



Advanced Manufacturing Administrator Guide

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Setting Up Advanced Manufacturing

The NetSuite Advanced Manufacturing SuiteApp extends NetSuite manufacturing routing. It provides shop floor and project control, multi-site facility management, and finite capacity planning. It also provides lot and serial control, bill of materials, and improved data collection. You can further refine your manufacturing process by accounting for downtime and loss, adding labor codes, and defining locations. You can also capture shop floor data on your company's mobile devices.

To set up Advanced Manufacturing, you must have a NetSuite account with the Advanced Manufacturing SuiteApp installed. This post-implementation reference guide is intended for administrators. It describes the core manufacturing and advanced manufacturing features that must be configured, in conjunction with NetSuite Professional Services.

You can use Conventional Work Orders with the Advanced Manufacturing tablet interface. Conventional Work Orders do not use Work in Process or NetSuite Routings.

See the following topics to set up your Advanced Manufacturing SuiteApp with your NetSuite account:

- Configuring Advanced Manufacturing Prerequisites
- Defining Administration Settings
- Mobile Devices
- Configuring Assemblies and Routings
- Creating Advanced Manufacturing Records
- Advanced Manufacturing Administration Glossary



Configuring Advanced Manufacturing Prerequisites

Your NetSuite Professional Services Consultant works with your administrator to set up and configure the Advanced Manufacturing SuiteApp to leverage important NetSuite data.

For information on how to enable prerequisite features and preferences, see the following:

- Advanced Manufacturing Best Practices
- Enabling Prerequisite Features and Setting Accounting Preferences
- Prerequisite Records
- Configuring CSV File Uploads For Advanced Manufacturing

Advanced Manufacturing Best Practices

To take full advantage of the Advanced Manufacturing SuiteApp, you should follow the suggested best practices.

The following sections highlight best practices for specific features:

- Adding Bins to the Advanced Manufacturing Traveler
- Advanced Bills of Materials
- Advanced Manufacturing Work Center
- Advanced Manufacturing Scheduling
- Advanced Manufacturing Tablet
- Backward Scheduling
- Bills of Materials
- Issuing Lots and Serial items
- Work Orders

Adding Bins to the Advanced Manufacturing Traveler

You cannot add the bin field (inventory detail) to an Advanced Manufacturing traveler. To achieve this, by customizing these templates, you would need to be experienced in XML. Contact your NetSuite Professional Services representative for more information.

For more information, see the help topic Working With Shop Floor Travelers.

Advanced Bills of Materials

When Advanced Bill of Materials is enabled and you want to use Component Yield for an assembly BOM record, check the Use Component Yield box.

To set the Use Component Field preference, in the Bill of Materials page, check the Use Component Field box. To learn more, see the help topic Setting the Use Component Yield Preference.



Advanced Employee Permissions

To access Advanced Manufacturing, you must have at least View permission to an employee record. To learn more, see the help topic Advanced Employee Permissions Overview.

Advanced Manufacturing Work Center

The Advanced Manufacturing Work Center and NetSuite Work Center should have same name because there must be a 1-to-1 mapping between work centers. Both work centers should either be Active or inactive.

To learn more, see Creating an Advanced Manufacturing Work Center.

Advanced Manufacturing Scheduling

Advanced Manufacturing does not support scheduling of non-WIP work orders and WIP-enabled nonrouting.

To learn more, see the help topic Scheduling Production.

Advanced Manufacturing Tablet

- The Advanced Manufacturing tablet depends on libraries such as, bootstrap.css and font-awesome.css from the maxcdn domain.
 - If you block maxcdn url's from ISP, the Tablet Work Queue Page will appear distorted due to absence of required css.
- Limitation The Advanced Manufacturing tablet displays only up to 45 operations. When a work order WO is saved, the AM Schedule Work Order Main UE script will time out after 45 operations.

To learn more, see the help topic Entering Tablet Data.

Backward Scheduling

- Limitation Operation Sequence Dates in NetSuite and Advanced Manufacturing do not match. Work order production start and end dates are based on the NetSuite operation sequence dates.
- Optimal Practice Operation Sequence dates should be based on the Advanced Manufacturing operation sequence dates.
- Backward Scheduling does not work for concurrent batching. Only Forward Scheduling supports concurrent batching

To learn more, see the help topic Backward Scheduling

Bills of Materials

Inactive Items in BOMs

When an item is marked inactive it should be removed from the BOM Revision record before you create new work order. Currently there is no way to automatically detect inactive items in BOM revisions.



Issued Step and Auto-Issue Columns not Populated

When you enable or change a BOM Revision on a work order, then Issued Step and Auto-Issue columns are not populated. The Issue Steps fields are only updated when you create a work order, not when editing an existing work order.

Update the BOM Revisions of Assembly Items

To learn how to Update the BOM Revisions of an Assembly Item, see SuiteAnswer 68632, Advanced Manufacturing Auto-Issue Setup When Advanced BOM is Enabled.

Issuing Lots and Serial items

The Advance Manufacturing SuiteApp does not support automatically issuing Lot and Serial items.

Work Orders

Planned Status Work Orders

Work orders in Planned state do not support full scheduling (or end to end scheduling) even when Auto-Scheduling is enabled. A work order supports full scheduling when it is Released state.

Work Order Missing in the Generated AM Traveler

- Limitation By default, the script yield limit is 100 which is less if you are bulk printing.
- Optimal Practice To avoid the "SSS USAGE LIMIT EXCEEDED" error message during traveler generation, increase the yield limit to 500.
- To do this, go to the script deployment record (customdeploy_igity_template_traveler1) and set the Yield at (Units) field to 500.

Enabling Prerequisite Features and Setting Accounting Preferences

After the prerequisite features are enabled and accounting preferences set, do not modify the features and preferences state.

To enable prerequisite features and set accounting preferences:

- 1. And administrator must go to Setup > Company > Enable Features.
- 2. On the **Company** subtab, check the following boxes:
 - Locations
 - Projects
 - Project Management
 - Multiple Units of Measure
 - Inline Editing



- File Cabinet
- 3. On the **Accounting** subtab, check the following boxes:
 - Accounting
 - A/R
 - A/P
- 4. On the **Transactions** subtab, check the following boxes:
 - Sales Orders
 - Purchase Orders
 - Advanced Shipping
 - Pick, Pack and Ship
 - Shipping Label Integration
 - Advanced Receiving
- 5. On the **Items & Inventory** subtab, check the following boxes:
 - Bar Coding and Item Labels
 - Inventory
 - Assembly Items
 - Work Orders
 - Serialized Inventory
 - Lot Tracking
 - Bin Management
 - Advanced Bin/Numbered Inventory Management
 - Demand Planning
 - Manufacturing Work in Process
 - Manufacturing Routing and Work Center
- 6. On the CRM subtab, check the Sales Force Automation box.
- 7. On the **SuiteCloud** subtab, check the following boxes:
 - Item Options
 - Custom Records
 - Client SuiteScript
 - Server SuiteScript
 - SuiteSignOn
- 8. Click Save.
- 9. Go to Setup > Accounting > Accounting Preferences.
- 10. Click the **Order Management** subtab.
- 11. Under the Work Orders section, choose one of the following in the Default Work Status field:
 - Firm Planned Firm orders cannot be rescheduled.
 - Open Planned Open orders can be rescheduled.
 - Released Any work order in a Firm Planned state must be set to Released state to commit items to it.
- 12. In the Check Completed Quantity in Prior Operations During Operation Completion field, choose one of the following:



- **No Verification** Choose this option to not receive verification warnings.
- **Require Confirmation before Saving** Choose this option to receive verification warnings. The completed quantity can be greater than the previous completed quantity after the warning is acknowledged.
- Do Not Allow Saving Choose this option to require that the completed quantity is not greater than the previous completed quantity.
- 13. In the **Default Scheduling Method** field, choose the default method set on work orders created manually and by automated supply planning.
- 14. Click Save.

Prerequisite Records

After the prerequisite features are enabled and accounting preferences set, configure the following records to work with Advanced Manufacturing records:

- Locations
- Bins
- Routings
- Manufacturing Cost Templates

Some Advanced Manufacturing records require a reference record to draw data from. For example, an Advanced Manufacturing location must refer to a NetSuite plant or warehouse location record that has the same name.

