



Infor LN Release Notes

10.8

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Contents

About this document.....	17
Contacting Infor.....	17
Chapter 1: Sales.....	18
Authorization and security for customer received orders.....	18
Calculated commissions and rebates.....	18
Carry forward logic for sales schedule quantities.....	18
Direct deliveries for schedules.....	19
Linking of header special contract.....	19
Material release optional for shipping schedules.....	19
Received customer orders.....	20
Report of open sales orders.....	20
Requirement-date search for sales contract lines.....	20
Retrobilling.....	21
Sales order change requests.....	21
Sales quotation archiving.....	22
Schedule consumptions based on shipment reference.....	22
Stock shortage handling - split order line during recheck.....	23
Update of sales contract prices and discounts.....	23
Chapter 2: Project.....	24
Active flag for tasks and sundry cost.....	24
Activity manager.....	24
Activity Workbench.....	25
Actual budget cost analysis version.....	25
ATP priorities for multi-site.....	25
Bank guarantees.....	25
Budgets for contract deliverables.....	26
Calculation of interim results up to a specified financial period.....	26

Capacity overview in Trade Group Capacity Workbench.....	26
Classification and project activities.....	27
Classification improvements for bids and extension.....	28
Copying of project notes.....	29
Employee search and assignment calculation for projects.....	29
External scheduling interface improvements.....	29
Feedback for print and process sessions.....	30
File manager.....	30
Forecast by cost type in Cost Forecast Entry session.....	31
Forecast updates based on percentage.....	31
Harmonized system code for project subcontracting items.....	31
Holdback improvements.....	31
Link to XM expense report in cost transactions.....	32
Maintenance delivery type.....	32
Modification of the sales price for a contract deliverable after shipment.....	33
Monitoring on cost plus projects.....	33
Negative amounts on contract lines.....	34
Non-conformance reports view from the Project 360 session.....	34
Option to import planned values.....	35
Orders in project schedule.....	35
Price terms per contract line.....	35
Project (PCS) series in user profile.....	36
Project schedule data selection.....	36
Top-down budget only for activities with budget.....	36
Overhead.....	36
Overhead in monitoring.....	37
Price terms per contract line.....	37
Printing of cost-plus transactions by registration date.....	38
Project activity relationships.....	38
Project estimating and budgeting.....	38
Project equipment as serial item in Service.....	39
Specification of the project activity date when the actual work has started.....	39
Subcontracting items for contract deliverable.....	39
Total duration and planning factor.....	40
Total type indicator.....	40

Chapter 3: Planning.....	41
Item Master Plan by Work Center.....	41
Planner Workbench.....	41
Chapter 4: Manufacturing.....	42
ASC - Assembly Line Supervisor Workbench.....	42
ASC - backflushing.....	42
ASC - external sequencer integration.....	43
ASC - forecasting consumption logic.....	43
ASC - generation of SILS messages for late orders.....	44
ASC - multiple assembly order series.....	44
ASC - return of FAS items in inventory.....	44
ASC - time effective standard cost.....	45
ASC - use up material.....	45
JSC - Job Shop Operator Workbench.....	45
JSC - Job Shop Planning Board.....	45
JSC - Labor Utilization Graph.....	46
JSC - line side labeling and scan to book for non-referenced schedules.....	47
JSC - machines.....	47
JSC - machine utilization.....	54
JSC - Machine Workbench.....	54
JSC - mass calculation and update of the order lead time.....	55
JSC - order block sequencing.....	55
JSC - service orders for machine time out in job shop.....	59
JSC - splitting of a production order with machine operations.....	59
MFC - length of item description.....	59
MFC - Production Item 360.....	59
MFC - Work Center 360.....	60
SCH - production scheduling.....	60
SCH - production scheduling - new algorithm.....	64
SCH - production scheduling - production scheduler log.....	64
SCH - production scheduling without constraints.....	64
Chapter 5: Procurement.....	66
Document authorization for requisitions.....	66
Linking of header special contract.....	66

Modification of RFQs with Pending Approval status.....	66
Requisition and RFQ archiving.....	67
Requisition Conversion Workbench.....	67
RFQ Comparison Workbench.....	68
RFQ criteria.....	68
Update of Purchase Prices and Discounts.....	69
Chapter 6: Warehousing.....	70
ASN cancellation.....	70
Blocked inventory balance.....	70
Cross-docking and project cost pegging.....	70
Customs information in ASN.....	71
DUNS number for warehouse.....	71
Goods in transit.....	71
Handling unit transfer - light.....	72
Inventory blocking history.....	72
Inventory inspection.....	72
Inventory management department.....	73
Item valuation group by site.....	74
Kanban integration.....	74
Minimal put away.....	75
Outbound advice for committed inventory.....	75
Overdelivery during outbound advice run.....	75
Overlapping reasons for stock point blocking.....	76
Packaging materials and registration.....	76
Prepacking advice.....	77
Printing of documents before shipment confirmation.....	77
Process extension for shipment and load building.....	77
Receipt of lots in a multicompany scenario.....	77
Shipment Execution Workbench.....	78
Shipment Planning Workbench.....	78
Shipment validation.....	79
Site-specific lot and serial masks.....	79
Splittable option in handling unit template.....	80
Synchronization of planned delivery date from load to shipments.....	80
TPOP and project cost pegging.....	80

Warehouse receipts based on BP item code.....	80
Chapter 7: Freight.....	82
Maps integration.....	82
Shipment sequencing in Freight Planning Board.....	83
Chapter 8: Service.....	84
Additional cost lines on claims.....	84
Additional information fields.....	84
Advance payments.....	84
After sales service – generate service order.....	84
Assignment line number for service orders.....	85
Billable line description for fixed order price and fixed activity price.....	85
Contract flown down for claims.....	85
Counter reading on claim.....	85
Creation of independent parent inspection.....	86
CRM activities for service calls.....	87
Cumulative cost and sales per serialized item.....	87
Customer claims - credit note before part receipt.....	87
Customer claims for open PCS projects.....	87
Customer owned spare parts in service orders.....	87
Dealer Workbench.....	88
Default warehouse for claims.....	88
Definition logging for maintenance sales orders and work orders.....	88
Document authorization on claim header.....	88
Equipment as a Service.....	88
Equipment Management Workbench.....	89
Estimated material line from physical breakdown.....	89
GPS tracking for serialized equipment.....	89
Group planning - allocate multiple resources per group.....	89
Ignoring of coverage for fixed-price reference activities.....	90
Inheritance of data from original serial.....	90
Initial warehouse order status.....	90
Internal equipment - rental request from Project.....	90
Item replacement for reference activities.....	91
Item settings for demand pegging.....	91

Log definition for service quotes.....	91
Margin control in Field Service and Depot Repair.....	91
Master routing for trigger set in a usage-based scenario.....	92
Material availability.....	92
Material issue before item receipt.....	93
Mobile service enhancements.....	93
MSO header set to Costed if all lines are Costed.....	95
Multiple calls for one part maintenance line.....	95
Notes for work order activities.....	95
Notification of existing service orders when specifying a new service order.....	96
Optimization of mean-time calculation.....	96
Order acknowledgement for service orders.....	96
Order lines for multiple selected serials.....	96
Owner versus user for anonymous items.....	97
Picture on claim line.....	97
Planned Activity Workbench.....	97
Preferred operator for serialized items.....	97
Price stages for service material lines.....	97
Pricing in service material lines.....	97
Pricing of Other Costs.....	98
Printing of cost types for quotes and order acknowledgements.....	98
Reason code for claim approval.....	98
Release Materials for Approval option.....	98
Relinking of work orders for non-serialized items.....	99
Replanning of service order activity.....	99
Resource Management Workbench.....	99
RFID tags to track serialized items.....	101
Selection of lines when copying from original document.....	101
Service maintenance for project contract deliverable.....	101
Service material availability and project pegging.....	101
Service type for customer and supplier claim lines.....	101
Session to generate serials.....	101
Shifts functionality in Depot (work orders).....	102
Sold-to contact and address for service calls.....	102
Supplier claim for rejected customer claim.....	102

