NETSUITE

Solution Guide

SuiteSolutions – Lot Traceability
Solution Version: 1.0

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1 Document Overview

SuiteSolutions are pre-built offerings used to accelerate the delivery of custom functionality into Customer's account. These solutions were designed and developed by NetSuite Professional Services. SuiteSolutions are delivered as Non-Managed bundles i.e. the custom code/configurations delivered with the bundle is not locked and can be further customized on a customer account to meet unique business requirements. For the Terms of Service for SuiteSolutions, refer to http://www.netsuite.com/tos. Notwithstanding anything to the contrary in this Solutions Guide or on SuiteAnswers, in the event of any conflict between this Solution Guide and the Terms of Service for SuiteSolutions, the Terms of Service for SuiteSolutions shall supersede and control.

This is the Solution Guide for SuiteSolution – Lot Traceability. This documentation will guide the user how to setup, configure and work with the solution with the given use cases/scenarios as examples.

1.1   Symbols and Conventions

Symbol	Description
	Indicates situation the user should be specifically aware of when completing a task.
	Indicates helpful tips, shortcuts and suggestions. The 'bulb' icon explains general information around NetSuite while the 'record' icon gives important details related to records, fields, forms and validations.

Convention	Description
List > Custom> Lot Traceability - Preference	The (**>**) symbol indicates a sequence of actions, such as selecting items from a menu or toolbar, or clicking buttons in a window. This example directs you to go to **List** tab and hover to **Custom** and select **Lot Traceability - Preference**

1.2   Terms and Definitions

Term	Definition
Backward Tracing	To backward trace Assembly Lot Items
Forward Tracing	To forward trace Component Lot Items

2 Solution Overview
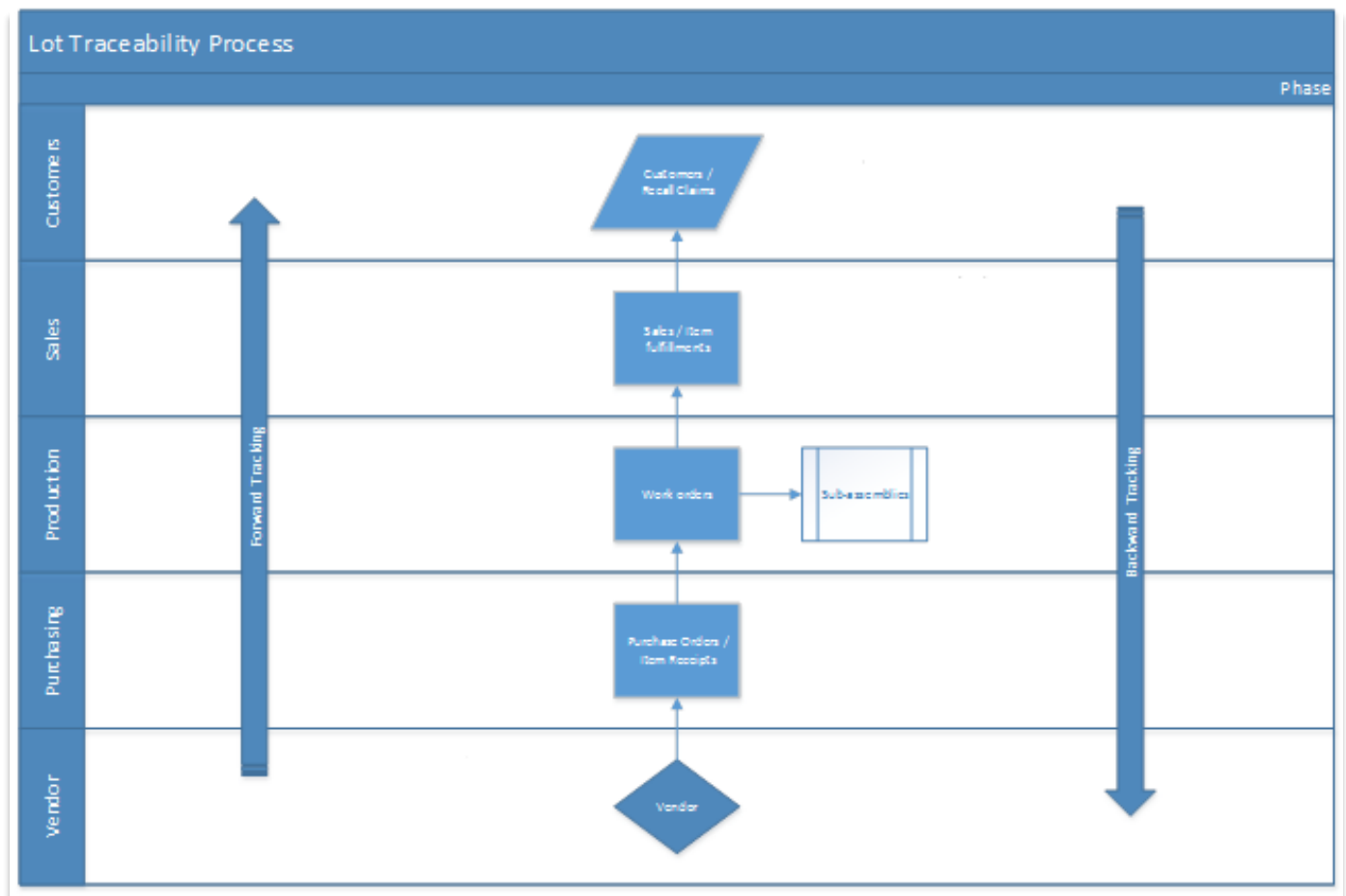
Figure 1 – Lot Traceability Process Flow
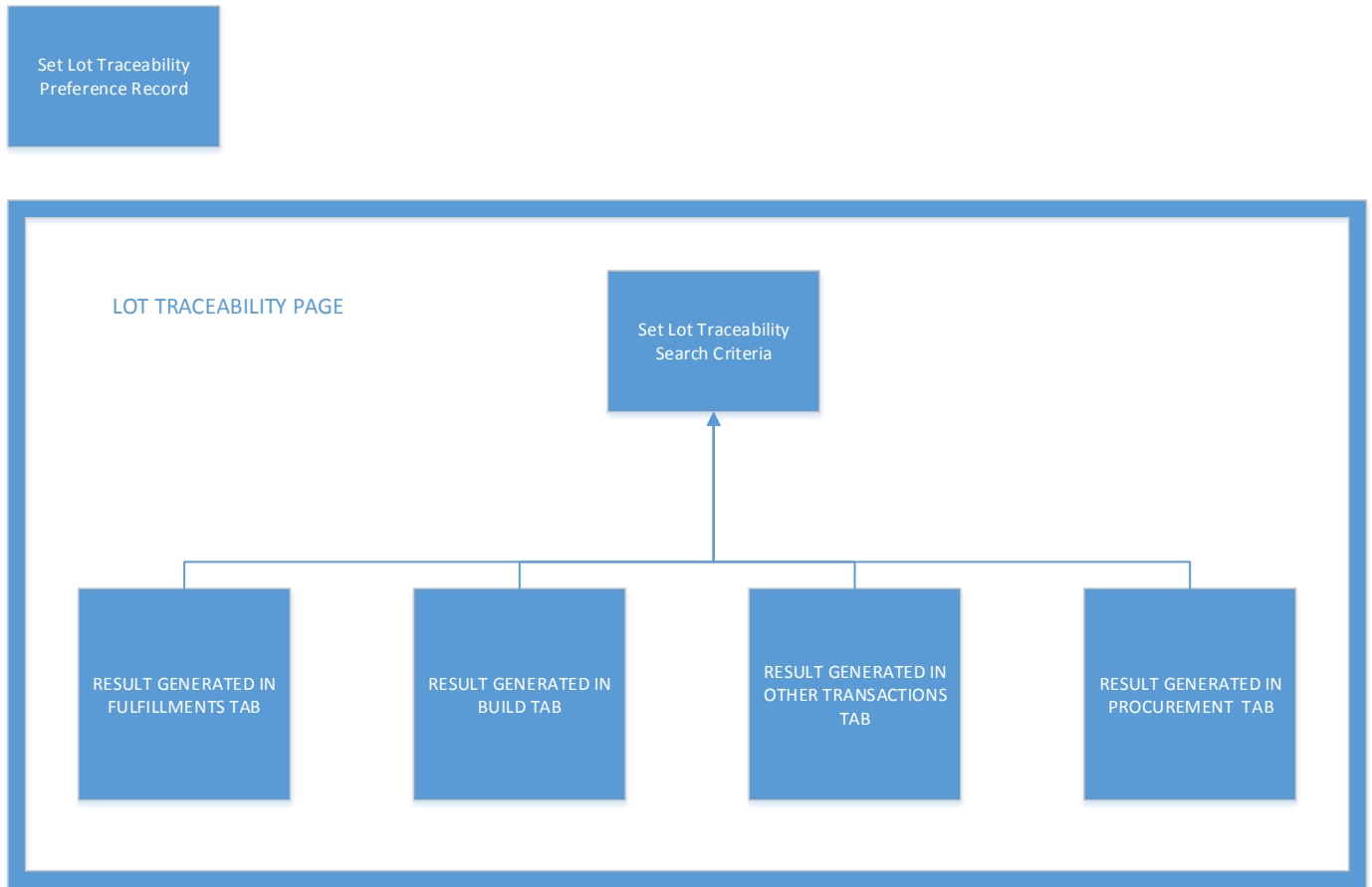
Figure 2 - Lots Traceability Search Process

The Lot Traceability SuiteSolution traces or searches Assembly Lot Items or Component Lot Items up to the Supplier or the Customer to which the component item was bought or sold to. When the search is triggered – depending on the trace type, all related transactions to which the component item is associated to will be displayed on 4 different tabs, Fulfillment, Build, Procurement and Other Transactions tab.

