="n7mn_hennepin_county.lmb"
GeocodeType="NORMAL" Measure1RechargeRate="0" Measure2RechargeRate="0"
Measure3RechargeRate="0" Measure4RechargeRate="0" Measure5RechargeRate="0"
Measure6RechargeRate="0" Measure7RechargeRate="0" Measure8RechargeRate="0"
Measure9RechargeRate="0" PreServiceDuration="0" ServiceDuration="0"
ShipCity="ROBBINSDALE" ShipCountry="US" ShipState="MN" ShipStreetName="3327
ABBOTT AVE N" ShipZipcode="55422" Status="MASTER" Type="CUSTOMER"
Territory="TC1" Measure1="0" Measure2="0" Measure3="0" Measure4="0"
Measure5="0" Measure6="0" Measure7="0" Measure8="0" Measure9="0"
LockLatLong="False" />
  </DocStop>
  <DocStop StopID="59302" RouteID="3728" ScheduleID="8" GeoStopNumber="3"
StopNumber="3" ScheduleKey="RechargeDemo" LocationKey="RC_Depot3"
ModifiedBy="4" ModifyDate="2009-10-20T14:46:37" CreatedBy="1"
CreatedDate="2007-01-24T12:47:57" PlannedArrivedDate="2007-01-24T12:14:34"
PlannedBegunDate="2007-01-24T12:14:34" PlannedCompletedDate="2007-01-
24T12:14:34" PlannedDepartedDate="2007-01-24T12:14:34"
ProjectedDeltaPenalty="12.486205241718867" CustomerStopNumber="2"
ProjectedDistance="59885.470907140101" ProjectedBreaks="0"

```

```

ProjectedRests="0" PhysicalStopNumber="2" ProjectedArrivalDate="2009-10-
20T11:26:58" ProjectedBegunDate="2009-10-20T11:26:58"
ProjectedCompletedDate="2009-10-20T11:26:58"
ProjectedDeltaElapsedTime="1498"
ProjectedDeltaDistance="23042.887937265914" ProjectedDepartDate="2009-10-
20T11:26:58" ProjectedElapsedTime="5218" Status="1"
ProjectedTimeDriven="3826" Type="1" ProjectedBreakTime="0"
ProjectedRestTime="0" ProjectedWaitTime="0" ProjectedWorkTime="0"
ProjectedSlackTime="0" ProjectedDeltaTimeDriven="1498"
ProjectedProfit="3823.1644106201343" ProjectedViolation="0"
LocationType="DEPOT" OnBoardMeasure1="0" MasterRoute="0" AVLStatus="0"
OnBoardMeasure2="0" OnBoardMeasure3="0" OnBoardMeasure4="0"
OnBoardMeasure5="0" OnBoardMeasure6="0" OnBoardMeasure7="0"
OnBoardMeasure8="0" OnBoardMeasure9="0" PlannedStopNumber="3"
PlannedDistance="23042" PlannedTimeDriven="1498" PlannedElapsedTime="1498"
LocationID="57158" PlannedWorkTime="0" ProjectedWorkUnits="0"
Latitude="44.862376190721989" Longitude="-93.292273096740246"
ResourceKey="RC_D3_V1_24">
  <FWStopLocation StopLocationID="59302" StopID="59302"
  Latitude="44.862376190721989" Longitude="-93.292273096740246"
  LocationKey="RC_Depot3" GeocodeScore="4500" GeocodeQuality="0"
  GeocodeSource="n7mn_hennepin_county.lmb" GeocodeType="NORMAL"
  ShipStreetName="1000 West 78th Street" ShipCity="Richfield" ShipState="MN"
  ShipZipcode="55423" Type="DEPOT" Status="MASTER" ModifiedBy="4"
  ModifyDate="2008-03-02T11:44:37" ProjectedTimeUtilPct="218222.267676766"
  Name="RC_Depot3" LocationServiceDuration="0" />
  <DocLocation LocationID="57158" LocationKey="RC_Depot3" ModifiedBy="4"
  ModifyDate="2008-03-02T11:44:37" Latitude="44.862376190721989" Longitude="-
  93.292273096740246" GeocodeFilter="0" GeocodeLatitude="44.862376190721989"
  GeocodeLongitude="-93.292273096740246" GeocodeQuality="0"
  GeocodeScore="4500" GeocodeSource="n7mn_hennepin_county.lmb"
  GeocodeType="NORMAL" Measure1RechargeRate="0" Measure2RechargeRate="0"
  Measure3RechargeRate="0" Measure4RechargeRate="0" Measure5RechargeRate="0"
  Measure6RechargeRate="0" Measure7RechargeRate="0" Measure8RechargeRate="0"
  Measure9RechargeRate="0" PreServiceDuration="0" ServiceDuration="0"
  ShipCity="Richfield" ShipState="MN" ShipStreetName="1000 West 78th Street"
  ShipZipcode="55423" Status="MASTER" Type="DEPOT" Measure1="0" Measure2="0"
  Measure3="0" Measure4="0" Measure5="0" Measure6="0" Measure7="0"
  Measure8="0" Measure9="0" Name="RC_Depot3" Recharge="True"
  RechargeDuration="1800" EarliestRecharge="1900-12-30T08:00:00"
  LatestRecharge="1900-12-30T16:00:00" UDFString6="6" LockLatLong="False" />
  </DocStop>
  <DocStop StopNumber="4" Type="35" >
    <DocLocation ></DocLocation>
  </DocStop>
  <DocStop OrderKey="LUNCH131-512" StopNumber="1"
  Type="35" ServiceDuration="1800">

```

```

        <FWActivityWindow Type="ARRIVE"
            EarliestTime="09:00:00"
            LatestTime="15:00:00"
            EarliestDate="2011-03-01"
            LatestDate="2011-03-01" />

    </DocRouteDetail>

    <parmPrefix>Prefix</parmPrefix>
    <parmSuffix />
    <parmRouteTemplateKey>DefaultTemplate</parmRouteTemplateKey>
    <parmMasterRouteInd>1</parmMasterRouteInd>
    </Request>
</DocFWImport>

```

Where