Transfer of service calls to a work order.....	102
Transferred to Service Department option.....	102
Turn Around Time (TAT).....	103
Usability improvements on claim lines.....	103
Wait on Supplier Claim Approval check box.....	103
Warranty handling for superseded items.....	103
Warning if reference is already used.....	103
Where-used item in physical breakdown.....	104
Workbench for billable costs.....	104
Chapter 9: Quality.....	105
Access to additional failed components from FRACAS session.....	105
Access to FRACAS session from related order.....	105
Addition of image to FRACAS.....	105
Assignment of employee to order inspection.....	105
Ship to Stock (STS).....	106
Chapter 10: Financials.....	107
Accounts Payable Invoice automation solutions.....	107
Advance-payment assignment during invoice registration.....	108
Automatic transaction enhancements.....	109
Balance reference in reconciliation transactions.....	109
Blocking of bank accounts.....	110
Blocking the unapproval of paid purchase invoices.....	110
Business object information when printing reconciliation report by reference link.....	111
Business partner for advance payments and receipts.....	111
Buy-from business partner for received purchase invoices.....	111
Calculation of currency difference by payment schedule.....	111
Cancellation of advance/unallocated payment or receipt assignments.....	112
Cash flow - update of period totals.....	113
Column totals in aging analysis details.....	113
Contribution to Project (PCS) WIP.....	113
Data by bank and payment method.....	113
Default dimensions.....	114
Element filter in mapping scheme for ledger and dimension mapping.....	114
Formatting of amounts in Print Integration Transactions by Business Flow.....	115

General Ledger Analyzer – export data to Excel.....	115
General Ledger Workbench.....	115
Home currency amounts in fixed asset invoice list.....	116
Ledger account history by business partner.....	116
Multicompany improvements for received invoices and process payables.....	116
Multiple tax lines for invoice scanning.....	116
Payment discounts for selected purchase invoice lines.....	117
Period status by year.....	117
Period status by year report.....	117
Point in time revenue recognition.....	118
Posting of expense tax to inventory at receipt.....	118
Postponement of background process.....	119
Process Payables Workbench.....	119
Purchase invoice matching by packing slip.....	120
Range of dimensions for transaction templates.....	120
Reason codes for credit notes.....	120
Reconciliation improvements.....	120
Reversal date as rate date.....	123
Reverse entry enhancements.....	123
Select all and deselect all batches for finalization.....	123
Select all and deselect all transactions for account matching.....	124
Tax declaration file check.....	124
Tax improvements for purchase invoice registration.....	124
Transaction currency and bank transaction rate checks after finalization.....	125
Withholding tax for received purchase invoices.....	125
Tax date in open entries sessions.....	125
Chapter 11: Invoicing.....	126
Advance payment rates for revenue recognition.....	126
Bank relation.....	126
Billable lines – net line amount.....	127
Gapless invoice line numbering.....	127
Invoice layout defaults.....	127
Invoicing user profile – posting allowed.....	127
Point in time revenue recognition.....	128
Price corrections for self-billing.....	129

Selection on delivery terms for revenue recognition.....	129
Self-Billing Workbench.....	130
Settlements addendum.....	130
Tax amount in local currency.....	130
Transaction type defaults.....	131
Transaction types – sales order installments.....	131
VAT agent.....	132
XML invoice layouts.....	132
XML invoicing.....	132
Chapter 12: Common.....	133
Archive General Data report.....	133
Attendance module.....	133
Bank guarantees.....	133
Default bank relation.....	134
Economic zones.....	135
EDI – BEMIS to BOD.....	135
Embargoes and boycotts.....	136
Employee details selection.....	137
E-signatures.....	137
GDPR.....	138
General projects.....	139
GRC - application of authorization and security permissions.....	139
GRC - export and import of authorization and security settings.....	139
GTC - end user statements.....	139
GTC - extension of failure message.....	140
GTC - usability improvements.....	140
Incoterms.....	141
Integration with ZWF.....	141
Intercompany Trade.....	142
Letters of credit.....	143
Limits of quantity and amount.....	144
Look and feel of archiving sessions.....	144
Multiple registrations by financial company.....	144
Registration by tax country.....	145
Extended Registration Management (ERM).....	145

Multiple tax registrations - tax currency.....	149
Tax configuration enhancements.....	150
Tax defaulting.....	151
Net change for Apply Latest Permissions session.....	151
Optional refreshment of totals in workbenches.....	151
Pattern - list detail.....	152
Pattern - tree detail.....	153
Pricing - total price calculator.....	154
Taxation - billable lines.....	155
Taxation - new legal intrastat requirements.....	156
Trade compliance for service documents.....	156
VAT agent.....	157
VIES tax number check.....	157
Workbenches for price calculations.....	158
Chapter 13: Enterprise Modeler.....	159
Role data.....	159
Chapter 14: Product Lifecycle Management.....	160
Infor PLM for Discrete.....	160
Actions for linked objects.....	161
Addition of site in PLM user preferences.....	161
Addition of thumbnail column to session grid of items and documents.....	161
Advanced export.....	161
Advanced import.....	162
Advanced search.....	163
Alternative viewers.....	163
BOD based integration with LN on premises.....	164
CAD connectors.....	164
CAD to PLM - Batch Register.....	164
CAD utility for PLM.....	165
Component engineering.....	165
Copy of product stucture.....	166
Conditional workflows.....	166
Display of PLM objects.....	167
Electronic signatures.....	167

Email option for workflow distribution step.....	168
Engineering find number for reference (digital thread).....	168
IDM document types.....	168
Impact analysis.....	168
Integration with LN Project.....	169
Integration with LN Quality.....	170
Integration with Infor OS.....	170
Item structure reports.....	170
Linking of multiple objects (select source and link selected).....	171
Markup support by AutoDesk viewer.....	171
Mass BOM Changes (MBC).....	172
PBOM revision control.....	172
PLM item features.....	172
Resource management for PLM users.....	173
Satellite sessions in structure workbenches.....	173
Search based on field description.....	173
Skipping of component to production.....	174
Synchronization of data between LN and PLM.....	174
Topdown load for CAD connectors.....	174
Transfer of item thumbnail.....	174
Workbench - Business Process Workflow Editor.....	175
Workbench - CAD Viewer.....	175
Workbench - Compare Product Structure.....	176
Workbench - Item Structure.....	176
Workbench - Workflow Template Management.....	177
Workbench - Workflow Template Viewer.....	178
Remaining enhancements.....	178
Chapter 15: Reporting.....	179
Chapter 16: Factory Track.....	182
Activation of Kanban integration.....	182
Assembly Control.....	182
Picking and shipping by handling unit.....	182
Radio-frequency identification (RFID).....	183
Chapter 17: Widgets.....	184

Activity Ready to Start.....	184
Average Order Value (sales).....	184
Customer Contacts and Supplier Contacts.....	184
Employee Availability.....	185
Gross Sales Invoiced.....	185
Inventory Aging.....	185
Late Orders.....	185
Lead Time Trend.....	186
Manufacturing On Time Delivery.....	186
Non Conformance Materials By Origin.....	186
Non-Conformance Materials by Type.....	187
Non-Conformance Materials Reject Reasons.....	187
Operational Equipment Effectiveness (OEE).....	188
Operational Status.....	188
Potential Stock Shortage.....	188
Project Progress.....	188
Project (PCS) Progress.....	189
Storage Capacity and Utilization.....	189
Supplier Claim Totals.....	189
Supplier Rating.....	190
Top 20 Customers.....	190
Top 20 Suppliers.....	190
Top Claims.....	190
Unposted Bank Statement Lines.....	191
Unprocessed Purchase Invoices.....	191
Chapter 18: Mobile apps.....	192
All mobile apps.....	192
LN As Built Scanning.....	192
LN Call Requests.....	192
LN Customer 360.....	193
LN Depot Repair.....	193
LN Hours Registration.....	193
LN Non-Conformance Reporting.....	194
LN Project Receipts.....	194
LN Quality Inspections.....	195

LN Requisition.....	195
LN Resource Assignments.....	195
LN Service Requests.....	196
LN Warehouse Receipts.....	196
Chapter 19: Application extensibility.....	197
LN public interfaces and process extensions.....	197
Chapter 20: Integration updates.....	198
Infor CPQ.....	198
LeaseQuery©.....	198
Chapter 21: Country availability.....	200
Angola.....	200
Argentina.....	200
Brazil.....	201
Chile.....	205
China.....	205
Colombia.....	205
Czech Republic and Slovakia.....	209
Germany.....	210
Hungary.....	211
India.....	214
Indonesia.....	218
Italy.....	219
Mexico.....	224
Norway.....	227
Peru.....	228
Poland.....	228
Portugal.....	231
Romania.....	233
Saudi Arabia.....	236
Slovenia.....	237
Spain.....	238
Switzerland.....	241
Thailand.....	242
USA and Canada.....	243

Vietnam.....	243
Various countries.....	244
Chapter 22: Language availability.....	247

About this document

This document provides information about the enhancements and changes in Infor LN 10.8.