Locations

Location records isolate transaction information for individual manufacturing plants and warehouses. Advanced Manufacturing extends location information to provide added detail about the organization. For example, departments, work centers, and assets.

Each advanced manufacturing location record must have a matching NetSuite location record with the same name.

Before creating an advanced manufacturing location, you must create a manufacturing location. For more information, see the help topic Creating Locations.

Bins

Bins enable manufacturers to track inventory within their plants or warehouses. You must create at least two bins for each Advanced Manufacturing location. Any items consumed or produced from work orders must be set up to use bins.

For more information, see the help topics Creating Bin Records and Setting Up Item Records for Bins.

Routings

Routing and work center records let you schedule and record manufacturing activities for work orders that require multiple teams of employees or work centers. For example, Advanced Manufacturing records such as location, work bench, work order completions, and cost templates rely on NetSuite routing data.



For more information, see the help topic Manufacturing Routing.

Manufacturing Cost Templates

The Advanced Manufacturing SuiteApp uses conventional work orders, but does no cost calculations. The data collected is interpreted based on the location specific work order completion settings. This creates conventional NetSuite transactions which then use cost templates to calculate assembly costs.

A manufacturing cost template is a list of rates that can be associated with completing a specific operation. The template defines the activities that occur and related costs to be recorded each time this step is completed.

- 1. Advanced Manufacturing gathers the following data:
 - Creating Downtime Categories and Reasons
 - Creating Material Loss Categories and Reasons
 - Creating Labor Codes
- 2. The following manufacturing features then interpret the data:
 - Manufacturing Routing Costing
 - Routing Work Order Completions
 - Manufacturing Cost Templates

Configuring CSV File Uploads For Advanced Manufacturing

The NetSuite implementation team provides a Microsoft Excel workbook that works with the CSV Import Assistant to configure your Advanced Manufacturing SuiteApp. The workbook references items by name and number fields.

Align CSV file uploads with Advanced Manufacturing preferences to ensure the CSV uploads are interpreted correctly. This preference can be set temporarily during the CSV data import process and then reset.

To configure CSV file uploads to Advanced Manufacturing preferences:

- 1. Go to Setup > Company > General Preferences.
- 2. To upload item data using CSV import, clear the **Show Display Name with Item Codes** box.
- 3. Click Save.

For more information about uploading content to NetSuite using CSV import, see the help topic CSV Imports.

To access the Advanced Manufacturing CSV templates, contact NetSuite Professional Services.



Defining Administration Settings

After prerequisite features and preferences are enabled, in Advanced Manufacturing SuiteApp Administration Settings, define how your employees interact with Advanced Manufacturing.

To set up the Advanced Manufacturing SuiteApp, configure the following:

- Creating Advanced Manufacturing Administration Records
- Adding Work Order Management Images
- Configuring Work Order Completion Settings
- Assigning Work Center Assets to Work Bench Records in Mass
- Enabling Work Bench Validation
- Setting Language Preferences
- Mobile Devices
- Setting Up Conventional Work Orders

Creating Advanced Manufacturing Administration Records

The Advanced Manufacturing Administration page lets you track items using lots or serial numbers. You can also move items between bins, enable subsidiaries, or display units of measure. Identifiable icons let you track work orders through the entire manufacturing process.

Advanced Manufacturing Administration Records 2

To create an administration record:

- 1. Go to Advanced Manufacturing > Administration/Setup > Admin > New.
- 2. Enter your **NetSuite Account** number.

To locate your NetSuite Account number, go to Setup > Company > Company Information. The account ID field is located near the bottom of the right column.

- 3. Check the following applicable boxes:
 - Lot Control Enabled Use lot numbers to track items through the manufacturing process.
 - Serialization Enabled Use serial numbers to track items through the manufacturing process.
 - **Bins Enabled** Use bins for assembly and inventory items.
 - **Subsidiary Enabled** If you use OneWorld, enable subsidiary data management.
 - Units Enabled Display the unit of measure from the bill of materials on the NetSuite travelers BOM.
- 4. In the Work Order Management Images pane, select icons to identify states in the manufacturing process.
 - For more information on how to select icons, see Adding Work Order Management Images.
- 5. In the **Scanner Shipping Status** list, select the item fulfillment status.
 - For more information, see the help topic Pick, Pack, and Ship with Transfer Orders.
- 6. If the NetSuite Warehouse Management System (WMS) Advanced SuiteApp is installed in your NetSuite account, check the WMS Installed box.



7. Click Save.

Adding Work Order Management Images

The following table displays the work order management images setup as recommended by your NetSuite Professional Services Consultant.

To add work order management images:

1. To access the images, go to Advanced Manufacturing > Documentation > File Folders. Alternatively, in the File Cabinet, go to Suite Bundles > Bundle (bundle number) > src > Images.

Field	Name	Ico ns	Description
Planned Status Icon	red_dot.png		Order information is incomplete and the order cannot be fulfilled.
Planned Firmed Status Icon	red_dot.png		Order information is complete and accurate, but the order is not in the production schedule.
Release Status Icon	blue_dot.png		Order is released to the plant for assembly and packaging.
In Process Status Icon	yellow_dot.png	<u></u>	Order is being built or assembled.
Completed Status Icon	green_dot.png		Order has finished processing and is ready for packaging and shipping.
Closed Status Icon	green_dot.png		Order has shipped.
On Hold Status Icon	red_dot.png		Order has been entered but cannot be scheduled until an issue is resolved.
Yellow Warning Icon	Info.png	1	Warns that capacity is near or exceeds 85%.
In Process Icon	jobActive.png	©	Alerts that production results have been collected and the work order operation is in process.
Red Warning Icon	InfoRed.png	A	Warns that the work order process is over capacity.
Calendar Icon	dateChooser.png		Calendar icon.

2. Click the icon you want to use.

A browser window opens.

- 3. Copy the URL from the browser window navigation bar.
- 4. Paste the URL into the corresponding Work Order Images Management field. For more information, see step 6 in the Creating Advanced Manufacturing Administration Records procedure.
- 5. Repeat steps 2 and 3 for all the icon fields you need to define.



Configuring Work Order Completion Settings

Work order completion settings let you adjust how the Advanced Manufacturing SuiteApp interprets shop floor data when creating manufacturing transactions.

Advanced Manufacturing can automate transactions for both work order issuance (auto-issue) and work order completions (auto-complete).

Advanced Manufacturing Administration Settings

To configure auto-issue and auto-completions for a location:

- 1. Go to Advanced Manufacturing > Administration/Setup > Location Setup.
- 2. Beside the location you are working in, click **Edit**.
- 3. Click the Work Order Completions subtab.
 - a. To use work completion settings for assembly items, check the Allow Assembly Override box.
 - b. To initiate work order completions when data is entered for the routing's last operation, check the **Process Only Last Operation** box.
 - All intermediate operations will be completed and automatically issued one time for all operations following conventional backflush standards.
 - c. In the **Issuance Timing** field, select one of the following options:
 - Issue Before Completion Run the material transaction before the completion transaction. Material costs are moved to WIP accounts and accumulated into the assembly cost.
 - No costs will remain in the WIP account when the work order is closed.
 - Be careful when staging automatically issued materials. Problems will delay the order assembly generation process.
 - Issue After Completion Run the completion transaction after the material issue transaction.

This ensures that automatically issued assembly items are created regardless of whether errors are encountered. If costs remain in the WIP account they must be handled during

Issuance timing helps organizations avoid delays in assembly item inventory availability. This ensures that automatically issued materials are properly staged.

Skip Component is the only **Controlled BOM Issuance** option.

- d. In the **Uncontrolled BOM Issuance** field, select one of the following options:
 - Do Not Issue Do not backflush material.
 - Issue Standard Qty Backflush the full quantity and ignore component period settings.
 - Issue Yield Adjusted Qty Issue the yield adjusted BOM quantity.

Using backflush means that the components consumed for production are accounted for at the time of confirmation. Component consumption is based on the proportion designated on the original work order and the build quantity.