```

parmPrefix - The incoming keys will be pre-fixed with this value
parmSuffix - The incoming keys will be suffixed with this value
parmRouteTemplateKey - If this parameter is passed in, then Descartes Route
Planner will be using the Route Template Key settings for those attributes
not passed in.
parmMasterRouteInd - 0 (default) will create the route as a regular route
                    - 1 Will create the route as a master route
parmResequence - 0 Descartes Route Planner will not resequence the route on
import
                - 1 Descartes Route Planner will perform a resequence
                  on import
parmRecalculateRoutesOnImport
                    - 0 Descartes Route Planner will not
                      Recalcualte the Route's etas on import
                    1 Descartes Route Planner will recalculate
                      the route's etas on import

```

Wireless Business Documents

Descartes Route Planner allows wireless-enabled users to send and receive messages in the form of Business Documents. These documents include:

From External Systems to Fleetwise:

- Request Route
- Request Route Directions

- Request Stop to Stop Directions
-

From Fleetwise to External Systems:

- Send Route (New/Updates/Cancellations)

Wireless Messages to Descartes Route Planner

As mentioned above, Descartes Route Planner supports the following Wireless generated messages:

- The **DocRequestTask** document allows users to submit requests to Descartes Route Planner to be executed. The purpose of this document is to allow the definition of a criteria set to be used in order to execute the requested task. Therefore, this document will cover the following requests from Wireless:
 - Request Route
 - Request Route Directions
 - Request Stop to Stop Directions

DocRequestTask: Request a Route

Users have the ability of requesting routes using a criteria set that will allow them to retrieve Routes using the DocRequestTask.

The document returned is a DocRouteDetail.xml document. This document can then be published to other entities using Drawbridge.

Input:

TOE Listener: DocRouteRequestListener.asp

The following file can be used as input to request Routes. In the example below the Request node contains:

- **DocRequestTask node** - This node will contain the ScheduleKey to be used when retrieving data as well as the task to be executed.
Required Fields:
 - **ScheduleKey**
 - **MessagePurpose** (1005 = Retrieve)
 - **ProcessCode** (25=Publish) or **Empty for Synchronous Calls**
 - **DocCriteria**
 - Supports DocRoute - The DocRoute attributes specified in this node will be used as a criteria set to query the routes to retrieve. If more than one attribute is passed in, then this will be interpreted as an 'And' clause. If multiple DocRoute nodes are passed in, then several DocRoute nodes will be interpreted as an "Or" clause.

```

<DocFWImport>
  <Header senderID="Mycompany001" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
    LoginName="FW-Admin" Password="cs"/>
  <Request>
    <DocRequestTask ScheduleKey="" MessagePurpose="1005"
      ProcessCode="">
      <DocCriteria>
        <DocRoute ScheduleKey="" Criteria="DriverKey='GERMAN'" Date1=""
          DateOperator1="" DateValue1="" Date2="" DateOperator2=""
          DateValue2=""/>
      </DocCriteria>
    </DocRequestTask>
  </Request>
</DocFWImport>

```

Output:

The listener will return this output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>
  <DocumentsAccepted>1</DocumentsAccepted>
  <DocumentsRejected>0</DocumentsRejected>
<ResultTime>06-03-29 15:50:57 EST</ResultTime>
<CommandNo>CMD10DC2FC6020000001454442AE5210000001F</CommandNo>
<AuthServer>STORRES:LNOSFW</AuthServer>
<DataServer>STORRES:DCF</DataServer>
<ElapsedTime>661</ElapsedTime>
<Message></Message>
<STADMessage></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>

```

```
</Status></Execute></Command>
```

If there are any errors, the DocImportResults node will have the failure message.

For Example:

```
<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>0</DocumentsAccepted>
    <DocumentsRejected>1</DocumentsRejected>
<ResultTime></ResultTime>
<CommandNo></CommandNo>
<AuthServer></AuthServer>
<DataServer></DataServer>
<ElapsedTime></ElapsedTime>
<Message></Message>
<STADMessage><Text>Error: No ScheduleKey was passed as
input.</Text></STADMessage>
<Result>FAILURE</Result>
</DocResponse>
</Status></Execute></Command>
```

This DocRequestTask will retrieve a list of all the Routes that Match DriverKey=GERMAN and publish the DocRoute file with the following name:

DocRoutePlanner-3309608968.2682.xml

Here is a sample file:

```
<DocFWImport>
    <Header senderID="p" receiverID="p" />
<Request>
<DocRouteDetail RouteID="3325" ScheduleID="1" ResourceID="4946"
    ScheduleKey="DefaultSchedule" ResourceKey="RESOURCE7_03-20050227"
    ModifiedBy="4" ModifyDate="2006-03-29T15:42:15"
    AllowEarlyRest="False" BreakDuration="0" BreakTimeOnDutyInd="True"
    CompletedFullBonus="0" CreatedBy="1" CreatedDate="2005-02-
    25T13:32:27" ProjectedDistance="49206.76318359375"
```

```

PenaltyPerOrder="0" EarliestEndDate="2005-02-27T17:00:00"
EarliestStartDate="2005-02-27T07:00:00" EarlyRestWaitThreshold="0"
ProjectedElapsedTime="36000" FirstStopTimeThreshold="0"
FullThreshold="0" WaitTimePenalty="0" LatestEndDate="2005-02-
27T17:00:00" LatestEndPenalty="1000" LatestStartDate="2005-02-
27T07:00:00" MaxDwellDuration="0" MaxElapsedDuration="0"
MaxElapsedTimeBeforeBreak="0" MaxElapsedTimeBeforeRest="0"
MaxDistance="0" MaxNumberOfBreaks="10" MaxStops="1000" Measure1="20"
Measure1Factor="1" Measure1RechargeRate="0" Measure2="60"
Measure2Factor="1" Measure2RechargeRate="0" Measure3="0"
Measure3Factor="1" Measure3RechargeRate="0" Measure4="0"
Measure4Factor="1" Measure4RechargeRate="0" Measure5="0"
Measure5Factor="1" Measure5RechargeRate="0" Measure6="0"
Measure6Factor="1" Measure6RechargeRate="0" Measure7="0"
Measure7Factor="1" Measure7RechargeRate="0" Measure8="0"
Measure8Factor="1" Measure8RechargeRate="0" Measure9="0"
Measure9Factor="1" Measure9RechargeRate="0" ServicePenalty="0"
MinPaidOrders="0" MinTravelDistance="0" MissedWindowPenalty="0"
NumberOfStops="5" ProjectedBreaks="0" ProjectedRests="0"
PreServiceDuration="0" PartialFullPenalty="0" Profit="0"
ProjectedDepartedDate="2005-02-27T07:00:00"
ProjectedArrivedDate="2005-02-27T17:00:00" ProjectedOnBoard1="10"
ProjectedOnBoard2="2" ProjectedOnBoard3="3" Requirements="A"
RestDuration="0" SameStopBonus="0" ServiceSpeedFactor="0"
ProjectedBreakTime="0" ProjectedRestTime="0" ProjectedSlackTime="0"
Speed1="0" Speed1Threshold="0" Speed2="0" Speed2Threshold="0"
Speed3="0" Speed4="0" Speed4Threshold="0" Speed5="0"
Speed5Threshold="0" Speed6="0" Speed6Threshold="0" Speed7="0"
Speed7Threshold="0" SpeedFactor="0" ProjectedTimeDriven="4113"
UseFullWaitAsRestInd="True" ProjectedWaitTime="70" Work1Penalty="0"
Work1Duration="0" Work2Penalty="0" Work2Duration="0"
Work3Penalty="0" Work3Duration="0" Work4Penalty="0"
Work4Duration="0" Work5Penalty="0" Work5Duration="0"
Work6Penalty="0" Work6Duration="0" Work7Penalty="0"
Work7Duration="0" ProjectedWorkTime="0" Territory="TC2"
RechargeDuration="0" OpportunisticEarlyRest="True"
ProjectedViolation="512" ProjectedProfit="4970.8915407350332"
InitialServiceDuration="0" DiscountInitialLeg="0" ModifyCount="9"
PublishRoute="False" DriverID="1" DriverKey="testDriver"
ProjectedPctUtilization1="50" InitialLocationKey="Store7"
FinalLocationKey="Store7">