2.1   Supported Features

Below is the list of supported features of the Lot Traceability solution. The significance of these item will be further discussed in Section 4 - Working with Lot Traceability.

A. Backward Trace
1. **Backward Tracing** - ability to backward trace Assembly Lot Items using field filters such as Lot Number, Subsidiary, Location, Item, Start Date and End Date.
2. **Result Tabs** – ability to display search result for backward tracing in the following tabs:
   a. Build tab.
   b. Other Transactions tab.
   c. Procurement tab.
   d. Fulfillments tab.

B. Forward Trace
1. **Forward Tracing** - ability to forward trace Component Lot Items using field filters such as Lot Number, Subsidiary, Location, Item, Start Date and End Date.
2. **Results Tab** - ability to display search result for forward tracing in the following tabs:
   a. Build tab.
   b. Other Transactions tab.
   c. Procurement tab.
   d. Fulfillments tab.

C. Export – ability to export search results as a CSV file and email this attachment to the email address defined in Lot Traceability Preference record. An Export button is available
D. Preference Record – ability to set preferences on tracing Assembly or Components Lot Items that will take effect on the actual tracing of items using the Lot Traceability page.

3 Setup and Configuration

3.1 Bundle Installation

To install the SuiteSolutions – SuiteSolutions - Lot Traceability, a user has to have an Administrator Role or SuiteBundler permission in an account.

1. Go to *Customization> SuiteBundler> Search & Install Bundles*.
2. Search for the **SuiteSolutions - Lot Traceability** bundle and click the name.
3. Click the **Install** button to begin the installation process.

Please refer to these NetSuite Help links for more information about bundle installation: Installing a Bundle, Choosing a Bundle to Install, Understanding Bundle Searches.

> 💡 It is recommended that process is validated in a sandbox prior to installation in a production account.

3.2 Feature Dependencies

The following features need to be enabled in the account:

3.2.1 SuiteCloud Features

- Client SuiteScript
- Server SuiteScript
- Custom Records
- SuiteFlow

3.2.2 Enable Features

3.2.2.1 Inventory
Enable this to track quantities and profit from buying and selling inventory. Navigate to *Setup> Company> Enable Features>* and mark the **Inventory** feature under Items & Inventory subtab.

3.2.2.2 Location
Enable this to manage information and activity for distinct locations within your company. For example, companies with multiple offices or warehouses can associate transactions and employees with a location.

Navigate to *Setup> Company> Enable Features>* and mark the **Location** feature under Company subtab.

3.2.2.3 Enable Lot Items
To use Lot Numbered Items, this must be enabled first at *Setup> Company> Enable Features>* and mark the **Lot Tracking** feature under Items & Inventory subtab.
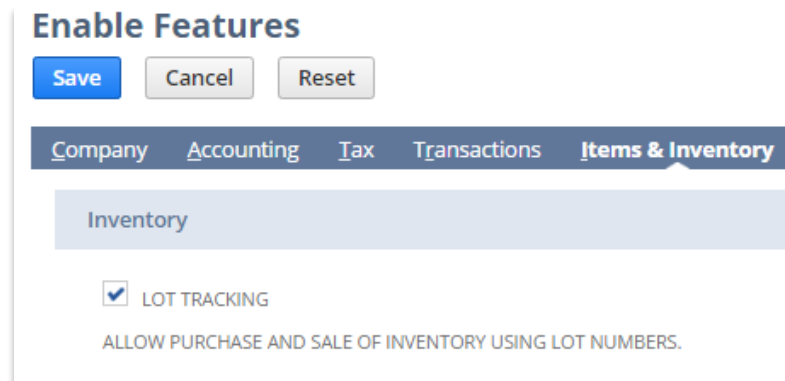
Figure 3 - Lot Tracking Feature

3.2.3 Other Useful Features

Below are some useful features to be enabled if the account is the business of Manufacturing or Wholesale Distribution.

3.2.3.1 Assembly Items

For a Manufacturing, the Assembly Items feature must be enabled. Assembly items are items that you build from raw materials and sell.

Navigate to *Setup> Company> Enable Features>* and mark the **Assembly Items** feature under Items & Inventory subtab.

3.2.3.2 Multi-Location Inventory

For Wholesale Distribution, the Multi-Location Inventory feature must be enabled. Enable this feature to track and distribute inventory for multiple warehouses or locations.

Navigate to *Setup> Company> Enable Features>* and mark the **Multi-Location** feature under Items & Inventory subtab.

3.2.3.3 Work Orders
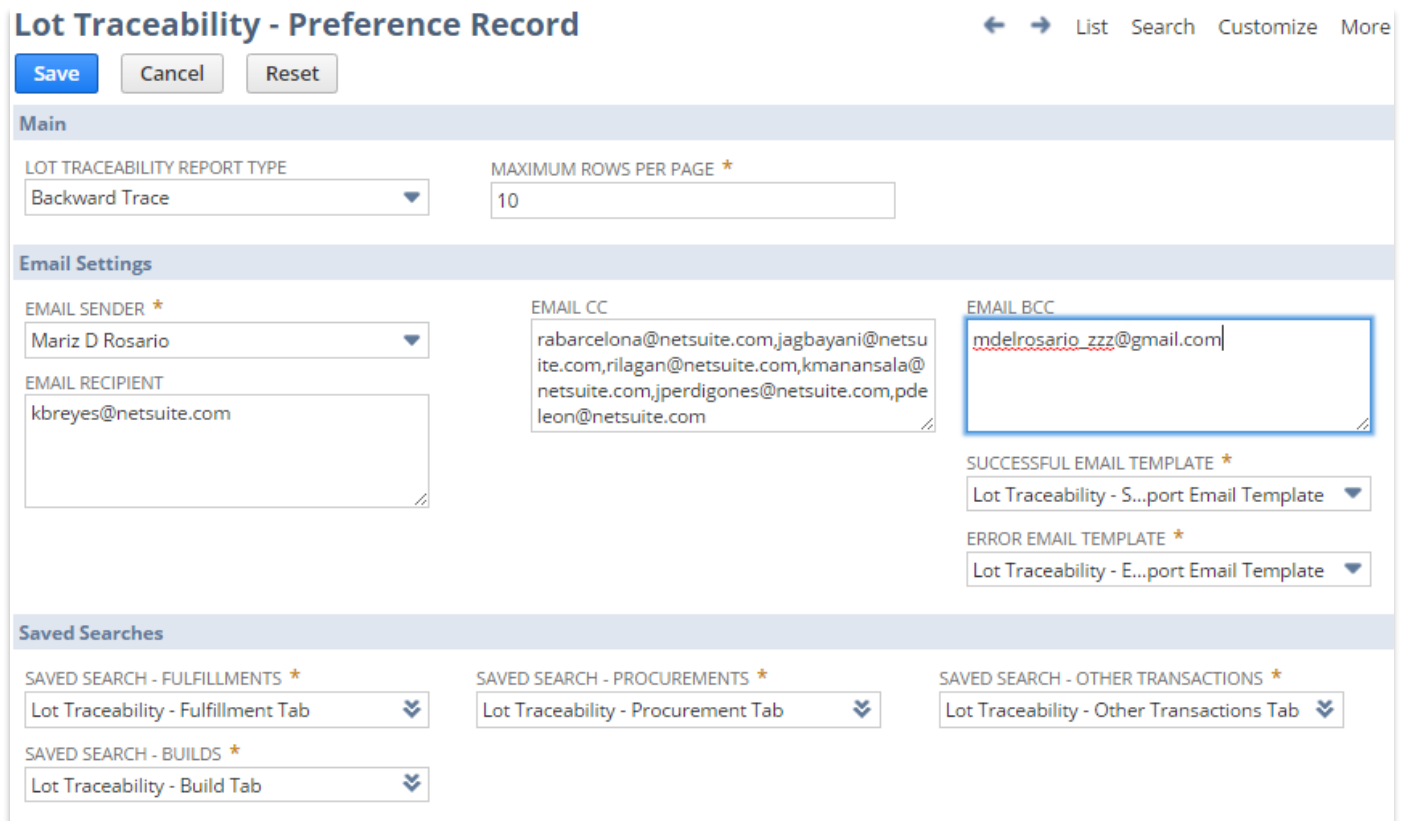
Enable the Work orders to use assembly work orders to track the production of assembly items needed for stock or to fill orders. Work orders track the quantities of assemblies that need to be built and the quantities of components, or member items, needed to do so.

