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RTCIS-RAI Next Generation   
Interface Specification

Version 1.06

Prepared by JDA Corporation

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# Introduction

RAI is the acronym for the **R**TCIS-**A**CTIV **I**nterface. RAI was developed for application communication between RTCIS and Retrotech’s ACTIV ASRS (Automated Storage and Retrieval System) in P&G’s North American sites. This original interface was later extended and enhanced to establish an ASRS interface standard between RTCIS and all ASRS vendors (Retrotech/ACTIV, Savoye/CIMAT and Swisslog/MSX).

The purpose of this document is to specify the next generation of the RAI Interface, or RAI ng. The first generation RAI Interface (as defined in *RTCIS Interface Messaging for Automated Storage and Retrieval Systems and Pallet Conveying Systems)* was based on calling function calls in a library supplied by the ASRS vendor (and the ASRS vendor calling function calls in a library provided by RTCIS). The proposed next generation of the RAI interface is designed to utilize RTCIS XML standards for integration. TCP sockets will be utilized to transmit the XML documents between the systems.

The intended audience of this document includes, but is not limited to, P&G RTCIS Architects, implementation and support personnel, the JDA RTCIS development and support personnel, and the ASRS vendor’s development and support personnel.

## Interface purpose

The purpose of this interface is to exchange data for full pallet storage and retrieval in an ASRS controlled work area. RTCIS will notify the ASRS system of unit loads destined for the ASRS and request unit loads from the ASRS to fulfill order requirements, replenishment requests and manual withdrawal requests.

# Systems Description

## Overview

Warehouse Controls Systems (ASRS)

SAP

ASRS

RTCIS

INTEGRATOR

Pallet Conveying

Systems

Cranes

(SRMs)

Conveyors

Scanners

PLCs

PLCs

Conveyors

Labeler

PLC Control

(dtlmsgdrv)

### SAP

SAP transmits customer order information to RTCIS. SAP receives order confirmation from RTCIS as product is shipped.

### RTCIS - Real-Time Information & Control System

RTCIS is the warehouse management system that is used by P&G. It is developed and maintained by JDA Corporation.

#### Integrator

Integrator is a JDA DigitalLogistix component that is used by RTCIS to interface to external systems.

#### PLC Control (dtlmsgdrv)

The PLC Control, also called the Detailed Message Driver (dtlmsgdrv), is the RTCIS application that is used by RTCIS to interface to Programmable Logic Controllers, also known as PLCs. The current RTCIS PLC Interface transactions are defined in the *RTCIS Interface Messaging for Automated Storage and Retrieval Systems and Pallet Conveying Systems* document.

### ASRS – Automated Storage and Retrieval System

Automated Storage and Retrieval System, or ASRS, will control various devices needed to move pallets. The ASRS may control conveyors and cranes (also known as storage retrieval modules or SRMs) to move pallets to/from bin locations, scanners to read barcode labels or a variety of other devices that may be controlled using PLCs (Programmable Logic Controllers). The devices required will vary depending on the P&G facility and the ASRS vendor controlling the devices.

The ASRS stores inventory in a designated area of the warehouse. All of the Automated Storage and Retrieval Systems utilized by P&G currently store/retrieve pallets (not cases). Most of the pallets stored in the ASRS are full pallets, but partial pallets may also be stored based on an RTCIS system parameter. The ASRS controls pallet movement and maintains the specific rack location information in this area. RTCIS continues to maintain inventory information, such as the pallet’s barcode and item information, but considers all pallets to be in one generic ASRS “location”.

The ASRS also provides a single, consistent and common interface point for RTCIS to communicate with, using the messages defined in this document. Currently, there may be only one ASRS per facility. However, there may be other automation in the facility, such as conveyors controlled by PLCs or AGVs controlled by a WCS (using the CSI interface).

### PCS - Pallet Conveying System

A Pallet Conveying System, or PCS, is responsible for the movement of unit loads within the warehouse using automation, such as a pallet conveyor or monorail. The PCS may control conveyors to move pallets, scanners to read barcode labels, labelers to print and apply barcodes or a variety of other devices that may be controlled using PLCs (Programmable Logic Controllers). The devices required will vary depending on the P&G facility and the PCS vendor controlling the devices.

The PCS may control a variety of other devices, while still providing a single interface to RTCIS. In some facilities, the PCS may be used in conjunction with the ASRS to drop off or pickup unit loads from ASRS locations, as well as traditional (non-automated) storage locations.

# Interface Architecture

## Interface Protocol Overview

RTCIS interfaces with the ASRS using sockets over TCP/IP (stream-based sockets). RTCIS will have a listener process running on a designated port to accept incoming connections from ASRS client(s). Similarly ASRS will have a listener process running on a designated port to accept incoming connections from RTCIS Integrator client(s).

### Listener Process

Each systems listener process acts as the server process, and must maintain the socket connection to allow the client to send multiple messages on a single connection. The client may disconnect at any time. The server may only disconnect if the server process is being shut down.

Each listener process must also accept multiple client connections. This approach allows each system to develop and implement client architecture without restrictions from the other system. It also facilitates connection recovery, by allowing the client to re-connect even when the listener process is maintaining an existing socket connection. This is important if the client detects the original socket connection abnormally terminated, and attempts to re-connect before the server detects the disconnection.

### ACK/NAK Handshaking

The ACK/NACK hand shaking mechanism confirms the success or the failure of the delivery of message to the system. The listener process sends a character that represents an acknowledgement (ACK) or a negative acknowledgement (NAK) to the client immediately after any interface message is received and before the message contents are processed. The listener process will send either an ACK or a NAK per interface message. The listener process would never send both an ACK and NAK.

#### ACK Message

This message informs the client that the listener has successfully received a single message.

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Type** | **Length** | **Value** |
| Message Type | Char | 1 | ASCII ‘A’ |

#### NAK Message

This message informs the client of a failure in communications. This indicates that the listener did not receive a well-formed XML 1.0 document conforming to the RAI ng DTD (Document Type Definition) followed by a [message terminator](#_Message_Terminator) (<CR><LF><LF>).

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Type** | **Length** | **Value** |
| Message Type | Char | 1 | ASCII ‘N’ |

### Sending Messages using Unidirectional Sockets

Each socket connection is unidirectional, except for the ACK/NAK hand-shaking. All of the interface messages from ASRS to RTCIS will be sent on the socket connecting the ASRS client to the RTCIS server. All of the interface messages from RTCIS to ASRS will be sent on the socket connecting the RTCIS client to the ASRS server. Only the single byte ACK/NAK will be sent by the server to the client.



### Message Formats - XML

All interface messages sent will be XML formatted messages. The specific XML tags are defined later in this document (refer to the [*Message Definition*](#Doc_Message_Definitions) section). This interface does not use any XML envelope, other than the tags defined for each message. (For example, this interface does not utilize a SOAP XML envelope). Each XML document represents a single message. The tag of the root element is used to identify the interface message.

### Message Terminator

A message terminator is used to verify a complete message packet has been delivered from client to host. Every individual client message transmitted to a server will terminate with the three special characters <CR><LF><LF>. *Note: This terminator is not used for ACK/NAKs.*

Terminating Sequence:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Mnemonic** | **Description** | **Octal** | **Decimal** | **Hex** |
| <CR> | Carriage Return | 015 | 13 | 0xD |
| <LF> | Line Feed | 012 | 10 | 0xA |
| <LF> | Line Feed | 012 | 10 | 0xA |

Example:

<?xml version="1.0" encoding="utf-8" ?>

<QAStatusChange>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00100370001071991191</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <ChangeULQA>

  <MESSAGE\_TYPE>A16</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>00100370001071991207</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80228847</BRAND\_CODE>

  <CODE\_DATE>4209172765</CODE\_DATE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  </ChangeULQA>

</QAStatusChange>

The Hexadecimal dump of the message:

0000000 3c 3f 78 6d 6c 20 76 65 72 73 69 6f 6e 3d 22 31

0000020 2e 30 22 20 65 6e 63 6f 64 69 6e 67 3d 22 75 74

0000040 66 2d 38 22 20 3f 3e 20 0a 3c 51 41 53 74 61 74

0000060 75 73 43 68 61 6e 67 65 3e 0a 20 20 3c 4d 65 73

0000100 73 61 67 65 48 65 61 64 65 72 3e 0a 20 20 20 20

0000120 20 3c 53 45 53 53 49 4f 4e 5f 4b 45 59 3e 52 54

0000140 43 49 53 3c 2f 53 45 53 53 49 4f 4e 5f 4b 45 59

0000160 3e 20 20 20 20 0a 20 20 20 20 20 3c 4d 45 53 53

0000200 41 47 45 5f 49 44 3e 30 30 31 30 30 33 37 30 30

0000220 30 31 30 37 31 39 39 31 31 39 31 3c 2f 4d 45 53

0000240 53 41 47 45 5f 49 44 3e 20 20 20 20 0a 20 20 20

0000260 20 20 3c 54 49 4d 45 53 54 41 4d 50 3e 32 30 31

0000300 34 30 37 31 33 31 36 32 32 31 32 3c 2f 54 49 4d

0000320 45 53 54 41 4d 50 3e 20 20 20 20 0a 20 20 20 3c

0000340 2f 4d 65 73 73 61 67 65 48 65 61 64 65 72 3e 20

0000360 0a 20 20 3c 43 68 61 6e 67 65 55 4c 51 41 3e 0a

0000400 20 20 20 20 20 3c 4d 45 53 53 41 47 45 5f 54 59

0000420 50 45 3e 41 31 36 3c 2f 4d 45 53 53 41 47 45 5f

0000440 54 59 50 45 3e 20 0a 20 20 20 20 20 3c 55 4e 49

0000460 54 5f 4c 4f 41 44 5f 49 44 3e 30 30 31 30 30 33

0000500 37 30 30 30 31 30 37 31 39 39 31 32 30 37 3c 2f

0000520 55 4e 49 54 5f 4c 4f 41 44 5f 49 44 3e 20 0a 20

0000540 20 20 20 20 3c 42 52 41 4e 44 5f 43 4f 44 45 3e

0000560 38 30 32 32 38 38 34 37 3c 2f 42 52 41 4e 44 5f

0000600 43 4f 44 45 3e 20 0a 20 20 20 20 20 3c 43 4f 44

0000620 45 5f 44 41 54 45 3e 34 32 30 39 31 37 32 37 36

0000640 35 3c 2f 43 4f 44 45 5f 44 41 54 45 3e 20 0a 20

0000660 20 20 20 20 3c 55 4c 5f 48 4f 4c 44 5f 53 54 41

0000700 54 55 53 5f 43 4f 44 45 3e 52 4c 3c 2f 55 4c 5f

0000720 48 4f 4c 44 5f 53 54 41 54 55 53 5f 43 4f 44 45

0000740 3e 20 0a 20 20 3c 2f 43 68 61 6e 67 65 55 4c 51

0000760 41 3e 0a 3c 2f 51 41 53 74 61 74 75 73 43 68 61

0001000 6e 67 65 3e **0d 0a 0a**

### Data Encoding

For all interface messages, the following will be required.

* All messages are composed entirely of characters.
* No binary data is allowed.
* ASCII 0x0 (NULL) and ASCII 0x127 (DEL) are reserved and can never be part of the message *data*.
* The message size is variable length

### Heartbeat Message

The RTCIS/Integrator listener process will accept a heartbeat XML message from the ASRS system and send an XML message back in response (refer to the [*Message Definition*](#Doc_Message_Definitions) section for the format of the heartbeat message). ASRS may send a [Check\_HeartBeat](#_Toc393801230) message and RTCIS will respond with a [Confirm\_HeartBeat](#_Confirm_Heartbeat_(Confirm_Heartbea_1) message as shown in the figure below.



## RTCIS to ASRS Protocol Overview



1. A socket connection will be established from the RTCIS Integrator to the ASRS Listener. RTCIS will first attempt this connection when the RTCIS instance is started. The ASRS Listener “accepts” the connection from the RTCIS client and waits (indefinitely) for a message to be received on the socket.

*Note that RTCIS will not make multiple socket connections to ASRS under normal conditions. RTCIS will establish a single connection and re-use the same connection as long as it is valid.*

1. An RTCIS application (e.g. Pick Location Selection) will trigger an Integrator event (through MOCA).
2. Based on Integrator configuration data, event output will generated from the RTCIS database and stored in the Integrator database.
3. An Integrator background process will generate an interface document (IFD).
4. The Integrator background process formats the IFD data as an XML document with the message terminator (<CR><LF><LF>) and sends the XML document over the socket connection to the ASRS listener. If a system cannot send a message to the other system (i.e. the listener is unavailable), the client should disconnect the socket connection and re-establish the connection. For example, if RTCIS Integrator cannot send a message to the ASRS Listener, RTCIS would disconnect the existing connection and attempt to re-establish a new socket connection from the RTCIS Integrator client to the ASRS Listener server.
5. The ASRS Listener receives, parses and stores the message from RTCIS. If the message is valid, the ASRS Listener replies with an ACK on the same socket connection. If the message is invalid, the ASRS will reply with a NAK. The ASRS system will then proceed to validate and process the contents of the message.

All vendors must at least validate that a complete message has been received, including the message termination string (<CR><LF><LF>). If a timeout occurs before the complete message is received, the ASRS Listener must reply with a NAK. *Note: The timeout value will vary by vendor. RTCIS uses a system parameter to set the ACK/NAK timer, which allows it to be changed by facility and vendor interface. ASRS vendors are also encouraged to implement the timeout as a parameter.*

RTCIS will also set a timer to wait for the ACK/NAK reply. If RTCIS times out or receives a NAK, RTCIS will resend the message one time before failing with a “send error”. “Send errors” get reported in the RTCIS Integrator Explorer user interface. “Send errors” may also be configured to trigger another Integrator event.

After sending the ACK/NAK, the ASRS Listener leaves the socket “open” and waits indefinitely for more data to be received.

## ASRS to RTCIS Protocol Overview



1. A socket connection will be established from the ASRS client to the RTCIS Integrator Listener. ASRS should first attempt this connection when the ASRS is started. The RTCIS Integrator Listener “accepts” the connection from the ASRS client, and waits (indefinitely) for a message to be received on the socket.
2. A ASRS process will trigger an interface message to RTCIS. Each message will be formatted as an XML document, plus the message terminating sequence (<CR><LF><LF>), and sent to the Integrator Listener. If the ASRS cannot send a message to RTCIS, the ASRS client should disconnect the socket and attempt re-establish a new connection.
3. The RTCIS Integrator Listener receives and stores the message from ASRS, by creating an “Inbound IFD” document to represent the message sent by ASRS. If the message is valid, the RTCIS Integrator Listener replies with an ACK on the same socket connection. If the message is invalid, or if the complete message is not received within the timeout period, the RTCIS Integrator Listener will reply with a NAK.

*Note: The RTCIS Integrator Listener verifies the interface message has been received successfully, but does not attempt to parse the XML document or process the interface message until after the ACK/NAK is sent. Any errors parsing or processing the message will be logged in RTCIS internally.*

1. Based on the Integrator configuration data, the XML document will be parsed and an inbound “interface document” (IFD) will be created and stored in the Integrator database.
2. The RTCIS Integrator triggers an event, generates a “Result IFD”, and invokes the RTCIS processing algorithm associated with each result IFD segment.
3. The processing algorithm updates the RTCIS database.

# Message Definitions

This section describes the segments, fields and values for each interface message. Refer to the RTCISASRSXMLSchema.xsd document for specific XML definitions.

## Message Header Segment

Every message sent will have the same Message Header segment. This segment will be the first segment in the message, and will be independent of the other segments in the message. All of the fields in the message header are required, and must be specified when sending a message to RTCIS.

### Fields – Message Header Segment

The Request segment identifies the source location, destination location and priority for the requested move.

XML tag: MessageHeader

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| SESSION\_KEY | String | 30 | The RTCIS session key verifies the client connection is active and allowed to send transactions to RTCIS. In RTCIS, the session key may be statically defined (pre-authorized) or dynamically assigned (authenticated with the Login message). |
| MESSAGE\_ID | String | 30 | A unique message identifier for the message being sent. |
| TIMESTAMP | String | 14 | The date/time the message was sent. The TIMESTAMP must be in the format of YYYYMMDDHHMISS where YYYY is the four digit year, MM is the month, DD is the day, HH is the hour, MI is the minute and SS is the seconds. |

## Messages Sent from RTCIS to ASRS

| **RAI Message** | **RAI ng XML tag** | **Description** |
| --- | --- | --- |
| Message 8 - Request ASRS Input Location | [RequestInduction](#_Request_ASRS_Input) | RTCIS requests an input location from the ASRS for a pallet destined for the ASRS. The ASRS responds with the suggested input location using [AssignInductionLoc](#_Identify_Unit_Load) |
| Message 13 – Manual Output Request | [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) | RTCIS request inventory to be retrieved from the ASRS to fulfill a system generated replenishment or manual user request. The ASRS responds with the delivery location using [AssignWithdrawalLoc](#_Assign_ASRS_Withdrawal) and then [WithdrawalULArrival](#_Pallet_Arrival_for) for each pallet retrieved. |
| Message 35 – Request ASRS FPDS Input Conveyor for Inbound Trailer | [RequestFPDS](#_Request_FPDS_Input) | RTCIS requests a conveyor/FPDS location from the ASRS to unload a trailer/shuttle of manufactured inventory or an interplant receipt. |
| Message 16 – Unit Load Quality Status Change | [QAStatusChange](#_Toc394069003) | RTCIS sends this message to notify the ASRS status of a unit load has changed. This message will be sent for every unit load associated with the control group changed. |
| Message 21 – Retrieve Next Shipment/Order | [AssignShip](#_Assign_Shipment_for_1) | RTCIS uses this message to transmit the next shipment (or batched withdrawal request) in the queue to begin ASRS staging, after receiving a [RequestNextShip](#_Request_Next_Shipment_1) message from the ASRS. |
| Message 25 – Ship Lane Empty | [ShipLaneEmpty](#_Ship_Lane_Empty_1) | RTCIS sends this message to the ASRS to indicate the shipping lane is empty. |
| Message 26 – Stop Staging Pallets | [StopShipStaging](#_Stop_Ship_Staging_1) | RTCIS sends this message to notify the ASRS to stop staging the shipment |
| Message 20 – Shipment/Order Cancel Notification | [CancelShipment](#_Cancel_Shipment_(CancelShipment)) | RTCIS notifies the ASRS system that a shipment has been cancelled |
| Message 32 – Slot Sign On/Off | [SlotSignOnOff](#_Slot_Sign_On/Off_1) | RTCIS requests to have the ASRS move the pallets in the staging slot forward to allow them to be picked up by a fork lift truck |
| Message 32 – Request Slot De-stage | [SlotDestage](#_Slot_Destage_(SlotDestage)) | RTCIS requests to have the ASRS remove the pallets currently staged in the location. |
| Message 41 – Retrieve Next Production order | [AssignProdOrder](#_Assign_Production_Order_1) | RTCIS uses this message to transmit the next production order in the queue to begin ASRS staging, after receiving a [RequestProdOrder](#_Request_Next_Customization) message from the ASRS. |
| Message 40 – Production order Cancelled | [CancelProdOrder](#_Cancel_Production_Order_1) | RTCIS notifies the ASRS system that a production order has been cancelled |
| Confirm HeartBeat | [Confirm\_HeartBeat](#_Confirm_Heartbeat_(Confirm_Heartbea_1) | Response to the  [Check\_HeartBeat](#_Toc393801230) Message |

### Request ASRS Induction (RequestInduction)

This message is used by RTCIS to request an input location from the ASRS for a pallet to be inducted using an FPDS. The ASRS will respond with an [AssignInductionLoc](#_Identify_Unit_Load) message indicating the location chosen.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | 1. A PLC Message 5 from a newly produced pallet traveling on a conveyor. 2. A PLC Message 5 from an existing pallet being placed on a FPDS. |
| RAI ng XML tag: | RequestInduction |
| RAI library call: | ACTIV\_assign\_input (Message 8) |

#### Fields – RequestInduction – RequestLocForPallet segment

This segment identifies the unit load and associated inventory information of the pallet being inducted.

XML tag: RequestLocForPallet

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Must be one of the following:   * A8 – Ask ASRS for input location. Occurs when delivery location = 0 in message 5. Two A8s are sent for stacked pallets. * D8 – De-announce the Unit load to ASRS. This happens when unit load pending location is the ASRS. The ASRS then de-allocates resources for storing the specific unit load. Only one D8 is sent for stacked pallets. * M8 – Announce to ASRS which input location will arrive. When delivery location is not 0, 88, 99, consign type, or reject type location. * C8 – Request an input location for a case picked unit load. This is a unit load which has been created with many different item codes. * L8 – same as an A8, except it is telling the ASRS system that the ulid is on the lower FPDS, so the ASRS system will only return lower input points. Happens when message 5 delivery location = 88 * U8 – same as an A8, except it is telling the ASRS system that the ulid is on the upper FPDS, so the ASRS system will only return upper input points. Happens when message 5 delivery location = 99 |
| Unit\_load\_id | String | 20 | Unit load Barcode including check digit |
| Brand\_Code | String | 8 | The item code for the unit load. |
| Brand\_Description | String | 40 | If this is not C8, the item description I used. If this is C8, this field contains the shipment number and a sequence number. The format is nnnnnnnnnnnn:s where “nnnnnnnnnnnn” is up to a twelve digit shipment number and “s” is a loading sequence number. See message 21 for a description of how this information is used for retrieving case picked unit loads. |
| Code\_date | String | 12 | The control group for the unit load |
| Pallet\_Type | String | 2 | This translated PLC pallet type (ULPALL.PLCPAL) of the corresponding to the RTCIS pallet type (ULPALL.ULPALL) of the unit load. Any character can be used to indicate pallet type, but it must be the same in the ASRS data base and in the RTCIS data base.  Sample values for the ACTIV system are   * Q – CHEP * T – GMA   Sample values for the MSX system are   * U – CHEP * E – EURO * W – WERO |
| Ul\_hold\_status\_code | String | 6 | The unit loads’s Q/A status. If this is release or early release, RL will be passed. If not, RTCIS will check if the “Translate QA Status for ASRS (Use HQ QA Status)?” system parameter is set. If so, HQ (for Hold Quality) will be passed. If the system parameter is not set, the RTCIS un-translated Q/A status will be sent. |
| Activ\_input\_location | String | 5 | This field will be blank for message types A8, D8, C8, L8, and U8, leaving the ASRS to assign the induction location. For message type M8, this field will contain the RTCIS requested input location to route the pallet to. |
| Item\_group | String | 6 | Item group |
| Base\_ulid | String | 20 | When pallets are stacked for storage, this is the SSCC-18 number of the unit load of the bottom pallet. A message A8 is sent for each pallet in the stack, with the base\_ulid value contained in each message. This notifies the ASRS which unit loads are stacked together. |
| Case\_quantity | Number | 11 | Number of cases on pallet. |
| Partial\_flag | String | 1 | Y – Unit Load is a partial  N – Unit Load is a full or setup/kit |
| PLc\_USERID | String | 4 | PLC User (the original PLC station/port) that requested the location assignment. |

#### XML Example – RequestInduction

<?xml version="1.0" encoding="utf-8" ?>

<RequestInduction>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestLocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80221059 </BRAND\_CODE>

  <BRAND\_DESCRIPTION>DOWNY LQSCP AF 4/103Z 120 LOADS</BRAND\_DESCRIPTION>

  <CODE\_DATE>415817020I </CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  <ACTIV\_INPUT\_LOCATION></ACTIV\_INPUT\_LOCATION>

  <ITEM\_GROUP>ENHANC</ ITEM\_GROUP>

  <BASE\_ULID>700370001646151000</ BASE\_ULID>

  <CASE\_QUANTITY>50</CASE\_QUANTITY>

  <PARTIAL\_FLAG>N</ PARTIAL\_FLAG>

  <PLC\_USERID>3100</ PLC\_USERID>

  </RequestLocForPallet>

</RequestInduction>

### Withdrawal Request (WithdrawalRequest)

This is a message sent from RTCIS to the ASRS requesting the ASRS retrieve one (or more) pallets by item code, by item code and control group or request that the ASRS retrieve a single pallet by unit load Id. The ASRS should first respond to this request by indicating the output conveyor/location that the inventory will be delivered to, by sending an [AssignWithdrawalLoc](#_Assign_ASRS_Withdrawal) message, and then send a [WithdrawalULArrival](#_Pallet_Arrival_for) message each pallet retrieved.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | 1. A RTCIS system generated replenishment when the inventory to be picked for the replenishment is located in the ASRS. 2. A manual withdrawal requested by the RTCIS RDT user using the withdrawal application (function key 23). 3. A manual withdrawal requested by the RTCIS CRT user using the withdrawal manager application. |
| RAI ng XML tag: | WithdrawalRequest |
| RAI library call: | ACTIV\_UL\_output\_req (Message 13) |

#### Fields – WithdrawalRequest – RequestInventory segment

The Request segment identifies the criteria for the pallet(s) being requested from the ASRS.