```

```

<DocStop StopID="57686" RouteID="3325" GeoStopNumber="0" StopNumber="0"
  ResourceKey="RESOURCE7_03-20050227" LocationKey="Store7"
  ModifiedBy="0" ModifyDate="2005-03-04T09:15:19" CreatedBy="1"
  CreatedDate="2005-02-25T13:32:27" ProjectedDeltaPenalty="0"
  CustomerStopNumber="0" DeliveryRatio1="1" DeliveryRatio2="1"
  DeliveryRatio3="1" DeliveryRatio4="1" DeliveryRatio5="1"
  DeliveryRatio6="1" DeliveryRatio7="1" DeliveryRatio8="1"
  DeliveryRatio9="1" ProjectedDistance="0"
  Latitude="45.011899955570698" Longitude="-93.148899972438812"
  ProjectedBreaks="0" ProjectedRests="0" ServiceDuration="0"
  PhysicalStopNumber="0" Profit="1000" ProjectedArrivalDate="2005-02-
  27T07:00:00" ProjectedBegunDate="2005-02-27T07:00:00"
  ProjectedCompletedDate="2005-02-27T07:00:00"
  ProjectedDeltaElapsedTime="0" ProjectedDeltaDistance="0"
  ProjectedDepartDate="2005-02-27T07:00:00" ProjectedElapsedTime="0"
  Status="1" ProjectedTimeDriven="0" Type="0" ProjectedBreakTime="0"
  ProjectedRestTime="0" ProjectedWaitTime="0" ProjectedWorkTime="0"
  ProjectedSlackTime="0" Territory="TC2" ProjectedDeltaTimeDriven="0"
  ProjectedProfit="0" ProjectedViolation="0" LocationType="CUSTOMER"
  State="1" OnBoardMeasure1="10" OnBoardMeasure2="0"
  OnBoardMeasure3="0" OnBoardMeasure4="0" OnBoardMeasure5="0"
  OnBoardMeasure6="0" OnBoardMeasure7="0" OnBoardMeasure8="0"
  OnBoardMeasure9="0" />

<DocStop StopID="57983" RouteID="3325" ActivityID="50847"
  GeoStopNumber="1" StopNumber="1" ResourceKey="RESOURCE7_03-20050227"
  OrderKey="ORDER_103" LocationKey="LOC_103" ModifiedBy="0"
  ModifyDate="2005-03-04T09:15:19"
  ProjectedDeltaPenalty="8.8426675796508789" CustomerStopNumber="1"
  DeliveryRatio1="1" DeliveryRatio2="1" DeliveryRatio3="1"
  DeliveryRatio4="1" DeliveryRatio5="1" DeliveryRatio6="1"
  DeliveryRatio7="1" DeliveryRatio8="1" DeliveryRatio9="1"
  ProjectedDistance="16222.443359375" Latitude="44.939900077879429"
  Longitude="-93.222100138664246" Measure1="2" Measure2="4"
  Measure3="0" Measure4="0" Measure5="0" Measure6="0" Measure7="0"
  Measure8="0" Measure9="0" ProjectedBreaks="0" ProjectedRests="0"
  ServiceDuration="5841" PhysicalStopNumber="1" Profit="1000"
  ProjectedArrivalDate="2005-02-27T07:17:41" ProjectedBegunDate="2005-
  02-27T08:00:00" ProjectedCompletedDate="2005-02-27T09:37:21"
  ProjectedDeltaElapsedTime="9441"
  ProjectedDeltaDistance="16222.443359375" ProjectedDepartDate="2005-
  02-27T09:37:21" ProjectedElapsedTime="9441" Requirements=""
  Status="1" ProjectedTimeDriven="1061" Type="3"

```

```

ProjectedBreakTime="0" ProjectedRestTime="0"
ProjectedWaitTime="2539" ProjectedWorkTime="5841"
ProjectedSlackTime="0" WindowOpen="2005-02-27T08:00:00"
WindowClose="2005-02-27T12:00:00" WindowType="0;"
WindowEarliestTime="08:00:00;" WindowLatestTime="12:00:00;"
WindowEarliestDate="2005-02-27;" WindowLatestDate="2005-02-27;"
Territory="TC3" ProjectedDeltaTimeDriven="1061"
ProjectedProfit="992.3346518647935" ProjectedViolation="0"
LocationType="CUSTOMER" State="1" OnBoardMeasure1="8"
OnBoardMeasure2="0" OnBoardMeasure3="0" OnBoardMeasure4="0"
OnBoardMeasure5="0" OnBoardMeasure6="0" OnBoardMeasure7="0"
OnBoardMeasure8="0" OnBoardMeasure9="0">

<FWStopLocation StopLocationID="57983" StopID="57983"
  LocationKey="LOC_103" ShipStreetName="2200 SEABURY AVE"
  ShipCity="MINNEAPOLIS" ShipState="MN" ShipCountry="US"
  Type="CUSTOMER" Status="MASTER" ModifiedBy="0" ModifyDate="2005-02-
  25T13:35:37" OnBoardMeasurePct1="40" OnBoardMeasurePct2="0"
  ProjectedTimeUtilPct="26.224999999999998" />

</DocStop>

...

<DocStop StopID="57687" RouteID="3325" GeoStopNumber="6" StopNumber="6"
  ResourceKey="RESOURCE7_03-20050227" LocationKey="Store7"
  ModifiedBy="0" ModifyDate="2005-03-04T09:15:19" CreatedBy="1"
  CreatedDate="2005-02-25T13:32:27"
  ProjectedDeltaPenalty="3.6341314315795898" CustomerStopNumber="5"
  DeliveryRatio1="1" DeliveryRatio2="1" DeliveryRatio3="1"
  DeliveryRatio4="1" DeliveryRatio5="1" DeliveryRatio6="1"
  DeliveryRatio7="1" DeliveryRatio8="1" DeliveryRatio9="1"
  ProjectedDistance="49206.76318359375" Latitude="45.011899955570698"
  Longitude="-93.148899972438812" ProjectedBreaks="0"
  ProjectedRests="0" ServiceDuration="0" PhysicalStopNumber="5"
  Profit="1000" ProjectedArrivalDate="2005-02-27T16:58:50"
  ProjectedBegunDate="2005-02-27T17:00:00"
  ProjectedCompletedDate="2005-02-27T17:00:00"
  ProjectedDeltaElapsedTime="506"
  ProjectedDeltaDistance="5659.79296875" ProjectedDepartDate="2005-02-
  27T17:00:00" ProjectedElapsedTime="36000" Status="1"
  ProjectedTimeDriven="4113" Type="1" ProjectedBreakTime="0"
  ProjectedRestTime="0" ProjectedWaitTime="70" ProjectedWorkTime="0"
  ProjectedSlackTime="0" Territory="TC2"
  ProjectedDeltaTimeDriven="436" ProjectedProfit="4970.8915407350332"

```

```

    ProjectedViolation="0" LocationType="CUSTOMER" State="1"
    OnBoardMeasure1="0" OnBoardMeasure2="0" OnBoardMeasure3="0"
    OnBoardMeasure4="0" OnBoardMeasure5="0" OnBoardMeasure6="0"
    OnBoardMeasure7="0" OnBoardMeasure8="0" OnBoardMeasure9="0" />
  </DocRouteDetail>
</Request>
</DocFWImport>

```

RequestTask: Route Directions

This DocRequest task works the same as above. The only difference is the ProcessCode="70".