Navigate to *Setup> Company> Enable Features>* and mark the **Work Orders** feature under Items & Inventory subtab.

3.3 Lot Traceability Preference Record

On this record, preferences for the Lot Traceability solution can be set such as the default search report type, number rows per page, email setting and saved searches to be used for the search result.

Figure 4 - Lot Traceability Preference Record

Set these preferences by navigating to **Lists> Custom> Lot Traceability – Preference**. You will be redirected to the Lot Traceability - Preference Record List page. The **New Lot Traceability – Preference Record** button is present for the creation of the preference record. Only 1 preference record is allowed to be saved.

Set the following fields as described below then save:

	Field	Description
Main		
1	Lot Traceability Report Type	The search or report type that will be defaulted in the Lot Traceability page. (e.g. Forward Trace)
2	Maximum Rows Per Page (Mandatory)	The maximum number of search result rows to be displayed when search triggered. Value can be set at a minimum of 10 to maximum of 500 rows.

Field		Description
		For the Build Tab, the max rows per page applies to the first load of the page. Lines added under the Work Order line when expand button is clicked is not considered.
Email Settings		
3	Email Sender (Mandatory)	The user or employee who will be displayed as the email sender when generated CSV is exported and sent.
4	Email Recipient	Comma separated email addresses of the recipients who will receive the exported CSV result via email. This field is Non-mandatory in the preference record but must be set in the Lot Traceability Export page.
5	Email CC	Comma separated email addresses who will be copied when the exported CSV result via email is sent.
6	Email BCC	Comma separated email addresses who will be 'blank-carbon-copied' when the exported CSV result via email is sent.
7	Successful Email Template (Mandatory)	Email Template used in sending the exported results in CSV when process is successful. An email template is available from the solution, select the **Lot Traceability – Successful Export Email Template** email template.
8	Error Email Template	Email Template used in sending the exported results in CSV when process is unsuccessful. An email template is available from the solution, select the **Lot Traceability - Error Export Email Template** email template.
Saved Searches		
8	Saved Search – Fulfillments (Mandatory)	The saved search to be used to query results in Fulfillments tab for Backward and Forward Trace type.
11	Saved Search – Builds (Mandatory)	The saved search to be used to query items in Build tab. This is also being used by the Fulfillment tab for Forward trace and Procurement tab for Backward trace.
13	Saved Search – Procurements (Mandatory)	The saved search to be used to query results in Procurement tab for Forward and Backward Trace type.
14	Saved Search – Other Transactions (Mandatory)	The saved search to be used to query results in Other Transactions tab for Forward and Backward Trace type.

> A maximum of 10 recipient email addresses can be set in the main recipient, CC and BCC fields together

Only 1 Lot Traceability Preference record can be created per install; copying, deletion and CSV Import is not allowed.

To prevent the creation of the preference record via CSV Import, the **Run Server SuiteScript and Trigger Workflows** should be enabled under CSV Import Preferences

Set the saved searches as follows, these saved searches are available from the solution, out-of-the-box:

	Field	Saved Search
1	Saved Search – Fulfillments (Backward)	Lot Traceability - Fulfillment Tab
2	Saved Search – Backward Purchase Orders	Lot Traceability - Backward Purchase Orders
3	Saved Search – Fulfillments (Forward)	Lot Traceability - Forward Fulfillment
4	Saved Search – Builds	Lot Traceability - Build Tab
5	Saved Search – Inventory Details	Lot Traceability - Inventory Details Tab
6	Saved Search – Procurements	Lot Traceability - Procurement Tab
7	Saved Search – Other Transactions	Lot Traceability - Other Transactions Tab

Modified Saved Search:

If a different Saved Search will be used or above Saved Search is customized, adding columns may cause duplicate rows if the row values for the added columns differ.

Below error will be displayed on tabs if Other Prices column is added to the Saved Search: *"There was an error encountered upon generating the results. Please check your saved search settings."* – this is a known NetSuite issue.

3.4   Define Roles in NSTS | LT - Filter Lot Trace SL Script Deployment

Each role that needs access to the Lot Traceability records needs to be defined in the **NSTS | LT - Filter Lot Trace SL** Script Deployment. Else, records related to the solution will not be accessible to the user.

By default, the Administrator role is defined on this script deployment. Access the script deployment via ***Customization> Scripting> Script Deployments*** then find NSTS | LT - Filter Lot Trace SL.

The role's center must also be defined on the Links subtab of the script deployment.
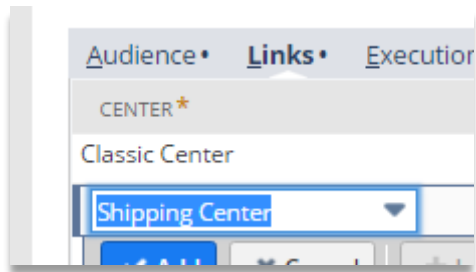
Figure 5 - Script Deployment Links Subtab
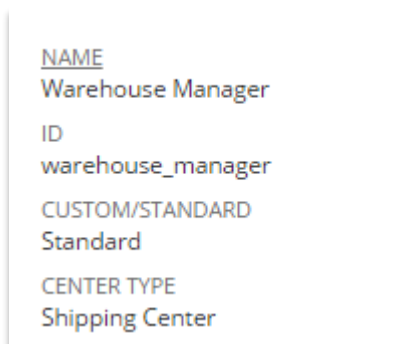
Figure 6 - Role Center Type

Figure 7 - NSTS | LT - Filter Lot Trace SL Script Deployment

3.5   Define Roles in Custom Record

After defining the role on the script deployment, this role and its center must also be defined on the **Lot Traceability – Preference Record** custom record.

1. Add the role to the Permissions sublist.
2. Add the role's center to the Links sublist.

4 Working with Lot Traceability SuiteSolution

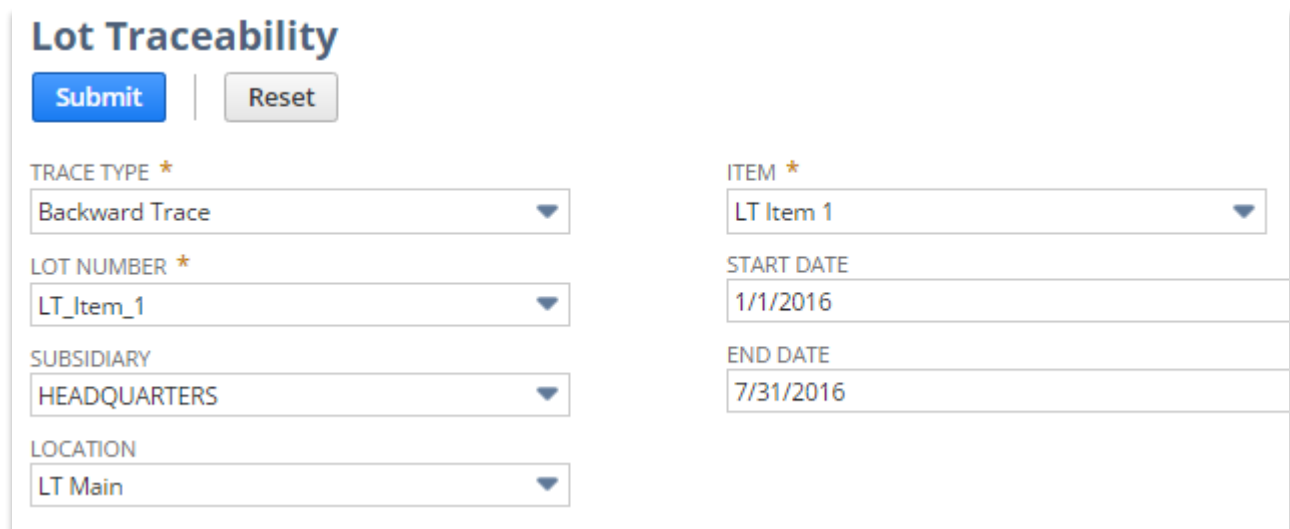The Lot Traceability is designed to process Backward Trace and Forward Trace types. Below sample scenarios describes the actions of each trace type:

4.1 Backward Trace Type

The Backward Trace Type, searches for the Assembly Lot Items in scenarios, where the component item and/or the supplier of the component items needs to be traced. Backward tracing retrieves transactions where the assembly item or it component items (including sub-assemblies) has been associated.