XML tag: RequestInventory

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A13 |
| Host\_control\_number | String | 12 | This number is assigned by RTCIS to track the request. It consists of an M plus a 4 digit number. |
| Brand\_Code | String | 8 | Optional (Brand\_code or Unit\_load\_id must be requested). The 5 or 8 digit item code (UNTDTL.ITMCOD) |
| Unit\_load\_id | String | 20 | Optional (Brand\_code or Unit\_load\_id must be requested). Unit load barcode including check digit, if requesting a specific unit load.  *Note: A specific unit load may only be requested with the CRT Withdrawal Manager using the request by unit load screen. All other RTCIS functions will request by item code or item code and control group.* |
| Code\_date | String | 12 | Optional. The requested control group.  *Note: Only the manual withdrawal request (either RDT via F23 or CRT Withdrawal Manager) will specify the control date. Normal RTCIS replenishments will not specify a specific control group.* |
| Pallet\_Type | String | 2 | This PLC pallet type (ULPALL.PLCPAL), corresponding to the RTCIS pallet type (ULPALL.ULPALL) requested. Any character can be used to indicate pallet type, but it must be the same in the ASRS data base and in the RTCIS data base. Sample values are   * ACTIV - Q=CHEP and T=GMA.   MSX - U=CHEP, E=EURO, and W=WERO. |
| Ul\_withdrawal\_qty | String | 4 | Number of Unit Loads to Withdraw |
| Activ\_output\_location | String | 5 | This field is optional and RTCIS may request delivery to a specific output conveyor, depending on the configuration:  ***RTCIS System Generated Replenishment Requests:***  This field is typically blank for replenishment requests, because the ASRS normally assigns the output location. However RTCIS may request a delivery location for the request. If the RTCIS “ASRS: Send VTL Location for Message 13” system parameter is set and the associated VTL (vertical lift) location (ZONCOD.VTL\_OUTFEED\_LOCATN) is found, RTCIS will request this location. Otherwise, RTCIS will not pass a value, allowing the ASRS to select the destination location.  ***Manual Withdrawal Requests***  This field will contain a specific delivery conveyor location, if the warehouse user enters a location when requesting the inventory using the RTCIS Withdrawal Manager application. The user may enter a VTL (vertical lift location), a generic staging location or leave the field blank. If the field is left blank, the ASRS will select the delivery location. |
| withdrawal\_intent\_code | String | 2 | N – Indicates that this message is a new request.  C – Cancels a previous withdraw request. |
| withdrawal\_select\_flag | String | 2 | Optional. The requested Q/A status. If this is release or early release, RL will be passed. If not, RTCIS will check if the  “Translate QA Status for ASRS (Use HQ QA Status)?” system parameter is set. If so, HQ (for Hold Quality) will be passed. If the system parameter is not set, the RTCIS Q/A status will be set. |
| Withdrawal\_partial\_code | Number | 1 | Indicates if the request is for full or partial pallets. The possible values for this code are:  1 – Only Full Pallet(s)  2 – Only Partial(s)  3 – Prefer Full Pallet(s), then Partial(s)  4 – Prefer Partial(s), then Full Pallet(s)  Blank – Anything  RTCIS will check the “Store Partial Pallets in ASRS?” system parameter, to determine if partials are being stored in the ASRS.   * If this is a manual request and partials are being stored in the ASRS, RTCIS will prompt the user to choose from the options above. * If this is a manual request and parts are not being stored in the ASRS, the code will be 1 (Full only). * If this is an automatic request and partials are not being store in the ASRS, the code will be set to 3 (Full, then Part), to request full, then partials. *Note: This would seem to be equivalent to 1 (Full only), since we never expect a partial in the ASRS.* * If this is an automatic request and partials are allowed and RTCIS is requesting a replenishment for a layer case pick location, the code will be set to 1 (Full only) * If this is an automatic request and partials are allowed and RTCIS is requesting a replenishment for non-layer case pick, the code will be set to 4 (Part, then full) * If this is an automatic request and partials are allowed and the request is not for a case pick face, the code will be blank. |

#### XML Example – WithdrawalRequest

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalRequest>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestInventory>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <BRAND\_CODE>80232874 </BRAND\_CODE>

  <UNIT\_LOAD\_ID></UNIT\_LOAD\_ID>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_WITHDRAWAWL\_QTY> 2 </ UL\_WITHDRAWAWL\_QTY>

  <ACTIV\_OUTPUT\_LOCATION></ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_INTENT\_CODE>N</WITHDRAWAL\_INTENT\_CODE>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <WITHDRAWAL\_PARTIAL\_CODE>4</ WITHDRAWAL\_PARTIAL\_CODE>

  </RequestInventory>

</WithdrawalRequest>

### Request FPDS Input Conveyor for Inbound Trailer (RequestFPDS)

A facility may have multiple FPDS conveyors to unload pallets for inbound trailers/shuttles. If the facility has multiple inbound conveyors, RTCIS will submit a request to the ASRS when a trailer/shuttle of manufactured inventory, or an interplant receipt, is moved to a dock door in the ASRS building and unloaded. The RTCIS request will include information about the inventory to be unloaded. The ASRS will use this information to choose the most appropriate inbound conveyor location to use (which maintains optimal inventory balance in the ASRS) and responds with an [AssignFPDSLoc](#_Assign_FPDS_Input_1).

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | 1. The warehouse user moves a trailer from the door using the RDT Shuttle Move Request function in Line Takeaway. 2. A warehouse user check-in a new trailer for an interplant receipt and selects a dock door using the RTCIS Trailer Location Selection application on the CRT.    1. The warehouse user checks in a new trailer, but overrides the suggested dock door and FPDS location. 3. A warehouse user moves a trailer for an interplant receipt from the drop lot to a dock door 4. A warehouse user overrides the previously selected dock door and associated inbound conveyor location when moving the trailer to the door using the RDT Process Trailer Movement function in RTCIS. |
| RAI ng XML tag: | RequestFPDS |
| RAI library call: | ACTIV\_inbound\_trailer (Message 35) |

#### Fields – RequestFPDS – TrailerHeader segment

This segment specifies the trailer contents to be unloaded.

XML tag: TrailerHeader

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | A35 – Request Input Conveyor  D35 – Discard the ASRS chosen conveyor location  M35 – Announce to ASRS which FPDS this trailer will arrive on (override) |
| Trailer\_number | String | 10 | The unique trailer identifier |
| Truck\_line | String | 10 | The carrier of the trailer |
| Activ\_input\_conveyor | String | 6 | The FPDS conveyor location. This is blank if RTCIS is making the initial request for an FPDS location (i.e. the message type is A35). |
| Line\_count | String | 8 | Number of pallets expected to be unloaded from this trailer |

#### Fields – RequestFPDS – TrailerUL segment

This segment specifies the trailer contents to be unloaded.

XML tag: TrailerUL

Parent segment: TrailerHeader

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Unit\_load\_id | String | 20 | Unit load Barcode including check digit |
| Brand\_Code | String | 8 | The item code for the unit load. |
| Item\_Number | String | 16 | Item number, For *ACTIV*, a ‘1’ in the first character position means Feeder Stock. |
| Pallet\_Type | String | 2 | This translated PLC pallet type (ULPALL.PLCPAL) of the corresponding to the RTCIS pallet type (ULPALL.ULPALL) of the unit load. Any character can be used to indicate pallet type, but it must be the same in the ASRS data base and in the RTCIS data base.  Sample values for the ACTIV system are   * Q – CHEP * T – GMA   Sample values for the MSX system are   * U – CHEP * E – EURO   W – WERO |

#### XML Example – RequestFPDS

<?xml version="1.0" encoding="utf-8" ?>

<RequestFPDS>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <TrailerHeader>

  <MESSAGE\_TYPE>A35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <LINE\_COUNT>3</LINE\_COUNT>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559442</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559497</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001638845549</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

  </TrailerHeader>

</RequestFPDS>

### Quality Assurance Status Change (QAStatusChange)

RTCIS sends this message to notify the ASRS that the quality assurance status of a unit load has changed. This message will be sent for every unit load associated with the control group changed.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | 1. A quality assurance status change performed by the tech using the RTCIS QA Status Change by Control Group application (qastatchg). 2. A quality assurance status change performed by SAP 3. A control group is automatically released in RTCIS (autrlsmnt) 4. A control group is reaches its expiration date in RTCIS (expdatevl) 5. RTCIS automatically stops the shipment (shpstpevl) 6. A control group is split (or un-split) by the tech using the RTCIS Split Control Group application (splitcglc). |
| RAI ng XML tag: | QAStatusChange |
| RAI library call: | ACTIV\_UL\_status\_change (Message 16) |

#### Fields – QAStatusChange – ChangeULQA segment

This segment identifies the unit load and the new QA status for the pallet.

XML tag: ChangeULQA

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A16 |
| Unit\_load\_id | String | 20 | Unit load Barcode including check digit. This is the SSCC-18 number of the specific unit load whose status is to be changed. |
| Brand\_Code | String | 8 | The item code for the unit load. |
| Code\_date | String | 12 | The control group. If there are multiple control groups on the unit load, RTCIS will only notify the ASRS of the oldest control group. |
| Ul\_hold\_status\_code | String | 6 | This is the new status of the specific unit load. If this is release or early release, RL will be passed. If not, RTCIS will check if the “Translate QA Status for ASRS (Use HQ QA Status)?” system parameter is set. If so, HQ (for Hold Quality) will be passed. If the system parameter is not set, the RTCIS Q/A status will be set |

#### XML Example – QAStatusChange

<?xml version="1.0" encoding="utf-8" ?>

<QAStatusChange>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00100370001071991191</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <ChangeULQA>

  <MESSAGE\_TYPE>A16</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>00100370001071991207</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80228847</BRAND\_CODE>

  <CODE\_DATE>4209172765</CODE\_DATE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  </ChangeULQA>

</QAStatusChange>

### Assign Shipment for Staging (AssignShip)

This is the response to the ASRS request for the next shipment (or batched withdrawal request) to stage. In the original RAI interface, the shipment requirements were passed back to the ASRS system inline using the parameters of the *HOST\_get\_order* function call. The RAI ng Interface now responds with this transaction.

*Note: Withdrawal requests are normally fulfilled using a* [*WithdrawalRequest*](#_Manual_Output_Request) *and* [*AssignWithdrawalLoc*](#_Assign_ASRS_Manual) *message sequence, but RTCIS also has the ability to batch large withdrawal requests. If the number of pallets requested exceeds the RTCI S “Maximum Number of UL's for ASRS Batch Processing” system parameter, the withdrawal request will be treated like a shipment and transmitted to the ASRS system when responding to a* [*RequestNextShip*](#_Request_Next_Shipment_1)*. The suggested setting for this parameter is four pallets, so withdrawal requests of five (or more) will be processed as shipments.*

After receiving the [RequestNextShip](#_Request_Next_Shipment_1), RTCIS will examine all available shipments and batched withdrawal requests in the RTCIS sub-site associated with the ASRS system. The primary criterion to examine shipments is the MOT code (Method of Transportation code) sent in the [RequestNextShip](#_Request_Next_Shipment_1). This MOT code will be used with the associated RTCIS MOT system parameters to select the shipment to send to the ASRS.

1. If the MOT code passed by the ASRS is “A”, RTCIS will use the “MOT Code for ASRS Message A21” system parameter (normally also set to “A”) and the “Default value for MOT code” system parameters to select the shipments. The shipment will be selected by RTCIS
   * If the shipment’s MOT code matches the A21 MOT code system parameter, or
   * If the A21 MOT system parameter is null, or
   * If the shipment’s MOT is null and the default MOT system parameter matches the A21 MOT system parameter
2. If the MOT code passed by the ASRS is “B”, RTCIS will use the same logic, but the “MOT Code for ASRS Message B21” RTCIS system parameter is used.
3. If the MOT code passed by the ASRS is “C”, RTCIS will use the same logic, but the “MOT Code for ASRS Message C21” RTCIS system parameter is used.
4. If the MOT code passed by the ASRS is “D”, RTCIS will use the same logic, but the “MOT Code for ASRS Message D21” and “Default value for MOT code - D21, E21, F21” RTCIS system parameters are used.
5. If the MOT code passed by the ASRS is “E”, RTCIS will use the same logic, but the “MOT Code for ASRS Message E21” and “Default value for MOT code - D21, E21, F21” system RTCIS parameters are used.
6. If the MOT code passed by the ASRS is “F”, RTCIS will use the same logic, but the “MOT Code for ASRS Message F21” and “Default value for MOT code - D21, E21, F21” RTCIS system parameters are used.
7. If the MOT code is not A → F
   * If all system parameters are set (i.e. not blank), RTCIS will not select any shipments. *Note: RTCIS will still potentially select batched withdrawal requests.*
   * If all system parameters are blank, RTCIS will select any available shipment, regardless of MOT code.

All available batched withdrawal requests in the sub-site associated with the ASRS system are examined by RTCIS, irrespective of the MOT code passed by the ASRS.

Using the criteria defined above, RTCIS will select the shipment or batched withdrawal request with the oldest date/time, being the oldest appointment date/time for the shipment or the oldest requested date/time for the batched withdrawal request. RTCIS will mark the shipment or batched withdrawal request as *pending* (for ASRS picking) and transmit the pick requirements to the ASRS.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | Response to [RequestNextShip](#_Request_Next_Shipment_1) |
| RAI ng XML tag: | AssignShip |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – AssignShip – ShipHeader segment

The segment specifies shipment header information for the next shipment to stage.

XML tag: ShipHeader

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A21 |
| Host\_control\_number | String | 12 | This is a unique number associated with shipment or batched withdrawal request. For shipments, this will be the 10 or 12 digit shipment number. For batched manual withdrawal requests, this will be the RTCIS withdrawal request Id consisting of an M plus a 4 digit number. |
| Withdraw\_select\_flag | String | 2 | The calculated (lowest) QA status, based on all of the line items. For example, if four lines have a control group that is released (RL) and the fifth line item has a control group containing held inventory (HD), this field will be HD. |
| Scheduled\_Ship\_date | String | 8 | Date when shipment is scheduled for pickup by the carrier – YYYYMMDD format |
| Scheduled\_Ship\_time | String | 8 | Time when shipment is scheduled for pickup by the carrier – HHMMSSss format. This value in conjunction with the scheduled\_ship\_date is used by the ASRS to order the shipments in its work queue. |
| Order\_disposition | String | 2 | Shipment Disposition (SHPHDR.ASRS\_DISP)   * Spaces – Normal Disposition * SS – Stage Short – Only Stages available Inventory * SO– Stage Open – Stage avail and wait for missing Inventory to arrive * SW – Stage anyWay – Stage Inventory regardless of Pallet Type |
| Line\_count | String | 8 | Line item count   * 0 indicates that there are no shipments available for download. * >0 indicates how many records are in the line\_item\_array. * -1 is an error code. |

#### Fields – AssignShip – ShipUL segment

This segment specifies pallet picking requirement for the next shipment to stage.

XML tag: ShipUL

Parent segment: ShipHeader

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Sequence | Number | 4 | Sequence number of the unit load requested. This is determined by the “RAI: Message 21 Sequence By ((U)LID /(O)RDER /(R)TCIS)” RTCIS system parameter.   * U – Every unit load is assigned a unique sequence number. The unit loads will be sequenced based on the normal RTCIS loading sequence (ORDHDR.STPSEQ, ORDHDR.STPSEQ, ORDHDR.ORDNUM, TRUKLD.ULPKSQ, TRUKLD.SEQVAL, TRUKLD.ULSUFF, TRUKLD.PLACEMENT\_HINT, and TRUKLD.TRUKLD, which may also be in reverse sequence). * O – All unit loads on the same order number will be assigned the same sequence number. Note that the sequence number for the second (and subsequent orders) will jump up by the number of ULs on the previous order. * R – RTCIS will determine the sequencing based on the truck load information. If the truck load UL pick sequence (TRUKLD.ULPKSQ) is different or if the trailer was sequence by APAL and the AP3 sequence (TRUKLD.SEQVAL) is different, then a new sequence number will be assigned for the line sent to the ASRS. Note that the sequence number will only increase by one, even if multiple ULs were assigned to the previous sequence number. |
| Brand\_Code | String | 8 | The item code (TRUKLD.ITMCOD) |
| Code\_date | String | 12 | Optional. The control group. This field will normally be blank. Only specified if the order requires a specific control group (i.e. ORDCTL existing for line item).  If there not enough inventory in the ASRS (based on the RTCIS check) and the order disposition is SO (Stage Open), the control group will still be filled in. |
| Pallet\_Type | String | 2 | The pallet type requested for the UL. This is determined by selecting the pallet type associated with the shipments MOL code. The pallet type (MOLCOD.ULPALL) found using the MOL could is then translated code appropriate for the ASRS/PLC (ULPALL.PLCPAL). Based on the P&G Interface document, these are configured to be   * ACTIV - Q=CHEP and T=GMA. * MSX - U=CHEP, E=EURO, and W=WERO.   Any character can be used to indicate pallet type, but it must be the same in the ASRS data base and in the RTCIS data base. (ULPALL.PLCPAL) |
| Line\_qty | Number | 8 | Always 1, for one unit load. |
| Fifo\_window | Number | 4 | Optional. This is the number of days that defines the tolerance for FIFO picking, based on the associated item group setting (ITMGRP.FIFO\_WINDOW for the item where the group is configured for rack storage). The ASRS picks the oldest unit load or a unit load that is not more than N days newer than the oldest unit load.  ***From the P&G RAI Interface doc:***  This field is only used by the CIMAT ASRS. |

#### XML Example – AssignShip

<?xml version="1.0" encoding="utf-8" ?>

<AssignShip>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ShipHeader>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <SCHEDULED\_SHIP\_DATE>20140806</SCHEDULED\_SHIP\_DATE>

  <SCHEDULED\_SHIP\_TIME>200000</SCHEDULED\_SHIP\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>5</LINE\_COUNT>

  <ShipUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>48</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>90</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>54</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>4</SEQUENCE>

  <BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>5</SEQUENCE>

  <BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  </ShipHeader>

</AssignNextShip>

### Ship Lane Empty (ShipLaneEmpty)

RTCIS sends this message to indicate the last pallet has been picked up from the shipping lane. This message is only sent if the location has the index location column configured in RTCIS.

*Note: The P&G RAI Interface states that this only applies to London with the MSX system*

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | The last unit load being remove from a staging location (shipping lane) |
| RAI ng XML tag: | ShipLaneEmpty |
| RAI library call: | ACTIV\_complete\_order (Message 25) |

#### Fields – ShipLaneEmpty – LocEmpty segment

The segment specifies the location and the previously assigned shipment.

XML tag: LocEmpty

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A25 |
| Host\_control\_number | String | 12 | Optional - This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for)*.* |
| ACTIV\_OUTPUT\_LOCATION | String | 5 | The staging location (i.e. shipping lane) this is now empty. |

#### XML Example – ShipLaneEmpty

<?xml version="1.0" encoding="utf-8" ?>

<ShipLaneEmpty>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00100370001071991191</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <LocEmpty>

  <MESSAGE\_TYPE>A25</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </LocEmpty>

</ShipLaneEmpty>

### Stop Ship Staging (StopShipStaging)

RTCIS sends this message to notify the ASRS to stop staging the shipment. The warehouse user is prompted to stop staging pallets for the shipment when signing on to load pallets for the associated trailer.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | The warehouse user stopping staging to begin truck loading |
| RAI ng XML tag: | StopShipStaging |
| RAI library call: | ACTIV\_vehicle\_arrival (Message 26) |

#### Fields – StopShipStaging – StopStage segment

The segment specifies the shipment to stop staging for.

XML tag: StopStage

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A26 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for)*.* |

#### XML Example – StopShipStaging

<?xml version="1.0" encoding="utf-8" ?>

<StopShipStaging>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00100370001071991191</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <StopStage>

  <MESSAGE\_TYPE>A26</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0000010488</HOST\_CONTROL\_NUMBER>

  </StopStage>

</StopShipStaging>

### Cancel Shipment (CancelShipment)

This message is sent from RTCIS to the ASRS to notify the ASRS system that a shipment has been cancelled. The ASRS should stop staging pallets.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | 1. SAP cancels a shipment 2. The warehouse user cancels a batched withdrawal request |
| RAI ng XML tag: | CancelShipment |
| RAI library call: | ACTIV\_cancel\_order (Message 20) |

#### Fields – CancelShipment – StopShip segment

The segment specifies the shipment to cancel.

XML tag: StopShip

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A20 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for)*.* |

#### XML Example – CancelShipment

<?xml version="1.0" encoding="utf-8" ?>

<CancelShipment>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00100370001071991191</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <StopShip>

  <MESSAGE\_TYPE>A20</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0000010488</HOST\_CONTROL\_NUMBER>

  </StopShip>

</CancelShipment>

### Slot Sign On/Off (SlotSignOnOff)

This is a message sent from RTCIS to the ASRS to request that the ASRS move the pallets forward in the staging slot, to allow the pallets to be picked up by a fork lift truck.

Note: In an ACTIV ASRS, this message causes the drive mechanisms to be allocated to the slot. In the MSX system this caused the pallets to be released and move forward on the gravity feed conveyors. This message is not currently used by the CIMAT system.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | 1. The warehouse user begins loading pallets for a shipment from a staging location using the RDT Truck Loading application, the RDT Self-Directed Unit Load Transfer application, or the RDT Unit Load Transfer function key. 2. The warehouse user finishes loading pallets for a shipment from a staging location |
| RAI ng XML tag: | SlotSignOnOff |
| RAI library call: | ACTIV\_slot\_signon (Message 32) |

#### Fields – SlotSignOnOff – SlotRequest segment

The segment specifies the staging lane/slot to sign on or off of.

XML tag: SlotRequest

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A32 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for)*.* This is only specified when signing onto the slot. |
| Activ\_output\_location | String | 5 | The slot (i.e. staging conveyor location) which is being requested for sign on or sign off. |
| Signon\_flg | String | 1 | Y(es) or N(o) Flag. Y(es) indicates the user is signing onto the slot and the pallets should be physically released, if necessary. N(o) indicates the user is signing off of the slot. |

#### XML Example – SlotSignOnOff

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnOff>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182015</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <SIGNON\_FLG>Y</SIGNON\_FLG>

  </SlotRequest>

</SlotSignOnOff>

### Slot Destage (SlotDestage)

This is a message sent from RTCIS to the ASRS to request that the ASRS remove the pallets from the staging slot.

Note: This request may not be physically possible for all staging lanes/slots, such as gravity feed conveyors. This message may be ignored or disabled in this situation.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | The warehouse user manually requests the pallets to be moved back into the ASRS by de-staging them using the ACTIV Unstaging utility application in RTCIS. |
| RAI ng XML tag: | SlotDestage |
| RAI library call: | ACTIV\_slot\_signon (Message 32)  *RAI message split into two RAI ng messages (SlotSignOnOff, SlotDestage)* |

#### Fields – SlotDestage– SlotRequest segment

The segment specifies the staging location to de-stage.

XML tag: SlotRequest

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always U32 |
| Activ\_output\_location | String | 5 | The slot (i.e. staging conveyor location) which is being de-staged |

#### XML Example – SlotDestage

<?xml version="1.0" encoding="utf-8" ?>

<SlotDestage>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182015</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>U32</MESSAGE\_TYPE>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </SlotRequest>

</SlotDestage>

### Assign Production Order for Staging (AssignProdOrder)

This is the response to the ASRS request for the next production order to stage. In the original RAI interface, the production order requirements were passed back to the ASRS system inline using the parameters of the *HOST\_get\_cust\_order* function call. The RAIng Interface now responds with this transaction.

After receiving the [RequestNextProdOrder](#_Request_Next_Production_1), RTCIS will examine all available production orders in the RTCIS sub-site associated with the ASRS system. If the ASRS specifies a specific production line, only orders for that line will be examined. If the ASRS does not specify a production line, all production orders will be considered.

RTCIS will only select orders within the defined lead time for ASRS picking. This picking window is configured in RTCIS by setting the “ASRS\_LEADTIM Lead Time for downloading POs to ASRS” system parameter (specified in minutes). This system parameter will be subtracted from the production order release date. For example, if the system parameter is set to 120 (2 hours) and the production order release date is Jan 1, 2014 at 5 pm, RTCIS will release the order to the ASRS no sooner than Jan 1, 2014 at 3pm.

Using the criteria defined above, RTCIS will select the production order with the oldest production release date/time (still within the window). RTCIS will mark the production order as *pending* (for ASRS picking) and transmit the pick requirements to the ASRS.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | Response to [RequestNextProdOrder](#_Request_Next_Production_1) |
| RAI ng XML tag: | AssignProdOrder |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – AssignProdOrder – ProdOrderHeader segment

The segment specifies order header information for the next production to stage.