Input:

DocRouteDirectionsListener.asp

```

<DocFWImport>
  <Header senderID="Mycompany001" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID" CompanyName="FW"
    LoginName="FW-Admin" Password="cs"/>
</Request>
<DocRequestTask ReturnCommandXMLOnly="true"
  ScheduleKey="DefaultSchedule" MessagePurpose="1005" ProcessCode="70">
  <DocCriteria>
    <DocRouteWithDirections ResourceKey="RESOURCE7_03-20050227" />
  </DocCriteria>
</DocRequestTask>
</Request>
</DocFWImport>

```

Output:

The listener will return this output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocResponse>
  <TotalDocumentsRead>1</TotalDocumentsRead>

```

```

<DocumentsAccepted>1</DocumentsAccepted>
<DocumentsRejected>0</DocumentsRejected>
<ResultTime>06-03-29 16:28:19 EST</ResultTime>
<CommandNo>CMD10DC2FC6020000001454442AEDE200000038</CommandNo>
<AuthServer>STORRES:LNOSFW</AuthServer>
<DataServer>STORRES:DCF</DataServer>
<ElapsedTime>1144</ElapsedTime>
<Message></Message>
<STADMessage><parmDocDirections><DocDirections RouteID="3325"
ResourceKey="RESOURCE7_03-20050227" ScheduleKey="DefaultSchedule"
DriverKey="testDriver" LegID="1" FromStopID="57686" ToStopID="57983"
FromOrderKey="" ToOrderKey="ORDER_103"
FromLatitude="45.011899955570698" FromLongitude="-93.148899972438812"
ToLatitude="44.939900077879429" ToLongitude="-93.222100138664246"
Distance="8.456500042536002" _nodeID="0" _parentNodeID="0"><FWSequence
SequenceNumber="1" LegID="1" StartLatitude="45.010848529636860"
StartLongitude="-93.147735558450222" EndLatitude="45.010470002889633"
EndLongitude="-93.148999884724617" Distance="0.000000000000000"
Time="0" SeqDescription="Depart from access ramp, heading SW."
_nodeID="0" _parentNodeID="0"/><FWSequence SequenceNumber="2" LegID="1"
StartLatitude="45.010470002889633" StartLongitude="-93.148999884724617"
EndLatitude="45.010499842464924" EndLongitude="-93.152509890496731"
Distance="0.068791739848000" Time="0" SeqDescription="Merge into State
Highway 36, heading W." _nodeID="1" _parentNodeID="0"/><FWSequence
SequenceNumber="3" LegID="1" StartLatitude="45.010499842464924"
StartLongitude="-93.152509890496731" EndLatitude="45.009060166776180"
EndLongitude="-93.156750127673149" Distance="0.240196323328000"
Time="0" SeqDescription="Bear right onto access ramp, then turn left
onto County Highway 50 / Hamline Ave N, heading S." _nodeID="2"
_parentNodeID="0"/>
...
<FWSequence SequenceNumber="7" LegID="6"
StartLatitude="45.010509900748730" StartLongitude="-93.141200020909309"
EndLatitude="45.010848529636860" EndLongitude="-93.147735558450222"
Distance="2.949370505016001" Time="7" SeqDescription="Bear right onto
access ramp, heading W." _nodeID="6" _parentNodeID="5"/><FWSequence
SequenceNumber="8" LegID="6" StartLatitude="45.010848529636860"
StartLongitude="-93.147735558450222" EndLatitude="44.989150129258633"
EndLongitude="-93.105299994349480" Distance="3.279485107392000"
Time="8" SeqDescription="Arrive at access ramp, heading SW."
_nodeID="7" _parentNodeID="5"/></DocDirections><DocDirections
RouteID="3325" ResourceKey="RESOURCE7_03-20050227"
ScheduleKey="DefaultSchedule" DriverKey="testDriver" LegID="7"

```

```

FromStopID="57687" ToStopID="57686" FromOrderKey="" ToOrderKey=""
FromLatitude="45.011899955570698" FromLongitude="-93.148899972438812"
ToLatitude="45.011899955570698" ToLongitude="-93.148899972438812"
Distance="25.419358760120005" _nodeID="6" _parentNodeID="0"><FWSequence
SequenceNumber="1" LegID="7" StartLatitude="45.010848529636860"
StartLongitude="-93.147735558450222" EndLatitude="45.010848529636860"
EndLongitude="-93.147735558450222" Distance="0.000000000000000"
Time="0" SeqDescription="Depart from access ramp, heading SW."
_nodeID="0" _parentNodeID="6"/><FWSequence SequenceNumber="2" LegID="7"
StartLatitude="45.010848529636860" StartLongitude="-93.147735558450222"
EndLatitude="45.010848529636860" EndLongitude="-93.147735558450222"
Distance="0.000000000000000" Time="0" SeqDescription="Arrive at access
ramp, heading SW." _nodeID="1"
_parentNodeID="6"/></DocDirections></parmDocDirections></STADMessage>
<Result>SUCCESS</Result>
</DocResponse>
</Status></Execute></Command>

```

If there are any errors, the DocImportResults node will have the failure message.

This DocRequestTask will retrieve a list of all the Routes that Match ScheduleKey="DefaultSchedule" and ResourceKey="STL111999" and publish the DocDirections file with the following name:

DocRouteDirections<receiveraccount>-3309617564.66693.xml

Here is a sample file:

```

<DocFWImport>
  <Header senderID="SFFODLL" ReceiverID="MyCompany001"
    SendDateTime="10/14/2004 2:10:04 PM"
    extDocControlID="zzBOLSourceMessageID" CompanyName="MyCompany001"
    LoginName="RMoore" Password="zzPassword"/>
  <Request>
    <parmDocDirections>
      <DocDirections RouteID="2833" ResourceKey="test23"
        ScheduleKey="DefaultSchedule" DriverKey="testDriver" LegID="1"
        FromStopID="56705" ToStopID="56707" FromOrderKey="123.87654.OD"
        ToOrderKey="" FromLatitude="40.815656337142002" FromLongitude="-
        73.949747000000002" ToLatitude="40.875740999999998" ToLongitude="-
        73.911518000000001" Distance="5.761648411688000" _nodeID="0"
        _parentNodeID="">
        <FWSequence SequenceNumber="1" LegID="1"
          StartLatitude="40.815653018653393" StartLongitude="-
          73.949730992317200" EndLatitude="40.814129859209061" EndLongitude="-
          73.950850144028664" Distance="0.000000000000000" Time="0"

```

```

SeqDescription="Depart from St Nicholas Ter, heading S." _nodeID="0"
_parentNodeID="0" /> ...

...

<FWSequence SequenceNumber="18" LegID="1"
StartLatitude="40.875741541385651" StartLongitude="-
73.911517560482025" EndLatitude="40.815653018653393" EndLongitude="-
73.949730992317200" Distance="5.761648411688000" Time="27"
SeqDescription="Arrive at Fort Charles Pl, heading E." _nodeID="17"
_parentNodeID="0" />

</DocDirections> ...

...