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Chapter 1: Sales

Authorization and security for customer received orders

Authorization and security rules can now be applied to the Received Customer Order document. Like sales quotes and sales orders, this document can be modeled in the **Sales Permissions (tcsec3630m000)** session.

Calculated commissions and rebates

Previously, the domain of the calculated commissions and rebates allowed 999 records. Now, this domain has been extended to 99,999 sequences, which provides you with more calculated commissions and rebate records.

Carry forward logic for sales schedule quantities

In the automotive industry, schedules are used to communicate demand from the OEM to the supplier. If demand changes, for example because quantities go up or down, then suppliers require to handle these changes as they see fit.

Some suppliers require the ability to respond to quantity changes in the short term. After the picking or staging processes have started, these changes require correct handling in Warehousing.

Changes to shipping quantities can be caused by fill up logic for handling units or be based on delivery patterns.

To carry forward quantity adjustments to the schedule requirement quantities, terms and conditions parameters have been added. These parameters control the behavior of the new carry forward logic.

Direct deliveries for schedules

Direct delivery is a supply chain management technique, where the Tier 1 supplier does not keep goods in inventory, but transfers customer orders and shipment details to the Tier 2 supplier, who then ships the goods directly to the customer.

The direct delivery process is now also supported for schedules. Schedules received from the original equipment manufacturer (OEM) can automatically be converted to purchase schedules, which can then be sent to the Tier 2 supplier.

For the Tier 2 supplier, these requirements have been resolved in Automotive Exchange:

Send copy of the advance shipping notice (ASN)

As part of the supply-chain information flow, typically an ASN is sent from the Tier 2 supplier to the OEM, together with the physical shipment. A copy of the ASN must be sent to various third companies, such as the Tier 1 supplier or the packaging service provider.

Ship on behalf of

Sometimes, the OEM may not know that the goods are shipped from the Tier 2 supplier and not from the Tier 1 supplier. In this case, Tier 2 suppliers can now identify themselves as Tier 1 suppliers on customer facing shipping documents and in the ASN.

Linking of header special contract

The **Use Only Header Special Contract** parameter has been added to the **Sales Contract Parameters (tdsls0100s300)** session to ensure that a sales order uses only one special contract if a special contract is specified on the sales order header.

If this parameter is selected, and a new line is added to the sales order, only the header special contract is verified and no other special contracts or normal contracts. If no header special contract is specified, then the normal contract search logic applies.

If this parameter is cleared, and a special contract is specified on the sales order header, each line of the sales order is checked to see if the item is included in that special contract. If it is not included, other special or normal contracts are searched for.

Material release optional for shipping schedules

For sales schedules in LN, the schedule message type **Material Release** is supported. This is managed by the **Use Material Release** check box in the **Sales Contract Line Logistic Data** session. If this check box is selected, these features were both applicable:

- Material Release schedules can be used.
- It is mandatory for a Shipping Schedule, Sequence Shipping Schedule, or Pick-up Sheet to have a preceding Material Release schedule.

If you use material releases, the obligation to use them as a prerequisite for shipping schedules, sequence shipping schedule, or pick-up sheet no longer applies. The **Preceding Material Release is Optional** check box has been added to the **Sales Contract Line Logistic Data** session for this purpose. If this new check box is selected, sales releases of type Material Release and Shipping Schedule can be processed in random order.

Received customer orders

Sales orders can be created through EDI or through BODs from external sources. Because the sales order includes many dependent objects, the creation and update process is complex and time consuming. High-volume inbound order data requires a faster insertion and processing of customer data into sales orders.

To streamline this process, the **Sales Order Parameters (tdsls0100s400)** session has been enhanced with the **Received Customer Orders** check box and a number group and series for these received customer orders.

If the received customer functionality is implemented, the **Received Customer Orders (tdsls2600m100)** session can be used to load customer orders from EDI or BOD, or to manually specify an order. This session verifies if an order is complete and if it can be processed to a sales order. In the case of issues, such as a missing customer order number or an invalid item, a message is logged in the **Message Log**. Received customer orders can be new orders or changed orders.

The **Automatically Approve Sales Order** check box has been added to the **Sales Order Types (tdsls0594m000)** session. If this check box is selected, and also the new **Automatically Process Received Customer Orders** check box is selected in the **Sold-to Business Partner (tccom4110s000)** session, a sales order that is created from a customer received order, from a BOD, or EDI is automatically approved. Next, the automatic steps linked to the sales order type are executed.

Report of open sales orders

In the **Print Sales Order (tdsls4405m000)** session, you can now print an overview of all open sales orders. Open orders are orders that have not been fully shipped, have back orders, or for which nothing has been shipped.

Requirement-date search for sales contract lines

In a typical automotive business relationship, a contract is negotiated between a supplier and a customer before EDI schedule messages are sent to the supplier.

During the effective time period of a contract, an item number can be modified by customers and suppliers in these circumstances:

- Customer: If, on a specific effective date, the customer item number changes, then the supplier is informed in advance. The supplier can then adjust the contract before the item number change is implemented.
- Supplier: If, from a specific effective date, the supplier decides to use a different item number, then the customer is not aware of this item number change. The same customer item number is still used in the communication between supplier and customer.

A functional enhancement has been made regarding the supplier-driven item number change.

When a supplier item is transitioned to another item, some automotive suppliers require the ability to use the individual requirement dates for assigning the requirements to the contract lines (phase out and phase in). This to replace the use of one EDI schedule publishing date to search for contracts, all at once.

To support the phase out and phase in process, adjustments have been made to these processes:

- Handling of incoming EDI schedules
- In-transit quantity calculation
- Schedule netting during shipment

Retrobilling

The processing of return orders as part of retrobilling has been modified. Previously, the total amount of an item was calculated as follows:

Total quantity - return quantity * price change amount.

Additionally, these improvements have been made for retrobilling:

- The **Separate Advice Lines for Return Orders** check box has been added to the **Generate Retrobilled Price Change Advice (tdsls3270d000)** session to create separate advice lines for return order invoice lines. Consequently, the retrobilled amounts for return lines can now be distinguished from the retrobilled amounts for normal lines.
- Retrobilling can be applied to an item on sales contract line level. Previously, a record was required in the Items - Sales Business Partner session to support this.
- Self-billed invoicing can be combined with retrobilling in Sales.
- Previously, after processing retrobilled advice lines, an additional sales order was created and released to invoicing. Now, the original document (sales order or sales schedule) is updated with a new invoice line, which can be automatically released to invoicing.

Sales order change requests

The change request logic that already exists for purchase orders, has also been introduced for sales orders. Consequently, these parameters have been added to the **Sales Order Parameters (tdsls0100s400)** session:

- **Change Requests for Sales Orders:** Used to implement the functionality for sales orders.
- **Series:** Used to create change request sales orders.

- **Process Change Requests Automatically:** Used to automatically process the approved change requests.

After approval of the sales order or printing of the sales order acknowledgement (if printing is a step for the order type), a change request must be specified to change existing sales order lines or add new lines. For change requests that are set to internal, only the sales representative or route can be modified. To update the originating sales order and its revision number, a change request must be approved and processed. Only one change request can be active at a time. A change request can also be canceled.

The **Print Sales Order Change Request Comparison (tdsls4408m000)** session is available to print the differences between change requests, or between a change request and the updated order. A selection can be made on only open change requests, only internal change requests, or to include canceled change requests. The report shows the changed values from one version of the sales order to another based on the change requests.

Sales quotation archiving

Previously, sales quotes could not be archived. Now, the existing Delete sessions have been modified to archive or delete sales quotes.

To implement archiving for sales quotes and view the modified sessions, the **Sales Quotation Archiving Implemented** check box has been added to the **Sales Quotation Parameters (tdsls0100s100)** session.

Shipment reference for sequence shipping schedule

In a Just in Sequence scenario, in addition to the regular JIS information, an OEM can provide a shipment reference that is used to create the content of a truck.

The use of the shipment reference in combination with the **Sequence Shipping Schedule** schedule message type is now supported.

Schedule consumptions based on shipment reference

For sales schedules in LN, the Warehouse Transfer Delivery with Inventory Consumption scenario, also known as Pay on Use scenario, enables the delivery of goods to the consignment warehouse (administrative warehouse) with a Shipment Reference label. After the goods are consumed by the customer, inventory consumption messages are registered. These inventory consumptions are also labeled with a shipment reference.