XML tag: ProdOrderHeader

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A41 |
| Host\_control\_number | String | 12 | This is a unique number associated with the production order*. Note: This is the RTCIS production order sequence number on the material request, not the actual production order number. However, from the ASRS perspective, it is essentially the order number.* |
| Delivery\_location | String | 2 | The production line name requiring inventory. |
| Scheduled\_START\_date | String | 8 | Date when the production order is scheduled to start – YYYYMMDD format |
| Scheduled\_START\_time | String | 8 | Time when the production order is scheduled to start – HHMMSSss format. This value in conjunction with the scheduled\_start\_date is used by the ASRS to sequence the production orders in its work queue. |
| Order\_disposition | String | 2 | Order Disposition   * Spaces – Normal Disposition * SS – Stage Short – Only Stages available Inventory * SO– Stage Open – Stage avail and wait for missing Inventory to arrive * SW – Stage anyWay – Stage Inventory regardless of Pallet Type |
| Line\_count | String | 8 | Line item count   * 0 indicates that there are no production orders available for download. * >0 indicates how many records are in the line\_item\_array. * -1 is an error code. |

#### Fields – AssignProdOrder – ProdOrderUL segment

This segment specifies pallet picking requirement for the next production order to stage

XML tag: ProdOrderUL

Parent segment: ProdOrderHeader

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Sequence | Number | 4 | Sequence number of the unit load requested. This is determined by the RTCIS based on the need for the component item. *Note: When there are multiple component items required for a production order, RTCIS will attempt to balance the ASRS deliveries against other ASRS deliveries and non-ASRS deliveries, and sequence the material request appropriately.* |
| Brand\_Code | String | 8 | The component item code |
| Code\_date | String | 12 | Optional. The control group. This field will normally be blank.  If there not enough inventory in the ASRS (based on the RTCIS check) and the order disposition is SO (Stage Open), the control group will still be filled in. |
| Pallet\_Type | String | 2 | The pallet type requested for the UL. This is the default pallet type from the item configuration in RTCIS. |
| Line\_qty | Number | 8 | Always 1, for one unit load. |
| Fifo\_window | Number | 4 | Optional. This is the number of days that defines the tolerance for FIFO picking, based on the associated item group setting (ITMGRP.FIFO\_WINDOW for the item where the group is configured for rack storage). The ASRS picks the oldest unit load or a unit load that is not more than N days newer than the oldest unit load.  ***From the P&G RAI Interface doc:***  This field is only used by the CIMAT ASRS. |

#### XML Example – AssignProdOrder

<?xml version="1.0" encoding="utf-8" ?>

<AssignProdOrder>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ProdOrderHeader>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <SCHEDULED\_START\_DATE>20140801</SCHEDULED\_START\_DATE>

  <SCHEDULED\_START\_TIME>200000</SCHEDULED\_START\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>3</LINE\_COUNT>

  <ProdOrderUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  </ProdOrderHeader>

</AssignNextProdOrder>

### Cancel Production Order (CancelProdOrder)

This message is sent from RTCIS to the ASRS to notify the ASRS system that a production order has been cancelled. The ASRS should stop staging pallets.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | The warehouse user alters the schedule using the Production Order Schedule (prdordsch) application in RTCIS |
| RAI ng XML tag: | CancelProdOrder |
| RAI library call: | ACTIV\_cancel\_cust\_order (Message 40) |

#### Fields – CancelProdOrder – StopProdOrder segment

The segment specifies the production order to cancel.

XML tag: StopProdOrder

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A40 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignProdOrder](#_Assign_Production_Order_1). |

#### XML Example – CancelProdOrder

<?xml version="1.0" encoding="utf-8" ?>

<CancelProdOrder>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>201408011510012</TIMESTAMP>

</MessageHeader>

  <StopProdOrder>

  <MESSAGE\_TYPE>A40</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  </StopProdOrder>

</CancelProdOrder>

### Confirm HeartBeat (Confirm\_HeartBeat)

Response to the  [Check\_HeartBeat](#_Toc393801230) Message

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | RTCIS response to  [Check\_HeartBeat](#_Toc393801230) |
| RAI ng XML tag: | Confirm\_HeartBeat |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – Confirm\_HeartBeat - Main segment

The ConfirmHeartBeatData segment confirms the connection

XML tag: ConfirmHeartBeatData

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| TEXT | String | 80 | String in the format of YYYYMMDDhh24miss-SUCCESS e.g. “20140112133524-SUCCESS” |

#### XML Example – Confirm\_HeartBeat

<?xml version="1.0" encoding="utf-8" ?>

<Confirm\_HeartBeat>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <ConfirmHeartBeatData>

  <TEXT>20140731051001-SUCCESS</TEXT>

  </ConfirmHeartBeatData >

</Confirm\_HeartBeat>

## Messages Sent from ASRS to RTCIS

| **RAI Message** | **RAI ng XML tag** | **Description** |
| --- | --- | --- |
| Message 8 - Assign ASRS Input Location | [AssignInductionLoc](#_Assign_ASRS_Input) | The ASRS uses this message to assign an input location to a pallet after receiving a [RequestInduction](#_Move_Unit_Load) from RTCIS. |
| Message 13 – Manual Output Request | [AssignWithdrawalLoc](#_Assign_ASRS_Manual) | The ASRS uses this message to assign a delivery location for inventory after receiving a [WithdrawalRequest](#_Manual_Output_Request) from RTCIS. |
| Message 14 – Unit Load Arrival at Output Point | [WithdrawalULArrival](#_Pallet_Arrival_for_1) | The ASRS sends this message to RTCIS for each pallet delivered for a [WithdrawalRequest](#_Manual_Output_Request). |
| Message 35 – Request ASRS FPDS Input Conveyor for Inbound Trailer | [AssignFPDSLoc](#_Check_Heartbeat_(Check_Heartbeat)) | The ASRS uses this message to assign a conveyor/FPDS location for for an inbound trailer/shuttle after receiving a [RequestFPDS](#_Toc392630260) from RTCIS. |
| Message 21 – Retrieve Next Shipment/Order | [RequestNextShip](#_Request_Next_Shipment_1) | The ASRS requests the next available shipment (or batched withdrawal request) from RTCIS for staging. |
| Message 22 – Shipment/Order Staging Started | [ShipStageStart](#_Start_Shipment_Staging_1) | The ASRS notifies RTCIS that staging has started for a shipment (or batched withdrawal request) |
| Message 22 – Shipment/Order De-staging Started | [ShipDestageStart](#_Start_Shipment_De-Staging_1) | The ASRS notifies RTCIS that started removing pallets for a shipment (or batched withdrawal request) that has been cancelled. |
| Message 23 – Shipment/Order Unit Load Staged | [ShipULStaged](#_Shipment_Unit_Load) | The ASRS notifies RTCIS that a pallet has been delivered to a staging lane for a shipment (or batched withdrawal request) |
| Message 23 – Shipment/Order Unit Load Destaged | [ShipULDestaged](#_Shipment_Unit_Load_5) | The ASRS notifies RTCIS that a pallet has been removed for a shipment (or batched withdrawal request) that has been cancelled. |
| Message 24 – Shipment/Order Staging Complete | [ShipStageComplete](#_Shipment_Staging_Complete) | The ASRS notifies RTCIS that staging has been completed for a shipment (or batched withdrawal request). |
| Message 24 – Shipment/Order De-staging Complete | [ShipDestageComplete](#_Shipment_De-staging_Complete) | The ASRS notifies RTCIS that de-staging has been completed for a shipment (or batched withdrawal request). |
| Message 32 – Slot Sign On/Off | [SlotSignOnOffConfirm](#_Slot_Sign_On) | The ASRS confirms the user may sign onto the slot requested. |
| Message 15 – Unit Load Removed from Output | [ShipULPickup](#_Shipment_Unit_Load_4) | The ASRS notifies RTCIS that a pallet which had been staged for a shipment ([RequestNextShip](#_Request_Next_Shipment_1)) or a customer order ([RequestNextProdOrder](#_Request_Next_Custom)) has been removed from the shipping lane. |
| Message 41 – Retrieve Next Production order | [RequestNextProdOrder](#_Request_Next_Production_1) | The ASRS requests the next available production order from RTCIS for staging |
| Message 42 – Production order Staging Started | [ProdOrderStageStart](#_Start_Production_Order) | The ASRS notifies RTCIS that staging has started for a production order. |
| Message 43 – Production order Unit Load Staged | [ProdOrderULStaged](#_Toc397429472) | The ASRS notifies RTCIS that a pallet has been delivered to a staging lane for a production order. |
| Message 44 – Production order Staging Complete | [ProdOrderStageComplete](#_Custom_Order_Staging) | The ASRS notifies RTCIS that staging has been completed for a production order. |
| Check Heartbeat | [Check\_HeartBeat](#_Toc393801230) | Checks the validity of the existing connection |

### Assign ASRS Input Location (AssignInductionLoc)

This is the ASRS response to the RTCIS request for an input location ([RequestInduction](#_Move_Unit_Load)). In the original RAI interface, the *Activ\_input\_location* parameterof the *ACTIV\_assign\_input* function call passed back the assigned location inline. The RAI ng Interface now responds with this transaction.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | Response to [RequestInduction](#_Move_Unit_Load) from RTCIS |
| RAI ng XML tag: | AssignInductionLoc |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – AssignInductionLoc – LocForPallet segment

The Assignment segment provides the assigned ASRS input location for the unit load

XML tag: LocForPallet

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A8/U8/L8/C8 |
| Unit\_load\_id | String | 20 | Unit load Barcode including check digit |
| Activ\_input\_location | String | 5 | The assigned input location to which the pallet should be routed to. If for any reason the ASRS cannot assign a location, then a value of 9 (for Reject) will be returned in this field. |
| PLC\_USERID | String | 4 | PLC User (the original PLC station/port) that requested the location assignment. |

#### XML Example – AssignInductionLoc

<?xml version="1.0" encoding="utf-8" ?>

<AssignInductionLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <ACTIV\_INPUT\_LOCATION>80221059 </ACTIV\_INPUT\_LOCATION>

  <PLC\_USERID>3100</ PLC\_USERID>

  </LocForPallet>

</AssignInductionLoc>

### Assign ASRS Manual Output Request Location (AssignWithdrawalLoc)

This is the ASRS response to an RTCIS request to retrieve inventory from the ASRS using [WithdrawalRequest](#_Manual_Output_Request). In the original RAI interface, the *Activ\_output\_location* parameterof the *ACTIV\_UL\_output\_req* function call passed back the assigned location inline. The RAI ng Interface now responds with this transaction

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | Response to [WithdrawalRequest](#_Manual_Output_Request) from RTCIS |
| RAI ng XML tag: | AssignWithdrawalLoc |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – AssignWithdrawalLoc – LocForRequest segment

The Assignment segment provides the assigned ASRS input location for delivery.

XML tag: LocForRequest

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A13 |
| Host\_control\_number | String | 12 | The [host control number](#WD_RequestCriteria_Host_Control_Number) passed in the RTCIS [WithdrawalRequest](#_Manual_Output_Request) request. |
| Activ\_OUTPUT\_location | String | 5 | The assigned output location to which the inventory will be delivered to.   * If a request cannot be fulfilled, the ASRS will return a blank location. Note: If this request was for a replenishment operation, RTCIS will attempt to get the inventory from a non-ASRS location. * If the RTCIS requested location was blank and the request can be fulfilled, the ASRS will select the staging/VTL location to deliver the inventory to. * If RTCIS requested a specific input location and the request can be fulfilled, the ASRS will select the staging/VTL location to deliver the inventory to. Because RTCIS requested a specific location, this would normally be the same location. However, if the ASRS assigns a different location, the [ASRS location](#LOCATNASRS) will be used, even if it does not match the RTCIS location requested. |
| withdrawal\_output\_time | String | 6 | Optional. Estimate in minutes by the ASRS as to when the pallet will actually be delivered to the output location. |

#### XML Example – AssignWithdrawalLoc

<?xml version="1.0" encoding="utf-8" ?>

<AssignWithdrawalLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForRequest>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>131 </ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_OUTPUT\_TIME>50</WITHDRAWAL\_OUTPUT\_TIME>

  </LocForRequest>

</AssignWithdrawalLoc>

### Pallet Arrival for Withdrawal Request (WithdrawalULArrival)

This message indicates that inventory requested by RTCIS using a [WithdrawalRequest](#_Manual_Output_Request) has been delivered by the ASRS to the output location. The ASRS will send one [WithdrawalULArrival](#_Pallet_Arrival_for) message per pallet (or stacked pallet). Therefore, there may be multiple [WithdrawalULArrival](#_Pallet_Arrival_for) messages for a single [WithdrawalRequest](#_Manual_Output_Request) message.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | Response to [WithdrawalRequest](#_Manual_Output_Request) from RTCIS |
| RAI ng XML tag: | WithdrawalULArrival |
| RAI library call: | HOST\_UL\_arrival (Message 14) |

#### Fields – WithdrawalULArrival – PalletArrival segment

The Arrival segment provides inventory information about the pallet delivered for the request, including the unit load Id and item information. If the ASRS cannot fulfill the request, or cannot fulfill part of the request, the *withdrawal\_output\_status* field will be used to indicate the short quantity or error situation.

XML tag: PalletArrival

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | A14 – sent by the ASRS whenever a pallet requested via [WithdrawalULArrival](#_Pallet_Arrival_for) has been delivered to an output location.  D14 – sent by the ASRS if a portion or the entire manual withdraw request cannot be delivered. |
| Host\_control\_number | String | 12 | Matches the Host\_control\_number sent in the corresponding [WithdrawalULArrival](#_Pallet_Arrival_for). |
| Activ\_output\_location | String | 5 | This is the output conveyor location where the ASRS delivered the Unit Load. This may (or may not) match the requested location specified in the Activ\_output\_location in the corresponding [WithdrawalULArrival](#_Pallet_Arrival_for). |
| Activ\_level\_id | String | 2 | Not used by RTCIS (only logged) |
| Unit\_load\_id | String | 20 | Unit load barcode including check digit. This must match if a specific Unit\_load\_id was sent in the corresponding [WithdrawalULArrival](#_Pallet_Arrival_for). If the request was by Brand\_code, any unit load for the item may be delivered. |
| Pallet\_Type | String | 2 | Not used by RTCIS (only logged). RTCIS will use the pallet type associated with the unit load in the RTCIS database, regardless of the pallet type passed by the ASRS. |
| Brand\_Code | String | 8 | Not used by RTCIS (only logged). RTCIS will use the item class and item code associated with the unit load in the RTCIS database, regardless of the brand code passed by the ASRS. |
| Code\_date | String | 12 | Not used by RTCIS (only logged). RTCIS will use the control group associated with the unit load in the RTCIS database, regardless of the control group passed by the ASRS. |
| withdrawal\_output\_status | Number | 2 | The status of the request from the ASRS.   * Success – 0 (RAI\_OK) or an error code. * Cancelled – -106 (RAI\_UL\_CANCELLED). * Short Quantity – > 0. If the Message\_type is D14, this field will contain the short quantity. * Any other status – < 0. Unknown error. RTCIS cancels undelivered portion the request |

#### XML Example – WithdrawalLocArrival

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalULArrival>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <PalletArrival>

  <MESSAGE\_TYPE>A14</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>131</ACTIV\_OUTPUT\_LOCATION>

  <BRAND\_CODE>80232874</BRAND\_CODE>

  <ACTIV\_LEVEL\_ID>1</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00700370001642864857</UNIT\_LOAD\_ID>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</WITHDRAWAL\_OUTPUT\_STATUS>

  </PalletArrival>

</WithdrawalULArrival>

### Assign FPDS Input Conveyor for Inbound Trailer (AssignFPDSLoc)

This is the ASRS response to the RTCIS request for an input location ([RequestFPDS](#_Toc392630260)). In the original RAI interface, the *Activ\_input\_location* parameterof the *ACTIV\_inbound\_truck* function call passed back the assigned location inline. The RAI ng Interface now responds with this transaction.

RTCIS queries the *ASRS* system to determine which FPDS location is the most appropriate for the inventory being inducted. *The ASRS* will choose the best FPDS location to maintain the optimal inventory balance in the ASRS. Once the FPDS is chosen, RTCIS will suggest a dock door associated with the FPDS for the trailer/shuttle being moved

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | Response to [RequestFPDS](#_Toc392630260) from RTCIS |
| RAI ng XML tag: | AssignFPDSLoc |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – AssignFPDSLoc – LocForTrailer segment

This segment specifies the trailer FPDS assignment.

XML tag: LocForTrailer

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A35 |
| Trailer\_number | String | 10 | The unique trailer identifier |
| Truck\_line | String | 10 | The carrier of the trailer |
| Activ\_input\_conveyor | String | 6 | The FPDS conveyor location assigned to the trailer. |

#### XML Example – AssignFPDSLoc

<?xml version="1.0" encoding="utf-8" ?>

<AssignFPDSLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForTrailer>

  <MESSAGE\_TYPE>A35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <ACTIV\_INPUT\_CONVEYOR>4</ACTIV\_INPUT\_CONVEYOR>

  </LocForTrailer>

</AssignFPDSLoc>

### Request Next Shipment to Retrieve for Staging (RequestNextShip)

This message is sent from the ASRS to RTCIS to request the next available shipment (or batched withdrawal request) to be transmitted to the ASRS for staging. The ASRS determines when to request the next shipment. RTCIS will respond with an [AssignShip](#_Assign_Shipment_for) message specifying the shipment requirements by unit load.

*Note:* [*RequestNextProdOrder*](#_Request_Next_Production_1)*, which requests the next production order to stage, is also based on this message.*

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS controls when to request the next shipment |
| RAI ng XML tag: | RequestNextShip |
| RAI library call: | HOST\_get\_order (Message 21) |

#### Fields – RequestNextShip – ShipCriteria segment

This segment provides the shipment criteria of the next shipment to request from RTCIS.

XML tag: ShipCriteria

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A21 |
| MOT\_CODE | String | 1 | Optional – The method of transportation (MOT). RTCIS will use this field as criteria to select shipments. RTCIS will default the MOT\_CODE to “A” if this field is blank. Refer to the [AssignShip](#_Assign_Shipment_for) for more information.  ***From the P&G RAI Interface doc:***  The MSX ASRS in London uses all three message types (MOT codes). When RTCIS receives an A21 message, it returns the data for the next available shipment where the MOT code = A. (MOT = Method Of Transport indicated on the shipment header.) See RTCIS change request CR119 for further explanation of how to configure RTCIS to handle the different message types. The London ORCA project required more Msg21 types (presumably D21,E21,F21) |

#### XML Example – RequestNextShip

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextShip>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <ShipCriteria>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <MOT\_CODE>A</MOT\_CODE>

  </ShipCriteria>

</RequestNextShip>

### Start Shipment Staging (ShipStageStart)

The ASRS sends this message to RTCIS to indicate that staging has started for a shipment (or batched withdrawal request). The message includes the physical conveyor location that the unit loads will be delivered to.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS begins to retrieve the requested inventory for the shipment |
| RAI ng XML tag: | ShipStageStart |
| RAI library call: | HOST\_start\_staging (Message 22) |

#### Fields – ShipStageStart – StageLoc segment

This segment provides the conveyor location destination for the inventory.

XML tag: StageLoc

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A22 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for). |
| Activ\_output\_location | String | 5 | This is the output conveyor location to which unit loads will be delivered. For an ACTIV ASRS, this is a slot number. Note: If this is a negative number, RTCIS will reset the shipment to available. |

#### XML Example – ShipStageStart

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A22</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageStart>

### Start Shipment De-Staging (ShipDestageStart)

The ASRS sends this message to RTCIS to indicate that inventory re-induction has started for a shipment (or batched withdrawal request) that was cancelled.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS begins to re-induct the previously delivered inventory for the shipment |
| RAI ng XML tag: | ShipDestageStart |
| RAI library call: | HOST\_start\_staging (Message 22) |

#### Fields – ShipDestageStart – DestageLoc segment

This segment provides the conveyor location destination for the inventory.

XML tag: DestageLoc

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always D22 |
| Host\_control\_number | String | 12 | Optional – This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for). |
| Activ\_output\_location | String | 5 | This is the output conveyor location to which unit loads will be removed from. |

#### XML Example – ShipStageDestage

<?xml version="1.0" encoding="utf-8" ?>

<ShipDestageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <DestageLoc>

  <MESSAGE\_TYPE>D22</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </DestageLoc>

</ShipDestageStart>

### Shipment Unit Load Staged (ShipULStaged)

This message indicates that a unit load has been delivered to a staging lane for a shipment (or batched withdrawal request). Some ASRS systems, such as ACTIV, will send one message for each unit load. Other ASRS systems, such as CMAT, will send one message for each stack. If the RTCIS system parameter “ASRS: Location for ASRS” is set to “ACTIV”, RTCIS will expect one message per unit load. Otherwise, RTCIS will process all unit loads associated with the stack.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS delivers a unit load for the shipment to the conveyor location |
| RAI ng XML tag: | ShipULStaged |
| RAI library call: | HOST\_UL\_staged (Message 23) |

#### Fields – ShipULStaged – StageUL segment

This segment provides the unit load information for the pallet delivered to the conveyor location.

XML tag: StageUL

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A23 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for). |
| Unit\_load\_id | String | 20 | Unit load barcode including check digit. RTCIS will verify the inventory matches the picking requirements. |
| Activ\_output\_location | String | 5 | This is the output location/spur where the ASRS delivered the Unit Load. This should match the active output location field on the [ShipStageStart](#_Start_Shipment_Staging_1) |
| Activ\_level\_id | String | 2 | Optional – Not used by RTCIS (only logged) |
| Pallet\_typE | String | 2 | Optional – Not used by RTCIS (only logged). RTCIS will use the pallet type associated with the unit load in the RTCIS database, regardless of the pallet type passed by the ASRS |
| Brand\_Code | String | 8 | Optional – Not used by RTCIS (only logged). RTCIS will use the item class and item code associated with the unit load in the RTCIS database, regardless of the brand code passed by the ASRS. |
| Code\_date | String | 12 | Optional – Not used by RTCIS (only logged). RTCIS will use the control group associated with the unit load in the RTCIS database, regardless of the control group passed by the ASRS. |
| Line\_item\_sequence\_number | Number | 4 | This must match a sequence number for the requirements passed in [AssignShip](#_Assign_Shipment_for). |

#### XML Example – ShipULStaged

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00500370006600110065</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>205</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

### Shipment Unit Load De-staged (ShipULDestaged)

This message indicates that a unit load has been removed from the staging lane for a shipment (or batched withdrawal request) that has been cancelled. The unit load will be stored in the ASRS. The ASRS system will send one message per UL. The UL may represent either a single pallet or a stacked pallet, depending on how RTCIS identified the pallet to the ASRS initially.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS removes a unit load from the conveyor location |
| RAI ng XML tag: | ShipULDestaged |
| RAI library call: | HOST\_UL\_staged (Message 23) |

#### Fields – ShipULDestaged – DestageUL segment

This segment provides the unit load information for the pallet removed from the conveyor location.

XML tag: DestageUL

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always D23 |
| Host\_control\_number | String | 12 | Optional – This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for). |
| Unit\_load\_id | String | 20 | Unit load barcode of the pallet being removed. |
| Activ\_output\_location | String | 5 | This is the output location/spur where the ASRS delivered the Unit Load. This should match the active output location field on the [ShipDestageStart](#_Start_Shipment_De-Staging_1) |
| Activ\_level\_id | String | 2 | Optional – Not used by RTCIS (only logged) |
| Pallet\_type | String | 2 | Optional – Not used by RTCIS (only logged). RTCIS will use the pallet type associated with the unit load in the RTCIS database, regardless of the pallet type passed by the ASRS |
| Brand\_Code | String | 8 | Optional – Not used by RTCIS (only logged). RTCIS will use the item class and item code associated with the unit load in the RTCIS database, regardless of the brand code passed by the ASRS. |
| Code\_date | String | 12 | Optional – Not used by RTCIS (only logged). RTCIS will use the control group associated with the unit load in the RTCIS database, regardless of the control group passed by the ASRS. |

#### XML Example – ShipULDestaged

<?xml version="1.0" encoding="utf-8" ?>

<ShipULDestaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <DestageUL>

  <MESSAGE\_TYPE>D23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00500370006600110065</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>205</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  </DestageUL>

</ShipULDestaged>

### Shipment Staging Complete (ShipStageComplete)

The ASRS sends this message to RTCIS to indicate that staging has completed for a shipment or batched withdrawal request. RTCIS will evaluate the number of pallets delivered against the pick required for the shipment or batch. If all picks have been fulfilled, RTCIS will mark the shipment or batch as complete. If all picks have not been fulfilled, RTCIS will mark the shipment or batch short.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS delivers the last pallet for the shipment or batch |
| RAI ng XML tag: | ShipStageComplete |
| RAI library call: | HOST\_order\_staged (Message 24) |

#### Fields – ShipStageComplete – ShipStaged segment

This segment provides the shipment or batch number of the shipment or batch to complete.

XML tag: ShipStaged

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A24 |
| Host\_control\_number | String | 12 | This is the shipment number passed (in the host control number field) by RTCIS in [AssignShip](#_Assign_Shipment_for). |
| Activ\_output\_location | String | 5 | This is the output conveyor location that staged pallets were delivered to. If this location is blank, RTCIS will re-set the shipment to *available*, and the shipment may be re-transmitted to the ASRS in response to a [RequestNextShip](#_Request_Next_Shipment_1) again, if any un-picked requirements remain. |

#### XML Example – ShipStageComplete

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000008</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <ShipStaged>

  <MESSAGE\_TYPE>A24</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </ShipStaged>

</ShipStageComplete>

### Shipment De-staging Complete (ShipDestageComplete)

The ASRS sends this message to RTCIS to indicate that all pallets have been removed from the shipping lane for a shipment or batched withdrawal request that was previously staged.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS delivers the last pallet for the shipment or batch |
| RAI ng XML tag: | ShipDestageComplete |
| RAI library call: | HOST\_order\_staged (Message 24) |

#### Fields – ShipDestageComplete – ShipDestaged segment

This segment provides the shipment or batch number of the shipment or batch to completely remove.

XML tag: ShipDestaged

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always D24 |
| Activ\_output\_location | String | 5 | The output conveyor location previous assigned to the cancelled shipment that pallets were removed from. |

#### XML Example – ShipDestageComplete

<?xml version="1.0" encoding="utf-8" ?>

<ShipDestageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000008</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <ShipDestaged>

  <MESSAGE\_TYPE>D24</MESSAGE\_TYPE>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </ShipDestaged>

</ShipDestageComplete>

### Slot Sign On Confirmation (SlotSignOnConfirm)

This is a message sent from the ASRS to RTCIS to confirm that the RTCIS user may being removing inventory from the conveyor location after the ASRS has moved the pallets forward in the staging slot, if needed. This message is optional. If there is no physical movement required by the ASRS, this message may be skipped by setting the RTCIS “Skip Slot Sign On Confirmation?” system parameter to true.

|  |  |
| --- | --- |
| Sending system: | RTCIS |
| Receiving system: | ASRS |
| Triggered by: | Response to [SlotSignOnOff](#_Slot_Sign_On/Off_1) |
| RAI ng XML tag: | SlotSignOnconfirm |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – SlotSignOnConfirm – SlotResponse segment

The segment specifies the staging lane/slot to sign on or off of.