Figure 8 - Sample Search for Backward Trace Type

To perform backward tracing, access the Lot Traceability page via *Lists> Custom> Lot Traceability*.

Pre-requisite: Lot Traceability Preference record is set. (See Lot Traceability Preference record)

1. Set the following fields as filters or criteria of the search:

	Field	Description
1	Trace Type	This is the trace type to be used for the report/search. This is a mandatory field. The default value of this field depends on what is set in Lot Traceability Preference. The trace type can still be changed on the form. Available values are: Backward Trace and Forward Trace.
2	Lot Number	This is the Lot Number to be searched. This is a mandatory field. This field dependent on selected Subsidiary and/or Item values in the form. By default, all Lot Numbers are listed on this field if no other filter is set.
3	Subsidiary	This is the subsidiary that can be added as additional search criteria By default, all Subsidiaries are listed on the field.
4	Location	This is the location that can be added as additional search criteria.

	Field	Description
		This field is dependent on the value selected in the Subsidiaries field in the form. By default, all Locations are listed on this field if no subsidiary is set.
5	Item	This is the item that can be added as additional criteria for the search. This is a mandatory field. This field is dependent on selected Subsidiaries and/or Lot Number values in the form. By default, all Items are listed on this field if no other filter is set.
6	Start Date	This is the date to be used as the start date of the transaction date range filter.
7	End Date	This is the date to be used as the end date of the transaction date range filter.

2. Click **Submit** to trigger the search.
3. The following header fields will be populated:

	Field	Description
1	Location Quantity On Hand (Base Unit)	The total location quantity on hand of Lot Numbered Items in ALL tabs.
2	Total Quantity On Hand (Base Unit)	The total quantity on hand of Lot Numbered Items in ALL tabs.
3	Total Quantity (Fulfillments) (Base Unit)	The total quantity of Lot Numbered Item in the Fulfillments tab.

Lot Traceability

Export All Reset Back

TRACE TYPE TEXT	START DATE
Backward Trace	1/1/2016
LOT NUMBER	END DATE
LT_Item_1	7/31/2016
SUBSIDIARY	LOCATION QUANTITY ON HAND (BASE UNIT)
HEADQUARTERS	318
LOCATION	TOTAL QUANTITY ON HAND (BASE UNIT)
LT Main	470
ITEM	TOTAL QUANTITY (FULFILLMENTS) (BASE UNIT)
LT Item 1	16

Build   Other Transactions   Procurement   Fulfillments

Figure 9 - Lot Traceability Header After Submit

4. The following tabs will be populated if search results are available:

	Tab	Description
1	Build	Displays the Work Orders and Sub-assemblies that built the Assembly Lot Number being tracked. If 'Include Inventory Details' checkbox is checked, the component items will be added to the result (Work Orders with Assembly Build transaction or Work Order completion, Sub-assemblies and/or Inventory items will be displayed.). Else, if 'Include Inventory Details' checkbox is unchecked, only the Work Order Assembly and Sub-assemblies will be displayed. (See Build Tab.)
2	Other Transactions	Displays other transactions associated to the Lot Number such as Inventory Adjustment, Bin Transfers, Transfer Orders, Transfers, and RMA Returns. (See Other Transactions Tab.)
3	Procurement	Displays Purchase Orders or Item Receipts to which the components belong to the Lot Number being tracked. (See Procurement Tab.)
4	Fulfillments	Displays Item Fulfillment transactions of the Lot Number being tracked. (See Fulfillments Tab.)

> If user does not enter the inventory details, such as in the Sales Order Form or the Return Authorization form, the Lot Traceability script will not pick it up for display in any of the Tabs

4.1.1   Build Tab

On submit, this tab will display the Work Order and Sub-assemblies that built the Lot Number tracked.

The following columns are available on this tab:

	Column	Description
1	WO #	The main Work Order # to which the Assembly Item of the Lot Number being tracked belongs.
2	Related Records	Displays the link of the Work Order Completion or Assembly Build transactions whichever is available.
3	Assembly Item	The Assembly Item of the Work Order.
4	Item Type	The Item Type of the Lot Number being tracked.
5	Lot #	The Lot Number of the Assembly Item of the Work Order.
6	Quantity (Base Unit)	The base unit of the item.
7	Expiration Date	The expiration date of the Lot Numbered Item found in the Assembly Build.
8	Date Completed	The completion date of the Work Order.
9	Transaction Unit	The unit used in the transaction.
10	Subsidiary	The subsidiary of the item.
11	Location	The location set in the Work Order.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Builds**.

Build Tab Specifics:

- Sub-assemblies are indented from the "main" Work Order/Assembly transactions.
- An option to expand or collapse (+/-) is available for Work Orders/Assembly Build transactions.
- A line is drillable up to non-assembly item of 'tree'.
- Non-assembly items do not have the '+' or '-' options.
- Unbuilt Assembly transactions are not considered for Lot Tracing and will not be displayed on Build tab.


WO #	RELATED RECORDS	ASSEMBLY ITEM	ITEM TYPE	LOT #	QUANTITY (BASE UNIT)	EXPIRATION DATE	DATE COMPLETED	TRANSACTION UNIT	SUBSIDIARY	LOCATION
Work Order #68	42	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/18/2016	Each	HEADQUARTERS	LT Main
Work Order #76	45	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/18/2016	Each	HEADQUARTERS	LT Main
Work Order #91	59	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/18/2016	Each	HEADQUARTERS	LT Main
Work Order #49	38	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/17/2016	Each	HEADQUARTERS	LT Main
	33	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/11/2016	Each	HEADQUARTERS	LT Main
Work Order #32	30	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/6/2016	Each	HEADQUARTERS	LT Main
Work Order #37	33 build1	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/6/2016	Each	HEADQUARTERS	LT Main
Work Order #37	33 build2	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/6/2016	Each	HEADQUARTERS	LT Main
Work Order #21	26	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	6/28/2016	Each	HEADQUARTERS	LT Main
Work Order #13	13	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	6/27/2016	Each	HEADQUARTERS	LT Main
Work Order #46	7	LT Item 1-2	Assembly/Bill of Materials	LT Item 1-2	1	7/6/2016	7/15/2016		HEADQUARTERS	LT Main
Work Order #44	6	LT Item 1-2	Assembly/Bill of Materials	LT Item 1-2	1	7/6/2016	7/14/2016		HEADQUARTERS	LT Main
	34 LT Item 1-1	LT Item 1-1	Assembly/Bill of Materials	LT Item 1-1	1	7/6/2016	7/11/2016	Each	HEADQUARTERS	LT Main
Work Order #29	27	LT Item 1-1-1	Assembly/Bill of Materials	LT Item 1-1-1	1	7/6/2016	6/29/2016		HEADQUARTERS	LT Main
Work Order #25	21	LT Item 1-1-1-1	Assembly/Bill of Materials	LT Item 1-1-1-1	2	7/6/2016	6/28/2016		HEADQUARTERS	LT Main
Work Order #26	23	LT Item 1-1-1-2	Assembly/Bill of Materials	LT Item 1-1-1-2	3	7/6/2016	6/28/2016		HEADQUARTERS	LT Main
Work Order #27	22	LT Item 1-1-1-2-1	Assembly/Bill of Materials	LT Item 1-1-1-2-1	12	7/6/2016	6/28/2016		HEADQUARTERS	LT Main

Figure 10 - Sample Result of Build Tab for Backward Trace

4.1.1.1   Inventory Details

WO #	RELATED RECORDS	ASSEMBLY ITEM	ITEM TYPE	LOT #	QUANTITY (BASE UNIT)	EXPIRATION DATE	DATE COMPLETED	TRANSACTION UNIT	SUBSIDIARY	LOCATION
Work Order #68	42	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/18/2016	Each	HEADQUARTERS	LT Main
Work Order #76	45	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/18/2016	Each	HEADQUARTERS	LT Main
Work Order #91	59	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/18/2016	Each	HEADQUARTERS	LT Main
Work Order #49	38	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/17/2016	Each	HEADQUARTERS	LT Main
	33	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/11/2016	Each	HEADQUARTERS	LT Main
Work Order #32	30	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/6/2016	Each	HEADQUARTERS	LT Main
Work Order #37	33 build1	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/6/2016	Each	HEADQUARTERS	LT Main
Work Order #37	33 build2	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	7/6/2016	Each	HEADQUARTERS	LT Main
Work Order #21	26	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	6/28/2016	Each	HEADQUARTERS	LT Main
Work Order #13	13	LT Item 1	Assembly/Bill of Materials	LT Item 1	1	7/6/2016	6/27/2016	Each	HEADQUARTERS	LT Main
LT Item 1-1	13		Assembly/Bill of Materials	LT Item 1-1	1	7/6/2016				
LT Item 1-2	13		Assembly/Bill of Materials	LT Item 1-2	2	7/6/2016				
LT Item 1-4	13		Assembly/Bill of Materials	LT Item 1-4	4	7/6/2016				
LT Item 1-5	13		Assembly/Bill of Materials	LT Item 1-5	5	7/6/2016				
Work Order #46	7	LT Item 1-2	Assembly/Bill of Materials	LT Item 1-2	1	7/6/2016	7/15/2016		HEADQUARTERS	LT Main
LT Item 1-2-1	7		Assembly/Bill of Materials	LT Item 1-2-1	1	7/6/2016				