The shipment reference-labeled inventory consumptions must be registered against the original schedule delivery, i.e. the delivery to the consignment warehouse that has the corresponding shipment reference. After processing the inventory consumptions, the consumptions must be invoiced. To be recognized, the shipment reference is now also available on the invoice.

Stock shortage handling - split order line during recheck

Stock shortage handling - split order line during recheck

In the **Sales Order Types** session, these new options have been added to the **Inventory Shortage Recheck Options** group for the items:

- ATP - Available
- ATP - When Available

These options, which work the same as the ATP options at order entry, can be used during the recheck of already promised order lines.

During a recheck with one of these new options, a line with a planned delivery date can be split into multiple detail lines with their own planned delivery dates. In addition, if the sales order line was already approved, the changed planned delivery date is updated to the total and detail levels, if applicable.

Update of sales contract prices and discounts

The new **Global Update of Sales Contract Prices and Discounts (tdsls3213m000)** session is used to update prices and discounts of one or more contract lines. An increase or decrease can be made based on percentage or by value. An option is available to also update future effective contract prices. To review the changes prior to an update, the session can be run in simulation mode.

The new session can be started from the **Actions** menu of these sessions:

- Sales Contracts Workbench (tdsls8330m000)
- Sales Contract Header (tdsls3600m000)

Chapter 2: Project

Active flag for tasks and sundry cost

Previously, standard tasks and sundry cost could not be blocked from being used.

Now, these check boxes have been introduced for tasks and sundry cost:

- **Active for Planned Cost**
- **Active for Actual Cost**

For new estimates and budget lines, only tasks and sundry cost codes with the **Active for Planned Cost** check box selected can now be used. For new cost entry, only tasks and sundry cost codes with the **Active for Actual Cost** check box selected can now be used.

These new check boxes allow to phase in or out tasks and sundry cost codes. The new functionality is intended for situations in which tasks have been used for estimating, budgeting, actual cost, or all. If a task was never used, it can be deleted.

If evaluation of new tasks is required, an extension can be created that defaults to active = No.

The new check boxes are available only for standard tasks and sundry cost codes. At the end of a project, project tasks and sundry cost codes are no longer relevant. A task or sundry cost code can be set to inactive if no open transactions are available.

Note: Similar functionality already exists for General Tasks and Expense Types in LN People.

Activity manager

The **Activity Manager** field has been added to the **Activities (tppss2100m000)** and **Milestones (tppss2101m000)** sessions. In addition to the project and program manager, an activity manager can now also be specified as a person responsible for project execution.

These constraints are applicable:

- The **Activity Manager** field is initially hidden in the Activities overview session.
- The activity manager cannot be specified or modified for activities with the **Finished** or **Closed** status.
- The activity manager must be specified for each activity and cannot be defaulted.
- The activity manager cannot be used as a selection criterion for project schedules or in other sessions. Extensibility can be used for this purpose.

Activity Workbench

The **Activity Workbench (tppss2600m000)** session has been added to support these features for project activity managers:

- Have an overview of the projects and activities for which they are responsible.
- Perform various actions directly from the workbench, such as changing the activity status, completing resource assignments, and approving planned orders.

Actual budget cost analysis version

The **Use Actual Budget Cost Analysis Version** option has been added to the **Generate Budget Cost Analysis (tpptc3200m000)** and **Generate Budget Cost Analysis Time Phased (BIRST) (tpptc3211m000)** sessions. If this option is selected, only the version that is specified on the project is used. You cannot specify another cost analysis version.

Consequently, this option enables you to focus on the version of the project.

ATP priorities for multi-site

Previously, in a multi-site setup for a company, the ATP priorities could not be used in the PRP for planned PRP warehouse orders. All warehouses were checked, and planned orders could be created for warehouses that were unsuitable because, for example, they had another business purpose or were geographically distant.

In a multi-site setup, clusters can now be used based on the relevant ATP priorities from the **ATP Priorities (tcmc0168m000)** session, which is linked to the **Project Management Offices (tppdm0110m000)** session.

In the **Planning Parameters (tppss0100s000)** and **Generate Planned PRP Orders (tppss6200m000)** sessions, you can specify whether to use ATP priorities, and the priority to consider. The settings in the **Planning Parameters (tppss0100s000)** session are used as defaults for the **Generate Planned PRP Orders (tppss6200m000)** session.

Bank guarantees

Previously, bank guarantees as part of Trade Compliance were applicable for Financials, Sales, Procurement and Project. In addition to contract deliverables, bank guarantees are now also available for contract lines with installments and deliverable-based invoicing.

Budgets for contract deliverables

Previously, budgets for a deliverable could be maintained only manually. There was a risk that items were handled twice, once based on the deliverable and once based on the budget.

These new features are now supported:

- A budget can be created for hardware and non-hardware deliverables in the new **Generate Budget for Deliverables (tppdm7200m400)** session.
- Budget lines that are created based on deliverables are excluded in the Project Requirements Planning (PRP).

For budget generation, either the cost component of the item or the cost component details can be used, which results in one amount or multiple amounts (depending on the number of cost components). In Cost Control, the same options can be used.

These constraints are applicable:

- To generate budget lines, a project peg is required on the deliverable.
- Deliverables of type **Maintenance** are not included.
- The budget's level of detail is limited. A BOM or routing cannot be used.
- If the cost details option is used for budget generation, the cost rate on the budget line cannot be changed because the budget line and cost details must match.
- To prevent too high and double figures, either the cost component or the cost component details option can be used in Cost Control.

Calculation of interim results up to a specified financial period

Previously, no end period or date could be set when calculating interim results and default values. Now, an option has been added to set the last fiscal period or date that must be considered in the **Generate Interim Results (tpppc3250m000)** and **Calculate Interim Result Defaults (tpppc4205m000)** sessions.

Note: The period selection is used for forecasts. We recommend using the same period for building actual cost control, because the monitoring data is used in the interim result process.

Capacity overview in Trade Group Capacity Workbench

These resource management improvements have been made:

- The **Main Trade Group** field has been added to the **Trade Groups (tppdm0530m000)** session. Consequently, you can now differentiate between main trade groups and trade groups. In this way, trade group welders can be broken down into experienced (senior) and less experienced (junior) welders. A

maximum of two levels are available and a main trade group cannot be used as the sub trade group of another trade group.

- The **Trade Group Capacity Workbench (tppdm8610m000)** session has been added. This is a 4GL workbench that includes this data:
 - A resource overview based on trade group
 - Labor budget lines to which a trade group is linked
 - Employees linked to a trade group

Classification and project activities

This topic mainly impacts bidding and activity management, but also project and contract management.

Bidding

The classification options **Business Sector** and **Group** have been added to the **Bid (tpest3600m000)** session. These classification options can now be defaulted from the project to the bid and used when a contract or contract line is created.

Activity classification

These features are now supported:

- The **Activity Selection (tppss2800m000)** session has been added to narrow down the selection of activities based on additional criteria, such as category, area, activity manager, and location. The new session can be started from these sessions:
 - Update Budget Status (tpptc2201m000)
 - Update Work Authorization Status (tppss2205m000)
 - Generate Budget from Reference Activity (tpptc2250m000)
 - Generate Service Orders (tppss6250m000)
 - Generate Planned PRP Orders (tppss6200m000)
 - Approve Planned PRP Purchase Orders (tppss6220m000)
 - Transfer Planned PRP Purchase Orders (tppss6230m000)
 - Approve Planned PRP Warehouse Orders (tppss6225m000)
 - Transfer Planned PRP Warehouse Orders (tppss6235m000)
 - Project Schedule (tppss2700m000)
 - Print Activities (tppss2400m000)
 - Print Milestones (tppss2402m000)
 - Delete Activities (tppss2200m000)
 - Generate Physical Progress from Planning (tpppc1240m000)
 - Generate Physical Progress in Planning (tpppc1250m000)
 - Check Customized Item Completed (tppss2203m000)
 - Print Cost Control (tpppc4411m000)
 - Print Project Control (tpppc4420m000)

- Print Hours Control (tpppc4414m000)
- In the **Activities (tppss2100m000)** session, a **Category, Business Sector, Phase, Area,** and **Address** can be specified. If an address is specified, values are automatically displayed in the related GPS fields. If no address is specified, the GPS fields can be filled manually.
The activity address is used as the location address in Resource Planning. In Project Requirements Planning (PRP), the activity address is the ship-to address. The GPS location is not used in both processes. In PRP, the **Cost Control** setting of an activity is leading. If this check box is selected, the address of the activity is used. If this check box is cleared, the address of the activity is ignored.
- An activity manager can be specified in these copy sessions:
 - Copying standard activities (tppss2202m000)
 - Copying project activities (tppss2201m000)
 If no activity manager is specified in the copy session, the activity manager of the activity is copied. If the activity manager is no longer employed, a warning message is displayed and the manager cannot be copied to the new activity.
- The **Synchronize** option has been added to the **Actions** menu of the **Activities (tppss2100m000)** session. It starts the **Activity - Synchronization (tppss2206m000)** session, which allows to set specific fields on lower levels of the activity structure. For example, the activity manager, location, address and the new classification fields can be synchronized to lower levels of the selected activity.