XML tag: SlotResponse

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A32 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for). |
| Activ\_output\_location | String | 5 | The slot (i.e. staging conveyor location) which is being requested for sign on. |
| STATUS | Number | 5 | Status indicator.  0 – The user is allowed to sign on  -201 – RAI\_INVALID\_SLOT  -202 – RAI\_INVALID\_SLOT\_STATE  -203 – RAI\_SLOT\_GANG\_BUSY  Any other negative number – The user is prevented from signing onto the slot  *Note: RTCIS issues specific messages to the RDT user for the individual statuses listed (-201, -202, -203). All other negative statuses result in issuing a generic error message with the status.* |

#### XML Example – SlotSignOnConfirm

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnConfirm>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000009</MESSAGE\_ID>

  <TIMESTAMP>20140801182016</TIMESTAMP>

</MessageHeader>

  <SlotResponse>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <STATUS>0</STATUS>

  </SlotResponse>

</SlotSignOnConfirm>

### Shipment Unit Load Picked Up from Staging (ShipULPickup)

This message indicates that a unit load which had been staged for a shipment ([RequestNextShip](#_Request_Next_Shipment_1)) or a customer order ([RequestNextProdOrder](#_Request_Next_Production_1)) has been removed from the shipping lane. If the shipment number is provided by the ASRS system in the host control number field and the Load Flag is Y, RTCIS will update the shipment in the RTCIS database, to indicate the pallet has been loaded for the shipment.

Some ASRS systems, such as ACTIV, will send one message for each unit load. Other ASRS systems, such as CMAT, will send one message for each stack. If the RTCIS system parameter “ASRS: Location for ASRS” is set to “ACTIV”, RTCIS will expect one message per unit load. Otherwise, RTCIS will process all unit loads associated with the stack.

**This message is optional.** The ASRS system is not required to provide this message as part of the shipping transaction dialog. This message may be used for automated loading or for testing purposes.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS detects pallet has been removed from conveyor |
| RAI ng XML tag: | ShipULPickup |
| RAI library call: | HOST\_location\_change (Message 15) |

#### Fields – ShipULPickup – PickupUL segment

This segment provides the unit load information for the pallet removed from the conveyor location.

XML tag: PickupUL

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A15 |
| Host\_control\_number | String | 12 | Optional – This is the host control number assigned by RTCIS in [AssignShip](#_Assign_Shipment_for) or [AssignProdOrder](#_Assign_Production_Order_1). Note that this will be shipment number or order number originally sent by RTCIS. |
| LOAD\_FLAG | String | 1 | Optional – Y(es) or N(o) – If the load flag is Y and the host control number is for a shipment, RTCIS will update the pallet to be loaded for the shipment.  *Note: The RAI interface checked if the user Id passed by the ASRS was -1 to determine if the unit load should be loaded.* |
| Activ\_output\_location | String | 5 | Optional – Not used by RTCIS (only logged). RTCIS will use the last known location associated with the unit load in the RTCIS database, regardless of the location passed by the ASRS |
| Activ\_level\_id | String | 2 | Optional – Not used by RTCIS (only logged) |
| Unit\_load\_id | String | 20 | Unit load barcode including check digit. This must match if a specific Unit Load Id was sent in the corresponding [ShipULStaged](#_Shipment_Unit_Load) or [ProdOrderULStaged](#_Toc397429472) |
| Pallet\_Type | String | 2 | Optional – Not used by RTCIS (only logged). RTCIS will use the pallet type associated with the unit load in the RTCIS database, regardless of the pallet type passed by the ASRS. |
| Brand\_Code | String | 8 | Optional – Not used by RTCIS (only logged). RTCIS will use the item class and item code associated with the unit load in the RTCIS database, regardless of the brand code passed by the ASRS. |
| Code\_date | String | 12 | Optional – Not used by RTCIS (only logged). RTCIS will use the control group associated with the unit load in the RTCIS database, regardless of the control group passed by the ASRS. |
| withdrawal\_output\_status | String | 2 | Optional – Not used by RTCIS (only logged) |

#### XML Example – ShipULPickup

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000010</MESSAGE\_ID>

  <TIMESTAMP>20140801182019</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001053148919</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

### Request Next Production Order for Staging (RequestNextProdOrder)

This message is sent from the ASRS to RTCIS to request the next available production order to be transmitted to the ASRS for staging. The ASRS determines when to request the next production order. RTCIS will respond with an [AssignProdOrder](#_Assign_Production_Order_1) message specifying the production order requirements by unit load.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS controls when to request the next production order |
| RAI ng XML tag: | RequestNextProdOrder |
| RAI library call: | HOST\_get\_cust\_order (Message 41) |

#### Fields – RequestNextProdOrder – OrderCriteria segment

This segment provides the order criteria of the next production order to request from RTCIS.

XML tag: OrderCriteria

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A41 |
| Delivery\_location | String | 7 | Optional – The production line name requiring inventory. RTCIS will select production orders associated with this production line. If this field is not passed, RTCIS will find the highest priority production order for any production line. |

#### XML Example – RequestNextProdOrder

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextProdOrder>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <OrderCriteria>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <DELIVERY\_LOCATION>A</DELIVERY\_LOCATION>

  </OrderCriteria>

</RequestNextProdOrder>

### Start Production Order Staging (ProdOrderStageStart)

The ASRS sends this message to RTCIS to indicate that staging has started for a production order. The message includes the physical conveyor location that the unit loads will be delivered to.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS begins to retrieve the requested inventory for the order |
| RAI ng XML tag: | ProdOrderStageStart |
| RAI library call: | HOST\_cust\_start\_staging (Message 42) |

#### Fields – ProdOrderStageStart – StageLoc segment

This segment provides the conveyor location destination for the inventory.

XML tag: StageLoc

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A42 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignProdOrder](#_Assign_Customization_Order) |
| Activ\_output\_location | String | 5 | This is the output conveyor location to which unit loads will be delivered. For an ACTIV ASRS, this is a slot number. Note: If this is a negative number, RTCIS will reset the production order to available. |
| Delivery\_location | String | 7 | Optional – Not used in RTCIS (not even logged). |

#### XML Example – ProdOrderStageStart

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A42</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ProdOrderStageStart>

### Production Order Unit Load Staged (ProdOrderULStaged)

This message indicates that a unit load has been delivered to a staging lane for a production order. The ASRS system will send one message per UL. The UL may represent either a single pallet or a stacked pallet, depending on how RTCIS identified the pallet to the ASRS initially.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS delivers a unit load for the production order to the conveyor location |
| RAI ng XML tag: | ProdOrderULStaged |
| RAI library call: | HOST\_UL\_cust\_staged (Message 43) |

#### Fields – ProdOrderULStaged – StageUL segment

This segment provides the unit load information for the pallet delivered to the conveyor location.

XML tag: StageUL

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A43 |
| Host\_control\_number | String | 12 | This is the host control number assigned by RTCIS in [AssignProdOrder](#_Assign_Production_Order_1) |
| Unit\_load\_id | String | 20 | Unit load barcode including check digit. RTCIS will verify the inventory matches the picking requirements. |
| Activ\_output\_location | String | 5 | This is the output location/spur where the ASRS delivered the Unit Load. This should match the active output location field on the [ProdOrderStageStart](#_Start_Production_Order) |
| Activ\_level\_id | String | 2 | Optional – Not used by RTCIS (only logged) |
| Pallet\_typE | String | 2 | Optional – Not used by RTCIS (only logged). RTCIS will use the pallet type associated with the unit load in the RTCIS database, regardless of the pallet type passed by the ASRS |
| Brand\_Code | String | 8 | Optional – Not used by RTCIS (only logged). RTCIS will use the item class and item code associated with the unit load in the RTCIS database, regardless of the brand code passed by the ASRS. |
| Code\_date | String | 12 | Optional – Not used by RTCIS (only logged). RTCIS will use the control group associated with the unit load in the RTCIS database, regardless of the control group passed by the ASRS. |
| Line\_item\_sequence\_number | String | 4 | This must match a sequence number for the requirements passed in [AssignProdOrder](#_Assign_Production_Order_1). |

#### XML Example – ProdOrderULStaged

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182002</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A43</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00000470010001159664</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>4</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>E</PALLET\_TYPE>

<BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ProdOrderULStaged>

### Production Order Staging Complete (ProdOrderStageComplete)

The ASRS sends this message to RTCIS to indicate that staging has completed for a production order. RTCIS will evaluate the number of pallets delivered against the pick required for the custom.

This message is normally sent when all of the required pallets to fill an order have been staged. It may also be sent when the ASRS has staged all of the pallets that it can deliver even though it may not fulfill all order requirements.

If all picks have been fulfilled, RTCIS will mark the production order as complete. If all picks have not been fulfilled, RTCIS will cancel the remaining picks for the production order. This is similar to the warehouse user canceling the production order, except that RTCIS will not transmit a [CancelProdOrder](#_Cancel_Production_Order_1) to the ASRS system.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS delivers the last pallet for the production order |
| RAI ng XML tag: | ProdOrderStageComplete |
| RAI library call: | HOST\_cust\_order\_staged (Message 44) |

#### Fields – ProdOrderStageComplete – ProdOrderStaged segment

This segment provides the order number of the production order to complete.

XML tag: ProdOrderStaged

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| Message\_type | String | 4 | Always A44 |
| Host\_control\_number | String | 12 | This is the shipment number passed (in the host control number field) by RTCIS in [AssignProdOrder](#_Assign_Production_Order_1) |
| Activ\_output\_location | String | 5 | This is the output conveyor location that staged pallets were delivered to. If this location is blank, RTCIS will re-set the shipment to *available*, and the shipment may be re-transmitted to the ASRS in response to a [RequestNextProdOrder](#_Request_Next_Production_1) again, if any un-picked requirements remain. |

#### XML Example – ProdOrderStageComplete

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000006</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <ProdOrderStaged>

  <MESSAGE\_TYPE>A44</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  </ProdOrderStaged>

</ProdOrderStageComplete>

### Check Heartbeat (Check\_HeartBeat)

The **Check Heartbeat** message allows ASRS to detect a lost connection and alert an operator as necessary.

|  |  |
| --- | --- |
| Sending system: | ASRS |
| Receiving system: | RTCIS |
| Triggered by: | ASRS when checking the connection (aka pinging the connection) |
| RAI ng XML tag: | Check\_HeartBeat |
| RAI library call: | None – *This message is new for RAI ng* |

#### Fields – CheckHeartBeat - Main segment

The CheckHeartBeatData segment checks the connection

XML tag: CheckHeartBeatData

Parent segment: Root

| **Tag** | **Type** | **Length** | **Description** |
| --- | --- | --- | --- |
| TEXT | String | 80 | Optional text. The TEXT is **not** used by RTCIS. It is only for tracking purposes. |

#### XML Example – Check\_HeartBeat

<?xml version="1.0" encoding="utf-8" ?>

<Check\_HeartBeat>

  <MessageHeader>

  <SESSION\_KEY>ASRS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <CheckHeartBeatData>

  <TEXT>checking</TEXT>

  </CheckHeartBeatData >

</Check\_HeartBeat>

# Message Dialogs

This section describes the same message flows between RTCIS and the ASRS vendor. These examples may vary based on the specific vendor and P&G facility.

## Assumptions

1. All of the examples in the section have diagrams that show XML message being sent from RTCIS to the ASRS or from the ASRS to RTCIS. Each message shown is described in this document. Each message sent will be ACK’d or NAK’d by the receiving system, as described in the [ACK/NAK Handshaking](#_ACK/NAK_Handshaking) section of the Interface Protocol Overview. A successful ACK is expected for all messages in the diagrams below. The actual ACK is not shown on the diagram.
2. Each message requires the standard message header, as described in the [Message Header](#_Message_Header_Segment) section of the Message Definition overview. Each message requires a [SESSION\_KEY](#SESSION_KEY) which uniquely defines the system and must be configured in RTCIS using Session Maintenance application. In the examples below, “RTCIS” is used as the session key when RTCIS is sending the message and “ACTIV” (for Retrotech) is used as the session key when the ARS is sending the message. If the ASRS was Savoye, the session key would be “CIMAT”. If the ASRS was Swisslog, the session key would be “MSX”.
3. The examples use names of location. This may not be the exact name of the location in RTCIS or in the ASRS system. These locations shown are for interface purposes and may be mapped to another location in each system. In RTCIS, locations may be mapped with the ASRS Delivery Location Maintenance application.

## ASRS Pallet Induction using FPDS

### Pallet induction: RTCIS requests input location from ASRS

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when attempting to store a pallet into the ASRS. In this example, RTCIS makes the request without a specific input conveyor and the ARS successfully chooses the conveyor location.



1. A pallet is travelling on a conveyor from a production line or the pallet is placed on a conveyor by a warehouse user. The pallet passes a photo eye which triggers a PLC message 5 to be sent from the PLC Control System to the RTCIS PLC Control application (also known as the Detail Message Driver or dtlmsgdrv).
2. The RTCIS database is updated with the pallet status information and current location.
3. RTCIS checks if the P&G site is interfaced to an ASRS system based on the RTCIS “Is an ASRS being used at the facility?” system parameter. If the site is interfaced to an ASRS, RTCIS will proceed to notify the ASRS system.
4. The [RequestInduction](#_Move_Unit_Load) is sent from RTCIS to ASRS to request a specific conveyor location to route the pallet to.

<?xml version="1.0" encoding="utf-8" ?>

<RequestInduction>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestLocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80221059 </BRAND\_CODE>

  <BRAND\_DESCRIPTION>DOWNY LQSCP AF 4/103Z 120 LOADS</BRAND\_DESCRIPTION>

  <CODE\_DATE>415817020I </CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  <ACTIV\_INPUT\_LOCATION></ACTIV\_INPUT\_LOCATION>

  <ITEM\_GROUP>ENHANC</ ITEM\_GROUP>

  <BASE\_ULID>700370001646151000</ BASE\_ULID>

  <CASE\_QUANTITY>50</CASE\_QUANTITY>

  <PARTIAL\_FLAG>N</ PARTIAL\_FLAG>

  <PLC\_USERID>3100</ PLC\_USERID>

  </RequestLocForPallet>

</RequestInduction>

1. The ASRS system receives the request and selects the best input conveyor location for the pallet.
2. The [AssignInductionLoc](#_Identify_Unit_Load) is sent from the ASRS to RTCIS to notify RTCIS to of the conveyor location chosen for the unit load.

<?xml version="1.0" encoding="utf-8" ?>

<AssignInductionLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <ACTIV\_INPUT\_LOCATION>80221059 </ACTIV\_INPUT\_LOCATION>

  <PLC\_USERID>3100</ PLC\_USERID>

  </LocForPallet>

</AssignInductionLoc>

1. After receiving the location assignment from the ASRS, RTCIS will notify the conveyor to route the pallet to the induction location by sending the conveyor control system (such as PLCIO) a message 6. This message is sent from RTCIS to the PLC Control System using the RTCIS PLC Control Application. The conveyor system will receive the message 6 and route the pallet to the induction location.
2. The pallet will travel on the conveyor and will be stored in the ASRS.
3. PLC message 7 is sent from the PLC Control System to the RTCIS PLC Control application to notify RTCIS of the pallets arrival in the ASRS.
4. RTCIS updates the unit loads current location to indicate it is stored in the ASRS.

### Pallet induction: ASRS unable to select input location

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when attempting to store a pallet into the ASRS. In this example, RTCIS makes the request without a specific input conveyor and the ARS is unable to select a conveyor location. RTCIS then instructs the PLC to route the pallet to reject.



1. A pallet is travelling on a conveyor from a production line or the pallet is placed on a conveyor by a warehouse user. The pallet passes a photo eye which triggers a PLC message 5 to be sent from the PLC Control System to the RTCIS PLC Control application (also known as the Detail Message Driver or dtlmsgdrv).
2. The RTCIS database is updated with the pallet information.
3. RTCIS checks if the P&G site is interfaced to an ASRS system based on the RTCIS “Is an ASRS being used at the facility?” system parameter. If the site is interfaced to an ASRS, RTCIS will proceed to notify the ASRS system.
4. The [RequestInduction](#_Move_Unit_Load) is sent from RTCIS to ASRS to request a specific conveyor location to route the pallet to.

<?xml version="1.0" encoding="utf-8" ?>

<RequestInduction>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestLocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80221059 </BRAND\_CODE>

  <BRAND\_DESCRIPTION>DOWNY LQSCP AF 4/103Z 120 LOADS</BRAND\_DESCRIPTION>

  <CODE\_DATE>415817020I </CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  <ACTIV\_INPUT\_LOCATION></ACTIV\_INPUT\_LOCATION>

  <ITEM\_GROUP>ENHANC</ ITEM\_GROUP>

  <BASE\_ULID>700370001646151000</ BASE\_ULID>

  <CASE\_QUANTITY>50</CASE\_QUANTITY>

  <PARTIAL\_FLAG>N</ PARTIAL\_FLAG>

  <PLC\_USERID>3100</ PLC\_USERID>

  </RequestLocForPallet>

</RequestInduction>

1. The ASRS system receives the request and attempts to select the best input conveyor location for the pallet. The ASRS is unable to determine a location.
2. The [AssignInductionLoc](#_Identify_Unit_Load) is sent from the ASRS to RTCIS to without a conveyor location.

<?xml version="1.0" encoding="utf-8" ?>

<AssignInductionLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <ACTIV\_INPUT\_LOCATION></ACTIV\_INPUT\_LOCATION>

  <PLC\_USERID>3100</ PLC\_USERID>

  </LocForPallet>

</AssignInductionLoc>

1. After receiving the location assignment from the ASRS, RTCIS will direct the pallet to reject. RTCIS will notify the conveyor to route the pallet to reject by sending the conveyor control system (such as PLCIO) a message 6. This message is sent from RTCIS to the PLC Control System using the RTCIS PLC Control Application. The conveyor system will receive the message 6 and route to reject.
2. The pallet will travel on the conveyor to reject
3. PLC message 7 is sent from the PLC Control System to the RTCIS PLC Control application to notify RTCIS of the pallets arrival at reject.
4. RTCIS updates the unit loads current location to indicate it is currently at reject. A warehouse user will remove the pallet from the conveyor, process the pallet manually and possibly attempt to place the pallet on the conveyor again.

### Pallet induction: Pallets arrives at Reject rather than input conveyor

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when attempting to store a pallet into the ASRS. In this example, RTCIS makes the request without a specific input conveyor and the ASRS assigns the conveyor location. During transit, the pallet is re-routed to reject, rather than arriving at the expected induction conveyor. RTCIS notifies the ASRS the pallet will not be using the assigned conveyor.



1. A pallet is travelling on a conveyor from a production line or the pallet is placed on a conveyor by a warehouse user. The pallet passes a photo eye which triggers a PLC message 5 to be sent from the PLC Control System to the RTCIS PLC Control application (also known as the Detail Message Driver or dtlmsgdrv).
2. The RTCIS database is updated with the pallet status information and current location.
3. RTCIS checks if the P&G site is interfaced to an ASRS system based on the RTCIS “Is an ASRS being used at the facility?” system parameter. If the site is interfaced to an ASRS, RTCIS will proceed to notify the ASRS system.
4. The [RequestInduction](#_Move_Unit_Load) is sent from RTCIS to ASRS to request a specific conveyor location to route the pallet to.

<?xml version="1.0" encoding="utf-8" ?>

<RequestInduction>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestLocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80221059 </BRAND\_CODE>

  <BRAND\_DESCRIPTION>DOWNY LQSCP AF 4/103Z 120 LOADS</BRAND\_DESCRIPTION>

  <CODE\_DATE>415817020I </CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  <ACTIV\_INPUT\_LOCATION></ACTIV\_INPUT\_LOCATION>

  <ITEM\_GROUP>ENHANC</ ITEM\_GROUP>

  <BASE\_ULID>700370001646151000</ BASE\_ULID>

  <CASE\_QUANTITY>50</CASE\_QUANTITY>

  <PARTIAL\_FLAG>N</ PARTIAL\_FLAG>

  <PLC\_USERID>3100</ PLC\_USERID>

  </RequestLocForPallet>

</RequestInduction>

1. The ASRS system receives the request and selects the best input conveyor location for the pallet.
2. The [AssignInductionLoc](#_Identify_Unit_Load) is sent from the ASRS to RTCIS to notify RTCIS to of the conveyor location chosen for the unit load.

<?xml version="1.0" encoding="utf-8" ?>

<AssignInductionLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <ACTIV\_INPUT\_LOCATION>80221059 </ACTIV\_INPUT\_LOCATION>

  <PLC\_USERID>3100</ PLC\_USERID>

  </LocForPallet>

</AssignInductionLoc>

1. After receiving the location assignment from the ASRS, RTCIS will notify the conveyor to route the pallet to the induction location by sending the conveyor control system (such as PLCIO) a message 6. This message is sent from RTCIS to the PLC Control System using the RTCIS PLC Control Application. The conveyor system will receive the message 6 and route the pallet to the induction location.
2. Due to reasons unknown, such as a mechanical issue or a barcode *noread*, the pallet arrives at reject, rather than the assigned input conveyor.
3. PLC message 7 is sent from the PLC Control System to the RTCIS PLC Control application to notify RTCIS of the pallets arrival at reject.
4. RTCIS updates the unit loads current location to indicate it has arrived at reject.
5. RTCIS then examines the unit load information and determines the pallet was assigned to an input conveyor location by the ASRS for induction. RTCIS sends a second [RequestInduction](#_Move_Unit_Load) message to the ASRS with a message type of D8 for de-assignment, to notify the ASRS that the pallet will not be sent to the input location as previously intended.

<?xml version="1.0" encoding="utf-8" ?>

<RequestInduction>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestLocForPallet>

  <MESSAGE\_TYPE>D8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80221059 </BRAND\_CODE>

  <BRAND\_DESCRIPTION>DOWNY LQSCP AF 4/103Z 120 LOADS</BRAND\_DESCRIPTION>

  <CODE\_DATE>415817020I </CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  <ACTIV\_INPUT\_LOCATION>80221059</ACTIV\_INPUT\_LOCATION>

  <ITEM\_GROUP>ENHANC</ ITEM\_GROUP>

  <BASE\_ULID>700370001646151000</ BASE\_ULID>

  <CASE\_QUANTITY>50</CASE\_QUANTITY>

  <PARTIAL\_FLAG>N</ PARTIAL\_FLAG>

  </RequestLocForPallet>

</RequestInduction>

.

### Pallet induction: PLC selects the input location

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when attempting to store a pallet into the ASRS. In this example, RTCIS makes the request with a specific input conveyor, as determined by the PLC. The ASRS acknowledges the location chosen.



1. A pallet is travelling on a conveyor from a production line or the pallet is placed on a conveyor by a warehouse user. The pallet passes a photo eye which triggers a PLC message 5 to be sent from the PLC Control System to the RTCIS PLC Control application (also known as the Detail Message Driver or dtlmsgdrv). In this example, the message 5 from the PLC includes a specific conveyor location, passed as a 3 in the PLC delivery code field.

*Note: RTCIS attempts to translate the delivery code passed by the PLC into a conveyor location. RTCIS will first check if the PLC delivery code represents one of the following static values:*

* *0 – Request for ASRS to choose location*
* *88 – Request for ASRS to choose location on the lower floor (L8 message)*
* *99 – Request for ASRS to choose location on the upper floor (U8 message)*
* *8 – Consignment*
* *9 – Reject*

*If the PLC delivery code is not one of the values above, RTCIS will attempt to translate the PLC delivery code into an RTCIS location using the delivery location mapping defined in RTCIS (in the DLVLOCDTL table). If a mapping is found, RTCIS will inform the ASRS of the PLC chosen location in the* [*RequestInduction*](#_Move_Unit_Load) *by setting the message type to M8, rather than A8, and setting the ACTIV input location field to the value of the PLC delivery code.*

*If RTCIS is unable to translate the PLC delivery code (i.e. it not a static value or mapped value), RTCIS will direct the pallet to reject. If the pallet is being directed to reject by RTCIS (or by the PLC), the* [*RequestInduction*](#_Move_Unit_Load) *message will have a message type of M8, rather than A8, and the ACTIV input location field will be set to 9, the PLC delivery code for reject.*

1. The RTCIS database is updated with the pallet status information and current location.
2. RTCIS checks if the P&G site is interfaced to an ASRS system based on the RTCIS “Is an ASRS being used at the facility?” system parameter. If the site is interfaced to an ASRS, RTCIS will proceed to notify the ASRS system.
3. The [RequestInduction](#_Move_Unit_Load) is sent from RTCIS to ASRS to request a specific conveyor location to route the pallet to.