Figure 11 - Sample Result of Build Tab with Inventory Details for Backward Trace
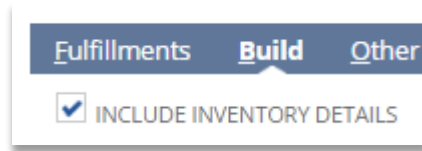
Figure 12 - Include Inventory Details Checkbox

On the Build tab, the component items can be added to the search result by checking the 'Include Inventory Details' checkbox. With these, the Work Orders with Assembly Build transactions or Work Order completion, Sub-assemblies and/or Inventory items will be displayed.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Builds**.

4.1.2   Other Transactions

On submit, this tab will display other transactions associated to the Lot Number being tracked such as Inventory Adjustment, Bin Transfers, Transfer Orders, Transfers, and RMA Returns.

The following columns are available on this tab:

	Column	Description
1	Transaction #	The transaction number.
2	Transaction Type	The transaction type to which the Lot Numbered Item belongs to.
3	Transaction Date	The date of the transaction.
4	Transaction Unit	The unit used in the transaction.
5	Assembly Name	The Assembly Name of the Lot Numbered Item.
6	Lot #	The Lot Number Item.
7	Quantity (Base Unit)	The base unit of the item.
8	Subsidiary	The subsidiary of the item.
9	Location	The item location on the transaction.
10	Expiration Date	The expiration date of the Lot Numbered Item.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Other Transactions**.

TRANSACTION #	TRANSACTION TYPE	TRANSACTION DATE	TRANSACTION UNIT	ASSEMBLY NAME	LOT #	QUANTITY (BASE UNIT)	SUBSIDIARY	LOCATION	EXPIRATION DATE ▲
2 custom	Bin Transfer	7/6/2016		LT Item 1	LT Item 1	1	HEADQUARTERS	LT Main	7/6/2016
2 custom	Bin Transfer	7/6/2016		LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016
RMA-2	Return Authorization	6/28/2016	Each	LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016
1	Vendor Return Authorization	6/28/2016	Each	LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016
1	Transfer Order	6/2/2016		LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016
81	Inventory Adjustment	6/2/2016		LT Item 1	LT Item 1	50	HEADQUARTERS	LT Main	7/6/2016
81	Inventory Adjustment	6/2/2016		LT Item 1	LT Item 1	25	HEADQUARTERS	LT Main	7/6/2016
1	Bin Transfer	6/2/2016		LT Item 1	LT Item 1	1	HEADQUARTERS	LT Main	7/6/2016
1	Bin Transfer	6/2/2016		LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016
1	Inventory Transfer	6/2/2016	Each	LT Item 1	LT Item 1	-5	HEADQUARTERS	LT Main	7/6/2016

Figure 13 - Sample Result of Other Transactions Tab for Backward Trace

4.1.3 Procurement

On submit, this tab will display all Purchase Orders or Item Receipts to which the components belong to the Lot Number being tracked.

The following columns are available on this tab:

	Column	Description
1	Assembly Item	The Assembly Item of the Lot Numbered Item.
2	Build/Completion	Displays the link of the Work Order Completion or Assembly Build transactions whichever is available.
3	Date Received	The transaction date of the Item Receipt.
4	Transaction Unit	The unit used in the transaction.
5	Receipt #	The Item Receipt transaction.
6	Order #	The order # of the transaction.
7	Order # Record Type	The record type of the order transaction.
8	Supplier Name	The supplier/vendor name in the order.
9	Lot #	The Lot Number of the component item.
10	Quantity (Base Unit)	The base unit of the item.
11	Expiration Date	The expiration date of the Lot Numbered Item.
12	Subsidiary	The subsidiary of the item.
13	Location	The location set in the order.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Procurements**.

Figure 14 - Sample Result of Procurement Tab for Backward Trace for a Non-OW Account

> **Return Material Authorization:**
>
> For Return Material Authorization receipts in **Procurement** and **Other Transactions** tab, the user has to enter the Lot Number of the item that is being received back from the customer. The user has to manually enter the same lot number that was shipped to the customer, in order to maintain traceability.
>
> The Quantity (Base Unit) will display as a negative number. This is a standard NetSuite functionality for receipt created from Return Authorization. For more information, see SuiteAnswers ID: 24897. Though the on hand quantity is not incorrect on account of this, the user is advised to exercise attention when the result is exported to csv.

4.1.4 Fulfillments Tab

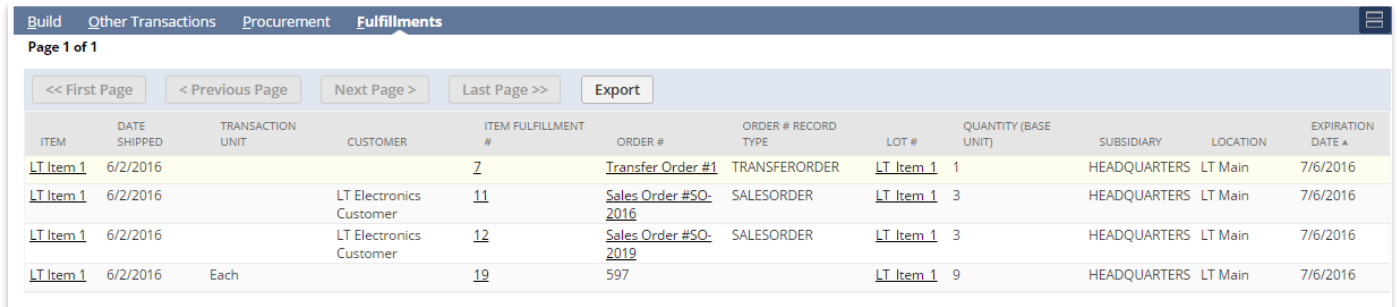On submit, this tab will display the Item Fulfillment transactions to which the Lot Number tracked is associated.

The following columns are available on this tab:

	Column	Description
1	Item	The item name of the lot number being tracked.
2	Date Shipped	The transaction date of the Item Fulfillment transaction.
3	Transaction Unit	The unit used in the transaction.

	Column	Description
4	Customer	The customer of the transaction.
5	Item Fulfillment	The transaction # of the Item Fulfillment.
6	Order #	The order # of the transaction.
7	Order # Record Type	The record type of the order transaction.
8	Lot #	The lot number being tracked.
9	Quantity (Base Unit)	The base unit of the item.
10	Subsidiary	The subsidiary of the item.
11	Location	The location where the item is fulfilled or shipped.
12	Expiration Date	The expiration of the item for the lot number tracked.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Fulfillments**.

Figure 15 - Sample Result of Fulfillment Tab for Backward Trace

4.2 Forward Trace Type

The Forward Trace Type searches for the Component Lot Items in such scenarios where the customer to whom the final assembly item was sold needs to be traced. Forward tracing retrieves the shipment/transaction where the component being searched was included.

Figure 16 - Sample Search for Forward Trace Type

To perform forward tracing, access the Lot Traceability page via *Lists> Custom> Lot Traceability*.

Pre-requisite: Lot Traceability Preference record is set. (See Lot Traceability Preference record)

1. Set the following fields as filters or criteria of the search:

	Field	Description
1	Trace Type	This is the trace type to be used for the report/search. This is a mandatory field. The default value of this field depends on what is set in Lot Traceability Preference. The trace type can still be changed on the form. Available values are: Backward Trace and Forward Trace.
2	Lot Number	This is the Lot Number to be searched. This is a mandatory field. This field is dependent on selected Subsidiary and/or Item values in the form. By default, all Lot Numbers are available in the list of values, if no other filter is set.
3	Subsidiary	This is the subsidiary that can be added as additional criteria for the search. By default, all Subsidiaries are listed on the field.
4	Location	This is the location that can be added as additional criteria for the search. This field is dependent on selected Subsidiaries value in the form. By default, all Locations are available in the list of values if no subsidiary is set.
5	Item	This is the item that can be added as additional criteria for the search. This is a mandatory field. This field is dependent on selected Subsidiaries and/or Lot Number values in the form. By default, all Items are available in the list of values, if no other filter is set.
6	Start Date	This is the date to be used as the start date of the transaction date range filter.
7	End Date	This is the date to be used as the end date of the transaction date range filter.