<DocDirections RouteID="2833" ResourceKey="test23"
ScheduleKey="DefaultSchedule" DriverKey="testDriver" LegID="2"
FromStopID="56707" ToStopID="56708" FromOrderKey="" ToOrderKey=""
FromLatitude="40.875740999999998" FromLongitude="-73.911518000000001"
ToLatitude="40.701697000000003" ToLongitude="-74.012924999999996"
Distance="19.869081373128004" _nodeID="1" _parentNodeID="">

  <FWSequence SequenceNumber="1" LegID="2"
StartLatitude="40.875741541385651" StartLongitude="-
73.911517560482025" EndLatitude="40.876209922134876" EndLongitude="-
73.909710086882114" Distance="0.000000000000000" Time="0"
SeqDescription="Depart from Fort Charles Pl, heading E." _nodeID="0"
_parentNodeID="1" />

...

  <FWSequence SequenceNumber="18" LegID="2"
StartLatitude="40.701698362827301" StartLongitude="-
74.012925513088703" EndLatitude="40.875741541385651" EndLongitude="-
73.911517560482025" Distance="14.107432961440002" Time="64"
SeqDescription="Arrive at State St / Peter Minuit Plz, heading E."
_nodeID="17" _parentNodeID="1" />

</DocDirections>

</parmDocDirections>

</Request>

</DocFWImport>

```

RequestTask: Stop to Stop Directions

This DocRequest task works the same as above. The only difference is the ProcessCode="70" and the Criteria node now contains the From and To DocStop.

Input:

DocStopDirectionsListener.asp

```

<DocFWImport>

<HeadersenderID="MySenderID" ReceiverID="MyReceiverID"
SendDateTime="10/14/2004 2:10:04 PM" extDocControlID="MyDocControlID"
CompanyName="FW" LoginName="FW-Admin" Password="cs">
</Header>

<Request>
    <DocRequestTask ScheduleKey="DefaultSchedule"
MessagePurpose="1005" ProcessCode="70" >
        <DocCriteria>
            <DocStop StopId="" OrderKey="Order_1"
LocationKey="" Latitude="44.879863522946835" Longitude="-
93.078753165900707"></DocStop>
            <DocStop StopId="" OrderKey="Order_2"
LocationKey="" Latitude="44.772823601961136" Longitude="-
93.289062492549419"></DocStop>
            <DocStop StopId="" OrderKey="Order_3"
LocationKey="" Latitude="44.882823601961136" Longitude="-
93.369062492549419"></DocStop>
        </DocCriteria>
    </DocRequestTask>
</Request>
</DocFWImport>

```

Output:

The listener will return this output:

```

<?xml version="1.0"?><Command><Execute><Status>
<DocImportResults>
    <TotalDocumentsRead>1</TotalDocumentsRead>
    <DocumentsAccepted>1</DocumentsAccepted>
    <DocumentsRejected>0</DocumentsRejected>
</DocImportResults><Result>SUCCESS</Result>
</Status></Execute></Command>

```

If there are any errors, the DocImportResults node will have the failure message.

This DocRequestTask will retrieve a list of all the Stops that Match the passed criteria and publish the DocDirections file with the following name:

DocRouteDirectionsp-3352638879.18122.xml

Here is a sample file:

```
<DocFWImport>

  <Header senderID="p" receiverID="p" />

<Request>

<parmDocDirections>

<DocDirections RouteID="" ResourceKey="" ScheduleKey="" DriverKey=""
  LegID="1" FromStopID="" ToStopID="" FromOrderKey="Order_1"
  ToOrderKey="Order_2" FromLatitude="44.879863522946835"
  FromLongitude="-93.078753165900707" ToLatitude="44.772823601961136"
  ToLongitude="-93.289062492549419" Distance="15.789173832328002"
  _nodeID="0" _parentNodeID="0">

  <FWSequence SequenceNumber="1" LegID="1"
    StartLatitude="44.879863522946835" StartLongitude="-
    93.078753165900707" EndLatitude="44.881089963018894" EndLongitude="-
    93.080570027232170" Distance="0.000000000000000" Time="0"
    SeqDescription="Depart from 50th St E, heading W." _nodeID="0"
    _parentNodeID="0" />

...

  <DocDirections RouteID="" ResourceKey="" ScheduleKey="" DriverKey=""
    LegID="2" FromStopID="" ToStopID="" FromOrderKey="Order_2"
    ToOrderKey="Order_1" FromLatitude="44.772823601961136"
    FromLongitude="-93.289062492549419" ToLatitude="44.879863522946835"
    ToLongitude="-93.078753165900707" Distance="27.546546496352001"
    _nodeID="1" _parentNodeID="0">

    <FWSequence SequenceNumber="1" LegID="2"
      StartLatitude="44.772823601961136" StartLongitude="-
      93.289062157273293" EndLatitude="44.769910052418709" EndLongitude="-
      93.290299996733665" Distance="0.000000000000000" Time="0"
      SeqDescription="Depart from W Frontage Rd, heading S." _nodeID="0"
      _parentNodeID="1" />

    <FWSequence SequenceNumber="2" LegID="2"
      StartLatitude="44.769910052418709" StartLongitude="-
      93.290299996733665" EndLatitude="44.769819863140583" EndLongitude="-
      93.287140019237995" Distance="0.216348188784000" Time="0"
      SeqDescription="Make a sharp left onto Burnsville Pkwy, heading E."
      _nodeID="1" _parentNodeID="1" />
```