<?xml version="1.0" encoding="utf-8" ?>

<RequestInduction>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestLocForPallet>

  <MESSAGE\_TYPE>M8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80221059 </BRAND\_CODE>

  <BRAND\_DESCRIPTION>DOWNY LQSCP AF 4/103Z 120 LOADS</BRAND\_DESCRIPTION>

  <CODE\_DATE>415817020I </CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  <ACTIV\_INPUT\_LOCATION>3</ACTIV\_INPUT\_LOCATION>

  <ITEM\_GROUP>ENHANC</ ITEM\_GROUP>

  <BASE\_ULID>700370001646151000</ BASE\_ULID>

  <CASE\_QUANTITY>50</CASE\_QUANTITY>

  <PARTIAL\_FLAG>N</ PARTIAL\_FLAG>

  </RequestLocForPallet>

</RequestInduction>

1. The ASRS system receives the request and confirms the conveyor selected.
2. The [AssignInductionLoc](#_Identify_Unit_Load) is sent from the ASRS to RTCIS to confirm.

<?xml version="1.0" encoding="utf-8" ?>

<AssignInductionLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForPallet>

  <MESSAGE\_TYPE>A8</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>700370001646151000</UNIT\_LOAD\_ID>

  <ACTIV\_INPUT\_LOCATION>3</ACTIV\_INPUT\_LOCATION>

  <PLC\_USERID>3100</ PLC\_USERID>

  </LocForPallet>

</AssignInductionLoc>

1. After receiving the confirmation from the ASRS, RTCIS will echo the conveyor location back to the conveyor control system (such as PLCIO) in the message 6.
2. The pallet will travel on the conveyor and will be stored in the ASRS.
3. PLC message 7 is sent from the PLC Control System to the RTCIS PLC Control application to notify RTCIS of the pallets arrival in the ASRS.
4. RTCIS updates the unit loads current location to indicate it is stored in the ASRS.

## FPDS Selection for Entire Inbound Trailer or Shuttle

### FPDS Selection: RTCIS Requests FPDS Location

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when selecting an inbound FPDS conveyor location for an inbound trailer or shuttle. In this example, RTCIS makes the request for a shuttle, the ASRS responds with a location and RTCIS uses the suggested location.



1. The warehouse user is loading pallets from a production line directly onto a trailer/shuttle at a dock door.
2. The warehouse user fills the trailer/shuttle with pallets. The user indicates the trailer/shuttle is full by marking the associated dock door as full using the Mark Location Full function within the RDT Line Takeaway application. RTCIS will prompt the user to enter a move request for the trailer/shuttle.
3. RTCIS will check if the trailer/shuttle requires an FPDS assignment. The following conditions must be true for RTCIS to attempt the FPDS assignment:

* The RTCIS “Is an ASRS being used at the facility?” system parameter is set.
* The sub-site the warehouse user is currently working in is the ASRS sub-site, as specified by the RTCIS “Subsite for ACTIV” system parameter.
* The building the warehouse user is currently working in requires an FPDS assignment.
* There are multiple FPDS locations defined in RTCIS (i.e. multiple delivery locations with the type set of FPDS). *Note: If there is only one FPDS defined, it will be used by default without querying the ASRS system.*

1. The [RequestFPDS](#_Request_FPDS_Input_1) is sent from RTCIS to ASRS to request a specific FPDS conveyor location to unload the pallets unto.

<?xml version="1.0" encoding="utf-8" ?>

<RequestFPDS>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <TrailerHeader>

  <MESSAGE\_TYPE>A35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <LINE\_COUNT>3</LINE\_COUNT>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559442</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559497</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001638845549</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

  </TrailerHeader>

</RequestFPDS>

1. The ASRS system receives the request and selects the best FPDS. The ASRS should select the optimal FPDS to maintain inventory balance in the ASRS and efficiency on the inbound conveyor.
2. The [AssignFPDSLoc](#_Assign_FPDS_Input_1) is sent from the ASRS to RTCIS to confirm.

<?xml version="1.0" encoding="utf-8" ?>

<AssignFPDSLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForTrailer>

  <MESSAGE\_TYPE>A35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <ACTIV\_INPUT\_CONVEYOR>4</ACTIV\_INPUT\_CONVEYOR>

  </LocForTrailer>

</AssignFPDSLoc>

1. RTCIS will accept the FPDS location from the ASRS. The FPDS location will be used to determine the associated building, the associated zone, and then to select a dock door location in the same RTCIS zone.
2. The FPDS location and an associated dock door will be presented to the warehouse user on the RDT screen. The warehouse user will confirm that information presented and the ASRS selected FPDS location and the RTCIS selected dock door location will be used to create a Trailer/Shuttle Move Request.
3. A yard operator will use the RTCIS Process Trailer Movement RDT application to move the trailer/shuttle to the dock door. The yard operator will view the dock door present on screen, physically move the trailer/shuttle to that door and confirm the move on screen.
4. The warehouse user will begin unloading the trailer/shuttle (into the destination building, after the trailer/shuttle move). The warehouse user will be directed to place the pallets unloaded onto the FPDS conveyor assigned by the ASRS.
5. Upon placing the pallet on the conveyor, RTCIS updates the unit load’s current location to be the FPDS location. The pallet will then follow the normal induction process, but RTCIS will continue to use the same FPDS location (overriding when necessary). Refer to [Pallet induction: PLC selects the input location diagram](#_Pallet_induction:_PLC) for the complete message sequence.

### FPDS Selection: RTCIS Overrides FPDS Location

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when selecting an inbound FPDS conveyor location for an inbound trailer or shuttle. In this example, RTCIS makes the request for a shuttle, the ASRS responds with a location and RTCIS uses the suggested location.



1. The warehouse user is loading pallets from a production line directly onto a trailer/shuttle at a dock door.
2. The warehouse user fills the trailer/shuttle with pallets. The user indicates the trailer/shuttle is full by marking the associated dock door as full using the Mark Location Full function within the RDT Line Takeaway application. RTCIS will prompt the user to enter a move request for the trailer/shuttle.
3. RTCIS will check if the trailer/shuttle requires an FPDS assignment. The following conditions must be true for RTCIS to attempt the FPDS assignment:

* The RTCIS “Is an ASRS being used at the facility?” system parameter is set.
* The sub-site the warehouse user is currently working in is the ASRS sub-site, as specified by the RTCIS “Subsite for ACTIV” system parameter.
* The building the warehouse user if currently working in requires an FPDS assignment.
* There are multiple FPDS locations defined in RTCIS (i.e. multiple delivery locations with the type set of FPDS). *Note: If there is only one FPDS defined, it will be used by default without querying the ASRS system.*

1. The [RequestFPDS](#_Request_FPDS_Input_1) is sent from RTCIS to ASRS to request a specific FPDS conveyor location to unload the pallets unto.

<?xml version="1.0" encoding="utf-8" ?>

<RequestFPDS>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <TrailerHeader>

  <MESSAGE\_TYPE>A35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <LINE\_COUNT>3</LINE\_COUNT>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559442</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559497</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001638845549</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

  </TrailerHeader>

</RequestFPDS>

1. The ASRS system receives the request and selects the best FPDS. The ASRS should select the optimal FPDS to maintain inventory balance in the ASRS and efficiency on the inbound conveyor.
2. The [AssignFPDSLoc](#_Assign_FPDS_Input_1) is sent from the ASRS to RTCIS to confirm.

<?xml version="1.0" encoding="utf-8" ?>

<AssignFPDSLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForTrailer>

  <MESSAGE\_TYPE>A35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <ACTIV\_INPUT\_CONVEYOR>4</ACTIV\_INPUT\_CONVEYOR>

  </LocForTrailer>

</AssignFPDSLoc>

1. RTCIS will accept the FPDS location from the ASRS. The FPDS location will be used to determine the associated building, the associated zone, and then to select a dock door location in the same RTCIS zone.
2. The FPDS location and an associated dock door will be presented to the warehouse user on the RDT screen. The warehouse user will confirm that information presented and the ASRS selected FPDS location and the RTCIS selected dock door location will be used to create a Trailer/Shuttle Move Request.
3. A yard operator will use the RTCIS Process Trailer Movement RDT application to move the trailer/shuttle to the dock door. While moving the trailer/shuttle, the yard operator determines the dock door currently assigned to the trailer/shuttle is blocked, and he/she cannot physically move the trailer/shuttle to the door. The operator hits the Override RDT function key, to select another dock door to use
4. RTCIS finds the FPDS location associated with the new dock door chosen by the yard operator. In this example, FPDS4 (delivery code 4) was originally assigned, but FPDS1 (delivery code 1) will be used.
5. The [RequestFPDS](#_Request_FPDS_Input_1) is sent from RTCIS to ASRS to discard the old FPDS conveyor location to assignment.

<?xml version="1.0" encoding="utf-8" ?>

<RequestFPDS>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <TrailerHeader>

  <MESSAGE\_TYPE>D35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <ACTIV\_INPUT\_CONVEYOR>4</ACTIV\_INPUT\_CONVEYOR>

  <LINE\_COUNT>3</LINE\_COUNT>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559442</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559497</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001638845549</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

  </TrailerHeader>

</RequestFPDS>

1. The ASRS system receives the message and removes the trailer/shuttle from the internal ASRS queue for the old FPDS. The ASRS should no longer expect the pallets on this trailer/shuttle to be unloaded onto this FPDS.
2. The [RequestFPDS](#_Request_FPDS_Input_1) is sent from RTCIS to ASRS to override the trailer/shuttle to the new FPDS.

<?xml version="1.0" encoding="utf-8" ?>

<RequestFPDS>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <TrailerHeader>

  <MESSAGE\_TYPE>M35</MESSAGE\_TYPE>

  <TRAILER\_NUMBER>ATLS006</TRAILER\_NUMBER>

  <TRUCK\_LINE>MISC</TRUCK\_LINE>

  <ACTIV\_INPUT\_CONVEYOR>1</ACTIV\_INPUT\_CONVEYOR>

  <LINE\_COUNT>3</LINE\_COUNT>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559442</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001649559497</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

<TrailerUL>

<UNIT\_LOAD\_ID>00700370001638845549</UNIT\_LOAD\_ID>

<BRAND\_CODE>80215660</BRAND\_CODE>

<ITEM\_NUMBER></ITEM\_NUMBER>

<PALLET\_TYPE>Q</PALLET\_TYPE>

</TrailerUL>

  </TrailerHeader>

</RequestFPDS>

1. The ASRS system receives the message and adds the trailer/shuttle to the internal ASRS queue for the new FPDS. The ASRS should expect the pallets on this trailer/shuttle to be unloaded onto this FPDS.
2. The warehouse user will begin unloading the trailer/shuttle (into the destination building, after the trailer/shuttle move). The warehouse user will be directed to place the pallets unloaded onto the new FPDS conveyor assigned by RTCIS.
3. Upon placing the pallet on the conveyor, RTCIS updates the unit load’s current location to be the FPDS location. The pallet will then follow the normal induction process, but RTCIS will continue to use the same FPDS location (overriding when necessary). Refer to [Pallet induction: PLC selects the input location diagram](#_Pallet_induction:_PLC) for the complete message sequence.

## Quality Assurance Status Change

### QA Change: Change by Control Group

The following diagram contains messages that may be exchanged between RTCIS and the ASRS when a control group is changed to a new status in RTCIS. In this particular example, the warehouse user changes the status by using the RTCIS QA Status Change by Control Group application (qastatchg). However, the messages exchanged will be the same if the QA status change is initiated by SAP, RTCIS auto release, RTCI S expiration processing or if the user splits/combine controls groups using the RTCIS Split Control Group application (splitcglc).



1. The warehouse user uses the RTCIS QA Status Change by Control Group application to change item 80249846 and control group 4209172765 from quarantined to released.
2. RTCIS changes the status of the control group in RTCIS database and creates an internal request to notify the ASRS of the status change.

*Note: RTCIS has a dedicated application to send all QA status changes to the ASRS. This application is called the ASRS QA Message process (asrsqamsg). The ASRS QA Message process provides an efficient, central interface point for all RTCIS applications that send QA status changes to the ASRS. Any RTCIS application that alters the QA status of a control group creates an internal request in the RTCIS database, which is monitored and fulfilled by the ASRS QA Message process. This provides a single consistent interface to the ASRS.*

*This architecture was also implemented for efficiency. QA status messages may be very large, depending on the number of pallets associated with the control group being changed. This approach allows the user running the initial RTCIS application, such as QA Status Change by Control Group, to continue working while the ASRS QA Message process is still sending messages to the ASRS.*

1. The RTCIS ASRS QA Message process acknowledges the internal request for changing the control group status. RTCIS ASRS QA Message process selects all unit load information for all associated with the control group that was changed.
2. A [QAStatusChange](#_Toc394069003) is sent from RTCIS to ASRS for each pallet in the control group. In this example, three messages are sent.

<?xml version="1.0" encoding="utf-8" ?>

<QAStatusChange>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <ChangeULQA>

  <MESSAGE\_TYPE>A16</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>00700370001642864864</UNIT\_LOAD\_ID>

  <BRAND\_CODE>80228847</BRAND\_CODE>

  <CODE\_DATE>4209172765</CODE\_DATE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  </ChangeULQA>

</QAStatusChange>

<?xml version="1.0" encoding="utf-8" ?>

<QAStatusChange>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <ChangeULQA>

  <MESSAGE\_TYPE>A16</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>00100370001071991184</UNIT\_LOAD\_ID>

<BRAND\_CODE>80228847</BRAND\_CODE>

  <CODE\_DATE>4209172765</CODE\_DATE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  </ChangeULQA>

</QAStatusChange>

<?xml version="1.0" encoding="utf-8" ?>

<QAStatusChange>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <ChangeULQA>

  <MESSAGE\_TYPE>A16</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>00100370001071991207</UNIT\_LOAD\_ID>

<BRAND\_CODE>80228847</BRAND\_CODE>

  <CODE\_DATE>4209172765</CODE\_DATE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  </ChangeULQA>

</QAStatusChange>

1. The ASRS system updates the QA status for each pallet based on the message received.
2. If the inventory was previously set to a non-pickable status, there may be pending replenishment requests that are being held in RTCIS, waiting for inventory to be released. If the QA status transaction is releasing inventory, RTCIS will check for any related replenishment requests. If a replenishment request is found, this will initiate a withdrawal request to the ASRS. Refer to the [Withdrawal Request: Case Pick Replenishment](#_Withdrawal_Request:_Case) diagram for the complete description of the message exchange.

### QA Change: Multiple Control Groups on Pallet

The following diagram contains messages that may be exchanged between RTCIS and the ASRS when a control group is changed to a new status in RTCIS and the pallet has multiple control groups. A pallet may have multiple control groups if it was manufactured at the end of a production run or if the pallet has been picked for an order (a setup or a kit). In this particular example, the warehouse user changes the status of one of the control groups by using the RTCIS QA Status Change by Control Group application (qastatchg).



1. The warehouse user uses the RTCIS QA Status Change by Control Group application to change item 80249846 and control group 4209172765 from quarantined to released.
2. RTCIS finds a unit load with two control groups on the pallet. RTCIS will check if the overall QA status for the pallet has changed due to the single control group status changing. If it has, RTCIS will notify the ASRS. If the overall pallet status has not changed, RTCIS will not send the ASRS a message. In this example, the overall status of the pallet has changed from quarantined to released.

*Note: When RTCIS sends a* [*RequestInduction*](#_Request_ASRS_Input) *message to the ASRS, RTCIS only includes the oldest control group and associated item for the inventory information transmitted to the ASRS for the unit load. If there are multiple items/control groups on the pallet, RTCIS will track them, but the ASRS will only track the oldest. In the example about, it is assumed that the unit load has two control groups and only the oldest control group is changing.*

1. RTCIS changes the status of the control group in RTCIS database and creates an internal request to notify the ASRS of the status change.

*Note: RTCIS has a dedicated application to send all QA status changes to the ASRS. This application is called the ASRS QA Message process (asrsqamsg). The ASRS QA Message process provides an efficient, central interface point for all RTCIS applications that send QA status changes to the ASRS. Any RTCIS application that alters the QA status of a control group creates an internal request in the RTCIS database, which is monitored and fulfilled by the ASRS QA Message process. This provides a single consistent interface to the ASRS.*

*This architecture was also implemented for efficiency. QA status messages may be very large, depending on the number of pallets associated with the control group being changed. This approach allows the user running the initial RTCIS application, such as QA Status Change by Control Group, to continue working while the ASRS QA Message process is still sending messages to the ASRS.*

1. The RTCIS ASRS QA Message process acknowledges the internal request for changing the control group status. RTCIS ASRS QA Message process selects all unit load information for all associated with the control group that was changed.
2. A [QAStatusChange](#_Toc394069003) is sent from RTCIS to ASRS for each pallet in the control group. In this example, three messages are sent.

<?xml version="1.0" encoding="utf-8" ?>

<QAStatusChange>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140713162212</TIMESTAMP>

</MessageHeader>

  <ChangeULQA>

  <MESSAGE\_TYPE>A16</MESSAGE\_TYPE>

  <UNIT\_LOAD\_ID>00700370001642864864</UNIT\_LOAD\_ID>

  <CODE\_DATE>4209172765</CODE\_DATE>

  <UL\_HOLD\_STATUS\_CODE>RL</UL\_HOLD\_STATUS\_CODE>

  </ChangeULQA>

</QAStatusChange>

1. The ASRS system updates the QA status for each pallet based on the message received.
2. If the inventory was previously set to a non-pickable status, there may be pending replenishment requests that were being held in RTCIS, waiting for inventory to be released. If the QA status transaction is releasing inventory, RTCIS will check for any related replenishment requests. If a replenishment request is found, this will initiate a withdrawal request to the ASRS. Refer to the [Withdrawal Request: Case Pick Replenishment](#_Withdrawal_Request:_Case) diagram for the complete description of the message exchange.

## RTCIS Withdrawal Requests from ASRS

### Withdrawal Request: Case Pick Replenishment

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when retrieving inventory from the ASRS for replenishing a case pick face in the warehouse. In this example, RTCIS requests two pallets to be delivered to a pickface location.



1. A warehouse user picks cases from a case pickface.
2. The pickface location falls below the replenishment threshold and RTCIS generates a replenishment request for the location.
3. RTCIS determines the optimal inventory to pick for replenishing the case pickface location is currently stored in the ASRS. RTCIS allocates the inventory from the ASRS in the RTCIS database.
4. A [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) is sent from RTCIS to the ASRS to request that the ASRS system retrieve the pallets required.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalRequest>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestInventory>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <BRAND\_CODE>80232874 </BRAND\_CODE>

  <UNIT\_LOAD\_ID></UNIT\_LOAD\_ID>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_WITHDRAWAWL\_QTY>2</ UL\_WITHDRAWAWL\_QTY>

  <ACTIV\_OUTPUT\_LOCATION></ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_INTENT\_CODE>N</WITHDRAWAL\_INTENT\_CODE>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <WITHDRAWAL\_PARTIAL\_CODE>4</ WITHDRAWAL\_PARTIAL\_CODE>

  </RequestInventory>

</WithdrawalRequest>

1. The ASRS receives the request and verifies the inventory requested is available. It then assigns a destination conveyor for the request.
2. The [AssignWithdrawalLoc](#_Assign_ASRS_Manual) is sent from the ASRS to RTCIS to notify RTCIS to of the conveyor location chosen for the unit load.

<?xml version="1.0" encoding="utf-8" ?>

<AssignWithdrawalLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForRequest>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>131</ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_OUTPUT\_TIME>50</ WITHDRAWAL\_OUTPUT\_TIME>

  </LocForRequest>

</AssignWithdrawalLoc>

1. After receiving the location assignment from the ASRS, RTCIS will update the RTCIS database with the expected destination and delivery time.
2. Later, the ASRS will retrieve the first pallet for the request.
3. The [WithdrawalULArrival](#_Pallet_Arrival_for_1) is sent from the ASRS to RTCIS to notify RTCIS to of the pallets arrival at the destination conveyor.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalULArrival>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150009</TIMESTAMP>

</MessageHeader>

  <PalletArrival>

  <MESSAGE\_TYPE>A14</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>131</ACTIV\_OUTPUT\_LOCATION>

  <BRAND\_CODE>80232874 </BRAND\_CODE>

  <ACTIV\_LEVEL\_ID>1</ ACTIV\_LEVEL\_ID >

  <UNIT\_LOAD\_ID>00700370001642864857</UNIT\_LOAD\_ID>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PalletArrival>

</WithdrawaULlArrival>

1. RTCIS updates the pallets location in the database.
2. The warehouse user signs onto the RDT, picks up the pallet with a fork lift and delivers the pallet to the case pick location.
3. Later, the ASRS will retrieve the second pallet for the request.
4. The [WithdrawalULArrival](#_Pallet_Arrival_for_1) is sent from the ASRS to RTCIS to notify RTCIS to of the pallets arrival at the destination conveyor.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalULArrival>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140626150010</TIMESTAMP>

</MessageHeader>

  <PalletArrival>

  <MESSAGE\_TYPE>A14</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0316</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>131</ACTIV\_OUTPUT\_LOCATION>

  <BRAND\_CODE>80232874 </BRAND\_CODE>

  <ACTIV\_LEVEL\_ID>1</ ACTIV\_LEVEL\_ID >

  <UNIT\_LOAD\_ID>00700370001642864864</UNIT\_LOAD\_ID>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PalletArrival>

</WithdrawalULArrival>

1. RTCIS updates the pallets location in the database.
2. The warehouse user signs onto the RDT, picks up the pallet with a fork lift and delivers the pallet to the case pick location.
3. RTCIS sets the status of the withdrawal request to complete.

### Withdrawal Request: Manual Request by Item

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when retrieving inventory from the ASRS for a manual withdrawal request. In this example, RTCIS requests a single pallet to be delivered to a vertical lift location.



1. A warehouse user enters a manual withdrawal request from the ASRS using the RTCIS Withdrawal Manager. The user requests on one pallet of item 80232874 to be delivered to VTL02.
2. A [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) is sent from RTCIS to the ASRS to request that the ASRS system retrieve the pallet required.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalRequest>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150000</TIMESTAMP>

</MessageHeader>

  <RequestInventory>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0747</HOST\_CONTROL\_NUMBER>

  <BRAND\_CODE>80232874 </BRAND\_CODE>

  <UNIT\_LOAD\_ID></UNIT\_LOAD\_ID>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_WITHDRAWAWL\_QTY>1</ UL\_WITHDRAWAWL\_QTY>

  <ACTIV\_OUTPUT\_LOCATION>VTL02</ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_INTENT\_CODE>N</WITHDRAWAL\_INTENT\_CODE>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <WITHDRAWAL\_PARTIAL\_CODE>4</ WITHDRAWAL\_PARTIAL\_CODE>

  </RequestInventory>

</WithdrawalRequest>

1. The ASRS receives the request and verifies the inventory requested is available.
2. The [AssignWithdrawalLoc](#_Assign_ASRS_Manual) is sent from the ASRS to RTCIS to confirm the conveyor location for the unit load.

<?xml version="1.0" encoding="utf-8" ?>

<AssignWithdrawalLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140626150001</TIMESTAMP>

</MessageHeader>

  <LocForRequest>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0747</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>VTL02</ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_OUTPUT\_TIME>50</ WITHDRAWAL\_OUTPUT\_TIME>

  </LocForRequest>

</AssignWithdrawalLoc>

1. After receiving the location assignment from the ASRS, RTCIS will update the RTCIS database with the expected destination and delivery time.
2. Later, the ASRS will physically retrieve the pallet for the request.
3. The [WithdrawalULArrival](#_Pallet_Arrival_for_1) is sent from the ASRS to RTCIS to notify RTCIS to of the pallets arrival at the destination conveyor.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalULArrival>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140626150011</TIMESTAMP>

</MessageHeader>

  <PalletArrival>

  <MESSAGE\_TYPE>A14</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M0747</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>VTL02</ACTIV\_OUTPUT\_LOCATION>

  <BRAND\_CODE>80232874</BRAND\_CODE>

  <ACTIV\_LEVEL\_ID>1</ ACTIV\_LEVEL\_ID >

  <UNIT\_LOAD\_ID>00700370001642864857</UNIT\_LOAD\_ID>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PalletArrival>

</WithdrawaULlArrival>

1. RTCIS updates the pallets location in the database, to indicate the pallet has been delivered to the vertical lift location requested.
2. The warehouse user signs onto the RDT, picks up the pallet with a fork lift and delivers the pallet to another location in the warehouse.
3. RTCIS sets the status of the withdrawal request to complete.

### Withdrawal Request: Manual Request by Unit Load

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when retrieving inventory from the ASRS for a manual withdrawal request. In this example, RTCIS requests a specific pallet from the ASRS.



1. A warehouse user enters a manual withdrawal request from the ASRS using the RTCIS Withdrawal Manager. The user requests the pallet with the unit load Id 0010037000107448234-4.
2. A [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) is sent from RTCIS to the ASRS to request that the ASRS system retrieve the pallet required.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalRequest>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140914040910</TIMESTAMP>

</MessageHeader>

  <RequestInventory>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M6427</HOST\_CONTROL\_NUMBER>

  <BRAND\_CODE>80244343</BRAND\_CODE>

  <UNIT\_LOAD\_ID>**00100370001074482344**</UNIT\_LOAD\_ID>

  <CODE\_DATE>**4249172713**</CODE\_DATE>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <UL\_WITHDRAWAWL\_QTY>1</ UL\_WITHDRAWAWL\_QTY>

  <ACTIV\_OUTPUT\_LOCATION></ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_INTENT\_CODE>N</WITHDRAWAL\_INTENT\_CODE>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <WITHDRAWAL\_PARTIAL\_CODE>4</ WITHDRAWAL\_PARTIAL\_CODE>

  </RequestInventory>

</WithdrawalRequest>

1. The ASRS receives the request and verifies the inventory requested is available.

It then assigns a destination conveyor for the request.