For example, Wolfe Manufacturing assembles a mountain bike. Components such as wheels are consumed and issued to the production order automatically by backflushing the system.

To determine which bins will be used for material issuance transactions, select one of the following options in the Bin Lookup Method field:



- Location Bins Use one bin at the material issued location and one bin at the completion location.
- **Work Center Bins** Use staging bins near the work center.
- f. If you selected **Location Bins** as your bin lookup method, in the **Issue From Bin** list, select a bin to stage material.
 - In the **Complete to Bin** list, select a bin to receive production materials.
- g. To automatically examine each component's issue step and auto-issue setting, check the Explicit Auto Issue box.
 - Clear this box to examine the issue step to determine which components to issue.
- 4. To track scrap, select **Scrap Records** from the **Scrap Source** list.
 - a. To choose whether components should be issued when an operation reports scrap, select a **Scrap Issuance** option:
 - **Do Not Issue for Scrap** Do not issue BOM materials for reported scrap.
 - **Issue for Scrap** Issue BOM raw material quantities for reported scrap and post the materials costs against the work order.
 - b. In the **Scrap Handling** field, select one of the following methods:
 - **Do Not Post** Only record scrap for continuous improvement initiatives.
 - **Post As Scrap** Record scrap in the NetSuite completion transaction.
 - Post As Built and Move Record scrap as built in the NetSuite completion transaction and then move the assembly to the designated scrap bin.
 - c. If you selected **Post as Built and Move** as your scrap handling method, select a **Location Scrap Bin**. This is where scrapped assemblies will be stored.
- 5. Select a **Labor Resource Method** from the list:
 - Default Use the NetSuite routing resource count.
 - Override Specify a resource count.
 - a. If you selected **Override** as your labor resource method, enter a **Labor Resource Override** amount. This number must be less than the NetSuite labor value.
 - The NetSuite labor value is set to the work order definition which can then be seen on any routing that uses that work center. It also appears on the WO completion transaction, where the value can be changed.
 - b. To determine how Advanced Manufacturing reports work order completion labor setup time, select a Labor Setup Method:
 - **Default** Use NetSuite routing setup time and standard cost.
 - **Override** Specify a fixed setup time associated with labor activities and costs.
 - Use Downtime Records Track time against the selected labor setup downtime category.
 - Use Labor Records Track time against the selected labor setup labor code category.
 - c. If you selected **Override** as your labor setup method, enter a **Labor Setup Override** (mins)
 - For example, to set the labour setup override time to five minutes, enter 5.
 - d. If you selected **Use Downtime Records** as your labor setup method, select a **Labor Setup** Downtime Category from the list.
 - e. If you selected **Use Labor Records** as your labor setup method, select a **Labor Setup Labor** Code from the list.



f. Select a Labor Run Method:

- Default Use NetSuite routing setup time and standard cost.
- Override Specify a fixed setup time associated with labor activities and costs.
- Use Result Records Use production time (start and stop) to record labor against the work order.
- Use Labor Records Record actual hours against the work order.
- g. If you selected **Override** as your labor run method, enter a **Labor Run Override** time.

For example, to set the labour run override time to five minutes, enter 5.

- 6. Select a **Machine Resource Method** from the list:
 - **Default** Use the NetSuite routing machine count.
 - Override Specify a resource count associated with machine activities and costs.
 - a. If you selected **Override** as your machine resource method, enter a **Machine Resource Override**. This number must be less than the NetSuite machine value.
 - b. To determine how Advanced Manufacturing reports machine setup time during work order completions, select a Machine Setup Method.
 - Default Use NetSuite routing setup time and standard cost.
 - Override Specify a fixed setup time associated with machine activities and costs.
 - Use Downtime Records Track time against the selected Machine Setup Downtime category.
 - Use Labor Records Track time against the selected Machine Setup Labor Code category.
 - c. If you selected **Override** as your machine setup method, enter a **Machine Setup Override** (mins) time.

For example, to set the machine setup override time to five minutes, enter 5.

d. If you selected **Use Downtime Records** as your machine setup method, select a **Machine Setup Downtime Category** from the list.

All time associated with the a WO operation downtime category will be totaled and entered on the completion as the machine setup time.

e. If you selected **Use Labor Records** as your machine setup method, select a **Labor Setup Labor Code** from the list.

All time associated with the selected WO operation labor code will be totaled and entered on the completion as the machine setup time.

- f. Select a Machine Run Method.
 - **Default** Use NetSuite routing setup time and standard cost.
 - **Override** Specify a fixed run time.
 - User Result Records Use production time (start and stop) against the work order to record labor.

The duration on all WO operation result records will be totaled to determine the total machine run time entered on the completion.

g. If you selected Override as your machine run method, enter a Machine Run Override (mins) time.

For example, to set the machine run override time to five minutes, enter 5.

7. Click Save.



Assigning Work Center Assets to Work Bench Records in Mass

After work bench records are created, you must associate them with one or more assets from the affiliated work center. Use the mass update functionality to assign all of your work center assets to a set of work bench records. For more information, see the help topic Mass Changes or Updates.

To assign work center assets to a set of work bench records:

- 1. Go to Lists > Mass Update > Mass Updates.
- 2. Expand Custom Updates.
- Click AM Workbench Asset Mass Update.
- 4. Enter a **Title of Action**.
- 5. On the Criteria subtab in the **Filter** list, select **Assembly Item**.
- 6. On the **Mass Update** popup window, select the items you want to update.
- 7. Click **Set** and then click **Save**.

Enabling Work Bench Validation

During the work order creation process, the Advanced Manufacturing SuiteApp searches for work bench records that are associated with the selected routing. Missing work bench records could cause some Advanced Manufacturing features to malfunction or fail.

The following procedure describes how to enable Advanced Manufacturing to automatically create missing work bench records that use manufacturing routing information.

For more information, see the help topic Creating a Manufacturing Routing.

To enable work bench validation:

- 1. Go to Customization > Scripting > Scripts.
- 2. Beside AM Validate Work Bench Records, click **Edit**.
- 3. Click the **Deployments** subtab.
- Click AM Validate Work Bench Records.
- 5. Click Edit.
- 6. Clear the **Deployed** box.
- 7. Click Save.

Setting Language Preferences

NetSuite supports multiple languages which enables you to display Advanced Manufacturing in your preferred language.

To enable multiple languages:

1. An administrator must go to Setup > Company > Setup Tasks > Enable Features.



- 2. On the **Company** subtab, in the **International** pane, check the **Multi-Language** box.
- 3. Click Save.

To select your language preference:

- 1. From your NetSuite dashboard, go to Home > Set Preferences.
- 2. On the **General** subtab, in the **Localization** section, select a **Language**.
- 3. (Optional) Select a Language of the Help Center.

Note: To correctly display time for Turkish (Türkçe) in the Advanced Manufacturing tablet, in the Formatting section set the **Time Format** to hh:mm (24 hours).

4. Click Save.

This preference does not affect others with access to your account. For the best results when viewing translated NetSuite pages, set your browser to view UTF-8 encoded pages.

In Firefox, go to Tools > Options. IN the General options, click Languages. In the Default Character Encoding field, select Unicode (UTF-8).

For more information, see the help topic Choosing a Language for Your NetSuite User Interface

Mobile Devices

Employees assigned administrator or Data Scanner roles can log in to the Advanced Manufacturing SuiteApp from a tablet or scanner. However, effective NetSuite 2021.1, the advanced manufacturing scanner is discontinued. Existing installations can continue to use the scanner without any change in functionality.

For more information, see Tablets, Scanners, and Enabling LPN Action.

Tablets

Before you can use a tablet, you must create a tablet data collection configuration record and set up a tablet data role.

The tablet data collection configuration establishes the content, order, and sorting for each column in the tablet work queue table. This section describes the fields and default values that enable the tablet to function in its standard configuration.

For more information, see Creating a Tablet Data Configuration Record and Assigning a Tablet Role to an Employee.