Note: These constraints apply to activity classification:

- All classifications must be explicitly set. They cannot be inherited.
- Classifications or an address cannot be specified for a standard activity and therefore cannot be defaulted to a project activity.

Project management

The **Financing Method** range has been added to the **Project Selection (tppdm6800m000)** session.

Project and contract management

The code has been extended from three to six characters for these classifications:

- Category
- Financing Method
- Project Location

Classification improvements for bids and extension

The acquiring method and financing method, which are available as classifications on the project and contract (line), are now available as new classification options in the **Bid (tpest3600m000)** session. These classifications can be copied from the project to a new bid.

The classification fields **Acquiring Method, Financing Method,** and **Line of Business** have been added to the **Extension (tpptc0110s000)** session. The line of business is retrieved from the business partner for a bid

and contract (line). The classification fields have also been added to the **Extension Selection (tpptc0810m000)** session.

The **Extension Selection (tpptc0810m000)** session can now be started from these sessions:

- **Transfer Transactions to Invoicing (tppin4200m000)**
- **Process Pro Forma Invoices (tppin4200m100)**
- **Generate Provisional Amount Transactions (tpppc3210m000)**

Copying of project notes

These check boxes have been added to the **Options** tab of the **Copy Project (tppdm7840m000)** session:

- **Notes**, to allow copying project notes. By default, the check box is cleared.
- **Project Text**, to allow copying project text. By default, the check box is selected.

Employee search and assignment calculation for projects

These improvements have been made to the resource management area of Project:

- Specification of a default department for standard and project-specific tasks.
- Retrieval of the number of hours for an assignment and calculation of the planned start or finish date of the assignment. Update of the planned dates on the budget line or activity.
- Introduction of an employee search, based on which you can specify criteria for evaluation. In sessions, the activity budget for labor and the resource assignment enable you to select one employees and use this employee on a budget line or resource assignment.

External scheduling interface improvements

These functions have changed for the external scheduling interface:

- Schedule Mode
- ESP User
- User Interface

Schedule Mode

When exporting a project, the schedule mode for external scheduling was always set to Automatic. Importing from an external scheduling package resulted in recalculated dates. Now, the **Schedule Mode** parameter has been added to the **Project Planning Parameters (tppss0500m000)** session, which can be set to **Auto Scheduled** or **Manually Scheduled**. The defaulted value can be modified for a specific project activity in the

Activities (tppss2100m000) session. The value used on the project activity is exported to the external scheduling package through the **External Scheduler Interface (tppss2231m000)** session.

ESP User

When creating interface data for the ESP interface, the user who makes the connection is stored. If the project was assigned to a different user or the user left the company, this user could not be changed. In the **ESP Project Overview (tppss2531m000)** session, you can now change the **User ESP** if the project is **Free** or **Active**.

User Interface

The interface data of the ESP interface included a UI only for the project level through the **ESP Project Overview (tppss2531m000)** session. To better analyze issues when interfacing data, the interface has been extended with options to display the data from the interface tables using these sessions:

- **External Scheduling Tasks (tppss2133m000)**
- **External Scheduling Task Relations (tppss2135m000)**
- **External Scheduling Resources (tppss2134m000)**
- **External Scheduling Calendars (tppss2132m000)**
- **External Scheduling OBS (tppss2136m000)**

These sessions can be started from the **References** menu in the **ESP Project Overview (tppss2531m000)** session.

Feedback for print and process sessions

Previously, for various print and process sessions, no feedback was given on what happened during printing or processing. Especially when working in multiple sessions, it was unclear what had been done or if anything had happened.

Now, at the end of processing, one of these messages is displayed in the status bar of several sessions:

- Abortion: Process aborted because of error(s)
- Stopped: Process stopped by the user
- Error: Process completed with errors
- Processed: Process completed
- None: No data within selection

File manager

When you use specific repository locations in the **External Scheduling Interface (tppss2231m000)** session, you can zoom to the LN File Manager. If you use a specific repository location during the import, the zoom for the XML file can be done on the server.

Note: The options for specific repository locations are initially hidden.

Forecast by cost type in Cost Forecast Entry session

Forecasting by cost type was not supported in the **Cost Forecast Entry (tpppc2615m000)** session and could not be initiated from the **Project 360** session.

Forecasting by cost type and indicators for the availability of forecasts have now been added to the **Cost Forecast Entry (tpppc2615m000)** session.

Note: Previously, in stand-alone usage of the **Cost Forecast by Activity/Cost Type** session, all irrelevant options are removed/hidden. This pattern is used again.

Forecast updates based on percentage

Forecasting can be time consuming. To speed up the process, forecasts can now be updated with a percentage value.

You can update the Estimate to Complete (ETC) with the percentage specified in the **Add Percentage** field of the **Generate Cost Forecast by Cost Object (tpppc2216m000)** or **Generate Cost Forecast by Activity/Cost Type (tpppc2226m000)** sessions.

The default percentage is zero. This option is available for cost object- and cost type-based forecasts.

Harmonized system code for project subcontracting items

The Harmonized System (HS) code is required for services in some countries.

This code can already be maintained for material and equipment as used in Project. You can now also specify the HS code for a subcontracting cost object in the **Subcontracting (tppdm0113s000)** and **Project Subcontracting (tppdm6113s000)** sessions. This code can be used for taxation and reporting purposes.

A technical coordinator has also been added for a subcontracting item.

Holdback improvements

These issues were applicable for holdback:

- The planned invoice date could be set only manually
- The used percentage was not visible
- The holdback totals could not be determined easily

These improvements have been made to the holdback functionality:

- A triggering activity / milestone has been introduced to set the planned invoice date
- The holdback percentage used for holdback transactions is now stored
- The total holdback amount is now displayed for the contract line

Note: For existing records, the holdback percentage is zero. Only for new records, the percentage value is displayed.

Additionally, in the **Holdback (tppin4140m000)** session, you can now cancel or split a holdback line and invoice only a part of the holdback amount.

For existing holdback lines, we recommend to first run the **Update Holdback Amounts (tppin0240m000)** session. This session is used to calculate the open holdback amount, which is the amount that must still be invoiced.

Link to XM expense report in cost transactions

The **Expense Report GUID (tpppc200.xgui)** field has been introduced. This field is not displayed, but is updated when an XM expense report is processed from **tcbod100**. If a value is specified in this field, a direct link to the expense report is available for project-related expenses.

To open the link, on the **References** menu in the **Cost Transactions (tpppc2100m000)** session, click **Original Document** and then **Expense Report**.

Maintenance delivery type

To handle maintenance through the project contract, **Maintenance** has been introduced as a new deliverable type in the **Contract Deliverables (tppdm7100m100)** session.

Additionally, this data has been added:

- The **Support Maintenance with Contract Deliverables** check box, which must be selected in the **Contract Parameters (tpctm0100m000)** session.
- The **Default Price Maintenance** parameter in the **Contract Parameters (tpctm0100m000)** session, which determines whether the default sales price is based on sales or service item data.
- The **Maintenance** tab in the **Contract Deliverables (tppdm7100m100)** session, which combines data from the other tabs with options that are specific to Maintenance.

If maintenance is handled through the project contract, these features are applicable:

- The Item – Service data is started when zooming for an item. Only items are allowed for which the **Process to Service after Delivery** check box is selected.
- Serials can be registered, but registration is optional in Project.
- After activation of the deliverable, After Sales Service data is created.
- Additional information is passed to the After Sales Service line.

- When processing the After Sales Service information that is based on the deliverable, Maintenance Sales Order and Part Maintenance lines are created. These lines can be processed as regular lines. The related costs are visible in Project based on the project peg.
- Invoicing is performed through Project or Service.
- If invoiced through Project, the contract and invoice type are key data.
- The invoiced value is always visible in Project.