1. The [AssignWithdrawalLoc](#_Assign_ASRS_Manual) is sent from the ASRS to RTCIS to confirm the conveyor location for the unit load.

<?xml version="1.0" encoding="utf-8" ?>

<AssignWithdrawalLoc>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140914040911</TIMESTAMP>

</MessageHeader>

  <LocForRequest>

  <MESSAGE\_TYPE>A13</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M6427</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>VTL131</ACTIV\_OUTPUT\_LOCATION>

  <WITHDRAWAL\_OUTPUT\_TIME>50</ WITHDRAWAL\_OUTPUT\_TIME>

  </LocForRequest>

</AssignWithdrawalLoc>

1. After receiving the location assignment from the ASRS, RTCIS will update the RTCIS database with the expected destination and delivery time.
2. Later, the ASRS will physically retrieve the pallet for the request.
3. The [WithdrawalULArrival](#_Pallet_Arrival_for_1) is sent from the ASRS to RTCIS to notify RTCIS to of the pallets arrival at the destination conveyor.

<?xml version="1.0" encoding="utf-8" ?>

<WithdrawalULArrival>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140914045911</TIMESTAMP>

</MessageHeader>

  <PalletArrival>

  <MESSAGE\_TYPE>A14</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>M6427</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>VTL131</ACTIV\_OUTPUT\_LOCATION>

  <BRAND\_CODE>80244343</BRAND\_CODE>

  <ACTIV\_LEVEL\_ID>1</ ACTIV\_LEVEL\_ID >

  <UNIT\_LOAD\_ID>**00100370001074482344**</UNIT\_LOAD\_ID>

  <PALLET\_TYPE>T</PALLET\_TYPE>

  <CODE\_DATE>**4249172713**</CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PalletArrival>

</WithdrawaULlArrival>

1. RTCIS updates the pallets location in the database, to indicate the pallet has been delivered to the vertical lift location requested.
2. The warehouse user signs onto the RDT, picks up the pallet with a fork lift and delivers the pallet to another location in the warehouse.
3. RTCIS sets the status of the withdrawal request to complete.

### Withdrawal Request: Large Request Fulfill by Batch

Large withdrawal requests are sent to the ASRS by RTCIS as shipments. When the user enters a manual withdrawal request by item code, RTCIS will compare the number of pallets requested to the “Maximum Number of UL's for ASRS Batch Processing” system parameter. If the number of pallets requested exceeds the system parameter, RTCIS will process the request as a shipment. Refer to Shipment Processing (below) for more information.

## Shipment Processing

### Shipment Request: All Pallets Staged

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a shipment to process. In this example, the ASRS requests the next shipment to process, RTCIS assigns the shipment requirements and the ASRS delivers all of the pallets required for the shipment.



1. The ASRS requests the next shipment (or batched withdrawal request) to add to the queue. The ASRS will transmit a [RequestNextShip](#_Check_Heartbeat_(Check_Heartbeat)) to RTCIS.

*Note: The ASRS will determine when it wants to request the next shipment. This may be when a shipping lane is open (or about to be open), or simply to add the shipment to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextShip>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <ShipCriteria>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <MOT\_CODE>A</MOT\_CODE>

  </ShipCriteria>

</RequestNextShip>

1. RTCIS receives the message and evaluates the available shipments and batched withdrawal requests. RTCIS will find the next [highest priority shipment](#Assign_ship_logic), based on the MOT code passed by the ASRS.  *Note: RTCIS will only return one shipment (or batched withdrawal request) to the ASRS per* [*RequestNextShip*](#_Check_Heartbeat_(Check_Heartbeat))*.*
2. If a shipment (or batched withdrawal request) is found, RTCIS will mark the shipment as assigned and transmit the shipment information back to the ASRS using an [AssignShip](#_Assign_Shipment_for_1). In the following example, shipment 0304248013 requires five pallets of various items.

<?xml version="1.0" encoding="utf-8" ?>

<AssignShip>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ShipHeader>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <SCHEDULED\_SHIP\_DATE>20140801</SCHEDULED\_SHIP\_DATE>

  <SCHEDULED\_SHIP\_TIME>200000</SCHEDULED\_SHIP\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>5</LINE\_COUNT>

  <ShipUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>48</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>90</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>54</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>4</SEQUENCE>

  <BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>5</SEQUENCE>

  <BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  </ShipHeader>

</AssignNextShip>

1. Later, after the ASRS has received the shipment information, the ASRS will begin retrieving pallets for the shipment. The physical retrieval of the pallet will vary based on the automation for the specific P&G production facility and the ASRS vendor used.
2. After the ASRS retrieves the first pallet from storage and before the ASRS delivers the first pallet to the shipping/staging lane, the ASRS will send a [ShipStageStart](#_Start_Shipment_Staging_1).

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent before the first* [*ShipULStaged*](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A22</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageStart>

1. RTCIS receives the [ShipStageStart](#_Start_Shipment_Staging_1) and updates the RTCIS database to indicate the shipment has been signed on and updates the staging location to “205”, based on the location passed in the message.
2. The retrieved pallet is conveyed to the shipping/staging lane. The ASRS will guarantee the pallets arrive in the sequence requested. If two (or more) pallets have the same sequence number (as assigned in the [AssignShip](#_Assign_Shipment_for_1)), the ASRS may deliver these pallets may be delivered in any sequence.

*For example, a shipment may request one pallet with sequence number “1”, four pallets with sequence number “2” and one pallet with sequence number “3”. In this situation, the ASRS must deliver the pallet with sequence number “1” first. Then, any of the four pallets with sequence “2” may be delivered. The ASRS proceeds to deliver all of the four pallets with sequence “2” before delivering the last pallet, with sequence number “3”. For more information on RTCIS settings for pallet sequencing, please refer to* [*sequence number field*](#Assign_ship_seq_num) *description of the* [*AssignShip*](#_Assign_Shipment_for_1) *message.*

In the example diagramed, each pallet was assigned a unique sequence number. The ASRS will deliver pallet sequence 1 requiring item code 80243362 first.

1. Immediately after the pallet is delivered to the shipping/staging lane, the ASRS will transmit a [ShipULStaged](#_Shipment_Unit_Load) message to RTCIS to announce the pallets arrival.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182002</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065029084</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

1. RTCIS will verify the inventory on the pallet matches the requirements for the shipment. Specifically, RTCIS will verify the inventory matches the requirements for the pallet sequence number and that the unit load has not been picked for any other shipment. In this example, RTCIS will verify the pallet contains item number 80243362 as required by pallet sequence 1. After verifying the pick, RTCIS will update the pallet in the RTCIS database, to indicate the pallet is now picked for the shipment.

The ASRS will continue to deliver pallets for the shipment until all pallets have been picked and delivered (or until all pallets that can be picked have been delivered). Steps 7 and 8 will be repeated for every pallet on the shipment. In the example diagramed, these steps will be repeated four more times for pallet sequences 2, 3, 4 and 5.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000004</MESSAGE\_ID>

  <TIMESTAMP>20140801182003</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001381987693</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>2</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000005</MESSAGE\_ID>

  <TIMESTAMP>20140801182007</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065211199</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>3</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000006</MESSAGE\_ID>

  <TIMESTAMP>20140801182008</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001073890195</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>4</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000007</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001053148919</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>5</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

1. After the last pallet of a fully picked shipment has been delivered to the staging/shipping lane, the ASRS will mark the shipment as complete in the ASRS system.
2. The ASRS will proceed to notify RTCIS that staging is complete by sending a [ShipStageComplete](#_Shipment_Staging_Complete) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent after the last* [*ShipULStaged*](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000008</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A24</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageComplete>

1. RTCIS will update the shipment and the associated order(s) complete, if all of the picking requirements have been fulfilled, or mark them as short, if not all of the inventory If the shipment is short, the picking will be done at a later time or performed without the ASRS. In this example, the entire shipment was picked and delivered to the staging/shipping lane.
2. After the inventory has been staged, the warehouse user signs onto the RTCIS RDT Truck Loading application to begin loading the pallets onto the trailer.
3. The Trucking Loading application will begin by prompting the user for trailer to load. RTCIS will find the associated staging/shipping lane (which was stored in the RTCIS database on step #6, when the ASRS sent the [ShipStageStart](#_Start_Shipment_Staging_1) message).
4. RTCIS will notify the ASRS of the RDT user’s intention to sign on to the staging/shipping lane and begin removing pallets from the conveyor. After RTCI has determined the staging/shipping lane, RTCIS will send a [SlotSignOnOff](#_Slot_Sign_On/Off_1) message to the ASRS.

*Note: This message is optional. RTCIS can be configured to eliminate this message by setting the RTCIS “Skip Slot Sign On Request?” system parameter to true. If this message is eliminated, RTCIS will process a slot sign on in the same manner that a successful RTCIS request and ASRS confirmation would be processed.*

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnOff>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182015</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <SIGNON\_FLG>Y</SIGNON\_FLG>

  </SlotRequest>

</SlotSignOnOff>

1. The ASRS action after receiving the RTCIS sign on request is optional and will be dependent on the vendor/site implementation. If the ASRS has already delivered the pallets to a conveyor that accessible to a fork lift (or other warehouse equipment), no action is necessary. If the ASRS needs to physical move or release the pallets to an accessible conveyor, it should do so after receiving the first RTCIS sign on message. *Note: It is possible that RTCIS may send second or subsequent sign on message.*
2. After processing the RTCIS sign on message, the ASRS sends a [SlotSignOnConfirmation](#_Slot_Sign_On) response.

*Note: This message is optional. RTCIS can be configured to eliminate this message by setting the RTCIS “Skip Slot Sign On Confirmation?” system parameter to true. If this message is eliminated, RTCIS will process a slot sign on in the same manner that a successful ASRS confirmation would be processed.*

*Also note that it is possible to configure RTCIS to process the sign on and confirmation in any of the following configurations, using the system parameters:*

* *RTCIS transmits the sign on request and expects a confirmation response from the ASRS*
* *RTCIS transmits the sign on (in order to notify the ASRS) without expecting a confirmation response*
* *RTCIS does not transmit the sign on request to the ASRS.*

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnConfirmation>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000009</MESSAGE\_ID>

  <TIMESTAMP>20140801182016</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <STATUS>0</STATUS>

  </SlotRequest>

</SlotSignOnConfirmation>

1. The Warehouse user removes the pallet from the staging/shipping lane and either loads the pallet onto the trailer or places the pallet in a floor staging location to sequence the pallets with non-ASRS pallets prior to loading.
2. If the ASRS is equipped to detect the removal a pallet from the staging/shipping location, the ASRS may optionally transmit a [ShipULPickup](#_Shipment_Unit_Load_3) to RTCIS. If load flag is set to true, RTCIS will attempt to automatically update the RTCIS database to load the pallet unto the trailer. Otherwise, this message just serves as a notification from the ASRS to RTCIS that the pallet was removed.

*Note: The primary intent of this message originally was for testing purposes, but it being used by production sites for notification. Although no current sites are using this message for automated loading, this message could be used in conjunction with automated equipment, such as an AGV, to load the pallet into the trailer without a warehouse user (i.e. skip step #18 above).*

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000010</MESSAGE\_ID>

  <TIMESTAMP>20140801182019</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001065029084</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

Steps 18 and 19 are repeated for each pallet that was delivered to the staging lane. In this example, there are four remaining pallets to load.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000011</MESSAGE\_ID>

  <TIMESTAMP>20140801182021</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001381987693</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000012</MESSAGE\_ID>

  <TIMESTAMP>20140801182022</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001065211199</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000014</MESSAGE\_ID>

  <TIMESTAMP>20140801182027</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001073890195</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000015</MESSAGE\_ID>

  <TIMESTAMP>20140801182032</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001053148919</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

1. After all of the pallets for the shipment had been loaded or placed into a floor staging location, the warehouse user indicates the shipment is complete.
2. RTCIS notifies the ASRS that the warehouse user is no longer removing pallets from the shipping/staging land by sending a SlotSignOnOff message. *Note: This does not always indicate that the warehouse user has removed all of the pallets for the shipment. The warehouse user may sign on, remove some of the pallets, sign off for a break and resume the process later.*

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnOff>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182033</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <SIGNON\_FLG>N</SIGNON\_FLG>

  </SlotRequest>

</SlotSignOnOff>

1. Once all pallets have been removed from the shipping/staging lane, RTCIS will finish the loading and checkout process for the current shipment.
2. The shipping/staging lane is free to be used for delivering pallets for other shipments. *Note: The timing of delivering pallets for the next shipment may differ based on the ASRS vendor and/or RTCIS production site. Depending the systems and automation equipment, pallets for the next shipment may (or may not) be queued for the shipping/staging lane prior to the completion of the current shipment.*

### Shipment Request: Shipment Shortage

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a shipment to process. In this example, the ASRS requests the next shipment to process, RTCIS assigns the shipment requirements and the ASRS delivers some of the pallets required for the shipment. The other pallets are short and must be picked from floor storage (or the shipment must be shipped short).



1. The ASRS requests the next shipment (or batched withdrawal request) to add to the queue. The ASRS will transmit a [RequestNextShip](#_Check_Heartbeat_(Check_Heartbeat)) to RTCIS.

*Note: The ASRS will determine when it wants to request the next shipment. This may be when a shipping lane is open (or about to be open), or simply to add the shipment to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextShip>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <ShipCriteria>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <MOT\_CODE>A</MOT\_CODE>

  </ShipCriteria>

</RequestNextShip>

1. RTCIS receives the message and evaluates the available shipments and batched withdrawal requests. RTCIS will find the next [highest priority shipment](#Assign_ship_logic), based on the MOT code passed by the ASRS.  *Note: RTCIS will only return one shipment (or batched withdrawal request) to the ASRS per* [*RequestNextShip*](#_Check_Heartbeat_(Check_Heartbeat))*.*
2. If a shipment (or batched withdrawal request) is found, RTCIS will mark the shipment as assigned and transmit the shipment information back to the ASRS using an [AssignShip](#_Assign_Shipment_for_1). In the following example, shipment 0304248013 requires five pallets of various items.

<?xml version="1.0" encoding="utf-8" ?>

<AssignShip>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ShipHeader>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <SCHEDULED\_SHIP\_DATE>20140801</SCHEDULED\_SHIP\_DATE>

  <SCHEDULED\_SHIP\_TIME>200000</SCHEDULED\_SHIP\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>5</LINE\_COUNT>

  <ShipUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>48</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>90</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>54</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>4</SEQUENCE>

  <BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>5</SEQUENCE>

  <BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  </ShipHeader>

</AssignNextShip>

1. Later, after the ASRS has received the shipment information, the ASRS will begin retrieving pallets for the shipment. The physical retrieval of the pallet will vary based on the automation for the specific P&G production facility and the ASRS vendor used.
2. After the ASRS retrieves the first pallet from storage and before the ASRS delivers the first pallet to the shipping/staging lane, the ASRS will send a [ShipStageStart](#_Start_Shipment_Staging_1).

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent before the first* [*ShipULStaged*](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A22</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageStart>

1. RTCIS receives the [ShipStageStart](#_Start_Shipment_Staging_1) and updates the RTCIS database to indicate the shipment has been signed on and updates the staging location to “205”, based on the location passed in the message.
2. The retrieved pallet is conveyed to the shipping/staging lane. The ASRS will guarantee the pallets arrive in the sequence requested. If two (or more) pallets have the same sequence number (as assigned in the [AssignShip](#_Assign_Shipment_for_1)), the ASRS may deliver these pallets may be delivered in any sequence.

*For example, a shipment may request one pallet with sequence number “1”, four pallets with sequence number “2” and one pallet with sequence number “3”. In this situation, the ASRS must deliver the pallet with sequence number “1” first. Then, any of the four pallets with sequence “2” may be delivered. The ASRS proceeds to deliver all of the four pallets with sequence “2” before delivering the last pallet, with sequence number “3”. For more information on RTCIS settings for pallet sequencing, please refer to* [*sequence number field*](#Assign_ship_seq_num) *description of the* [*AssignShip*](#_Assign_Shipment_for_1) *message.*

In the example diagramed, each pallet was assigned a unique sequence number. The ASRS will deliver pallet sequence 1 requiring item code 80243362 first.

1. Immediately after the pallet is delivered to the shipping/staging lane, the ASRS will transmit a [ShipULStaged](#_Shipment_Unit_Load) message to RTCIS to announce the pallets arrival.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182002</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065029084</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

1. RTCIS will verify the inventory on the pallet matches the requirements for the shipment. Specifically, RTCIS will verify the inventory matches the requirements for the pallet sequence number and that the unit load has not been picked for any other shipment. In this example, RTCIS will verify the pallet contains item number 80243362 as required by pallet sequence 1. After verifying the pick, RTCIS will update the pallet in the RTCIS database, to indicate the pallet is now picked for the shipment.

The ASRS will continue to deliver pallets for the shipment until all available pallets have been picked and delivered. Steps 7 and 8 will be repeated for every pallet on the shipment. In the example diagramed, these steps will be repeated two more times for pallet sequences 2 and 3. However, there are no available pallets for pallet sequences 4 and 5, so the shipment will be short. *Note: The pallets may be unavailable from the ASRS to various reasons, such as temporary mechanical issues. Also note that RTCIS and the ASRS should have matching inventory, so this situation should not normally occur due to over-allocation, if both systems are in sync.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000004</MESSAGE\_ID>

  <TIMESTAMP>20140801182003</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001381987693</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>2</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000005</MESSAGE\_ID>

  <TIMESTAMP>20140801182007</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065211199</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>3</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

1. After the last available pallet the shipment has been delivered to the staging/shipping lane, the ASRS will mark the shipment as complete in the ASRS system.
2. The ASRS will proceed to notify RTCIS that staging is complete by sending a [ShipStageComplete](#_Shipment_Staging_Complete) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent after the last* [*ShipULStaged*](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000006</MESSAGE\_ID>

  <TIMESTAMP>20140801182008</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A24</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageComplete>

1. RTCIS will evaluate and update the status of the shipment and its associated order(s). In this example, the shipment is missing two pallets, so the shipment (and the associated order) will be marked as short. The pallets will have to be picked from floor storage, retrieved from the ASRS at a later time, or the shipment will have to be shipped short.
2. After the inventory has been staged, the warehouse user signs onto the RTCIS RDT Truck Loading application to begin loading the pallets onto the trailer.
3. The Trucking Loading application will begin by prompting the user for trailer to load. RTCIS will find the associated staging/shipping lane (which was stored in the RTCIS database on step #6, when the ASRS sent the [ShipStageStart](#_Start_Shipment_Staging_1) message).
4. RTCIS will notify the ASRS of the RDT user’s intention to sign on to the staging/shipping lane and begin removing pallets from the conveyor. After RTCI has determined the staging/shipping lane, RTCIS will send a [SlotSignOnOff](#_Slot_Sign_On/Off_1) message to the ASRS.

*Note: This message is optional. RTCIS can be configured to eliminate this message by setting the RTCIS “Skip Slot Sign On Request?” system parameter to true. If this message is eliminated, RTCIS will process a slot sign on in the same manner that a successful RTCIS request and ASRS confirmation would be processed.*

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnOff>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182015</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <SIGNON\_FLG>Y</SIGNON\_FLG>

  </SlotRequest>

</SlotSignOnOff>

1. The ASRS action after receiving the RTCIS sign on request is optional and will be dependent on the vendor/site implementation. If the ASRS has already delivered the pallets to a conveyor that accessible to a fork lift (or other warehouse equipment), no action is necessary. If the ASRS needs to physical move or release the pallets to an accessible conveyor, it should do so after receiving the first RTCIS sign on message. *Note: It is possible that RTCIS may send second or subsequent sign on message.*
2. After processing the RTCIS sign on message, the ASRS sends a [SlotSignOnConfirmation](#_Slot_Sign_On) response.

*Note: This message is optional. RTCIS can be configured to eliminate this message by setting the RTCIS “Skip Slot Sign On Confirmation?” system parameter to true. If this message is eliminated, RTCIS will process a slot sign on in the same manner that a successful ASRS confirmation would be processed.*

*Also note that it is possible to configure RTCIS to process the sign on and confirmation in any of the following configurations, using the system parameters:*

* *RTCIS transmits the sign on request and expects a confirmation response from the ASRS*
* *RTCIS transmits the sign on (in order to notify the ASRS) without expecting a confirmation response*
* *RTCIS does not transmit the sign on request to the ASRS.*

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnConfirmation>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000007</MESSAGE\_ID>

  <TIMESTAMP>20140801182016</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <STATUS>0</STATUS>

  </SlotRequest>

</SlotSignOnConfirmation>

1. The Warehouse user removes the pallet from the staging/shipping lane and either loads the pallet onto the trailer or places the pallet in a floor staging location to sequence the pallets with non-ASRS pallets prior to loading.
2. If the ASRS is equipped to detect the removal a pallet from the staging/shipping location, the ASRS may optionally transmit a [ShipULPickup](#_Shipment_Unit_Load_3) to RTCIS. If load flag is set to true, RTCIS will attempt to automatically update the RTCIS database to load the pallet unto the trailer. Otherwise, this message just serves as a notification from the ASRS to RTCIS that the pallet was removed.

*Note: The primary intent of this message originally was for testing purposes, but it being used by production sites for notification. Although no current sites are using this message for automated loading, this message could be used in conjunction with automated equipment, such as an AGV, to load the pallet into the trailer without a warehouse user (i.e. skip step #18 above).*

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000008</MESSAGE\_ID>

  <TIMESTAMP>20140801182019</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001065029084</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

Steps 18 and 19 are repeated for each pallet that was delivered to the staging lane. In this example, there are two remaining pallets to load.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000009</MESSAGE\_ID>

  <TIMESTAMP>20140801182021</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001381987693</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULPickup>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000010</MESSAGE\_ID>

  <TIMESTAMP>20140801182022</TIMESTAMP>

</MessageHeader>

  <PickupUL>

  <MESSAGE\_TYPE>A15</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <LOAD\_FLAG>0304248013</LOAD\_FLAG>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

  <UNIT\_LOAD\_ID>00100370001065211199</UNIT\_LOAD\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <WITHDRAWAL\_OUTPUT\_STATUS>0</ WITHDRAWAL\_OUTPUT\_STATUS>

  </PickupUL>

</ShipULPickup>

1. After all of the pallets retrieved for the shipment had been loaded or placed into a floor staging location, the warehouse user indicates the shipment is complete.
2. RTCIS notifies the ASRS that the warehouse user is no longer removing pallets from the shipping/staging land by sending a SlotSignOnOff message. *Note: This does not always indicate that the warehouse user has removed all of the pallets for the shipment. The warehouse user may sign on, remove some of the pallets, sign off for a break and resume the process later.*

<?xml version="1.0" encoding="utf-8" ?>

<SlotSignOnOff>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182033</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>A32</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <SIGNON\_FLG>N</SIGNON\_FLG>

  </SlotRequest>

</SlotSignOnOff>

1. Once all pallets have been removed from the shipping/staging lane, the warehouse user will have to pick the remaining pallet from floor storage. The warehouse user will load or stage the pallets from floor storage, combining them with the pallets previously removed from the shipping/staging lane. *Note: If the inventory cannot be allocated from floor storage, the shipment may be shipped short or held until the inventory in the ASRS becomes available.*
2. RTCIS will then finish the loading and checkout process for the current shipment.
3. The shipping/staging lane is free to be used for delivering pallets for other shipments. *Note: The timing of delivering pallets for the next shipment may differ based on the ASRS vendor and/or RTCIS production site. Depending the systems and automation equipment, pallets for the next shipment may (or may not) be queued for the shipping/staging lane prior to the completion of the current shipment.*

### Shipment Request: No Shipments in RTCIS

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a shipment to process. In this example, the ASRS requests the next shipment to process, but there are not active shipments in RTCIS that are allocated and released from the ASRS.



1. The ASRS requests the next shipment (or batched withdrawal request) to add to the queue. The ASRS will transmit a [RequestNextShip](#_Check_Heartbeat_(Check_Heartbeat)) to RTCIS.

*Note: The ASRS will determine when it wants to request the next shipment. This may be when a shipping lane is open (or about to be open), or simply to add the shipment to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextShip>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <ShipCriteria>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <MOT\_CODE>A</MOT\_CODE>

  </ShipCriteria>

</RequestNextShip>

1. RTCIS receives the message and evaluates the available shipments and batched withdrawal requests. RTCIS will attempt to find the next [highest priority shipment](#Assign_ship_logic), based on the MOT code passed by the ASRS. In this example, RTCIS is unable to find any shipments with the matching MOT code.
2. RTCIS will respond to the ASRS using an [AssignShip](#_Assign_Shipment_for_1) message, but the shipment header information will be blank and the line count will be zero, indicating that no shipments were found.

<?xml version="1.0" encoding="utf-8" ?>

<AssignShip>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ShipHeader>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER></HOST\_CONTROL\_NUMBER>

  <WITHDRAWAL\_SELECT\_FLAG></WITHDRAWAL\_SELECT\_FLAG>

  <SCHEDULED\_SHIP\_DATE></SCHEDULED\_SHIP\_DATE>

  <SCHEDULED\_SHIP\_TIME></SCHEDULED\_SHIP\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>0</LINE\_COUNT>

  </ShipHeader>

</AssignNextShip>

### Shipment Request: Shipment Cancellation and De-staging

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a shipment to process, which is later canceled. In this example, the ASRS requests the next shipment to process, RTCIS assigns the shipment requirements and the ASRS delivers all of the pallets required for the shipment. Later, SAP cancels the shipment and the inventory is re-inducted into the ASRS.