```

...
</DocDirections>
</parmDocDirections>
</Request>
</DocFWImport>

```

Reschedule an Order in FW via command xml

Fleetwise allows wireless devices to reschedule any orders that have the following status:

• Status	• FW DB Value	• Description
• MISSED	• 9	• The stop has been missed and is equivalent to a Completed Stop. This will affect Times in the Route.
• NOFREIGHT	• 10	• No Freight: The Stop was executed and no freight was found. Equivalent to Completed. Times in the Route will be recalculated.
• REFUSED	• 11	• The Delivery or Pickup of the goods were refused. Equivalent to Completed. Times in the Route will be recalculated.
• RETURNED	• 12	• The Freight was returned. Equivalent to Completed. Times in the Route will be recalculated.
• EXCEPTION	• 6	• Found an exception at the Stop. Equivalent to Completed. Times in the Route will be recalculated.

Special fields accepted in GPS and status messages

The following table lists the fields that are now accepted in the incoming command xml for status and gps updates.

The highlights of the table below include:

- Ability to report Temperature readings
- Ability to report UDF fields at the Route and Stop level
- Ability to report Actual Measures and quantities at the Order and Order Line level with the option of using product type keys.
- Ability to report
 - Odometer
 - Speed
 - UnscheduleStops
 - Ignition on/off

Node	Field	Type	Size	Description
FWRouteEdit	Temperature	Int	4	Temperature reading reported by the vehicle. This field will be considered to trigger an alarm on the UI based on the AVL Temperature settings
FWRouteEdit	UDFString1...9	nvarchar	500	User Defined Field for Strings at the Route level. Up to 9 fields supported.
FWRouteEdit	UDFNumber1..3	float	8	User Defined Field for Number at the Route level. Up to 3 fields supported
FWRouteEdit	UDFInteger1..3	int	4	User Defined Field for Integers at the Route level. Up to 3 fields supported
FWStopEdit	UDFString1...9	nvarchar	500	User Defined Field for Strings at the Stop level. Up to 9 fields supported.
FWStopEdit	UDFNumber1..3	float	8	User Defined Field for Number at the Stop level. Up to 3 fields supported

FWStopEdit	UDFInteger1..3	int	4	User Defined Field for Integers at the Stop level. Up to 3 fields supported
FWRouteEdit	Ignition	bit		Flag to notify the ignition of the vehicle. 0/1
FWRouteEdit	Odometer	float	8	Odometer reading of the vehicle
FWRouteEdit	UnscheduledStop	bit		Flag to notify if the vehicle is at unscheduled stop when reporting its GPS readings. 0/1
FWRouteEdit	Speed	float	8	Speed of the vehicle
FWStopEdit	ActualMeasure1..9	float	8	Actual Measure1..9 for the entire order.
FWOrderLineEdit	ActualMeasure1..9	float	8	Actual Measure1..9 fields at the Order Line level
FWOrderLineEdit	ActualQuantity	float	8	Actual Quantity reported at the Line Item level. This field should be used when reporting Actual Quantities by ProductTypeKey
FWOrderLineEdit	ProductTypeKey	nvarchar	50	ProductTypeKey to use when reporting Actual Quantity at the Order Line level
FWOrderLineEdit	ProductKey	nvarchar	50	ProductKey when using Measure1...9 at the order line level

The possible reports Statuses include (case sensitive):

Status	FW DB Value	Description
PENDING	1	The Route/Stop has not started Execution.
DELAYED	4	The Route/Stop has been delayed. Doesn't affect times in the Route.
ENROUTE	5	The Driver is in transit towards the Stop. Doesn't affect times in the Route.

INSERVICE	8	The Route is in Service. Doesn't affect times in the route.
SKIPPED	13	The stop has been skipped. Doesn't affect times in the Route.
MISSED	9	The stop has been missed and is equivalent to a Completed Stop. This will affect Times in the Route.
NOFREIGHT	10	No Freight: The Stop was executed and no freight was found. Equivalent to Completed. Times in the Route will be recalculated.
REFUSED	11	The Delivery or Pickup of the goods were refused. Equivalent to Completed. Times in the Route will be recalculated.
RETURNED	12	The Freight was returned. Equivalent to Completed. Times in the Route will be recalculated.
ARRIVED	2	Arrived at the stop. Times in the Route will be recalculated.
COMPLETED	3	Completed Stop. Times in the Route will be recalculated.
EXCEPTION	6	Found an exception at the Stop. Equivalent to Completed. Times in the Route will be recalculated.
HOOKED	7	Hooked a Trailer at the Stop. Equivalent to Completed. Times in the Route will be recalculated.
SPOTTED	14	Spotted or Dropped Off. For Trailers only. Equivalent to Completed. Times in the Route will be recalculated.
DISPATCHED	15	Dispatched will get the Route Started. Only the Initial Stop is updated with this status (initial Station). It doesn't affect the Times of the Route.
HOME	16	Home: The Route is back to its Home Station. Doesn't affect the Time of the Route.
ENDROUTE	17	EndRoute: Closes the Route. All stops must've been completed before an EndRoute can be sent to the Route. No further status updates will be accepted, once this status has been set to the Route.

Appendix A — Possible answers in the Advise and Confirm Process Codes

Advise:

- If the Status Result is set to FAILURE then the call failed to be executed.
- If the Status Result is set to SUCCESS then the call succeeded, but check the Output tags.
- Data returned implies valid buckets were found.
- No Data implies there were no available delivery opportunities and there could be many reasons why: no capacity, no bucket records, no route records, requirements, territory, etc.

Confirm:

- If the Status Result is set to FAILURE then the call failed.
- If the Status Result is set to SUCCESS then the call succeeded, but check the Output tags.
- Data returned and the Output is set to OK implies the confirm updated the route (all is well).
- Data returned and the Output is set to FAILED implies the confirm evaluation failed even though the call succeeded.

Geocode:

- If the Status Result is set to FAILURE then the call failed.
- If the Status Result is set to SUCCESS then the call succeeded but check the Output tags.
- Data returned implies valid geocode values were found. Here they can use the geocode flags to check the accuracy of the output.
- No Data implies the input was bad and the call failed.

Appendix B — Error Messaging Description

MessageID	Title	Description
1020	SQL query has failed to execute	This error is returned when a generic SQL error has occurred. The description of the error will follow the title of this error message. Some SQL errors are retried by the FW backend and some others are passed back to the XML interface. Here are the examples when errors are retried: - Cannot insert duplicate key row in object 'FWLocation' with unique index 'IX_FWLocation'. (Check your Input XML for inserting duplicate keys) - Cannot insert duplicate key row in object 'FWOrder' with unique index 'IX_FWOrder'. - Cannot insert the value NULL into column 'RouteTemplateKey', table 'FWDB2.dbo.FWResource'; column does not allow nulls. INSERT fails. - Either BOF or EOF is True, or the current record has been deleted. Requested operation requires a current record. - INSERT statement conflicted with COLUMN CHECK constraint 'CK_FWLocation_Status'. The conflict occurred in database 'FWDB2', table 'FWLocation', column 'Status'. - INSERT statement conflicted with COLUMN FOREIGN KEY constraint 'FK_FWResource_FWInitialLocationKey'. The conflict occurred in database 'FWDB2', table 'FWLocation', column 'LocationKey'. - Invalid column name '<column name>'. (For this error, your DB is not up to date. Run the installer to update it) - Pipe connect operation timed out - Pipe read operation timed out - SQL query has failed to execute. Description=Transaction (Process ID 103) was deadlocked on lock resources with another process and has been chosen as the deadlock victim. Rerun the transaction...
22002	Route {@route} has an invalid number of stops	This error is returned by the Confirm call. This error typically occurs when the specified stop number is out of range of the number of stops contained in the Route Id trying to confirm. Please check the input Stop Number in the Confirm call.

22003	No stop documents were found in the route document	This error is returned when No Routes are found by the specified confirm call. Either the input RouteId is not valid or the RouteId is a different schedule key than the specified in the Confirm input.
22004	Unsupported job/stop type {@type}	This error is returned when the Stop Type is not one of the following types: - 0,1,2,3 or 66, 67 (If using Business Documents, the Advise Type must be one of the following types: 0,1,2, or 3)