The Turn Around Time (TAT) can be used if the **Project (TP)** check box is selected in the **Turnaround Time Parameters (tcttm0100m000)** session. During creation of a TAT document in Project, either the **Contract Delivery Date** or the **Confirmed Delivery Date** is required as input. If multiple TAT documents are required, you must specify several deliverable lines or use a deliverable schedule. Contract deliverable actions can be used as a start or stop event in the **TAT Event Set (tcmcs2151m000)** session.

Modification of the sales price for a contract deliverable after shipment

The **Change Prices and Discounts after Delivery (tppin0260m000)** session has been added to modify the price and discount of a contract delivery after a delivery has taken place. This session can be started from the **Project Shipments (tppin0160m000)** session for a contract deliverable.

Prices and discounts can be changed in this new session only if the invoice for the contract deliverable has not yet been sent.

Monitoring on cost plus projects

On projects linked to Time & Materials or Cost Reimbursement contracts, physical progress was ignored and the Actual Cost (AC) was used as the Earned Value (EV).

The **Use Progress Setting for All Projects** check box has been added to the **Project Progress Parameters (tpppc0500m000)** session to use the progress of all projects regardless of the linked contract type. If this check box is selected, the **Build Actual Cost Control (tpppc4803m000)** session considers all projects. This table shows the interaction between the project and cost object settings to determine the Earned Value (EV) and the Cost Variance:

	Cost Object Progress = yes	Cost Object Progress = no
Project Progress = yes	Determine result: EV - AC = Variance	Determine result: EV - AC = Variance

	Cost Object Progress = yes	Cost Object Progress = no
Project Progress = no	Determine result: EV - AC = Variance	Determine no result: AC = EV No variance

Negative amounts on contract lines

Previously, contract lines with a negative contract amount, for example in case of trade-in, could not be activated.

These features are now supported:

- Activation of contract lines with a negative contract amount
- Negative advance payments
- Negative installments

These constraints apply to the newly supported features:

- The **Contract Type** is **Fixed Price**
- The **Invoice Type** is **Installment OR Delivery Based**

These options are not supported:

- Progress Payments
- Discount
- Funding
- Holdback
- Shipment Acceptance

Non-conformance reports view from the Project 360 session

If non-conformance is used as part of Quality Management, an option has been added to the **Project 360 (tpdpm6500m100)** session to view the non-conformance reports (NCRs) that are linked to a project.

Option to import planned values

Previously, time-phased budgets could only be generated and overhead could not be budgeted.

Now, the creation method for time-phased budgets can be set either to **Generate** or **Manual**.

For budget versions that are set to **Manual**, these features are applicable:

- Planned value amounts can be manually specified
- Planned value amounts can be imported through Excel
- An overhead amount is allowed
- In performance measurement, planned values are based on the time-phased budget

Note: Changing planned value amounts, using Excel import, or using overhead is applicable only for manual Time-Phased Budget Versions.

Orders in project schedule

In addition to production orders, you can now also display purchase orders, service orders, and work orders in the **Project Schedule (tppss2700m000)** session if these orders are linked to a project activity.

The **Show Orders** group has been added to select which orders are displayed. The **Color Group** field can be used to select a color from the **Gantt Chart Colors (tccom5102m000)** session, which can be used, for example, to distinguish the purchase orders from the production orders. Drill downs are available to the purchase order lines, service orders, and work orders. An indicator column in the Gantt shows if another project peg is present for the same purchase order line.

If changes are required, they must be made on the corresponding purchase, service, or work orders.

Price terms per contract line

Previously, if a project was linked to multiple contract lines, the contract type had to be the same for all contract lines: either **Fixed Price**, **Cost Reimbursement**, or **Time & Materials**.

To better reflect the actual business scenarios, the contract type can now be different. Contract lines of the same contract can have different contract types. For example, a **Fixed Price** contract line and a **Time & Materials** contract line can both be linked to the same project. It is important that correct links are available between the contract lines and project pegs, so that the project conditions are clear. For example, to determine whether the costs fall under the fixed price agreement or whether they must be invoiced to the customer.

If a contract has contract lines with different contract types, the revenue recognition can be affected. If the revenue cannot be recognized on the project or contract level, the revenue must be recognized by contract line.

Project (PCS) series in user profile

The series used for generation of a PCS project could be specified only in the **Project Parameters**. The series could not differ for users.

Now, the **Order Series for PCS Project** field has been added to the **User Profile (tppdm0101s000)** session. If a value is specified in this field, these series are used for the user. If blank, the value specified in the **Project Parameters** is used.

Project schedule data selection

The data selection has been extended in the **Project Schedule (tpss2700m000)** session to include the **Activity Type** and **Location**. The location could already be specified for an activity, but it can now also be set for a milestone using the **Milestones (tpss2101m000)** session.

Top-down budget only for activities with budget

Previously, if the bottom-up budget was used to generate a top-down budget, the activities with a zero budget were also used. This resulted in leaf nodes with a zero amount budget.

To skip activities that have no bottom-up budget, the **Only include Activities with Budget** check box has been added to the **Generate Structure and Top Down Budget (tpptc5210m000)** session. By default, this check box is cleared. The check box is enabled only if the **Copy Activity Budget Lines** check box is selected.

Overhead

To improve usability, automation, and performance of the overhead calculation process, these modifications have been made:

- The **Exclude Projects with Phase** check box has been added to the **Calculate Overhead (tppdm2200m000)** session. A phase can be specified which indicates that the project is not active but waiting for final overhead rates. Projects with the specified phase are excluded from the calculation process, which improves performance.
- The **Apply Overhead Calculation Results (tpppc6200m200)** session is a new session to calculate and apply overhead. The session can be started from the LN menu, or from a job. If run from the menu, the overhead is calculated for the current user. If run from a job, the calculation results of the job user are applied.
- The **Clear Overhead Calculation Results (tpppc6200m100)** session is a new session to delete, for a range of users, the unprocessed overhead calculation results until a specific date. Deletion of these

records reduces the number of records in the tables tpppc600, tpppc610, and tpppc620, which improves the performance of the calculation process. The session can be started from the LN menu, or from a job.

- Previously, the **Calculate and Apply Overhead (tpppc6120m000)** session only showed the calculation results of the current user. To view the overhead calculation results of other users, a different user than the current user can now be selected in this session. The **Detailed Overhead Calculation Results (tpppc6110m000)** and **Overhead Cost Transactions (tpppc6100m000)** sessions, which can be started from the **References** menu of the **Calculate and Apply Overhead (tpppc6120m000)** session, also show the results of the selected user. This new functionality provides a better insight in the overhead calculation results generated by other users or a job user and helps to delete the unnecessary results.

Overhead in monitoring

On the **Overhead** tab in the **Project Parameters (tppdm0500m000)** session, the **Include in Monitoring** check box has been introduced. This check box determines whether the actual overhead cost must be included when calculating project totals for monitoring. Overhead costs are included on these levels:

- Project
- Cost Type
- Cost Component
- Element
- Activity
- Element/Cost Type
- Activity/Cost Type

These constraints are applicable:

- If there are many overhead transactions, the **Build Actual Cost Control (tpppc4803m000)** session can take a long time.
- No overhead cost object-specific levels are available.
- Because overhead amounts are also used in various calculations, such as Percentage of Completion, we recommend not to clear the **Include Overhead** check box in the **Build Actual Cost Control (tpppc4803m000)** session if the **Include in Monitoring** check box is selected.

Price terms per contract line

Previously, if a project was linked to multiple contract lines, the contract type had to be the same for all contract lines: either **Fixed Price**, **Cost Reimbursement**, or **Time & Materials**.

To better reflect the actual business scenarios, the contract type can now be different. Contract lines of the same contract can have different contract types. For example, a **Fixed Price** contract line and a **Time & Materials** contract line can both be linked to the same project. It is important that correct links are available between the contract lines and project pegs, so that the project conditions are clear. For example, to determine whether the costs fall under the fixed price agreement or whether they must be invoiced to the customer.

If a contract has contract lines with different contract types, the revenue recognition can be affected. If the revenue cannot be recognized on the project or contract level, the revenue must be recognized by contract line.

Printing of cost-plus transactions by registration date

For a range of registration dates, you can now select the **Cost-Plus Transactions to be Invoiced** option in the **Print Cost-Plus Transactions (tppin4457m000)** session. This option is already available as part of several other invoicing-related options.

Project activity relationships

In the **Project Schedule (tppss2700m100)** session (Gantt), you can now establish activity relationships in the schedule itself. This can be done by selecting an activity or milestone and using the **Create Successor Activity Relationship** or **Create Predecessor Activity Relationship** options. By default, the **Relationship Type** field is set to **Finish-to-Start** and the **Lag** field to zero, but these fields can be changed before the new activity relationship is saved.