2. Click **Submit** button to trigger the search.
3. The following header fields will be populated:

	Field	Description
1	Location Quantity On Hand (Base Unit)	The total location quantity on hand of Lot Numbered Items in ALL tabs.
2	Total Quantity On Hand (Base Unit)	The total quantity on hand of Lot Numbered Items in ALL tabs.

Lot Traceability

[Export All] [Reset] [Back]

TRACE TYPE TEXT
Forward Trace

LOT NUMBER
LT_Item_1

SUBSIDIARY
HEADQUARTERS

LOCATION
LT Main

ITEM
LT Item 1

START DATE
6/1/2016

END DATE
7/31/2016

LOCATION QUANTITY ON HAND (BASE UNIT)
318

TOTAL QUANTITY ON HAND (BASE UNIT)
470

Figure 17 - Lot Traceability Header After Submit

4. The following tabs will be populated if search results are available:

	Tab	Description
1	Build	Displays the Work Orders where the Component Lot Items was used. (See Build Tab.)
2	Other Transactions	Displays other transactions associated to the Component Lot Number such as Inventory Adjustment, Bin Transfers, Transfer Orders, Transfers, and Vendor Returns. (See Other Transactions.)
3	Procurement	Displays Purchase Orders or Item Receipts to which the Component Lot Numbered Item being tracked belongs to. (See Procurement Tab.)
4	Fulfillments	Displays Sales Order transactions to which the tracked Component Lot Item is associated. (See Fulfillments Tab.)

> If user does not enter the inventory details, such as in the Sales Order Form or the Return Authorization form, the Lot Traceability script will not pick it up for display in any of the Tabs

4.2.1 Build Tab

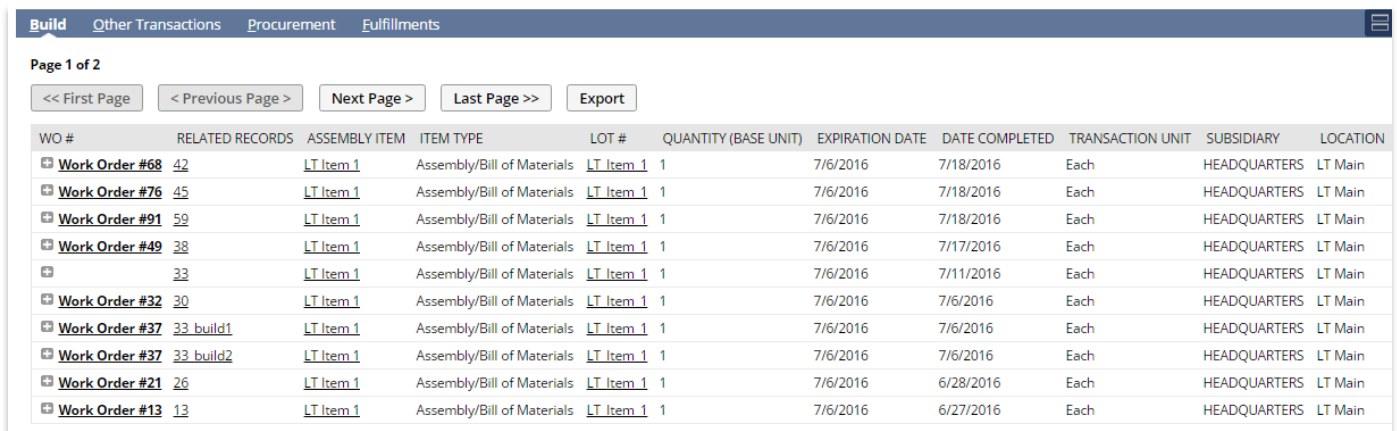On submit, this tab will display the Work Orders where the Component Lot Item was used.

The following columns are available on this tab:

	Column	Description
1	WO #	The Work Order # to which the Component Lot Item was used.
2	Related Records	Displays the link of the Work Order Completion or Assembly Build transactions whichever is available.
3	Assembly Item	The Assembly Build # of the Work Order.
4	Item Type	The item type of the lot numbered item being tracked.
5	Lot #	The Lot Number of the Assembly Item of the Work Order.
6	Quantity (Base Unit)	The base unit of the item.
7	Expiration Date	The expiration date of the Lot Numbered Item found in the Assembly Build.
8	Date Completed	The completion date of the Work Order.
9	Transaction Unit	The unit used in the transaction.
10	Subsidiary	The subsidiary of the item.
11	Location	The location set in the Work Order.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Builds**.

Build Tab Specifics:

- Sub-assemblies are indented from the "main" Work Order/Assembly transactions.
- An option to expand or collapse (+/-) is available for Work Orders/Assembly Build transactions.
- Unbuilt Assembly transactions are not considered for Lot Tracing and will not be displayed on Build tab.

Figure 18 - Sample Result of Build Tab for Forward Trace

4.2.2 Other Transactions Tab

On submit, this tab will display other transactions associated to the Lot Number being tracked such as Inventory Adjustment, Bin Transfers, Transfer Orders, Transfers, and RMA Returns.

The following columns are available on this tab:

	Column	Description
1	Transaction #	The transaction number.
2	Transaction Type	The transaction type to which the Lot Numbered Item belongs to.
3	Transaction Date	The date of the transaction.
4	Transaction Unit	The unit used in the transaction.
5	Item	The Item Name of the Lot Numbered Item.
6	Lot #	The Lot Number Item.
7	Quantity (Base Unit)	The base unit of the item.
8	Subsidiary	The subsidiary of the item.
9	Location	The location set in the transaction.
10	Expiration Date	The expiration date of the Lot Numbered Item.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Other Transactions**.

Build	Other Transactions	Procurement	Fulfillments							
Page 1 of 2										
<< First Page	< Previous Page	Next Page >	Last Page >>	Export						
TRANSACTION #	TRANSACTION TYPE	TRANSACTION DATE	TRANSACTION UNIT	ITEM	LOT #	QUANTITY (BASE UNIT)	SUBSIDIARY	LOCATION	EXPIRATION DATE ▲	
2 custom	Bin Transfer	7/6/2016		LT Item 1	LT Item 1	1	HEADQUARTERS	LT Main	7/6/2016	
2 custom	Bin Transfer	7/6/2016		LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016	
RMA-2	Return Authorization	6/28/2016	Each	LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016	
1	Vendor Return Authorization	6/28/2016	Each	LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016	
1	Transfer Order	6/2/2016		LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016	
81	Inventory Adjustment	6/2/2016		LT Item 1	LT Item 1	50	HEADQUARTERS	LT Main	7/6/2016	
81	Inventory Adjustment	6/2/2016		LT Item 1	LT Item 1	25	HEADQUARTERS	LT Main	7/6/2016	
1	Bin Transfer	6/2/2016		LT Item 1	LT Item 1	1	HEADQUARTERS	LT Main	7/6/2016	
1	Bin Transfer	6/2/2016		LT Item 1	LT Item 1	-1	HEADQUARTERS	LT Main	7/6/2016	
1	Inventory Transfer	6/2/2016	Each	LT Item 1	LT Item 1	-5	HEADQUARTERS	LT Main	7/6/2016	

Figure 19 - Sample Result of Other Transactions Tab for Forward Trace

4.2.3 Procurement Tab

On submit, this tab will display all Purchase Orders or Item Receipts to which the Component Lot Numbered Item being tracked belongs to.

The following columns are available on this tab:

	Column	Description
1	Item Name	The Assembly Item of the Lot Numbered Item.
2	Date Received	The date the item was received.
3	Transaction Unit	The unit used in the transaction.

4	Receipt #	The Item Receipt #.
5	Order #	The transaction #.
6	Order # Record Type	The record type of the transaction.
7	Supplier Name	The supplier/vendor name in the Purchase Order.
8	Lot #	The Lot Number of the component item.
9	Quantity (Base Unit)	The base unit of the item.
10	Expiration Date	The expiration date of the Lot Numbered Item.
11	Subsidiary	The subsidiary of the item.
12	Location	The location set in the Purchase Order.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Procurements**.