1. The ASRS requests the next shipment (or batched withdrawal request) to add to the queue. The ASRS will transmit a [RequestNextShip](#_Check_Heartbeat_(Check_Heartbeat)) to RTCIS.

*Note: The ASRS will determine when it wants to request the next shipment. This may be when a shipping lane is open (or about to be open), or simply to add the shipment to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextShip>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <ShipCriteria>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <MOT\_CODE>A</MOT\_CODE>

  </ShipCriteria>

</RequestNextShip>

1. RTCIS receives the message and evaluates the available shipments and batched withdrawal requests. RTCIS will find the next [highest priority shipment](#Assign_ship_logic), based on the MOT code passed by the ASRS.  *Note: RTCIS will only return one shipment (or batched withdrawal request) to the ASRS per* [*RequestNextShip*](#_Check_Heartbeat_(Check_Heartbeat))*.*
2. If a shipment (or batched withdrawal request) is found, RTCIS will mark the shipment as assigned and transmit the shipment information back to the ASRS using an [AssignShip](#_Assign_Shipment_for_1). In the following example, shipment 0304248013 requires five pallets of various items.

<?xml version="1.0" encoding="utf-8" ?>

<AssignShip>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ShipHeader>

  <MESSAGE\_TYPE>A21</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <WITHDRAWAL\_SELECT\_FLAG>RL</WITHDRAWAL\_SELECT\_FLAG>

  <SCHEDULED\_SHIP\_DATE>20140801</SCHEDULED\_SHIP\_DATE>

  <SCHEDULED\_SHIP\_TIME>200000</SCHEDULED\_SHIP\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>5</LINE\_COUNT>

  <ShipUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>48</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>90</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>54</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>4</SEQUENCE>

  <BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  <ShipUL>

  <SEQUENCE>5</SEQUENCE>

  <BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>Q</PALLET\_TYPE>

  <LINE\_QTY>75</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ShipUL>

  </ShipHeader>

</AssignNextShip>

1. Later, after the ASRS has received the shipment information, the ASRS will begin retrieving pallets for the shipment. The physical retrieval of the pallet will vary based on the automation for the specific P&G production facility and the ASRS vendor used.
2. After the ASRS retrieves the first pallet from storage and before the ASRS delivers the first pallet to the shipping/staging lane, the ASRS will send a [ShipStageStart](#_Start_Shipment_Staging_1).

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent before the first* [*ShipULStaged*](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A22</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageStart>

1. RTCIS receives the [ShipStageStart](#_Start_Shipment_Staging_1) and updates the RTCIS database to indicate the shipment has been signed on and updates the staging location to “205”, based on the location passed in the message.
2. The retrieved pallet is conveyed to the shipping/staging lane. The ASRS will guarantee the pallets arrive in the sequence requested. If two (or more) pallets have the same sequence number (as assigned in the [AssignShip](#_Assign_Shipment_for_1)), the ASRS may deliver these pallets may be delivered in any sequence.

*For example, a shipment may request one pallet with sequence number “1”, four pallets with sequence number “2” and one pallet with sequence number “3”. In this situation, the ASRS must deliver the pallet with sequence number “1” first. Then, any of the four pallets with sequence “2” may be delivered. The ASRS proceeds to deliver all of the four pallets with sequence “2” before delivering the last pallet, with sequence number “3”. For more information on RTCIS settings for pallet sequencing, please refer to* [*sequence number field*](#Assign_ship_seq_num) *description of the* [*AssignShip*](#_Assign_Shipment_for_1) *message.*

In the example diagramed, each pallet was assigned a unique sequence number. The ASRS will deliver pallet sequence 1 requiring item code 80243362 first.

1. Immediately after the pallet is delivered to the shipping/staging lane, the ASRS will transmit a [ShipULStaged](#_Shipment_Unit_Load) message to RTCIS to announce the pallets arrival.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182002</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065029084</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

1. RTCIS will verify the inventory on the pallet matches the requirements for the shipment. Specifically, RTCIS will verify the inventory matches the requirements for the pallet sequence number and that the unit load has not been picked for any other shipment. In this example, RTCIS will verify the pallet contains item number 80243362 as required by pallet sequence 1. After verifying the pick, RTCIS will update the pallet in the RTCIS database, to indicate the pallet is now picked for the shipment.

The ASRS will continue to deliver pallets for the shipment until all pallets have been picked and delivered (or until all pallets that can be picked have been delivered). Steps 7 and 8 will be repeated for every pallet on the shipment. In the example diagramed, these steps will be repeated four more times for pallet sequences 2, 3, 4 and 5.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000004</MESSAGE\_ID>

  <TIMESTAMP>20140801182003</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001381987693</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>2</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000005</MESSAGE\_ID>

  <TIMESTAMP>20140801182007</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065211199</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>3</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000006</MESSAGE\_ID>

  <TIMESTAMP>20140801182008</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001073890195</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>4</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000007</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001053148919</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>5</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ShipULStaged>

1. After the last pallet of a fully picked shipment has been delivered to the staging/shipping lane, the ASRS will mark the shipment as complete in the ASRS system.
2. The ASRS will proceed to notify RTCIS that staging is complete by sending a [ShipStageComplete](#_Shipment_Staging_Complete) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent after the last* [*ShipULStaged*](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000008</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A24</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ShipStageComplete>

1. RTCIS will update the shipment and the associated order(s) complete, if all of the picking requirements have been fulfilled, or mark them as short, if not all of the inventory If the shipment is short, the picking will be done at a later time or performed without the ASRS. In this example, the entire shipment was picked and delivered to the staging/shipping lane.
2. SAP sends a shipment delete to RTCIS, indicating the orders on the shipment have been canceled and will not be sent to the customer or receiving P&G facility.
3. RTCIS cancels the shipment in the RTCIS database by deleting the shipment and disassociating the order(s) currently attached to the shipment. The orders are retained and the unit loads are still picked for the order, and will still indicate they are stored at the current staging shipping slot location. *Note: If no inventory had been picked or shipped when SAP sends the shipment delete, the associated orders would also be deleted. In this example, the orders have picked inventory that must be re-inducted into the ASRS.*
4. The warehouse tech will use the RTCIS ACTIV Un-staging application to show the orders that have pallets located at a shipping slot location and the shipment has been deleted. The warehouse tech will select the order on screen and press F6 to enter a request to re-induct the unit loads back into the ASRS.
5. RTCIS will send the ASRS a [SlotDestage](#_Slot_Destage_(SlotDestage)) message to request the unit loads be moved from the shipping/staging lane to ASRS storage.

<?xml version="1.0" encoding="utf-8" ?>

<SlotDestage>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182015</TIMESTAMP>

</MessageHeader>

  <SlotRequest>

  <MESSAGE\_TYPE>U32</MESSAGE\_TYPE>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </SlotRequest>

</SlotDestage>

1. The ASRS receives the request and will begin removing the pallets from the shipping/staging lane. The physical removal of the pallet will vary based on the automation for the specific P&G production facility and the ASRS vendor used
2. Before the ASRS removes the first pallet from shipping/staging lane for re-induction, the ASRS will send a [ShipDestageStart](#_Start_Shipment_De-Staging_1).

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent before the first* [*ShipULDestaged*](#_Shipment_Unit_Load_5) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipDestageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000009</MESSAGE\_ID>

  <TIMESTAMP>20140801182020</TIMESTAMP>

</MessageHeader>

  <DestageLoc>

  <MESSAGE\_TYPE>D22</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </DestageLoc>

</ShipDestageStart>

1. RTCIS receives the [ShipDestageStart](#_Start_Shipment_De-Staging_1) and updates the RTCIS database to indicate the removal from the staging location“205” has started, based on the location passed in the message.
2. The pallet removed is conveyed back to ASRS storage. The ASRS may remove the pallets in any sequence.
3. Immediately after the pallet is removed from the shipping/staging lane, the ASRS will transmit a [ShipULDestaged](#_Shipment_Unit_Load_5) message to RTCIS to announce the pallets arrival.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULDestaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000010</MESSAGE\_ID>

  <TIMESTAMP>20140801182020</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>D23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065029084</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243362</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  </StageUL>

</ShipULDestaged>

1. RTCIS will remove the unit load from the order it was originally picked/delivered for and change the location in the RTCIS database to the [ASRS location](#LOCATNASRS), such as “ACTIV” or “CIMAT”.

The ASRS will continue to remove pallets from the shipping/staging lane, until all pallets have been removed. Steps 7 and 8 will be repeated for every pallet in the shipping/staging lane. In the example diagramed, these steps will be repeated four more times.

<?xml version="1.0" encoding="utf-8" ?>

<ShipULDeDestaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000011</MESSAGE\_ID>

  <TIMESTAMP>20140801182022</TIMESTAMP>

</MessageHeader>

  <DestageUL>

  <MESSAGE\_TYPE>D23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001381987693</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80245582</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  </DestageUL>

</ShipULDestaged>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULDestaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000012</MESSAGE\_ID>

  <TIMESTAMP>20140801182024</TIMESTAMP>

</MessageHeader>

  <DestageUL>

  <MESSAGE\_TYPE>D23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001065211199</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80243367</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  </DestageUL>

</ShipULDestaged>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULDestaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000013</MESSAGE\_ID>

  <TIMESTAMP>20140801182027</TIMESTAMP>

</MessageHeader>

  <DestageUL>

  <MESSAGE\_TYPE>D23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001073890195</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80236051</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  </DestageUL>

</ShipULDestaged>

<?xml version="1.0" encoding="utf-8" ?>

<ShipULDestaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000014</MESSAGE\_ID>

  <TIMESTAMP>20140801182030</TIMESTAMP>

</MessageHeader>

  <DestageUL>

  <MESSAGE\_TYPE>D23</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0304248013</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00100370001053148919</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>2</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>Q</PALLET\_TYPE>

<BRAND\_CODE>80234411</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  </DestageUL>

</ShipULDestaged>

1. After the last pallet has been removed from the staging/shipping lane, the ASRS will mark the request as complete in the ASRS system.
2. The ASRS will proceed to notify RTCIS that staging is complete by sending a [ShipDestageComplete](#_Toc398042205) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent after the last* [*ShipULDestaged*](#_Shipment_Unit_Load_5) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ShipDestageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000015</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <DestageLoc>

  <MESSAGE\_TYPE>D24</MESSAGE\_TYPE>

  <ACTIV\_OUTPUT\_LOCATION>205</ACTIV\_OUTPUT\_LOCATION>

  </DestageLoc>

</ShipDestageComplete>

1. All pallets have been moved back to ASRS storage and all pallets have been removed from the order in the RTCIS database. RTCIS will update the order status and the orders will be purged.

## Production Order Requests

### Production Order Request: All Pallets Staged

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a production order for kitting. In this example, the ASRS requests the next production order to process, RTCIS assigns the production order requirements and the ASRS delivers all of the pallets required for the order.



1. The ASRS requests the next production order to add to the queue. The ASRS will transmit a [RequestNextProdOrder](#_Request_Next_Production_1) to RTCIS.

*Note: The ASRS will determine when it wants to request the next production order. This may be when a shipping lane is open (or about to be open), or simply to add the production order to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextProdOrder>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <OrderCriteria>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <DELIVERY\_LOCATION>410</DELIVERY\_LOCATION>

  </OrderCriteria>

</RequestNextProdOrder>

1. RTCIS receives the message and will select the next production order to be produced based on planned activity date/time.  *Note: RTCIS will only return one production order to the ASRS per* [*RequestNextProdOrder*](#_Request_Next_Production_1)*.*
2. If a production order is found, RTCIS will mark the production order as assigned and transmit the order information back to the ASRS using an [AssignProdOrder](#_Assign_Production_Order_1). In the following example, production order R00000000000003929 requires three pallets of item 80930413 to create item 81459538. RTCIS creates a material request with the control number of 0003930 to request pallets from the ASRS.

*Note that the “material request” in RTCIS represents the component items required to create the released quantity for the production order. Part (or all) of this material request may request delivery of pallets from the ASRS. RTCIS will track the status of pallets delivered by the ASRS against the material request, just as RTCIS tracks the status of pallets delivered for shipments against the associated customer orders.*

*In this example, the released quantity of the production order is to create three unit loads of item 81459538, which requires three unit loads of component item 80930413, and all three unit loads will be retrieved from ASRS storage and delivered to staging location 410.*

<?xml version="1.0" encoding="utf-8" ?>

<AssignProdOrder>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ProdOrderHeader>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <SCHEDULED\_START\_DATE>20140801</SCHEDULED\_START\_DATE>

  <SCHEDULED\_START\_TIME>200000</SCHEDULED\_START\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>3</LINE\_COUNT>

  <ProdOrderUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  </ProdOrderHeader>

</AssignNextProdOrder>

1. Later, after the ASRS has received the production order information, the ASRS will begin retrieving pallets for the production order. The physical retrieval of the pallet will vary based on the automation for the specific P&G production facility and the ASRS vendor used.
2. After the ASRS retrieves the first pallet from storage and before the ASRS delivers the first pallet to the staging lane, the ASRS will send a [[ProdOrderStageStart](#_Start_Production_Order)](#_Start_Shipment_Staging_1) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent before the* [*ProdOrderULStaged*](#_Toc397429472) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A42</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ProdOrderStageStart>

1. RTCIS receives the [[ProdOrderStageStart](#_Start_Production_Order)](#_Start_Shipment_Staging_1) message and updates the RTCIS database to indicate the shipment has been signed on and updates the staging location to “410”, based on the location passed in the message.
2. The retrieved pallet is conveyed to the staging lane. The ASRS will guarantee the pallets arrive in the sequence requested. If two (or more) pallets have the same sequence number (as assigned in the [AssignProdOrder](#_Assign_Production_Order_1)), the ASRS may deliver these pallets may be delivered in any sequence.

*For example, a production order may request one pallet with sequence number “1”, four pallets with sequence number “2” and one pallet with sequence number “3”. In this situation, the ASRS must deliver the pallet with sequence number “1” first. Then, any of the four pallets with sequence “2” may be delivered. The ASRS proceeds to deliver all of the four pallets with sequence “2” before delivering the last pallet, with sequence number “3”. For more information on RTCIS settings for pallet sequencing, please refer to* [*sequence number field*](#Assign_prod_order_seq_num) *description of the* [*AssignProdOrder*](#_Assign_Production_Order_1) *message.*

1. Immediately after the pallet is delivered to the staging lane, the ASRS will transmit a [[ProdOrderULStaged](#_Toc397429472)](#_Shipment_Unit_Load) message to RTCIS to announce the pallets arrival.

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182002</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A43</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00000470010001159664</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>4</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>E</PALLET\_TYPE>

<BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ProdOrderULStaged>

1. RTCIS will verify the inventory on the pallet matches the requirements for the material request created for the production order. Specifically, RTCIS will verify the inventory matches the requirements for the pallet sequence number and that the unit load has not been picked for any other material request or shipment. In this example, RTCIS will verify the pallet contains item number 80930413 as required by pallet sequence 1. After verifying the pick, RTCIS will update the pallet in the RTCIS database, to indicate the pallet is now delivered for the material request.

The ASRS will continue to deliver pallets for the shipment until all pallets have been picked and delivered (or until all pallets that can be picked have been delivered). Steps 7 and 8 will be repeated for every pallet on the shipment. In the example diagramed, these steps will be repeated two more times for pallet sequences 2 and 3.

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderULStaged>

<MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000004</MESSAGE\_ID>

  <TIMESTAMP>20140801182003</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A43</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00000470010001159664</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>4</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>E</PALLET\_TYPE>

<BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>2</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ProdOrderULStaged>

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderULStaged>

<MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000005</MESSAGE\_ID>

  <TIMESTAMP>20140801182006</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A43</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00000470010001159664</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>4</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>E</PALLET\_TYPE>

<BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>3</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ProdOrderULStaged>

1. After the last pallet of a fully picked order has been delivered to the staging lane, the ASRS will mark the order as complete in the ASRS system.
2. The ASRS will proceed to notify RTCIS that staging is complete by sending a [[ProdOrderStageComplete](#_Custom_Order_Staging)](#_Shipment_Staging_Complete) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent after the last* [[*ProdOrderULStaged*](#_Toc397429472)](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000006</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <ProdOrderStaged>

  <MESSAGE\_TYPE>A44</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>2410</ACTIV\_OUTPUT\_LOCATION>

  </ProdOrderStaged>

</ProdOrderStageComplete>

1. RTCIS will update the material request that was created for the production order. The material request will be marked as complete. If the material request is short, RTCIS may create a new material request for the remaining component item quantity, but allocating inventory from floor storage, or attempting to allocate from the ASRS again. In this example, the entire material request was picked and delivered to the staging lane.
2. The warehouse tech will use RDT Unit Load Transfer to move the unit load from the staging lane to the kitting area. The component pallets will be used to create the production item specified for the production order.

### Production Order Request: Order Shortage

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a production order for kitting. In this example, the ASRS requests the next production order to process, RTCIS assigns the production order requirements and the ASRS delivers some of the pallets required for the order. RTCIS will create another material request for the production order to request the remaining component items from floor storage.



1. The ASRS requests the next production order to add to the queue. The ASRS will transmit a [RequestNextProdOrder](#_Request_Next_Production_1) to RTCIS.

*Note: The ASRS will determine when it wants to request the next production order. This may be when a shipping lane is open (or about to be open), or simply to add the production order to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextProdOrder>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <OrderCriteria>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <DELIVERY\_LOCATION>410</DELIVERY\_LOCATION>

  </OrderCriteria>

</RequestNextProdOrder>

1. RTCIS receives the message and will select the next production order to be produced based on planned activity date/time.  *Note: RTCIS will only return one production order to the ASRS per* [*RequestNextProdOrder*](#_Request_Next_Production_1)*.*
2. If a production order is found, RTCIS will mark the production order as assigned and transmit the order information back to the ASRS using an [AssignProdOrder](#_Assign_Production_Order_1). In the following example, production order R00000000000003929 requires three pallets of item 80930413 to create item 81459538. RTCIS creates a material request with the control number of 0003930 to request pallets from the ASRS.

*Note that the “material request” in RTCIS represents the component items required to create the released quantity for the production order. Part (or all) of this material request may request delivery of pallets from the ASRS. RTCIS will track the status of pallets delivered by the ASRS against the material request, just as RTCIS tracks the status of pallets delivered for shipments against the associated customer orders.*

*In this example, the released quantity of the production order is to create three unit loads of item 81459538, which requires three unit loads of component item 80930413, and all three unit loads will be retrieved from ASRS storage and delivered to staging location 410.*

<?xml version="1.0" encoding="utf-8" ?>

<AssignProdOrder>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ProdOrderHeader>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <SCHEDULED\_START\_DATE>20140801</SCHEDULED\_START\_DATE>

  <SCHEDULED\_START\_TIME>200000</SCHEDULED\_START\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>3</LINE\_COUNT>

  <ProdOrderUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  </ProdOrderHeader>

</AssignNextProdOrder>

1. Later, after the ASRS has received the production order information, the ASRS will begin retrieving pallets for the production order. The physical retrieval of the pallet will vary based on the automation for the specific P&G production facility and the ASRS vendor used.
2. After the ASRS retrieves the first pallet from storage and before the ASRS delivers the first pallet to the staging lane, the ASRS will send a [[ProdOrderStageStart](#_Start_Production_Order)](#_Start_Shipment_Staging_1) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent before the* [*ProdOrderULStaged*](#_Toc397429472) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderStageStart>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>20140801182000</TIMESTAMP>

</MessageHeader>

  <StageLoc>

  <MESSAGE\_TYPE>A42</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  </StageLoc>

</ProdOrderStageStart>

1. RTCIS receives the [[ProdOrderStageStart](#_Start_Production_Order)](#_Start_Shipment_Staging_1) message and updates the RTCIS database to indicate the shipment has been signed on and updates the staging location to “410”, based on the location passed in the message.
2. The retrieved pallet is conveyed to the staging lane. The ASRS will guarantee the pallets arrive in the sequence requested. If two (or more) pallets have the same sequence number (as assigned in the [AssignProdOrder](#_Assign_Production_Order_1)), the ASRS may deliver these pallets may be delivered in any sequence.

*For example, a production order may request one pallet with sequence number “1”, four pallets with sequence number “2” and one pallet with sequence number “3”. In this situation, the ASRS must deliver the pallet with sequence number “1” first. Then, any of the four pallets with sequence “2” may be delivered. The ASRS proceeds to deliver all of the four pallets with sequence “2” before delivering the last pallet, with sequence number “3”. For more information on RTCIS settings for pallet sequencing, please refer to* [*sequence number field*](#Assign_prod_order_seq_num) *description of the* [*AssignProdOrder*](#_Assign_Production_Order_1) *message.*

1. Immediately after the pallet is delivered to the staging lane, the ASRS will transmit a [[ProdOrderULStaged](#_Toc397429472)](#_Shipment_Unit_Load) message to RTCIS to announce the pallets arrival.

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderULStaged>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000003</MESSAGE\_ID>

  <TIMESTAMP>20140801182002</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A43</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00000470010001159664</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>4</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>E</PALLET\_TYPE>

<BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>1</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ProdOrderULStaged>

1. RTCIS will verify the inventory on the pallet matches the requirements for the material request created for the production order. Specifically, RTCIS will verify the inventory matches the requirements for the pallet sequence number and that the unit load has not been picked for any other material request or shipment. In this example, RTCIS will verify the pallet contains item number 80930413 as required by pallet sequence 1. After verifying the pick, RTCIS will update the pallet in the RTCIS database, to indicate the pallet is now delivered for the material request.

The ASRS will continue to deliver pallets for the shipment until all pallets have been picked and delivered (or until all pallets that can be picked have been delivered). Steps 7 and 8 will be repeated for every pallet on the shipment. In the example diagramed, these steps will be repeated one more times for pallet sequence 2. The last pallet for sequence 3 is short.

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderULStaged>

<MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000004</MESSAGE\_ID>

  <TIMESTAMP>20140801182003</TIMESTAMP>

</MessageHeader>

  <StageUL>

  <MESSAGE\_TYPE>A43</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <UNIT\_LOAD\_ID>00000470010001159664</UNIT\_LOAD\_ID>

  <ACTIV\_OUTPUT\_LOCATION>410</ACTIV\_OUTPUT\_LOCATION>

  <ACTIV\_LEVEL\_ID>4</ACTIV\_LEVEL\_ID>

<PALLET\_TYPE>E</PALLET\_TYPE>

<BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

    <LINE\_ITEM\_SEQUENCE\_NUMBER>2</ LINE\_ITEM\_SEQUENCE\_NUMBER>

  </StageUL>

</ProdOrderULStaged>

1. After the last pallet of a fully picked order has been delivered to the staging lane, the ASRS will mark the order as complete in the ASRS system.
2. The ASRS will proceed to notify RTCIS that staging is complete by sending a [[ProdOrderStageComplete](#_Custom_Order_Staging)](#_Shipment_Staging_Complete) message.

*Note the specific trigger for sending this message may vary by ASRS vendor, but this message must be sent after the last* [[*ProdOrderULStaged*](#_Toc397429472)](#_Shipment_Unit_Load) *message is sent.*

<?xml version="1.0" encoding="utf-8" ?>

<ProdOrderStageComplete>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000006</MESSAGE\_ID>

  <TIMESTAMP>20140801182011</TIMESTAMP>

</MessageHeader>

  <ProdOrderStaged>

  <MESSAGE\_TYPE>A44</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <ACTIV\_OUTPUT\_LOCATION>2410</ACTIV\_OUTPUT\_LOCATION>

  </ProdOrderStaged>

</ProdOrderStageComplete>

1. RTCIS will update the material request that was created for the production order. The material request will be marked as complete. Because the material request is short, RTCIS may create a new material request for the remaining component item quantity, but allocating inventory from floor storage, or attempting to allocate from the ASRS again. Steps 1 to 11 will be repeated with the new material request for the same production order.
2. The warehouse tech will use RDT Unit Load Transfer to move the unit load from the staging lane to the kitting area. The component pallets will be used to create the production item specified for the production order.

### Production Order Request: Order Cancellation

The following diagram illustrates sample messages that may be exchanged between RTCIS and the ASRS when requesting a production order for kitting and then cancelling that order. In this example, the ASRS requests the next production order to process, RTCIS assigns the production order requirements and the warehouse tech cancels the order. RTCIS then notifies the ASRS of the cancellation. The ASRS may (or may not) have started retrieving pallets for the order.



1. The ASRS requests the next production order to add to the queue. The ASRS will transmit a [RequestNextProdOrder](#_Request_Next_Production_1) to RTCIS.

*Note: The ASRS will determine when it wants to request the next production order. This may be when a shipping lane is open (or about to be open), or simply to add the production order to the existing queue.*

<?xml version="1.0" encoding="utf-8" ?>

<RequestNextProdOrder>

  <MessageHeader>

  <SESSION\_KEY>ACTIV</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151000</TIMESTAMP>

</MessageHeader>

  <OrderCriteria>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <DELIVERY\_LOCATION>410</DELIVERY\_LOCATION>

  </OrderCriteria>

</RequestNextProdOrder>

1. RTCIS receives the message and will select the next production order to be produced based on planned activity date/time.  *Note: RTCIS will only return one production order to the ASRS per* [*RequestNextProdOrder*](#_Request_Next_Production_1)*.*
2. If a production order is found, RTCIS will mark the production order as assigned and transmit the order information back to the ASRS using an [AssignProdOrder](#_Assign_Production_Order_1). In the following example, production order R00000000000003929 requires three pallets of item 80930413 to create item 81459538. RTCIS creates a material request with the control number of 0003930 to request pallets from the ASRS.