The options to create successor or predecessor relationships have also been added to the **Activities (tppss2100m000)** session.

If the **Activity Relationships (tppss2510m000)** session is started with a specific activity selected, the existing relationships for that activity are displayed. Previously, for the **Activity Relationships (tppss2510m000)** session, only an overview was available. Now, this session can also be started in a details mode to view all details of a planning relationship.

Project estimating and budgeting

These features are now supported for project estimating and budgeting:

- Merging of several estimate lines into one new line with the **Merge Estimate Lines (tpest2200m300)** session. The cost amount of the new line is then used for cost aggregation. This can be used, for example, to shift material, equipment, and own labor to a subcontractor.
- Transfer of the buy-from business partner that is used on the estimate line, to the budget.
- Availability of a buy-from business partner on budget lines for material, subcontracting, and equipment. The buy-from business partner is optional, but can be used as a default for Project Requirements Planning if the business partner is the same for all budget lines of the same element or activity.
- Availability of a contingency amount on budget lines. This is for information only.

- Budget adjustment additions, including the extension of the budget adjustment code to 9 and the description to 60, the option to capture a reason code, and the visibility of the budget adjustment on budget lines.
- Visibility of the cost determination method for subcontracting. This method affects the allowed options. Therefore, the method is displayed in the budgeting sessions for subcontracting and in other LN Project modules.

Project equipment as serial item in Service

Companies in the construction and engineering industry often have internal equipment that is used to carry out projects. The requirement is to perform planned and unplanned maintenance on this equipment.

In Service, you can now maintain (internal) equipment as used in Project. Consequently, standard options for equipment, such as calls, service orders, and work orders are now available in Service. Some Service options are available only if the equipment has been specified as serialized and serialized item data is present.

These constraints are applicable:

- Equipment maintenance is supported only for internal equipment that is specified as a cost object in Project.
- Equipment can be maintained, but cannot be used to do maintenance.
- Several Service options are specific for serialized items, such as inspections.
- Only internal projects can be linked and the maintenance cost charged to the project.
- Equipment cannot be handled in warehousing. Consequently, always use a location.

Specification of the project activity date when the actual work has started

If the new **Set Actual Start Date based on Cost** parameter is selected in the **Project Planning Parameters (tppss0100s000)** session, then the actual start date of a project activity can now be set, based on the actual cost that has been registered for an activity.

If selected, the actual start date is set as a result of registering and processing actual cost.

Subcontracting items for contract deliverable

Previously, subcontracted services specified in Project could not be used on a contract deliverable. In the **Contract Deliverables (tppdm7100m100)** session, you can now use a subcontracted service as a contract deliverable of type Non-Hardware. The standard unit cost as defined in Project is used.

These constraints are applicable:

- Only subcontracted services can be used that are specified in Project, not in Manufacturing.
- Only standard subcontracted services are allowed, not the project-specific ones.
- Services for which the **Control Function** is set to **Control** **Code** can be specified, but the deliverable cannot be activated.

Total duration and planning factor

The **Assignments** tab in the **Activity Budget (Labor) (tpptc2630m000)** session now shows the total time assigned.

A planning factor has been introduced in the **Resource Management Workbench (tssoc8351m000)** session, which is used to capture the efficiency rate (planning factor) for activity labor budget lines. The planning factor indicates the number of employees required to perform the task. The default planning factor is specified in the **Tasks (tppdm0511m000)** and **Project Tasks (tppdm6511m000)** sessions.

The planning factor is used for activity budget lines of type **Labor** only and cannot be captured for element budget lines. The planning factor does not affect the duration calculation.

Total type indicator

The total type indicator, which is used in the **Budgeted Project Costs (tpptc3540m000)** and **Control by Project (tpppc4510m000)** sessions, is used to filter by **Main Project Total** or **Project Total**. The indicator is now set for all project hierarchy types (main, sub, single). Previously, it was set only for main and subprojects.

Chapter 3: Planning

Item Master Plan by Work Center

The **Item Master Plan by Work Center (cprrp8350m000)** is a new session that supports these features:

- Provides information to a planner about stock levels, labor and machine hours
- Provides information about forecast, planned production, and inventory levels for an item by week period
- Provides graphical information about cumulative supply forecast for selected items
- Provides graphical information about available, actual, and planned machine and labor hours

Planner Workbench

A new resource entity has been added. It is used to model the capacity of the operational entities in production and subcontracting.

The new **Planner Workbench (cprrp8351m000)** shows, for the selected resources, the available and required capacities over time. If a resource is marked, the data that makes up the load is shown as an in-context capacity load in the lower half of the screen. Consequently, users can now view the incremental load of any planned or firm order, with the capability to drill into the order to review the details. .

Chapter 4: Manufacturing

ASC - Assembly Line Supervisor Workbench

The **Assembly Line Supervisor Workbench (tiasc8350m000)** session has been introduced for the assembly line supervisor role.

This workbench provides these features:

- Graphical and enhanced visibility on the production flow and sequence of assembly orders.
- Ability to perform actions, such as **Generate Assembly Orders**, **Generate Line Sequence**, and **Report Line Station Order Completed** from one central place.
- Personalization options for actions that can be carried out.

Additionally, you can perform these actions:

- When you select an order in the **Lines and Order** section:
 - The segment for which the order is active is automatically displayed in the **Line Sequence** section.
 - The selected order (assembly line, segment and station) is highlighted in the **Line Structure** section.
- You can hold and drag the order to move the order and change the sequence position of the order in the segment. You can drag an order only if the sequence status of the order is **PLanned**.
- You can use the **Start/Stop Process Triggers** command to trigger the process triggers specified in the **Process Trigger Definition (tiasl8100m000)** session.
- You can use the **Receive Assembly Part** command to start the **Warehouse Order – Status Overview (whinh2119m000)** session in which you can receive the warehouse order line.

ASC - backflushing

Backflushing of hours

These parameters have been added to the **Repetitive Manufacturing Parameters (tirpt0100m000)** session:

- **Automatic Labor Hours**
- **Automatic Work Cell Hours**

If the **Automatic Work Cell Hours** parameter is selected, these options for booking hours are available:

- **Register Work Cell Hours:** The hours are taken from the clocked hours by user.
- **Backflushing Hours:** The hours are taken from the theoretical hours.

- **MES:** This option is available for further development and will be used to pull the data from an external source.

There is now a better flow of RPT hours initialization, accounting (booking), and approval with the aim of making the reporting process automatic and more streamlined.

Backflushing of material and hours for a line station

Previously, when a line station order was reported complete in the **Line Station - Assembly Orders (tiasl6510m000)** session, the material requirements and hours budgeted for that order could be backflushed only manually in the **Backflush Requirements (tiasc7241m000)** session.

Now, the **Trigger Automatic Backflushing** check box has been added to the **Stations (tiasl1545m000)** session. If this check box is selected and a line station order is reported complete, the order's budgeted material requirements and hours are backflushed automatically for the applicable station and the preceding connected stations.

ASC - external sequencer integration

Previously, Assembly Control could use the internal Sequencing Engine only to provide an operation sequence to assembly orders. This Sequencing Engine was often seen as limited because it was completely focused on production optimization through functions and option-based rules.

Now, external Sequencing Engines can be integrated directly with Assembly Control through these new BDEs:

- AssemblyLineSequence
- Method UpdateLineSequence

To enable this functionality for a site, the **External Assembly Order Scheduler** check box has been added to the **Assembly Control Parameters (tiasc0100m000)** session. If this check box is selected, the internal Sequencing Engine cannot be used.

Consequently, you can now choose whether to use the internal or external Sequencing Engine.

ASC - forecasting consumption logic

In addition to the existing forecasting functionality, a separate solution for forecasting configurable assembly items is now available.

The new solution for assembly items differs from the current solution for standard and generic items in these respects:

- The master planning module is not used.
- Family items are used for reporting purposes only.

To support the planning of important materials, these entities have been added:

- Assembly planning bill of material.
- Planned assembly order.
- Models. A model is characterized by a specific combination of defining features or options of the configurable product. They can optionally be used to refine the forecast and the forecast consumption.

ASC - generation of SILS messages for late orders

Previously, supply messages for late assembly orders could not be created in the Assembly Transfer Messages SILS.