Tablet Requirements

- At least 256 MB flash memory
- Android 4.1 or higher
- 1D barcode scanner
- 4 inch or larger touch screen
- 802.11a/b/g enabled
- Bluetooth enabled



- HTML 5 and Javascript enabled browser (TLS 1.2 compliant)
- Interactive Sensor Technology (IST)
- (Optional) Ruggedized or semi-ruggedized

Creating a Tablet Data Configuration Record

Use the following procedure to create a tablet data collection configuration record.

To create a tablet data collection configuration record:

- 1. Go to Advanced Manufacturing > Administration/Setup > Tablet Data Collection Configuration >
- 2. Enter a **Name** that describes the tablet setup or location. For example, Kitchener.
- 3. Select the **Location** where these settings are valid.
 - Each location may require different tablet settings.
- 4. In the **Saved Search** field, enter **customsearchigitydefaultoperations**. This internal ID displays entries in the work queue.

You can use this search to display additional columns in the work queue. The internal ID entered in this field must be associated to a search against transaction records and be filtered to only display work orders.

5. In the Work Order Field, enter tranid.

This work order number internal ID should only change if the saved search (step 4) is not based on work order transaction records.

6. In the **Operation Field**, enter **sequence**.

This operation sequence number internal ID should only change if the saved search (step 4) is not based on work order transaction records.

7. In the Work Center Field, enter manufacturingworkcenter.

This work center internal ID should only change if the saved search (step 4) is not based upon work order transaction records.

- 8. In the **Date Field**, enter the work order planned start date internal ID.
- 9. (Optional) In the **Date Field Join** field, enter **manufacturingoperationtask**. This is the joined record internal ID that contains the start date field.
- In the Quantity Field, enter quantity.

This work order quantity internal ID should only change if the saved search (step 4) is not based upon work order transaction records.

11. In the Field Type Map field, enter the following comma separated string. <Internal ID>:<type> entries where <Internal ID> matches the ID fields in steps 5 to 10 and includes the word item. Type represents one of three values: string, number, or date. Enclose the list in curly braces as shown in the default next.

By default, enter {"trandate":"date", "tranid":"string", "sequence":"string", "manufacturingworkcenter": "string", "item": "string", "quanity": "number", "built": "number"}.

- 12. To display a logo in the upper left corner of the tablet interface, do the following. In the Logo Url field, enter the image file URL from the file cabinet.
- 13. To display labor codes associated with the skill codes (assigned to each operation's associated work bench record), check the Filter Labor Code By Operation box.
- 14. Click Save.



Assigning a Tablet Role to an Employee

Use the following procedure to assign a tablet role to an employee.

To assign a tablet role to an employee:

- 1. Go to Lists > Employees > Employees.
- 2. Click **Edit** beside the employee using the tablet.
- 3. In the **Classification** section, select the **Location** where the employee will be using the tablet. The Location must match the AM Tablet Settings location.
- 4. Click the **Access** subtab.
- Check the Give Access box
- 6. On the **Roles** subtab, select **Data Scanner** from the **Role** list.
- 7. Click Add.
- 8. Click Save.

For more information about changing tablet date and language settings, see the help topic Setting General Account Preferences.

Enabling Express Production

A company can use Express Production to let two or more employees share a scanner, and record each employee's run time separately. The employee badge number must be recorded in the employee record in NetSuite. Express Production is not enabled by default.

To enable express production

- 1. Go to Advanced Manufacturing > Administration/Setup > Scanner Feature Configuration > New.
- 2. Select a **Custom Form** from the list.
- 3. Enter a **Express Production** as the scanner **Name**.
- 4. Check the **Is Enabled** box.
- 5. If you do not want this BOM to show in search lists on records and forms, check the **Inactive** box. If you want this BOM to show in lists, clear this box.
- 6. Click Save.

Scanners

Employees using scanners must have an active NetSuite email address and password recorded in their employee record. The employee using the scanner must be assigned an administrator or Data Scanner role.



Important: Effective NetSuite 2021.1, the advanced manufacturing scanner is discontinued and NetSuite will not accept new account provisions or installations.

Existing installations can continue to use the scanner without any change in functionality.

RF Scanner Requirements

RF mobile devices are used to post real-time inventory and manufacturing updates to your NetSuite account.



Your RF mobile devices should include the following:

- 256 MB flash memory or higher
- Android 4.1 or higher
- 1D barcode scanner
- 4 inch or larger touch screen
- 802.11a/b/g enabled
- Bluetooth enabled
- HTML 5 and JavaScript enabled browser (TLS 1.2 compliant)
- Interactive Sensor Technology (IST)
- (Optional) Ruggedized or semi-ruggedized

To configure your NetSuite account to use a scanner, you must first:

- Set up the scanner URL See Setting Up the Scanner URL
- Set up employees for scanners See Setting Up Employees for Scanners
- Configure a scanner feature See Configuring a Scanner Feature
- Assign an employee data scanner access See Assigning an Employee Data Scanner Access



Note: Contact your account representative for assistance with deploying additional scanner features.

Setting Up the Scanner URL

Use the following procedure to set up the scanner URL.

To set up the scanner URL:

- 1. Go to Customization > Scripting > Scripts.
- 2. If necessary, click the + icon to expand the **Filters** pane.
- 3. In the **Type** list, select **Suitelet**.
- 4. In the Scripts list, beside AM Scanner Login, click View.
- 5. Click the **Deployments** subtab.
- 6. Click Scanner Login.
- 7. On the Script Deployment page, copy the **External URL** link.
- 8. Enter the URL address into your scanner's browser.
- 9. Log in to the NetSuite Scanner page.

Setting Up Employees for Scanners

Use the following procedure to set up employees for scanners.

To set up employees for scanners:

1. Go to Lists > Employees > Employees.



- 2. Click **Edit** beside the employee using the scanner.
- 3. Click the **Advanced Manufacturing** subtab.
- 4. (Optional) Enter the employee ID number in the **Badge Number** field. The badge number displays in the **Employee** field on the scanner.
- 5. Click the **Access** subtab.
- 6. Check the **Give Access** box.
- 7. On the Roles subtab.
- 8. Select **Data Scanner** from the **Role** list.
- 9. Click **Add** and then click **Save**.

Configuring a Scanner Feature

Use the following procedure to configure a scanner feature.

To configure a scanner feature:

- 1. Go to Advanced Manufacturing > Administration/Setup > Scanner Feature Configuration > New.
- 2. Select a **Custom Form** from the list.
- 3. Enter a scanner Name.
- 4. Enter a **Description** of this scanner.
- 5. If you do not want this BOM to show in search lists on records and forms, check the **Inactive** box. If you want this BOM to show in lists, clear this box.
- 6. Check the **Is Enabled** box.
- 7. (Optional) In the **Data** field, enter configuration data as a JSON object.
- 8. Click Save.

Assigning an Employee Data Scanner Access

Use the following procedure to assign an employee data scanner access.



Important: If you relied on a default role in previous releases, you must specify that role as your default role again in 2021.1. You must specify that role as your default role separately in each account where you use that role.

To assign an employee data scanner access:

1. Locate your name and role at the upper right of any NetSuite page.



- Hover to open the Change Roles list, and select View My Roles from the list, or
- Click to open the My Roles page.
- 2. On the My Roles page, the roles in your current account are shown in the upper section of the page. Select the Data Scanner role.





(i) Note: If the Data Scanner role is not present in this account, select the appropriate account from the Or switch to another account section. Then, select the Data Scanner role.

For more information, see the help topic Roles and Accounts.

3. On the right side of the page, click **More**:, and select **Make Default**.



The default role preference automatically saves.

Enabling LPN Action

LPN Action (License Plate Number) lets companies create production records for lot controlled items, move items from bin to bin, and merge multiple LPNs. LPN Action is not enabled by default.

To enable LPN action:

- 1. Go to Advanced Manufacturing > Administration/Setup > Scanner Feature Configuration.
- 2. Select a **Custom Form** from the list.
- 3. Enter a **LPN** as the scanner **Name**.
- 4. Check the **Is Enabled** box.
- 5. If you do not want this BOM to show in search lists on records and forms, check the **Inactive** box. If you want this BOM to show in lists, clear this box.
- 6. Click Save.