22005	Function adapi_advise failed{: @reason}	This error is when the Adapi component (Advise component) is returning an error and the reason is defined along with the error message. Possible error messages: "General Error", // 1 "User interrupt", // 2 "Incorrect lpapi dll version", // 3 "Can't find lmb", // 4 "Papi engine creation failed", // 5 "Cannot create papi roadmap", // 6 "Map edit initialization failed", // 7 "Bad lat long on resource stop", // 8 "Bad lat long on orphan", // 9 "Cannot open stage db", // 10 "Cannot connect to stage db", // 11 "Too many breaks on route", // 12 "Invalid routing mode", // 13 "No job specified for advise", // 14 "No resources", // 15 "Null entry in source job array", // 16 "Illegal recharge", // 17 "Duplicate depot Ids", // 18 "Unknown recharge depot", // 19 "No buckets", // 20, "Engine not initialized", // 21, "Maximum slots is not a positive value", // 22, "Invalid parameter specification", // 23, "Invalid rush hour factor specification", // 24, "Too many rests"
22006	No buckets are available to serve this request	This error is returned when the Advise component is unable to find a feasible reservation slot in the given problem set for the input order.

22007	Wrong version of adapi DLL. {Expected:@expected} {Found:@found}	This error is returned when an incompatible Adapi.dll file is found with the current LNOS Version. Please contact support for this error.
22008	Could not load adapi DLL{. @reason}	This error is returned when the parameters specified in the adapi.ini files have inconsistent values. Check the staging database settings and paths. Restart the Com+ components.
22009	Internal error: timed out waiting for adapi	This error usually occurs when the Adapi component is not responding and has timed out. Restart the Com+ components. If the error persists, please contact customer support.
22010	Wrong version of lrmapi DLL. {Expected:@expected} {Found:@found}	This error is returned when an incompatible lrmapi.dll file is found with the current LNOS Version. Please contact support for this error.
22011	Could not load lrmapi DLL{. @reason}	This error is returned when the parameters specified in the lrmapi.ini files have inconsistent values. Check values and paths. Restart the Com+ components.
22012	Internal error: timed out waiting for rmpi	This error usually occurs when the Rmpi component is not responding and has timed out. Restart the Com+ components. If the error persists, please contact customer support.
22013	Malformed Advise command{:@reason}	This error occurs when the minimum required fields are not passed in the Advise call or the XML is malformed. Please check your input XML and try again.
22014	Malformed Commit command{:@reason}	This error occurs when the minimum required fields are not passed in the Confirm call or the XML is malformed. Please check your input XML and try again.
22015	Invalid Schedule Request{:@reason}	This error occurs when the Schedule Key passed in does not exist in the database. Please submit a valid Schedule Key and try again.
22016	Named pipe failure{:@message}	This error occurs when the Adapi or the Rmpi queues do not exist. Either turn off queues in the CtySysValue table and restart components, or create the Adapi and/or Rmpi queues, restart components and Adapi/Rmpi Windows Services and try again.

22017	StartDate must be earlier than EndDate	This error occurs when in the input XML the Start Date is later than the End Date. Please correct this value and try again.
22018	Malformed UpdateSchedule command{: @reason}	This error occurs when the input XML is malformed. Please check your input XML and try again.
22019	Cannot open command queue. Verify queue configuration in the database and Registry.	This error occurs when during a call, the queue cannot be accessed. Please check your queue configuration and try again.
22020	Unexpected condition{: @what}	This error occurs when the FW Backend has found an unexpected condition. This unexpected condition will follow this error. Some errors are retried by FW backend and some others are passed back to the XML interface.
22022	StopNumber equals or exceeds the number of stops on the route{ for StopID @stopID}	This error occurs during Confirm calls where the input XML includes a Stop Number equal or greater than the number of stops in the RouteID passed in the input XML. Correct the Stop Number in the Input XML and try again.
22023	Duplicate StopNumber{ @stop num} on route{ with RouteID @routeid}{, StopID @stopid1}{, StopID @stopid2}	This error occurs when a Confirm call is conflicting with an existing Stop Number. This Stop Number should be changed and the call should be tried again.
22024	Malformed Optimize command: nothing to do	This error occurs when the input XML is malformed. Please check your input XML and try again.
22025	No existing Order found with specified OrderKey{: @orderkey}	This error occurs when the input XML contains a non-existing Order Key in the system. Correct the value and try again. If using Business Documents, the OrderKey maps to the BOLNumber.
22026	No routes are available to serve this request	This error occurs when FW backend can't find a route based on the specified zone, start/end time, requirement or dynamiczoning distance.

22027	No Route was found with specified RouteID{: @routeid}	This error occurs when the specified RouteID in the input XML is not found in the DB. Check the value and try again.
22028	Expected exactly one DocOrder element	This error occurs when several DocOrder nodes are sent in the input XML. Only one node of the DocOrder type is supported. Please change the input xml and try again.
22029	No OrderTask was found with specified OrderTaskID{: @ordertaskid}	This error occurs when the specified OrderTaskID in the input XML is not found in the DB. Check the value and try again.
22030	Unexpected DocLocation element(s) found in DocOrderTask. They will be ignored.	This error occurs when non-referenced DocLocation nodes are found in the input XML. The non-referenced DocLocation nodes will be ignored.
22031	Wrong version of panapi DLL. {Expected:@expected} {Found:@found}	This error is returned when an incompatible panapi.dll file is found with the current LNOS Version. Please contact support for this error.
22033	Could not load panapi DLL{. @reason}	This error is returned when the parameters specified in the panapi.ini files have inconsistent values. Check values, stage db and paths. Restart the Com+ components.
22034	Internal error: timed out waiting for panapi	This error usually occurs when the panapi component is not responding and has timed out. Restart the Com+ components. If the error persists, please contact customer support.
22036	Malformed Pathing command{: @reason}	This error occurs when there is a problem with the Queues. The possible values returned are: no namedpipe name found
22037	{@reason}	This error occurs when the input data, specific to Keys, is not found in the database. The possible error messages or value to the variable @reason are: - Order not found for ScheduleKey - FATAL: Template doesn't exist for ScheduleTemplateKey - Did not find stops associated with this order: OrderKey = and ScheduleKey =

		Schedule doesn't exist.
22050	Invalid Schedule Request{: @reason}	This error occurs when the Schedule Key passed in does not exist in the database. Please submit a valid Schedule Key and try again.
22051	Schedule Task Error: Wrong DataSetNesting level specified {: @reason}	This error is returned when an invalid DataSetNesting value is specified. Correct the error and try again.
22052	Schedule Task Error: Invalid value for DataSetNesting field {: @reason}	This error is returned when an invalid DataSetNesting field is specified. Correct the error and try again.
22053	Schedule Task Error: No DataSetNesting Available{: @reason}	This error is returned when a DataSetNesting has not been defined. Define a DataSetNesting and try again.
22500	Wrong version of lgcp DLL. {Expected:@expected} {Found:@found}	This error usually occurs when the gcpi component is not responding and has timed out. Restart the Com+ components. If the error persists, please contact customer support.
22501	Internal error: timed out waiting for gcpi	This error usually occurs when the gcpi component is not responding and has timed out. Restart the Com+ components. If the error persists, please contact customer support.
22502	Could not load lgcp DLL{: @reason}	This error is returned when the parameters specified in the gcpi.ini files have inconsistent values. Check values, stage db, and paths. Restart the Com+ components.
22503	Malformed Resolve command{: @reason}	This error is returned when the input Geocoding XML document is malformed. Please try again.