Lot Traceability   More

Export All   Reset   Back

TRACE TYPE TEXT
Forward Trace   START DATE

LOT NUMBER
LT_ASSM_1   END DATE

LOCATION   TOTAL QUANTITY ON HAND (BASE UNIT)

ITEM   13,490
LT Choco Cake

Build   Other Transactions   Procurement   Fulfillments

Page 1 of 1

<< First Page   < Previous Page   Next Page >   Last Page >>   Export

ITEM NAME	DATE RECEIVED	TRANSACTION UNIT	RECEIPT #	ORDER #	ORDER # RECORD TYPE	SUPPLIER NAME	LOT #	QUANTITY (BASE UNIT)	EXPIRATION DATE	LOCATION ▲
LT Choco Cake	7/14/2016	Half Dozen	39	Purchase Order #18	PURCHASEORDER	Lot Vendor	LT_ASSM_1	150	8/20/2016	San Mateo
LT Choco Cake	7/10/2016	Dozen	41	Purchase Order #19	PURCHASEORDER	Lot Vendor	LT_ASSM_1	1800	8/20/2016	Singapore
LT Choco Cake	7/4/2016	Dozen	40	Purchase Order #19	PURCHASEORDER	Lot Vendor	LT_ASSM_1	1800	8/20/2016	Singapore
LT Choco Cake	7/1/2016	Half Dozen	38	Purchase Order #18	PURCHASEORDER	Lot Vendor	LT_ASSM_1	1260	8/20/2016	San Mateo
LT Choco Cake	6/15/2016	Half Dozen	37	Purchase Order #18	PURCHASEORDER	Lot Vendor	LT_ASSM_1	510	8/20/2016	San Mateo
LT Choco Cake	6/13/2016	Dozen	33	Purchase Order #17	PURCHASEORDER	KC Reyes	LT_ASSM_1	900	8/20/2016	Manila
LT Choco Cake	6/6/2016	Half Dozen	36	Purchase Order #18	PURCHASEORDER	Lot Vendor	LT_ASSM_1	1020	8/20/2016	San Mateo
LT Choco Cake	6/5/2016	Dozen	34	Purchase Order #17	PURCHASEORDER	KC Reyes	LT_ASSM_1	3300	8/20/2016	Manila
LT Choco Cake	6/3/2016	Dozen	32	Purchase Order #17	PURCHASEORDER	KC Reyes	LT_ASSM_1	1800	8/20/2016	Manila

Figure 20 - Sample Result of Procurement Tab for Forward Trace

Return Material Authorization:

For Return Material Authorization receipts in **Procurement** and **Other Transactions** tab, the user has to enter the Lot Number of the item that is being received back from the customer. The user has to manually enter the same lot number that was shipped to the customer, in order to maintain traceability.

The Quantity (Base Unit) will display as a negative number. This is a standard NetSuite functionality for receipt created from Return Authorization. For more information, see SuiteAnswers ID: 24897. Though the on hand quantity is not incorrect on account of this, the user is advised to exercise attention when the result is exported to csv.

4.2.4 Fulfillments Tab

On submit, this tab will display the Sales Order transactions and Customers to which the tracked Component Lot Item is associated.

The following columns are available on this tab:

	Column	Description
1	Item	The Item Name to which the Transaction Serial/Lot Number belongs to.
2	Build/Completion	Displays the link of the Work Order Completion or Assembly Build transactions whichever is available.
3	Date Shipped	The transaction date of the Item Fulfillment transaction.
4	Transaction Unit	The unit used in the transaction.
5	Customer	The customer of the transaction.
6	Item Fulfillment	The transaction # of the Item Fulfillment.
7	Order #	The order # of the transaction.
8	Order # Record Type	The record type of the order transaction.
9	Lot #	The lot number being tracked.
10	Quantity (Base Unit)	The base unit of the item.
11	Subsidiary	The subsidiary of the item.
12	Location	The location where the item is fulfilled or shipped.
13	Expiration Date	The expiration of the item for the lot number tracked.

Note: These columns /fields are based on the saved search set in Lot Traceability Preference: **Saved Search – Fulfillments**.

Lot Numbered Inventory Item:
If the Lot Number being tracked is an inventory item, its fulfillments will be listed and the followed by the build where the lot number is used and fulfillments of its parent assembly item.

Figure 21 - Sample Result of Fulfillments Tab for Forward Trace

> **Pagination on Fulfillments - Forward Trace Type:**
> Pagination is not available for Fulfillments - Forward Trace Type.

4.3 Export Buttons

There are 2 types of Export buttons on the Lot Traceability page, the Export All and the Export button on each results tab.
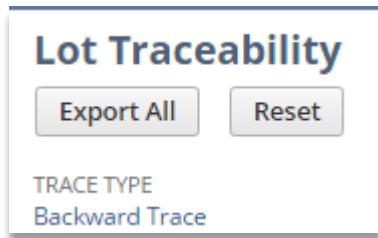
4.3.1 Export All

Figure 22 - Export All Button

This button is visible at the top and bottom part of the Lot Traceability page. Clicking this button will open the Lot Traceability Export page where the recipients set from the Lot Traceability Preference record are present. The page is still open for additional main, CC and BCC recipients.

Recipient (main) is required on this page.

Click the Submit button to trigger the export of search results in ALL the tabs. The email will be sent to the recipients defined before submit.

After the export, click the Close button to close the Lot Traceability Export page.
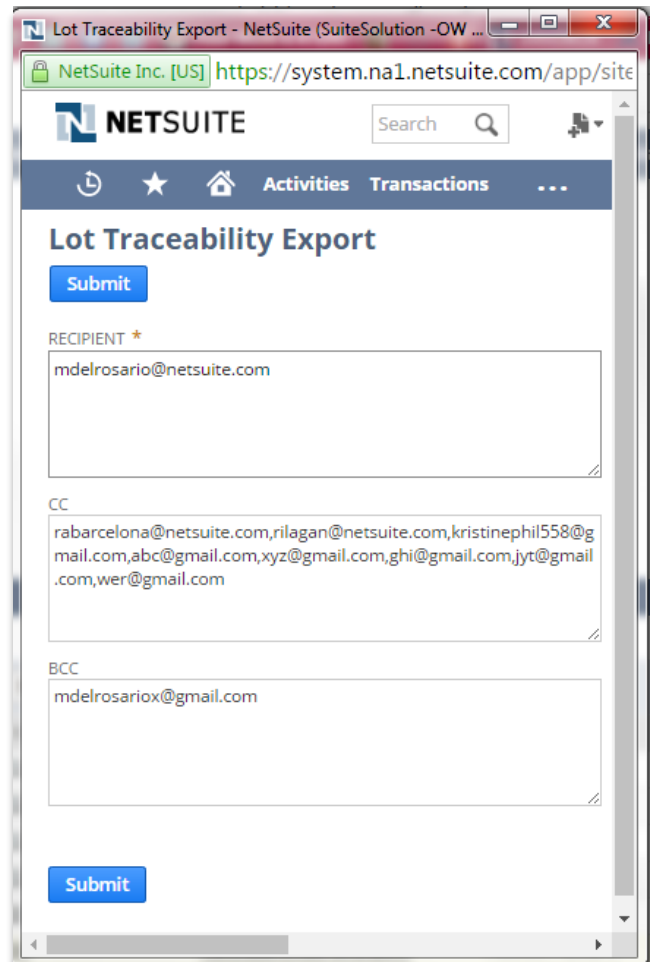
Figure 23 - Lot Traceability Export Page

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4.3.2 Export (per tab)

The Export (per tab) button has the same functionality except that this will only export the result of a specific tab to where the export is triggered.

> Only a maximum of 10 recipients are allowed to be set on the Lot Traceability Export page – for Export All and Export (per tab). This is the sum of the main recipient, CC and BCC.

4.3.3 Emails

Below is an example of an email with CSV attachment sent after triggering the Export button. The email format is based on the email template set in Lot Traceability Preference record.
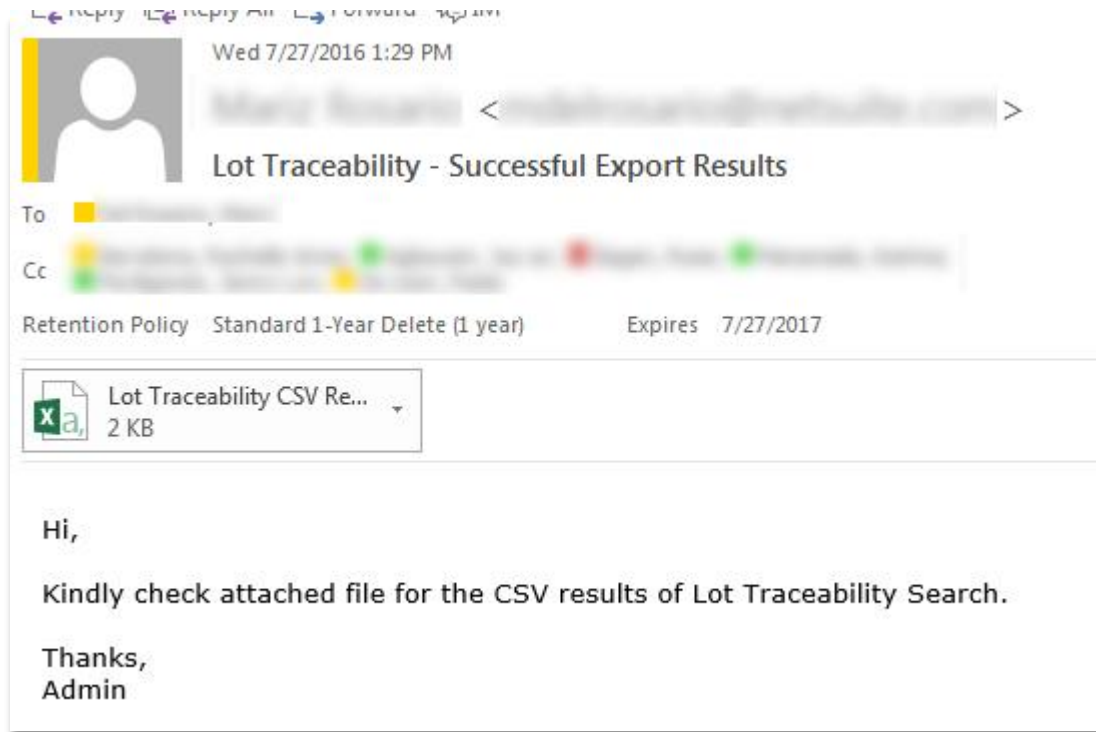
Figure 24 - Sample Export Email Sent