Setting Up Conventional Work Orders

NetSuite lets you use Conventional Work Orders with the Advanced Manufacturing tablet interface. Conventional Work Orders do not use Work in Process or NetSuite Routings.

To set up conventional work orders, an administrator must enable pre-requisite features. Then, you must set up your tablet, a work center, and then associate a work order with a work center.



Important: Before you create a conventional work order, create NetSuite Work Center and an Advanced Manufacturing Work Center.

For more information, see the help topic Creating Manufacturing Work Centers or Groups.

To set up conventional work orders:

- 1. To enable prerequisite features, an administrator must go to Setup > Company > Enable Features and complete the following steps.
 - a. On the **Company** subtab, check the **Locations** box.



- b. Click the **Items & Inventory** subtab, and then check the **Manufacturing Routing and** Work Center box.
 - Conventional work orders do not use routings, but are associated to work centers through new fields on the record.
- c. (Optional) Check the **Bin Management** box.
- d. Click Save.
- 2. To set up conventional work orders to work with your tablet configuration, complete the following steps.
 - a. Go to Advanced Manufacturing > Administration/Setup > Tablet Data Collection Configuration. For more information, see Mobile Devices
 - b. Beside your tablet set up, click **Edit**.
 - The AM Tablet Settings form displays your tablet configuration.
 - c. To enable the tablet to use conventional (non-routing) work orders, check the **Show** Conventional Work Orders box.
 - d. In the Conventional Work Orders Date Field, enter the field you want to display in the tablet work queue. For example, startdate or finishdate.
 - e. Click Save.
- 3. To set up work orders to use with conventional work orders, go to Lists > Relationships > Groups and then complete the following steps.
 - a. Select the work center group you want to use conventional work orders with. For more information, see the help topic Creating Manufacturing Work Centers or Groups
 - b. In the **Advanced Manufacturing** subtab, select the **Location** where you want to use Conventional Work Orders. This restricts conventional work order use to the selected location.
 - c. (Optional) Select an **Issue Bin** to identify the bin providing components.
 - d. (Optional) Select the **Assembly Bin** to identify the bin receiving the finished goods.
 - e. Click Save.
- 4. To associate a work order to a work center, go to Transactions > Manufacturing > Enter Work Orders and complete the following steps.
 - a. Complete the Work Order form. For more information, see the help topic Entering an Individual Work Order
 - b. Select the **AM Work Center** to associate with this work order.
 - c. Click Save.



Configuring Assemblies and Routings

A manufacturing routing is a list of steps required to build an assembly item. Advanced Manufacturing refers to NetSuite routings to determine the work center, cost template, labor resources, and machine resources required in the manufacturing process. Routings are unique for each assembly item, and can be shared across multiple locations.

Configuring Assemblies and Routings

You must create the following links between NetSuite routings and Advanced Manufacturing:

- Creating an Advanced Manufacturing Location
- Creating an Advanced Manufacturing Work Center
- Creating Manufacturing Work Benches

Creating an Advanced Manufacturing Location

Each advanced manufacturing location record must have a matching NetSuite location record with the same name.

Before creating an advanced manufacturing location, you must create a manufacturing location that the advanced manufacturing location can refer to. For more information, see the help topic Creating Locations.

To create an advanced manufacturing location:

- 1. Go to Advanced Manufacturing > Administration/Setup > Location Setup > New.
- Select a Location from the list.
- 3. In the **AM Location** field, enter the text exactly as it appears in the **Location** field.
- 4. In the **Departments** subtab, enter an **AM Manufacturing Department Name**. For example, Machine Shop.
- 5. Enter a **Description** of the department.
- 6. To add more departments, click **Add**.
- Click Save.

The Work Centers subtab appears after the location saves.

Creating an Advanced Manufacturing Work Center

A work center is a group of resources (people, assets, or both) that perform a specific step in the manufacturing process. After you define a work center group, you can assign that work center to cover specific steps in the manufacturing process. For example, your assembly process might require a manufacturing group, a quality assurance group, and a packing machine group.

You can use shop calendar data to help define rough cut capacity parameters.

Before you create an advanced manufacturing work center, you must create a manufacturing work center. For more information, see the help topic Creating Manufacturing Work Centers or Groups.

To create an advanced manufacturing work center:

1. Go to Advanced Manufacturing > Administration/Setup > Location Setup.



- 2. Click **Edit** next to the location for which you want to create a work center.
- Click the Work Centers subtab.
- 4. Click New AM Work Center.
- 5. In the Main section, select a **NetSuite Work Center** from the list.
- 6. In the AM Work Center field, enter the text exactly as it appears in the NetSuite Work Center field.
- 7. Click Save.

To edit an advanced manufacturing work center, see Editing an Advanced Manufacturing Work Center.

The following topics provide instructions for completing an advanced manufacturing work center:

- Completing the Assets Subtab
- Completing the Shop Calendar Subtab
- Completing the RCP Parameters Subtab

Editing an Advanced Manufacturing Work Center

Follow this procedure to edit an advanced manufacturing work center.

To edit an advanced manufacturing work center:

- 1. Go to Advanced Manufacturing > Administration/Setup > Location Setup.
- 2. Click **Edit** next to the location for which you want to edit a work center.
- 3. Click the Work Centers subtab.
- 4. Beside the **Name** of your advanced manufacturing work center, click **Edit**.

Completing the Assets Subtab

To add an asset, complete the Assets subtab.

To complete the assets subtab:

- Click the **Assets** subtab.
- Click New AM Asset.
- 3. Enter an Asset Name for a machine or a piece of equipment that might be a constraint for the scheduling of manufacturing work orders.
 - Assets must be named uniquely across all subsidiaries and locations.
- 4. In the **Web Service Name = Asset Name** field, enter the text exactly as it appears in the **Asset** Name field.
- 5. In the **Organization** subtab, select the **Department** created in your NetSuite Manufacturing account from the list.
- 6. Click Save.

Completing the Shop Calendar Subtab

Use the following steps to complete the Shop Calendar subtab.



To complete the shop calendar subtab:

- 1. Click the **Shop Calendar** subtab.
- 2. Enter a **Start Time** with the HH:MM am/pm format.
 - This is the time the work day begins.
- 3. Enter an **End Time** with the HH:MM am/pm format.
 - This is the time the work day finishes.
- 4. Enter the total operating Hours.

For example, if a Monday shift starts at 09:00 and ends at 16:30, Monday's operating hours are 7.5.

- For days that your shop does not operate, enter 0.
- Deduct break times from the total unless the work center continues to run during the break.
- Ensure to schedule half days, off days, or work stoppages.
- 5. Repeat steps 2–4 for each day the work center operates.
- 6. Click Save.

Completing the RCP Parameters Subtab

To define rough cut capacity plan parameters, complete the RCP Parameters subtab.

To complete the RCP parameters subtab:

- 1. Click the RCP Parameters subtab.
- 2. In the **Machine Count** field, enter the number of machines available to use.
 - This value must match the NetSuite work center machine resources value.
- 3. In the **Head Count** field, enter the number of workers available to use.
 - This value must match the NetSuite work center labor resources value.
- 4. In the Hours Per Day field, enter the total man hours available in the work center per working day (hours per day x head count).
 - This number may be less than the end time minus the start time if breaks or lunches affect the total work center operating time.
- 5. In the Labor Hours Per Man Day field, enter the number of hours the work center is active per working day.
- 6. In the Week Days field, enter the number of days the location work center runs per week.
 - (i) Note: The Hours Per Day, Labor Hours Per Man Day, and Week Days fields are approximates or averages from the more detailed shop calendar settings. The fields are only used in capacity planning.
- Click Save.

Creating Manufacturing Work Benches

Manufacturing work bench records extend NetSuite routing records to help you refine your manufacturing process. You can define lag times, assign assets, and increment batch production. A unique work bench record represents each routing step.