*Note that the “material request” in RTCIS represents the component items required to create the released quantity for the production order. Part (or all) of this material request may request delivery of pallets from the ASRS. RTCIS will track the status of pallets delivered by the ASRS against the material request, just as RTCIS tracks the status of pallets delivered for shipments against the associated customer orders.*

*In this example, the released quantity of the production order is to create three unit loads of item 81459538, which requires three unit loads of component item 80930413, and all three unit loads will be retrieved from ASRS storage and delivered to staging location 410.*

<?xml version="1.0" encoding="utf-8" ?>

<AssignProdOrder>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000001</MESSAGE\_ID>

  <TIMESTAMP>20140801151001</TIMESTAMP>

</MessageHeader>

  <ProdOrderHeader>

  <MESSAGE\_TYPE>A41</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  <SCHEDULED\_START\_DATE>20140801</SCHEDULED\_START\_DATE>

  <SCHEDULED\_START\_TIME>200000</SCHEDULED\_START\_TIME>

  <ORDER\_DISPOSITION></ORDER\_DISPOSITION>

  <LINE\_COUNT>3</LINE\_COUNT>

  <ProdOrderUL>

  <SEQUENCE>1</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>2</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  <ProdOrderUL>

  <SEQUENCE>3</SEQUENCE>

  <BRAND\_CODE>80930413</BRAND\_CODE>

  <CODE\_DATE></CODE\_DATE>

  <PALLET\_TYPE>E</PALLET\_TYPE>

  <LINE\_QTY>336</LINE\_QTY>

  <FIFO\_WINDOW>0</FIFO\_WINDOW>

  </ProdOrderUL>

  </ProdOrderHeader>

</AssignNextProdOrder>

1. The production schedule is altered. The warehouse tech uses the RTCIS Production Order Schedule application to stop the released portion of the production order. The warehouse tech presses the F9 to stop or cancel. RTCIS deletes the material request associated with the production order release.
2. RTCIS sends a [CancelProdOrder](#_Cancel_Production_Order_1) message to the ASRS to indicate the production order has been stopped.

<?xml version="1.0" encoding="utf-8" ?>

<CancelProdOrder>

  <MessageHeader>

  <SESSION\_KEY>RTCIS</SESSION\_KEY>

  <MESSAGE\_ID>00000000000000000002</MESSAGE\_ID>

  <TIMESTAMP>201408011510012</TIMESTAMP>

</MessageHeader>

  <StopProdOrder>

  <MESSAGE\_TYPE>A40</MESSAGE\_TYPE>

  <HOST\_CONTROL\_NUMBER>0003930</HOST\_CONTROL\_NUMBER>

  </StopProdOrder>

</CancelProdOrder>

Note: RTCIS may send the [CancelProdOrder](#_Cancel_Production_Order_1) message at any time after the [AssignProdOrder](#_Assign_Production_Order_1) message. It may be sent after the ASRS has responded with the [[ProdOrderStageStart](#_Start_Production_Order)](#_Start_Shipment_Staging_1) message or [ProdOrderULStaged](#_Toc397429472) message(s), or even the [[ProdOrderStageComplete](#_Custom_Order_Staging)](#_Shipment_Staging_Complete) message. This may cause some unusual message combinations, depending on the timing of when each system sends or receives these messages.

If RTCIS has sent the [CancelProdOrder](#_Cancel_Production_Order_1) message, the ASRS may send a [[ProdOrderStageStart](#_Start_Production_Order)](#_Start_Shipment_Staging_1) message or [ProdOrderULStaged](#_Toc397429472) message(s) before receiving/processing the [CancelProdOrder](#_Cancel_Production_Order_1) message. In this situation, RTCIS will ignore any ASRS message for the order after RTCIS has sent the [CancelProdOrder](#_Cancel_Production_Order_1) message.

Once the ASRS has received the [CancelProdOrder](#_Cancel_Production_Order_1) message, it should immediately stop retrieving pallets for the production order, to minimize the number of pallets that will have to be re-inducted into ASRS storage. The ASRS should also stop sending messages related to the order at this time.

If pallets are delivered for a canceled material request for a production order, the warehouse tech must remove the pallets with the RDT Unit Load Transfer application and re-induct the pallets manually by placing the pallet back on an induction conveyor. RTCIS will then [request and FPDS location](#_Pallet_induction:_RTCIS) for the pallet.

# RTCIS System Parameters

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Description** | **Notes** |
| ASRSHDREL | ASRS: Minutes before Appointment Date to Release Shipment Hold | This parameter is used by the RTCIS ASRS Release from Hold (asrsrelhd) background task. RTCIS may be configured to automatically hold, and then release, shipments based on the shipments appointment date/time. If configured, the asrsrelhd background task will release the shipment to the ASRS for picking when the shipment’s appointment date/time is within the time window specified by this parameter (shipment appointment date/time – parameter). This is used in conjunction with the [DEF\_ASRS\_DSP](#DEF_ASRS_DSP) system parameter. For example, if the shipment’s appointment date/time is Jan 1, 2015 at 3:00pm and the ASRSHDREL system parameter is set to 240 minutes, RTCIS will not send the shipment to the ASRS for picking until Jan 1, 2015 at 11:00am. The ASRS disposition will be set to None (blanks) when the shipment is released from HOLD. |
| ASRS\_A13\_NFY | ASRS: A13 Loc Mode (RAIng): 1-Loc Assigned Later 2-Wait For ASRS Loc | 1 or 2 (default 2) – Determines the RTCIS behavior for the ASRS response to the [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) (aka A13) message. If the mode is set to 2, RTCIS will wait for the ASRS response before presenting information (such as the delivery converyor/VTL and withdrawal time) to the user. If the mode is set to 1, RTCIS will not wait for the response. Note: If the ASRS system can respond immediately to the request, the mode should be set to 2. Otherwise the mode should be set to 1.  (This parameter only applies to RAIng) |
| ASRS\_A13\_TO | ASRS: A13 Loc Timeout (in seconds). Used when A13 mode=2 (Wait) | If the ASRS\_A13\_NFY parameter is set to 2 (waiting for the ASRS response), this is the number of seconds RTCIS will wait for the reply. |
| ASRS\_A32\_NFY | ASRS: A32 Notify Mode (RAIng): 1-Never 2-Notify 3-Wait for ASRS Authorization | 1, 2 or 3 (default 4) – Determines the RTCIS behavior of the ASRS [SlotSignOnOff](#_Slot_Sign_On/Off_1) (aka A32) message and response. If the mode is set to 1, RTCIS will not send the [SlotSignOnOff](#_Slot_Sign_On/Off_1) message. If the mode is set to 2, RTCIS will send the [SlotSignOnOff](#_Slot_Sign_On/Off_1) message, but expects no response. If the mode is set to 3, RTCIS sends the [SlotSignOnOff](#_Slot_Sign_On/Off_1) message and waits for the [SlotSignOnConfirmation](#_Slot_Sign_On) response. If the ASRS must physically release the pallets from the shipping/staging lane, mode 2 or 3 should be used. If the pallets are physically accessible when they are delivered, mode 1 may be used. (This parameter only applies to RAIng) |
| ASRS\_A32\_TO | ASRS: A32 Notification Timeout (in seconds). Used when A32 mode=3 (Authorize) | If the ASRS\_A32\_NFY parameter is set to 3 (waiting for the ASRS response), this is the number of seconds RTCIS will wait for the reply. |
| ASRS\_A35\_NFY | ASRS: A35 Loc Mode (RAIng): 1-Loc Assigned Later 2-Wait For ASRS Loc | Future use - 1 or 2 (must be 2) – Determines the RTCIS behavior for the ASRS response to the [RequestFPDS](#_Request_FPDS_Input) (aka A35) message. If the mode is set to 2, RTCIS will wait for the ASRS response before presenting information (such as the induction FPDS) to the user. If the mode is set to 1, RTCIS will not wait for the response. Note: This must be set to 2 for RTCIS 8.0. Mode 1 is not supported at this time.  (This parameter only applies to RAIng) |
| ASRS\_A35\_TO | ASRS: A35 Loc Timeout (in seconds). Used when A35 mode=2 (Wait) | If the ASRS\_A35\_NFY parameter is set to 2 (waiting for the ASRS response), this is the number of seconds RTCIS will wait for the reply. (This parameter only applies to RAIng) |
| ASRS\_A35\_UTO | ASRS: A35 UL Timeout (in seconds). Used when A35 mode=2 (Wait) | If the ASRS\_A35\_NFY parameter is set to 2 (waiting for the ASRS response), this is the number of seconds RTCIS will wait for the internal reply. *Note: Internally, the originating RTCIS application may be a client to another RTCIS application before attempting to receive/send the message to the ASRS. In this situation, RTCIS will forward the message back to the originating process. In this situation, the ASRS\_A35\_TO is used for the ASRS->RTCIS connection and the ASRS\_A35\_UTO is used for the RTCIS->RTCIS connection back to the originating process.* (This parameter only applies to RAIng) |
| ASRS\_A8\_NFY | ASRS: A8 Loc Mode (RAIng): 1-Loc Assigned Later 2-Wait For ASRS Loc | 1 or 2 (default 2) – Determines the RTCIS behavior for the ASRS response to the [RequestInduction](#_Request_ASRS_Input) (aka A8) message. If the mode is set to 2, RTCIS will wait for the ASRS response before sending further PLC messages, such as the PLC message 6. If the mode is set to 1, RTCIS will not wait for the response. Note: This parameter has an impact on the RTCIS PLC Control, also called the Detailed Message Driver (dtlmsgdrv). If the mode is set to 2, the dtlmsgdrv will wait for the ASRS response. This parameter is defaulted to 2 for RAI 1.0 compatibility, but mode 2 is suggested.  (This parameter only applies to RAIng) |
| ASRS\_A8\_TO | ASRS: A8 Loc Timeout (in seconds). Used when A8 mode=2 (Wait) | If the ASRS\_A8\_NFY parameter is set to 1 (waiting for the ASRS response), this is the number of seconds RTCIS will wait for the reply. (This parameter only applies to RAIng) |
| ASRS\_BATCH | Maximum Number of ULs for ASRS Batch Processing | RTCIS has the option to treat large withdrawal requests as shipments to be processed in a batch. If the number of pallets requested is larger than the number of pallets specified by the ASRS\_BATCH parameter, the request will be processed as a shipment/batch. |
| ASRS\_LEADTIM | Lead Time for downloading POs to ASRS | Determines when to send production orders to the ASRS using the [AssignProdOrder](#_Assign_Production_Order_1) message. When the production order’s release date/time is within the number of minutes specified by this parameter (prod order activity date/time – system parameter), the production order may be sent to the ASRS. For example, if the production orders release date/time is Jan 1, 2015 at 10:00am and the ASRS\_LEADTIM system parameter is 90 minutes, the production order may sent to the ASRS at 8:30am to begin picking. |
| ASRS\_MAXORD | Maximum Unit Loads on an ASRS order | This is the maximum number of pallets that may be sent to the ASRS for picking one shipment. If this shipment requires more pallets, RTCIS will attempt to pick the remaining pallets from floor storage. Note that RTCIS will still release the shipment to the ASRS, for the number of pallets specified by this parameter. For example, a shipment requires 50 pallets and the ASRS\_MAXORD system parameter is set to 30 pallets. RTCIS will create a (sub)-order for 30 pallets for ASRS picking and attempt to pick the remaining 20 pallets from floor storage. |
| ASRS\_MAX\_REL | ASRS: Maximum Replenishments Released to ALP | The maximum number of replenishments that released to the ASRS for ALPS (automatic layer picking). |
| ASRS\_PARTULS | Store Partial Pallets in ASRS? | Y(es) or N(o) – If Y(es), RTCIS will send induction requests to store partial pallets in the ASRS. If N(o), RTCIS will direct partial pallets to floor storage. Note: This also has an impact on withdrawal requests. If the partials may be stored in the ASRS, the Withdrawal\_partial\_code field on the [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) message will specify the type of pallet needed (full or partial). If the partials cannot be stored in the ASRS, this field will always request full pallets. |
| ASRS\_PO\_DELV | Is the Site Using ASRS PO Delivery? | Y(es) or N(o) – Determines if production orders are being delivered by the ASRS at this facility. If Y(es), [RequestNextProdOrder](#_Request_Next_Production_1) and [AssignProdOrder](#_Assign_Production_Order_1) messages will be used to process production orders. |
| ASRS\_RAING | ASRS: Using RAI Next Generation (XML) Interface or 1.0(libaal/libhal) Interface | Y(es) or No – If this is set to Y(es), the RAIng (XML) interface will be used. If this is set to N(o), the RAI 1.0 (inline function call) interface will be used. |
| ASRS\_REL\_INT | ASRS: Release ALP Replenishments Interval (minutes) | The number of minutes to wait before releasing additional ASRS requests for ALP (automated layer picking). |
| ASRS\_SENDVTL | ASRS: Send VTL Location for Message 13 | Y(es) or N(o) – Allow RTCIS to request a specific VTL delivery location for a [WithdrawalRequest](#_Withdrawal_Request_(WithdrawalReque) message. If this is set to Y(es), RTCIS may (optionally) request a specific delivery location. If this is set to N(o), the ASRS will always supply the delivery conveyor/VTL location in the [AssignWithdrawalLoc](#_Assign_ASRS_Withdrawal) message. |
| ASRS\_STGPRMT | Allow Truck Loading While ASRS is Staging | Y(es) or N(o) – Determines if RTCIS should allow inventory to be loaded onto a trailer while the ASRS is still actively delivering inventory to the staging/shipping lane. This should be set to No, if the trailer is sequenced by order or by pallet. |
| ASRS\_UNSTAGE | Can ASRS Unstage Cancelled Order? | Y(es) or N(o) – Determines if RTCIS should allow the staged orders to be re-inducted into the ASRS using the RTCIS ACTIV Un-staging application (actunstage). If set to Y(es), the user may select canceled orders and RTCIS will issue SlotDestage requests to ASRS. If set to N(o), the user will be prevented from un-staging. |
| ASRS\_WD\_DAYS | ASRS: Default ASRS Withdraw Days | The default number of days to associate with the batched withdrawal request. RTCIS uses the number of days to prioritize batched withdrawal requests when releasing the requests to the ASRS. Note that RTCIS does not send this information to the ASRS; it is only used by RTCIS to determine priority. |
| DEF\_ASRS\_DSP | Default ASRS Disposition | The default ASRS disposition, if the disposition was not entered when the shipment was created. The disposition values are:   * NONE –The shipment will be examined for release to the ASRS with additional requirements. * SHORT – If the shipment is short, RTCIS will only send requests to the ASRS for picks with available inventory. * OPEN – If the shipment is short, RTCIS will send requests to the ASRS for all picks. This includes picks with available inventory and waiting for the missing inventory to arrive for picks without inventory. * ANYWAY – RTCIS will send requests to the ASRS, regardless of the pallet type requested for the order. * CONVENTIONAL – Shipment will be picked from conventional storage locations, not the ASRS. * HOLD – Used to hold a shipment until the appointment date/time. Please refer to the [ASRSHDREL](#ASRSHDREL) system parameter for more information. RTCIS will without inventory. inventory and shortg ocations, not the ASRS. by RTCIS to determine priority. |
| FPDS\_YN | FPDS/LS Inventory Managed by ASRS (Y/N) | Y(es) or N(o) – If this parameter is Y(es), the FPDS locations will be included on the MSX/RTCIS Reconciliation report. |
| INT\_DEBUG | Turn on RTCIS Diagnostics for Integrator commands | Y(es) or N(o) – This parameter turns on internal RTCIS diagnostic information for the RAIng interface. This should be set to N(o) for RTCIS production sites. (This parameter only applies to RAIng) |
| LOCATNASRS | ASRS: Location for ASRS | The RTCIS name from the ASRS location. When stored in the ASRS, inventory will appear to be at this location when viewed in RTCIS. Note the inventory will be shown at the FPDS/VTL location until stored and inventory will be shown at individual staging locations when retrieved. |
| MOT\_A21 | MOT Code for ASRS Message A21 | The method of transport (MOT) code to be used in RTCIS for selecting shipments, when the ASRS sends ‘A’ in the MOT\_CODE field in the [RequestNextShip](#_Request_Next_Shipment_1) message. This allows the MOT\_CODE in the ASRS to be mapped to a different value in RTCIS. To map the RTCIS value directly to the ASRS value, this parameter would also be set to ‘A’. Please refer to the [AssignShip](#_Assign_Shipment_for) message for more information regarding MOT codes and RTCIS shipment selection. |
| MOT\_B21 | MOT Code for ASRS Message B21 | The method of transport (MOT) code to be used in RTCIS for selecting shipments, when the ASRS sends ‘B’ in the MOT\_CODE field in the [RequestNextShip](#_Request_Next_Shipment_1) message. This allows the MOT\_CODE in the ASRS to be mapped to a different value in RTCIS. To map the RTCIS value directly to the ASRS value, this parameter would also be set to ‘B’. Please refer to the [AssignShip](#_Assign_Shipment_for) message for more information regarding MOT codes and RTCIS shipment selection. |
| MOT\_C21 | MOT Code for ASRS Message C21 | The method of transport (MOT) code to be used in RTCIS for selecting shipments, when the ASRS sends ‘C’ in the MOT\_CODE field in the [RequestNextShip](#_Request_Next_Shipment_1) message. This allows the MOT\_CODE in the ASRS to be mapped to a different value in RTCIS. To map the RTCIS value directly to the ASRS value, this parameter would also be set to ‘C’. Please refer to the [AssignShip](#_Assign_Shipment_for) message for more information regarding MOT codes and RTCIS shipment selection. |
| MSG21ENABLED | ASRS: Message 21 enabled by Message R21 | Y(es) or N(o) – If this parameter is Y(es), RTCIS will not release the shipment to the ASRS for picking, until RTCIS has received an R21 message. The R21 message is sent to RTCIS from an external system using the RTCIS Host Inbound Process. |
| MSG21\_CTRLNO | RAI: Message 21 Maximum Control Number Length | The maximum length of the shipment Id. If the shipment Id exceeds this length, RTCIS will not send the shipment to the ASRS for picking. |
| MSG21\_MOTCOD | Default value for MOT code | Used as the default method of transport (MOT) code if the MOT code for the shipment is not specified. This parameter is used as default when the MOT\_CODE field in the [RequestNextShip](#_Request_Next_Shipment_1) message is ‘A’, ‘B’ or ‘C’. Please refer to the [AssignShip](#_Assign_Shipment_for) message for more information regarding MOT codes and RTCIS shipment selection. |
| MSG21\_MOT\_DEF | Default value for MOT code - D21, E21, F21 | Used as the default method of transport (MOT) code if the MOT code for the shipment is not specified. This parameter is used as default when the MOT\_CODE field in the [RequestNextShip](#_Request_Next_Shipment_1) message is ‘D’, ‘E’ or ‘F’. Please refer to the [AssignShip](#_Assign_Shipment_for) message for more information regarding MOT codes and RTCIS shipment selection. |
| MSG21\_UNISEQ | RAI: Message 21 Sequence By ((U)LID /(O)RDER /(R)TCIS) | Determines the sequence number assigned to each pick sent from RTCIS to the ASRS. Please refer to the [SEQUENCE](#AssignShip_ShipUL_Sequence) field on the [ShipUL](#_Fields_–_AssignShip) segment of the [AssignShip](#_Assign_Shipment_for) message for more information. |
| MSG8\_RETRY | Allow New ULs to ASRS During Retry | Y(es) or N(o) – Indicates if RTCIS will send new unit loads to the ASRS while the ASRS is in the designated *retry* state. If Y(es), RTCIS will send new unit loads to the ASRS using the [RequestInduction](#_Request_ASRS_Input) and [RequestFPDS](#_Request_FPDS_Input) messages, as it does in normal operation. If N(o), RTCIS will route the units loads to REJECT. |
| REPLEN\_ASRS | Replenish from ASRS? | Y(es) or N(o) – Indicates if RTCIS system generated replenishments should attempt to retrieve inventory from the ASRS (via the RAI interface). |
| USING\_ASRS | Is an ASRS being used at the facility? | Y(es) or N(o) – Indicates if an ASRS is being used at any P&G sub-site (managed by this server). |

# Glossary

| **Term** | **Description** |
| --- | --- |
| DTD | A **D**ocument **T**ype **D**efinition is a set of markup declarations that define a document type for an SGML-family markup language (SGML, XML, HTML). |
| RAI ng DTD | The XML 1.0 specification that defines the XML document (XML messages including tags) required for the RAI ng interface messages, as defined in this (Word) document. |
| FPDS | Full Pallet Delivery System. Any conveyor or series of conveyors controlled by PLCs that route pallets. P&G ASRS facilities use FPDSs to route inbound pallets from manufacturing or the warehouse floor to store them in the ASRS. |
| No Read (or No Read Pallet) | A pallet that passes by a barcode scanner without the barcode being scanned successfully. The pallet information may still be sent to from the PLC to RTCIS without the unit load Id. |
| PLC | Programmable Logic Controller. A device associated with a conveyor that may track and control pallet movement. PLCs may be directly controlled by the ASRS software or may be controlled (indirectly) by RTCIS using the RTCIS PLC Control application (also known as the RTCIS Detail Message Driver or dtlmsgdrv) and [CTI’s (Commercial Timesharing, Inc.)](https://www.ctiplcio.com/) PLCIO. |
| RAI | **R**TCIS **A**ctiv **I**nterface. The original ASRS interface developed for P&G for RTCIS and the first ASRS implementation, Retrotech’s Activ. The RAI acronym remained after the RTCIS standard interface was expanded to interface with other ASRS vendors. |
| RAI ng | The next generation interface standard for the RTCIS ASRS interface, as defined by this document. |
| Reject | An output conveyor for pallets that cannot be processed normally by the automation. There are many reasons a pallet may be routed to the reject |
| Unit Load | A unit load is the P&G term for a pallet in RTCIS. |
| Unit Load Id | The barcode associated with the unit load/pallet. |

# Socket Protocol FAQ

1. **Can I send binary data over socket?**

No. All message data must be in character format. In addition ASCII 0x0 and 0x127 are reserved and cannot be a part of the message data. Refer to the [*Data Encoding*](#_Data_Encoding)section in Chapter 3 for more details.

1. **Why can’t I send ASCII NULLs (0x0) as part of the message data?**

MOCA is one of the JDA software products used by the Integrator. And MOCA does not allow passing of embedded NULL (0x0) characters as part of a string.

1. **Why can’t I send ASCII DEL (0x127) as part of the message data?**

ASCII 0x127 is reserved for the implementations of this protocol to use in masking any NULL characters that have to be passed around through MOCA.

1. **Should the ACK or NAK messages be terminated with <CR><LF><LF>?**

No. Only data messages need to be terminated with the message terminating sequence of <CR><LF><LF>. The ACK and NAK messages should be a single character, as described in the [*ACK/NAK Handshaking*](#_ACK/NAK_Handshaking) section in Chapter 3.

1. **What RTCIS interfaces currently also use this socket protocol?**

As of 7/24/2009, the RTCIS-ALP (Automated Layer Picking), the RTCIS-PBL (Pick-By-Light) and the RTCIS-CSI ng (Controls System Interface Next Generation for WCS and conveyor automation) also use this protocol.

1. **What is the maximum size of the message data that can be out as one message?**

The maximum size of message data is variable. The variable message must be terminated with the proper sequence.

1. **Can more than one client send to a receiving process?**

Yes, but only initially. The protocol mandates that the receiving process must be prepared to receive incoming connections from multiple clients. But it must treat each as an independent connection, after the connection has been accepted by the listener.

1. **Can the protocol be used with non-ASCII character sets?**

Non-ASCII character sets, both single-byte (such as 8859-1) and multi-byte character sets (such as UTF or GB 2312) should be supported by this protocol. However, as of this data (7/24/2014), only ASCII has been tested. Note: The JDA Integrator has been tested with non-ASCII character sets successfully in the past. The RTCIS Standard TCP Socket communication protocol has not.

1. **Does this protocol support UDP?**

No. This protocol does not support UDP (User Datagram Protocol), also commonly referred to as datagrams. This protocol only supports TCP. This is primarily to conform to the JDA product group, which has chosen to support TCP over UDP for the DLx Integrator. TCP was chosen by the JDA to guarantee message sequencing. UDP provides an unreliable service and datagrams may arrive out of order.

1. **Are the socket connections full duplex?**

While TCP sockets are full duplex, RTCIS socket protocol is a simplex protocol. The Socket clients use one half of the channel to send message data. The receiving process uses the other half of the channel to respond with an ACK or a NAK packet.

# Change Log

| Version | Date | Author | Comment |
| --- | --- | --- | --- |
| 1.00 | 6/20/2014 | Aaron Krause | Original – First Draft |
| 1.01 | 7/23/2014 | Aaron Krause | Sent first draft to Dave, Dan and Cathy |
| 1.02 | 7/28/2014 | Aaron Krause | In progress update to Dave, Toni, Dan, Cathy |
| 1.03 | 8/15/2014 | Aaron Krause | Updated Message Dialogs (Work in Progress) |
| 1.04 | 9/2/2014 | Aaron Krause | Updated document based on issues reported by Dave and Toni (Still Work in Progress) |
| 1.05 | 7/20/2015 | Aaron Krause | Updated the document for RTCIS 8.0x, except for production order examples |
| 1.6 | 7/25/2015 | Aaron Krause | Updated the document for RTCIS 8.0x, including production order examples and remaining issues. |
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