22504	lgcp DLL error{: @message}	This error is returned when the LGCP DLL has failed to execute a task. This error may have to do with

		configuring the GCPI.INI file or an internal error in the communication between FW and GCPI.
33001	Resource could not be saved. {: @reason}	This error occurs when the Resource cannot be saved based on the input XML. The following reasons can be returned: • Routing parameter key does not exist. Cannot create new resource with new routing parameter key. • Route creation failed. This could be due to non-existence of initial or final station records in the FWLocation table. • Could not find or set ScheduleKey/ScheduleID from Resource.
33002	Error: Wrong DataSetNesting level specified {: @reason}	This error is returned when an invalid DataSetNesting value is specified. Correct the error and try again.
33003	Error: Invalid DataSetNesting field {: @reason}	This error is returned when an invalid DataSetNesting field is specified. Correct the error and try again.
33004	Error: No DataSetNesting Available{: @reason}	This error is returned when a DataSetNesting has not been defined. Define a DataSetNesting and try again.
33005	Error: No DataSetNesting Values Available{: @reason}	This error is returned when a DataSetNesting value has not been defined. Define a DataSetNesting value and try again.
33006	Error: No DataSetGroup{: @reason}	This error is returned when a DataSetGroup has not been defined. Define a DataSetNestingValue and try again.
33007	Error: Invalid DataSetValue{: @reason}	This error is returned when an invalid DataSetValue has been set. This error is followed by a specific reason. Check the value and try again.
33008	Error: Invalid RouteEditTask{: @reason}	The following reasons apply to this error: • No Input! • RouteEditTask missing StopEdits! • Invalid RouteEditTask. • RouteEditTask missing RouteEdits!

		• Could not find a valid StopID. Invalid StopEdit. • Could not find any RouteEdit. • Could not find any StopEdit.
33009	Error: Invalid StopEdits{: @reason}	The following reasons apply to this error: • Could not get requested StopIDs. • Could not create schedule update • Stops must belong to the same route. Invalid StopEdits. • Could not determine valid RouteIDs. Invalid StopEdits. • No stops found for unassignment or Invalid StopEdit. • Could not get requested StopIDs. • Could not determine valid RouteIDs. Invalid StopEdits. • No routes found. Could not create route update. • Could not create schedule update. • Could not determine unassigned stops. Invalid StopEdits. • No stops found for assignment or Invalid StopEdit. • Could not find unassigned stops. Invalid StopEdits. • No routes found. Could not create route update. • Unable to remove stop with StopID: • No stopID to remove stop. • No current stop record to remove. • Unable to unassign stop with StopID: • Could not order Stops. • Could not assign stops. • Could not reset stop numbers. • Invalid preceeding stop record or no unassigned stops to assign. • Invalid preceeding stop record. No StopNumber set. • Could not find preceeding stop on the route to complete the assignment. • No schedule/route to assign the stop records. • No current route to assign the stop records. • Could not unassign the stop record with StopID:

		- Invalid Schedule record unable to create unassign update for stop with StopID: - No schedule to unassign the stop record with StopID: - Could not find a valid RouteID for the assigned stop. Invalid StopEdit with StopID: - No assigned stops found. Invalid StopEdits. - Cannot edit a depot Stop. Invalid StopEdit. - Invalid stop edit: Cannot change stop with actuals set on it. - No stops found. Invalid StopEdits. - Could not find a valid Stop Type. Invalid Stop with StopID: - Could not check for Multi-Part Stop Type. No current stop record. - Could not check for Depot Stop Type. No current stop record. - Could not order stop with StopID: - Can't set status to home or end route. Some stops are still in service or not serviced yet - Invalid stop edit, No StopID/Status specified. - No stop edits to update stop status. - Could not check for actuals. No current stop record. - StopID or OrderKey is required for this status.
33010	Error: Invalid RouteEdits{: @reason}	- Cannot change assignment to more than one target route. - Could not determine valid target RouteID/PreceedingStopID. Invalid RouteEdits. - No routes found. Could not create route update. - Cannot assign to more than one target route. - Could not determine valid RouteIDs. Invalid RouteEdits. - Cannot determine target routes. FilterKey not null. - No routes found. - Cannot update status with missing or more than one RouteEdit. - Could not find Schedule for Route. - Could not retrieve RouteID.

- Cannot determine target routes to resequence.
- Could not determine valid RouteIDs and/or invalid RouteEdits.
- Could not get requested RouteIDs.
- Cannot merge more than two routes
- Source and target RouteEdit invalid.
- Target route not found to move stops.
- Unable to remove the stops from the source route.
- Source route not found to move stops.
- Unable to identify source and target route. More than two routes.
- No stops to move or invalid target/source route.
- Source route does not have any valid stops.
- Could not get source route stops to merge.
- Unable to identify source and target route.
- Invalid RouteEdits. Target and Source route is the same.
- Invalid Preceding stop.
- No Stops found on the route with RouteID:
- Could not get stops from route with RouteID:
- Could not get stops from Route. Invalid RouteID:
- Invalid Route with RouteID:
- Could not determine last stop. No current route record.
- RouteEdit/Route do not match. Cannot update status.
- No RouteEdit/Route or more than one RouteEdit/Route. Cannot update status.
- Could not find Route with ID:
- Schedule update does not have any routes!
- Cannot find RouteID by resourceKey/driverKey/orderKey
- Cannot find StopID by routeID/orderKey

33011	Error: RouteEditTask Failed{: @reason}	The following reasons apply to this error: • Could not link stop edit with the route edit task. • Could not prepare Route edit task. • Route update failed. No Route edit performed. • Call failed to get the Schedule to update. • Call failed to get the Schedule to update. • Could not get schedule with filterKey: • Route edit failed due to schedule update evaluation failure. • Route edit failed due to schedule optimization failure.
33012	Error{: @reason}	The following reasons apply to this error: • Invalid queue handler configuration. Please check the queue configuration. • Could not find any queue handler to serve the request. Please check the queue configuration. • Invalid queue handler name. Please check the queue configuration. • LocationKey cannot be removed because one or more Routes are using this Location. • Unable to find the records to delete • Input parmDocLocation is empty • Input parmDocResource is empty • Unable to find any Routes if ResourceID and ResourceKey both are empty • Unable to get input recordset • Input parmDocRoute is empty • No such record exists in FWRoute to update the PublishRoute flag. • No such record exists in FWRoute table. • No ScheduleKey was passed as input. • Input FWRoute recordset is empty • Destination ScheduleKey is required • Invalid ScheduleID. No such Schedule in the database. • Invalid Schedule Paste Command. Cannot pass in more than one schedule • Can not find StopID without RoutID

		• PageNum, PageSize, SortBy, and SortOrder are required for paging. • Input parmDocBucket is empty • Input parmFWBucket is empty. No record exists in the input record set. • Input parmFWMessage is empty. No record exists in the input record set. • Dropoff before pickup • Can't create update schedule recordset • Can't update schedule • Can not remove FWResource it has Routes • Could not find any Routes for that Resource • Input recordset is empty • ScheduleKey doesn't exist • Route XXX doesn't exist • Can't move an assigned stop with ActivityKey = • Can't move an assigned stop with ActivityKey =
33013	Queue Error{: @reason}	This error is returned by the Queueing services. This error is followed by a specific error description. Correct the error and try again. If the error persists, please contact Customer Support.
33014	Order Task Error{: @reason}	This error is returned when an action on order or stop of an order is invalid.
33015	Order {@oderKey} can't be updated or removed due to at least one of the stop is completed.	This error is returned when one of the order components has a Completion status and is requested to be removed. Reset the status of the Order and try again.