To create a manufacturing work bench record:

- 1. Go to Advanced Manufacturing > Administration/Setup > Manufacturing Work Bench > New.
- 2. To designate this operation's manufacturing activity type, in the Manufacturing Operation section, select a **Process Type** from the list.
- 3. In the **NetSuite Routing Name** list, select the routing record that the work bench record extends from the list.
- 4. Select the **Assembly Item** associated with the selected NetSuite routing from the list.
- 5. Enter an **Operation Seq** number from the routing record.
 - The Advanced Manufacturing SuiteApp sequence number must match the NetSuite sequence number. From the assembly, you can view the routing, which lists each operation by name and sequence number.
- 6. Select an **Operation Name** that matches the NetSuite operation name for the routing and operation sequence from the list.
- 7. Select a **Work Center** that matches the NetSuite work center name from the list.
- 8. Enter a unique work bench record ID in the **Mfg Work Bench** field.
 - You should use the NetSuite routing name combined with the operation sequence. For example, Final Assembly.
 - **Note:** This field does not support special characters.
- 9. To include instructions with the work bench, click the Work Instructions subtab, and then enter the information in the **Process Notes** field.
- 10. To attach a document to the workbench, click the **Files** subtab, and then do one of the following in the Attach File field:
 - To select an existing file in NetSuite, click the double arrow, and then click List.
 - To select a new file, click the plus icon, complete the File form, and then click **Save**.
 - a. To include additional files, click **Add**, and then repeat step 10.
- 11. Click Save.

The following topics provide instructions for completing a manufacturing workbench record:

- Completing the Planning Subtab
- Completing the Assets Subtab
- Completing the Labor Requirement Subtab
- Completing the Work Instructions Subtab
- Completing the Quality / Inspection Subtab
- Completing the Material Output Subtab

Completing the Planning Subtab

Use the following steps to complete the Planning subtab.

To complete the planning subtab:

1. Click the **Planning** subtab.



2. In the Rates section, enter a **Std Rate (Min/Unit)** that matches the NetSuite routing record run

NetSuite populates the Std Rate (Unit/Hr) field when the manufacturing work bench record saves.

- 3. Enter a Unit of Measure.
- 4. In the Lead Time and Off Sets section, enter a **Setup Time (Min)** that matches the NetSuite routing record setup time in minutes.
- 5. To determine how to schedule this operation to lag behind its predecessor, select a **Lag Type** from the list.
- 6. In the **Lag Value** field, enter either the number of minutes or units to quantify the lag offset. Units should correspond to the selected lag type.
- 7. In the **Hold Time (Min)** field, enter the number of minutes that the asset should remain unavailable following a production run.
- 8. In the Batching section, in the **Batch Minimum** field, enter the smallest batch value that can be produced.
- 9. In the **Batch Maximum** field, enter the largest batch value that can be produced.
 - Note: Batch minimum and maximum values must be greater than zero and in the same units as the assembly stock unit of measure.
- 10. In the Incremental Qty field, enter the incremental batch size to step from a minimum batch to a maximum batch.
 - Use this value to determine the last batch size needed to fulfill a work order quantity.
- 11. If multiple batches can be processed at the same time, enter the number of **Concurrent Assets** (Split Order) allowed to run on a single work order.

The value must not exceed the total number of assets associated with the work center or this workbench record, whichever is less.

- Note: Do not use the Concurrent Assets (Split Order) field independently. You should use the field in conjunction with other batch fields.
- 12. Click Save.

Completing the Assets Subtab

To add an advanced manufacturing work bench asset, complete the Assets subtab.

To complete the assets subtab:

- 1. Click the **Assets** subtab.
- 2. Click New AM Mfg Work Bench Assets.
- 3. In the AM Mfg Work Bench Assets form, select an **Asset** to assign to the work bench from the list. The asset you select must already be associated with the work center listed on the work bench.
- 4. To represent the priority order of this asset assignment relative to others, enter an integer in the **Priority** field.

For the purpose of finite scheduling, assignments appear in ascending order.

For example, you create three records (three work bench assets). The work bench asset with a priority level of 1 appears first, 2 appears second, and 3 appears last, respectively.



Click Save.

Completing the Labor Requirement Subtab

To add an advanced manufacturing work bench labor, complete the Labor Requirement subtab.

To complete the labor requirement subtab:

- 1. Click the **Labor Requirement** subtab.
- 2. Click New AM Mfg Work Bench Labor.
- 3. In the AM Mfg Work Bench Labor form, select a **Skill Code** to assign to the work bench from the

The skill code is a general category of labor needed to complete the manufacturing activity and may be supplied by a variety of labor resources.

You can add new skill codes to the list as required.

- 4. In the **Head Count** field, enter the number of employees with the designated skill required to complete the production operation over the time period (allocation) specified.
- 5. Select one of the following labor **Allocation** options:
 - Fixed Minutes to have the Labor Required field interpret the value entered as the number of minutes needed from this skill code during manufacture.
 - For example, the value 10 represents 10 minutes.
 - **Fixed Hours** to have the **Labor Required** field interpret the value entered as the number of hours needed from this skill code during manufacture. Select this option for long running operations.
 - For example, the value 10 represents 10 hours.
 - Percentage of Cycle to have the Labor Required field interpret the value entered as a percentage, and have the minutes required derive from the operation's duration.
 - For example, the value 10 represents 10%.
- 6. To represent the number of minutes, hours, or percent of operation duration that the skill requires, enter a decimal number in the Labor Required field.
- 7. Click Save.

Completing the Work Instructions Subtab

To add advanced manufacturing work bench instructions, complete the Work Instructions subtab.

To complete the work instructions subtab:

- 1. Click the Work Instructions subtab.
- 2. Click New AM Mfg Work Bench Wrk Inst.
 - You can create records for work instructions as appropriate. If your work instructions involve multiple steps, you can create multiple records.
- 3. In the AM Mfg Work Bench Wrk Inst form, to designate the relative position of this instruction, enter an integer number in the **Display Sequence** field.
 - Instructions appear in ascending order.



For example, you create three records (three steps) for your work instructions. The work instruction with a display sequence of 1 appears first, 2 appears second, and 3 appears last, respectively.

- 4. Enter a textual description of the work to perform in the **Work Instructions** field.
- 5. To include a link to a File Cabinet or an external resource in these instructions from the tablet, enter the URL in the **Document Link** field.
- 6. Click Save.

Completing the Quality / Inspection Subtab

To add an advanced manufacturing work bench test, complete the Quality / Inspection subtab.

To complete the quality / inspection subtab:

- 1. Click the **Quality / Inspection** subtab.
- 2. Click New AM Mfg Work Bench Tests.
- 3. In the AM Mfg Work Bench Tests form, in the Operation Task Inspection section, complete the following steps:
 - a. Select an **Item** from the list.
 - b. (Optional) Select a **Test Name** from the list.

NetSuite populates the Inspection Method, Inspection Type, and Inspection Results fields with the test's details.

c. Select an **Inspection Method** from the list.

For example, Visual Count or Measurement.

- d. Enter a **Description** of the test.
- e. Enter the name of the Quality Management System Reference.
- f. Enter the Operation Inspection Sequence number.
- 4. In the Measurements Standards and Attributes section, complete the following steps:
 - a. Select an **Inspection Type** from the list.

For example, Standard Result or Requires Sampling.

b. Select an **Inspection Results** measure from the list.

For example, Pass/Fail or Measurement.

- c. Enter a Sample Size.
- d. Select a **Sample Frequency** from the list.

For example, Each Unit, Each Batch, Each Lot, One Sample Per Run, Once Per Operation, or Every Hour.

e. Select an **Evaluation Criteria** from the list.

For example, Test Passes or Fails, Percentage of Sample Passes, Average of Sample Values in Tolerance, or Measurement Only.

- f. Enter a **Minimum Percent** number.
- g. Enter a Target Value.
- h. Enter an **Upper Control Limit** and a **Lower Control Limit**.
- i. Select a **Unit of Measure** from the list.

For example, Each or Lb.



j. Select a **Default Corrective Measure** from the list.

For example, Open Repair Order, Cancel Work Order, or Work Order On Hold, or No Action Required.