4.4   Reset

Click the Reset button on the Lot Traceability page to clear the search result or any criteria set on the page.

4.5   Other Validations

4.5.1   Navigations/Paginations

Each tab has navigation buttons to navigate to other pages, if applicable. These are First Page, Previous Page, Next Page and Last Page.

4.5.2   Page Identifier

Page **X** of **X** is displayed per results tab. If there are more than results page for the search – based on the Maximum Rows Per Page set in the preference record – the navigation/pagination buttons are enabled. The Page **X** of **X** is updated based on the current page of the result tab. E.g., Page 1 of 3.

4.5.3   Collapse/Expand Button

For tabs with hierarchical view, the collapse/expand button is always displayed regardless if there's a child record/item or not under line with this button.

5   Appendix

5.1   Bundle Components

Listed on this section are the components of the solution such as the custom record, custom fields, saved searches, scripts, etc., that were not mentioned in 3 Setup and Configuration.

Solution Name: SuiteSolutions - Lot Traceability
Solution Version: 1.0

5.1.1   Custom Lists/Records

Lists
- NSTS | LT - Trace Type (2 records)

Records
- Lot Traceability - Preference Record

5.1.2   File Cabinet

Files
- NSTS_LT_CS_ValidateFields.js
- NSTS_LT_CS_ExportPopupValidation.js
- NSTS_LT_CS_Preference_Validation.js
- NSTS_LT_MP_Export.js
- NSTS_LT_SL_ShowExport.js
- NSTS_LT_SL_FilterLotTrace.js
- NSTS_LT_UE_ValidatePreferenceRecord.js

Folders
- Library (320 KB)
- Suitelet (53 KB)
- Images (3 KB)
- Scheduled (9 KB)
- UserEvent (5 KB)
- Client (39 KB)

5.1.3   Saved Searches

Transaction
- Lot Traceability - Procurement Tab
- Lot Traceability - Other Transactions Tab
- Lot Traceability - Fulfillment Tab
- Lot Traceability - Build Tab

5.1.4   Scripts

Client
- NSTS | LT - Validate Filter Lot Trace CS

- NSTS | LT - Show Export Validation CS
- NSTS | LT - Preference Validation CS

Map/Reduce
- NSTS | LT - Export Tabs MP

Suitelet
- NSTS | LT - Filter Lot Trace SL
- NSTS | LT - Show Export SL

User Event
- NSTS | LT - Validate Preference Rec UE

5.1.5 Workflow

Custom Workflows
- Lot Traceability

5.1.6 Roles and Permission

The access for configuring and processing Lot Traceability should be aligned with the standard NS security.

5.2 Performance and Scalability

Below are the indicative results for performance testing for the SuiteSolution on a One World Account with **1** Queue(s). The actual performance would depend on a large number of factors like the Datacenter Premium Tier, SuiteCloud Plus licenses etc.

5.2.1 Backward

1. Load Time After Record Submit
   - It takes approximately 12 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Build** tab.
   - It takes approximately 19 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Procurement** tab.
   - It takes approximately 45 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Fulfillment** tab.
   - It takes approximately 15 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Other Transactions** tab.

2. Load Time After Include Inventory Details Checkbox is Checked or Unchecked
   - It takes approximately 12 seconds to load 1000 Work Orders when Max Rows per Page preference is set to 500 for the **Build** tab for both checked and unchecked Include Inventory Details.

3. Load Time After Initial Row Expansion
   - **Build**
     o Include Inventory Details Checkbox is Checked

- It takes approximately 70 seconds to load 75 components and 75 sub-Work Orders.
    - o Include Inventory Details Checkbox is Unchecked
        - It takes approximately 45 seconds to load 75 sub-Work Orders.
- **Procurement**
    - o It takes approximately 65 seconds to load 75 components and 75 Purchase Orders

4. Load Time after Initial Row Collapse
    - It takes approximately less than a second to collapse previously expanded rows.

5. A maximum of **1000** rows can be exported for Lot Trace results without sub-levels.

5.2.2 Forward

1. Load Time After Record Submit
    - It takes approximately 12 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Build** tab.
    - It takes approximately 19 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Procurement** tab.
    - It takes approximately 12 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Fulfillment** tab.
    - It takes approximately 15 seconds to load 1000 rows when Max Rows per Page preference is set to 500 for **Other Transactions** tab.

2. Load Time After Initial Row Expansion
    - **Build**
        - o It takes approximately 45 seconds to load 75 parent Work Orders.
    - **Fulfillment**
        - o It takes approximately 67 seconds to load 75 parent Work Orders and 75 Item Fulfillments

3. Load Time after Initial Row Collapse
    - It takes approximately less than a second to collapse previously expanded rows.

4. A maximum of **1000** rows can be exported for Lot Trace results without sub-levels.

5.2.3 Export Limitation

Below items are the export limitation for all tabs and trace type.

- The export file cannot be greater than 5MB which is approximately 60,000 rows. In this case, the solution will email the user with "*Code: SSS_FILE_ SIZE_EXCEEDED Details: The file you are trying to load exceeds the maximum allowed file size of megabytes.*".

- There are 10 initial deployments for the export functionality. If all 10 deployments are currently running and another export is initiated, a SuiteScript error will be encountered. The user can add additional deployment to prevent this error.

Notice (SuiteScript)

■{"type":"error.SuiteScriptError","name":"NO_DEPLOYMENTS_AVAILABLE","message":"No available idle Script Deployments available for Script customscript_nsts_lt_bward_export_ss.","stack":
["createError(N/error)","showEmailPopUp(SuiteBundles/Bundle 124143/Suitelet/NSTS_LT_SL_ShowExport.js:92)"],"cause":{"type":"internal
error","code":"NO_DEPLOYMENTS_AVAILABLE","details":"No available idle Script Deployments available for Script customscript_nsts_lt_bward_export_ss.","userEvent":null,"stackTrace":
["createError(N/error)","showEmailPopUp(SuiteBundles/Bundle 124143/Suitelet/NSTS_LT_SL_ShowExport.js:92)"]},"id":""}

- If the account is installed with SuiteCloud Plus license with at least 5 available queues), the export deployments can be configured to use different queues for a more streamlined performance.

> - Export emails may be delayed when scheduled scripts or CSV Imports are running.
> - User may experience long loading time if search is triggered for the first time.
> - When row expansion is taking too long, some tabs may lock-up. When this happens, wait for the process to complete.

5.3 Limitations and Assumptions

Listed are assumptions made about functionality in standard NetSuite as well as limitations of the solution.

Limitations

1. When using Internet Explorer, the following steps must be done in order to open the Lot Traceability Export when clicking the Export button on the results tabs:
   a. Settings> Internet Explorer> General.
   b. Click on Tabs
   c. Under When a pop-up is encountered, select either Always open pop-ups in a new window or in a new tab.

Assumptions

1. All transactions that interact with the lot will need to be displayed and permit further drilldown.
2. All types of Work Order Completions will be included (Issue Components, Enter WO Completion, Build Assembly and WO Build).
3. Any movement of inventory needs to be included: Adjustments, Bin Transfers, Transfer Orders, Transfers, Inventory Transfers, Inventory Distribution, Inventory Worksheets, Bin Putaway Worksheets, RMA Returns and Vendor Returns.
4. The header will be the same for every tab.
5. All transactions permit further drill down.
6. Lot traceability inquiry results can be exported as csv file.