- 5. In the Parameters section, complete the following steps:
 - a. If this is a pass or fail test, check the **Pass Fail Test** box.
 - b. If you require a test pass or fail certification, check the **Certificate Required** box.
 - c. If you require a test pass or fail signature, check the **Signature Required** box.
 - d. If this test is mandatory, check the **This Test is Mandatory** box.
- 6. To include a note for this test, in the **Notes** subtab, complete the following steps:
 - a. Enter a Title.
 - b. Enter a **Memo**.
 - c. Select a memo **Type** from the list.
 - d. Select a memo **Direction** from the list.
 - e. To include additional notes, click **Add**, and then repeat steps a-d.
- 7. To attach a file to this test, click the **Files** subtab, and then do one of the following in the **Attach** File field:
 - To select an existing file in NetSuite, click the double arrow, and then click **List**.
 - To select a new file, click the plus icon, complete the File form, and then click **Save**.
 - a. To include additional files, click **Add**, and then repeat step 7.
- 8. Click Save.

Completing the Material Output Subtab

To add an advanced manufacturing work bench output, complete the Material Output subtab.

To complete the material output subtab:

- 1. Click the **Material Output** subtab.
- 2. Click New AM Mfg Work Bench Output.
- 3. In the AM Mfg Work Bench Output form, select an **Operation Name** from the list.
- 4. Select a **Coproduct Item** from the list.

For example, if you process beef, a primary or secondary cut is a coproduct.

5. Select an **Action Required** from the list.

For example, Non-WIP Work Order, Inventory Adjustment, or No Action Required.

- 6. Enter the output **Quantity**.
- 7. Select a **Calculation Method** from the list.

For example, Fixed Value or Yield Percent.

- 8. Enter a Unit Cost.
- 9. Select a **Unit of Measure** from the list.

For example, Box, Ea, or Lb.

- 10. Select an output **Bin** from the list.
- 11. Click Save.



Conventional Work Order Plug-ins

Advanced Manufacturing plug-ins search for inventory details to accelerate data entry and standardize material use. They also help control material consumption and finished good production. NetSuite Advanced Manufacturing provides the following plug-ins to help customers better manage their manufacturing workflow:

- Assembly Bin Plug-in
- Assembly Lot/Serial Plug-in
- Component Item Bin Plug-in
- Component Item Lot/Serial Plug-in

For more information about the plug-ins and default implementations NetSuite provides, see the following help topics:

- Assembly Item Plug-ins
- Bill of Materials (BOM) Item Plug-ins

Plug-ins identify which bin to take material from and which bin to send finished items to. If you do not enable NetSuite bins, the system does not call the bin plug-in. However, you can use NetSuite to run your operation without bins.

If you use bins, the plug-in identifies the bin to use for each item. The lot/serial plug-in then determines the lot/serial number information to extract from the selected bin. If the item is associated with a lot/serial number, the plug-in provides details about material consumption. It also provides the lot/serial number you want to assign to the finished goods. If an item is not associated with a lot/serial number, the system does not call the plug-in.

NetSuite enables you to develop alternate implementations of any plug-in to better suit how you generate inventory details for assembly and component items. For more information, see the help topic Managing Plug-ins.

The following table summarizes how the default Advanced Manufacturing plug-ins work:

Item Uses Bin Controlled	Bin Plug-in	Lot/Serial Plug-in	Available Quantity	Issuance
Use bins controlled	One or more bins (work centers preferred, user defined) Least quantity bin first	Lot/serial numbers in plug-in bins and their quantities	Total of all lots in bins from plug-in Location quantity	Least quantity lots first from plug-in bins Least quantity bins first from plug-ins
Use bins not controlled	One or more bins (work centers preferred, user defined) Least quantity bin first	_	Total of all lots in bins from plug-in Location quantity	Least quantity lots first from plug-in bins
No bins controlled	_	Least quantity lot first One or more lots	Total quantity of lots in bins from plug-ins Location quantity	Least quantity lots first from plug-in bins
No bins not controlled	_	_	Location total	No restrictions



Assembly Item Plug-ins

The assembly item inventory detail assembles by calling the following plug-ins:

- **Assembly Bin Plug-in** searches for bins associated with the assembly item.
 - 1. The plug-in reviews the work center to check whether a **Complete To** bin is assigned to it. If the work center has a bin assigned to it, the plug-in uses that bin.
 - 2. If a completed to bin is not assigned, the plug-in checks the assembly item for a preferred bin. If the preferred assembly has a bin assigned to it, the plug-in uses that bin.
 - 3. If the assembly is not associated with a bin, the plug-in returns a null. The operator then needs to identify a bin during production reporting on the tablet.
- Assembly Lot/Serial Plug-in returns a null to the tablet. The operator must provide lot/serial number(s) to complete the transaction.

Bill of Materials (BOM) Item Plug-ins

The Bill of Materials (BOM) Item Plug-ins enable you to return one bin or a series of bins. It can draw materials from multiple bins needed to complete the work order. The BOM calls the following plug-ins:

Component Item Bin Plug-in

- 1. The plug-in reviews the work order work center to check whether an **Issue From** bin is assigned to it.
 - If the work center has a bin assigned to it, the plug-in uses that bin.
- 2. If an **Issue From** bin is not assigned, the plug-in checks the assembly for a preferred bin. If the assembly has a bin assigned to it, the plug-in uses that bin.
- 3. If the item does not have a preferred bin, the plug-in searches the location for bins containing the item. Then, the plug-in orders them from lowest quantity to highest quantity.
- 4. If no bins are specified, or the item is not in a bin, the plug-in pulls the item from the inventory, from the assigned location.

Component Item Lot/Serial Plug-in

- 1. This plug-in returns information about lot/serial numbers, for each bin identified, and orders them from the lowest quantity to the highest quantity.
- 2. If no bins are specified, the plug-in searches for lot/serial numbers from the assigned location, from lowest quantity to highest quantity.



Creating Advanced Manufacturing Records

Advanced Manufacturing records compile shop floor data that can help managers and planners review manufacturing process efficiency. Then, they can decide whether changes need to be made to improve the process.

Creating Advanced Manufacturing Records

Create the following advanced manufacturing records to help plan and improve the manufacturing process:

- Creating Downtime Categories and Reasons
- Creating Material Loss Categories and Reasons
- Creating Labor Codes
- Creating Travelers

Creating Downtime Categories and Reasons

You can identify areas for process improvement by tracking downtime events that might occur during the manufacturing process.

Downtime categories identify the time an event caused a manufacturing process or operation to stop running. For example, maintenance, repair, or setup.

Downtime reasons provide insight into why manufacturing operations are not running. For example, estop (emergency stop), waiting on material, or waiting on operator.

To edit existing downtime events, go to Advanced Manufacturing > Administration/Setup > Downtime and then click Edit beside the category or reason.

To create a downtime category:

- 1. Go to Advanced Manufacturing > Administration/Setup > Downtime Categories > New.
- 2. Enter a descriptive **Downtime Category** name that is unique across all subsidiaries and locations.
- 3. Click Save.

To create a downtime reason:

- 1. Go to Advanced Manufacturing > Administration/Setup > Downtime Reasons > New.
- 2. To connect this reason to a category, select the **Downtime Category**.
- 3. Enter a descriptive **Downtime Reason** that is unique across all subsidiaries and locations.
- 4. To improve reporting, enter a brief **Downtime Description**.
- 5. If you are using a scanner to capture downtime, in the **Downtime Scanner Code** field, enter a bar code to represent the downtime reason code.
 - You can use an abbreviation of the reason, excluding any spaces or special characters.
- 6. Click Save.

Creating Material Loss Categories and Reasons

You can identify areas for process improvement by tracking material loss events and details that might occur during handling, storage, or manufacturing.



Material loss categories identify a manufacturing loss. For example, standard processing, shop floor, or processing loss.

Material loss reasons provide insight into why manufacturing losses are occurring. For example, container breakage or spoilage.

To view existing material loss events, go to Advanced Manufacturing > Administration/Setup > Material Loss and then click Edit beside the category or reason.

To create a material loss category:

- 1. Go to Advanced Manufacturing > Administration/Setup > Material Loss Categories > New.
- 2. Enter a descriptive **Loss Category** name that is unique across all subsidiaries and locations.
- Click Save.

To create a material loss reason:

- 1. Go to Advanced Manufacturing > Administration/Setup > Material Loss Reasons > New.
- 2. To connect this reason to a category, select the **Material Loss Category**.
- 3. Enter a descriptive **Material Loss Reason** that is unique across all subsidiaries and locations.
- 4. To improve reporting, enter a brief **Material Loss Description** of the loss event.
- 5. If you use a scanner to capture material loss, enter a bar code in the Material Loss Scanner Code field. This bar code represents the material loss reason code. You can use an abbreviation of the reason, excluding any spaces or special characters.
- 6. Click Save.

Creating Labor Codes

Accurate labor codes enable you to define the competencies (skills, qualifications, or certifications) needed to perform specific operations. Defined labor codes help prevent potential errors and issues that might arise when unskilled operators perform jobs they are not trained to do.

To edit existing Labor Codes, go to Advanced Manufacturing > Administration/Setup > Labor Codes and then click Edit beside the code.

To create a labor code:

- 1. Go to Advanced Manufacturing > Administration/Setup > Labor Codes > New.
- 2. Select the **Location** you want to apply this labor code to.
- 3. Enter a Planning Skill Code (Mfg WB Labor). Skill codes describe an operation's labor needs. For example, Welding.
- 4. Enter a descriptive **Labor Code** name. For example, Apprentice Welder or Certified Welder.
- 5. If you use a scanner to capture labor, enter a scanner bar code in the Labor Scanning Code field. You can use an abbreviation of the reason, excluding any spaces or special characters.
- 6. To help improve reporting, enter a complete labor code **Description**.
- 7. Click Save.
 - **Note:** The **Cost Type** and **Base Rate** fields are used for reporting only.



Creating Travelers

Work order travelers are physical documents that convey manufacturing information to shop floor operators. The Advanced Manufacturing SuiteApp includes a modifiable traveler template in Advanced Manufacturing > Documentation File Folders > Templates.

Use batch travelers when batch operations require multiple batches and one partial batch to complete the work order.

To create a traveler:

- 1. Go to Advanced Manufacturing > Administration/Setup > Traveler Configuration > New.
- 2. To identify the document type, enter a unique **Traveler Name**. For example, Template Traveler.
- 3. Enter the NetSuite file cabinet **Folder Name** to save the document to. For example, AM Travelers.
- 4. Enter the traveler **Sort Order** display number for advanced manufacturing lists.
- 5. In the Script Name field, enter the scheduled script ID required to produce this type of document. For example, customscript_batch_traveler for batch traveler and customscript_template_traveler for template traveler.
- 6. In the **Doc Type** field, enter one of the following:
 - Work Order The script produces documents for a list of work orders.
 - Work Center The script produces documents for a list of work centers.
- 7. In the **Parameter Prefix** field, enter the string that identifies the scheduled script parameters. For example, batchtry for batch traveler and tmptry for template traveler.
- 8. In the Custom Templates Folder field, enter the custom templates file cabinet folder path. If you are using the customscript_template_traveler script, you can modify the standard document production XML templates. You must provide a copy of all templates even those not modified. Copying the XML templates to another folder protects your changes from future bundle updates.
- 9. Click Save.

Defining Traveler Bar Code Size

Use the following steps to define traveler bar code size.

To define traveler bar code size:

- 1. Go to Customization > Scripting > Scripts.
- 2. If necessary, click the + icon to expand the **Filters** pane.
- 3. In the **Type** list, select **Scheduled**.
- 4. Click **Edit** beside the AM Template or AM Batch Traveler.
- 5. Click the **Deployments** subtab.
- 6. Click the traveler title you want to modify.
- 7. Click Edit.
- 8. Click the **Parameters** subtab.
- 9. Modify the values in the Barcode Width (In) and Barcode Height (Pix) fields as necessary.
- Click Save.



Verifying Traveler Generation Errors

Use the following steps to verify traveler generation errors.

To verify traveler generation errors:

- 1. Go to Customization > Scripting > Scripts.
- 2. If necessary, click the + icon to expand the **Filters** pane.
- 3. In the **Type** list, select **Scheduled**.
- 4. Beside the traveler record you want to modify, click **Edit**.
- 5. Click the **Execution Log** subtab. Errors are displayed in the **Details** column.

Increasing Traveler Parameter Settings

Travelers generated in Advanced Manufacturing follow the script usage limits that apply to all platform solutions. To ensure that your traveler requests do not fail, NetSuite monitors usage and may restart as it nears generation limits. The system checks each work order using a script deployment parameter that defines expected script usage per traveler.

Poorly defined script deployment parameters can cause Advanced Manufacturing to fail when generating large, complex travelers. If this number is set too low, large travelers can cause a time out before system self-monitoring can restart (to avoid the timeout). The solution is to increase the parameter setting.

To increase traveler parameter settings:

- 1. Go to Customization > Scripting > Script Deployments.
- 2. In the **Script Deployments** list, click edit beside the traveler you want to update.
- 3. Click the **Parameters** subtab.
- 4. Enter the default traveler value in the Yield At (Units) field.
 - Enter a value that enables NetSuite to move to the next traveler. If no value is entered, Advanced Manufacturing uses a value of 100.
 - Setting a high value for large complex travelers reduces the chance of a timeout. It can also result in longer traveler generation times when many work orders are submitted.
 - Setting a lower value minimizes restarts and shortens traveler generation time when many work orders are submitted. It can also result in timeout.
- 5. Click Save.



Advanced Manufacturing Administration Glossary

Term	Definition
Assembly Item	An assembly item is an inventory item made of several components, but identified as a single item. Assemblies are manufactured by combining raw materials you stock.
Backflush	Backflush accounting delays the recording of costs until goods are built. Then, standard costs are used to work backwards to flush out the manufacturing costs. Typically used in Just-In-Time environments to eliminate the detailed tracking of costs.
Bill of Materials (BOM)	A list of the raw materials, sub-assemblies, intermediate assemblies, sub-components, parts needed to manufacture a product.
Bins	Bin Management uses bins to identify where inventory items are stored and to track on- hand quantities.
Capacity Planning	Capacity planning enables you to determine the production capacity an organization needs to meet product demands. It is the maximum amount of work the organization is capable of in a period of time.
CSV Imports	CSV (comma-separated value) import transfers one to many, small to medium-sized data sets from other applications into NetSuite, avoiding the need for manual data entry.
Downtime	Downtime refers to a period of time that a system is unavailable or offline and fails to perform its primary function.
Finite Scheduling	Finite capacity scheduling produces a specific amount of work within a defined time period, taking resource limitations into consideration. This process ensures that work proceeds evenly and efficiently throughout the plant.
Lot Control	Lot Control ensures that each inventory item that flows through a warehouse can be tracked to its group of origin, or lot.
Material Loss	Material losses could come in the form of waste, scrape, spoilage and defects and occur during handling, storage, or manufacturing loss.
Rough Cut Capacity Planning (RCP)	RCP is the long-term planning process that balances available resources and required resources to the master schedule. The SuiteApp verifies that you have enough capacity to meet scheduled production.
	The Advanced Manufacturing SuiteApp evaluates the demand for assembly items against the work center's availability to report percentage work center use over time.
Routing Records	A manufacturing routing is a template that contains the list of steps required to build an assembly item.
Scrap	The unusable loss which is measurable, has some value, and can be sold or repurposed.
Serialization	The process through which inventory items are identified by an associated serial number.
Subsidiaries	A subsidiary is a (child) company owned by another (parent) company. The Advanced Manufacturing SuiteApp uses subsidiaries in OneWorld accounts.
Throughput	Total volume of production through the facility (machine, work center, department, plant, or network of plants).
Traveler	A work order traveler tracks the status of operations in the Manufacturing process.



WMS	A warehouse management system (WMS) is a software application that supports daily warehouse operations. WMS programs enable centralized task management such as tracking inventory levels and stock locations.
Work Bench	An Advanced Manufacturing work bench is linked to a NetSuite routing record.
Work Center	A work center can consist of one or more people and machines, and can represent a logical grouping of machines, a department, or a cost center.
Work Order	Work orders track the production of items and the quantities needed to replenish stock or to fill orders.