Now, the **Generate Supply Messages (tiasc8210m100)** session has been added, which supports these features:

- Generation of supply messages for line station orders with a planned date in the past.
- Selection ranges, for example, the **Generate Time Horizon-driven SILS Supply Messages (tiasc8212m000)** session.
- The same options as the **Replenish Shop Floor Warehouse (tiasc8210m000)** session with an additional option for late line station orders.

ASC - multiple assembly order series

Previously, assembly orders were generated based on a default number group series specified in the **Assembly Control Parameters (tiasc0100m000)** session.

Now, number group series have been added to the **Assembly Lines (tiasl1530m000)** session to generate assembly orders based on a different number group series.

ASC - return of FAS items in inventory

Configured items that are produced in Assembly Control can now be returned back to inventory. This process is initiated by a sales order of type **Return Inventory**.

The return process depends on the value of the **Sell Multiples of Same Configuration** check box in the **Assembly Planning Parameters (tiapl0100s000)** session:

- If the check box is cleared, a sell single scenario is applicable and a single configured item can be returned.
- If the check box is selected, a sell multiple scenario is applicable and multiple configured items can be returned by selecting the serial number(s) from the original shipment.

ASC - time effective standard cost

Previously, in Assembly Control, when the costs were frozen through the **Refresh and Freeze Assembly Order (tiapl3203m000)** session, the WIP estimates could not be changed and these costs were taken into account during the WIP transfer **Issue/Receipt**.

Now, the WIP estimates can be updated even after the cost freezing process has been performed for the assembly order.

WIP estimates are calculated when processing the **Refresh and Freeze Assembly Orders (tiapl3203m000)** session. The WIP estimates are inserted for the assembly order based on the assembly reference date of the order.

ASC - use up material

The Use Up Material logic has been extended to Assembly Control. This new enablement is tied to the bill of material of Engineering Modules. When specifying the list of materials for an Engineering Module, use up materials can now be defined for each bill of material's component in the **Assembly BOM and Operations (tiapl2520m000)** session.

Use Up materials can also be specified, maintained and retrieved from the Engineering Data Management (EDM) module, if Engineering Modules maintenance is performed in this module. When using this functionality, during Assembly Part Requirement Calculation and Allocation, the use up material is planned to be used up until its inventory level reaches the minimum level of quantity.

JSC - Job Shop Operator Workbench

The **JSC Operator Workbench** has been enhanced with a usability feature. In the **Register Quantity** dialog box, serialized quantities can now be completed or rejected and then saved without closing the dialog box. The dialog box can be closed manually.

JSC - Job Shop Planning Board

The **Job Shop Planning Board (tisfc8372m000)** has been added to facilitate the day-to-day activities of a planner.

These features are supported:

- You can filter based on work center, shop floor planner, routing group, and production department.

- For a selected production order or operation, you can display material availability based on pegging information. Short or late supply is indicated by self-explanatory color coding.
- Functions are available to perform actions directly from the planning board, such as creating a new production order and completing an operation.
- You can display linked orders and operations in the production and scheduling Gantt charts.
- An in-context view is available of the shop floor capacity utilization for shop floor planners.
In-context refers to the context of the production order operations that are marked in the Gantt schedule. If planned operations must be adjusted, the capacity utilization provides feedback on where there are gaps to move to. The capacity is colored, based on the usage thresholds set by the user. Material availability and capacity utilization are retrieved based on user settings.
- You can double-click a production order to open JSC order screens.
- You can double-click an operation to open operation screens.
- In the user settings, these options are available for connection arrows and material filters:
 - Show connection arrows when selecting an operation (SCS scheduler behavior), or show always.
 - Show materials that are in stock, running out, or are not yet in stock.
- **Job Shop Schedule Runs** is available on the context menu of the empty Gantt. This starts the session in a modal.
- For operations, the **Fix dates for Planning and Scheduling** menu is available. It has options for **Fixed Planning Dates** on operation and **Locked for Scheduling** on machine operation. If there are no machine operations, or Job Shop by Site is inactive, the title of the menu is **Fix dates for Planning**.
- If **Fixed Planning Dates** or **Locked for Scheduling** are selected, the lock symbol is shown for the operation activity.
- To specify the machine breakdown time for the machine that is linked to the selected operation, you can start the **Machine Availability (tirou8350m000)** session.
- The quantity of a production order is shown when hovering over the production order.

JSC - Labor Utilization Graph

The **Labor Utilization Graph (tisfc8370m000)** session provides information to an operator or supervisor about the situation on the shop floor regarding the workload in work centers for the production departments of the site.

This session includes these purposes:

- View the available capacity and utilization of the labor
- View information about the work center and working hours
- View the production order operations and their status in a work center
- View information related to orders, operations, order lateness, and progress

JSC - line side labeling and scan to book for non-referenced schedules

Line side labeling is the process of printing the final shipping labels already during production. This process is typically implemented for these reasons:

- To avoid relabeling at the time of shipment. This saves costs and time. Additionally, full traceability of a handling unit through the complete process is provided.
- To report production orders complete through the Scan to Book process. A new Factory Track transaction is available to support this Scan to Book process. With this transaction, an operator can report quantities complete for a production order by scanning the handling unit ID from a label that is attached to a container.
- To reduce mislabeling, by attaching container labels during production or receipt rather than at the shipping dock.

These enhancements have been made for the Line Side Labeling functionality:

- The demand pegging type **Order Based** is now supported. Consequently, information from the sales schedule can be printed on the label.
- Final shipping labels can now be printed and reprinted anytime after the production orders (job shop orders) have been released.

JSC - machines

New building blocks

These building blocks have been introduced for job shop manufacturing:

- Machine numbers
- Machine operations

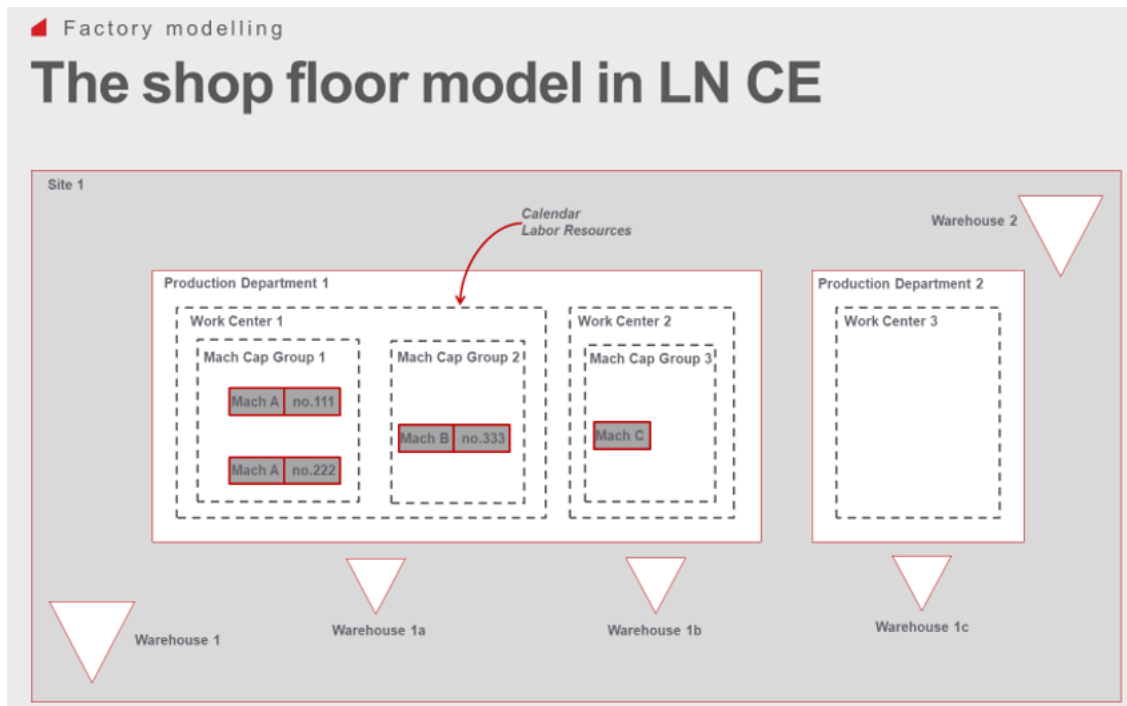
The new building blocks are used to support these features:

- Report the production progress by machine
- Determine the overall equipment efficiency (future)
- Interface with a Manufacturing Execution System (IoT) (future)
- Schedule the work on the shop floor
- Manage the maintenance of the machine (future)
- Manage the purchasing, moving, depreciation and selling of the machine (future)

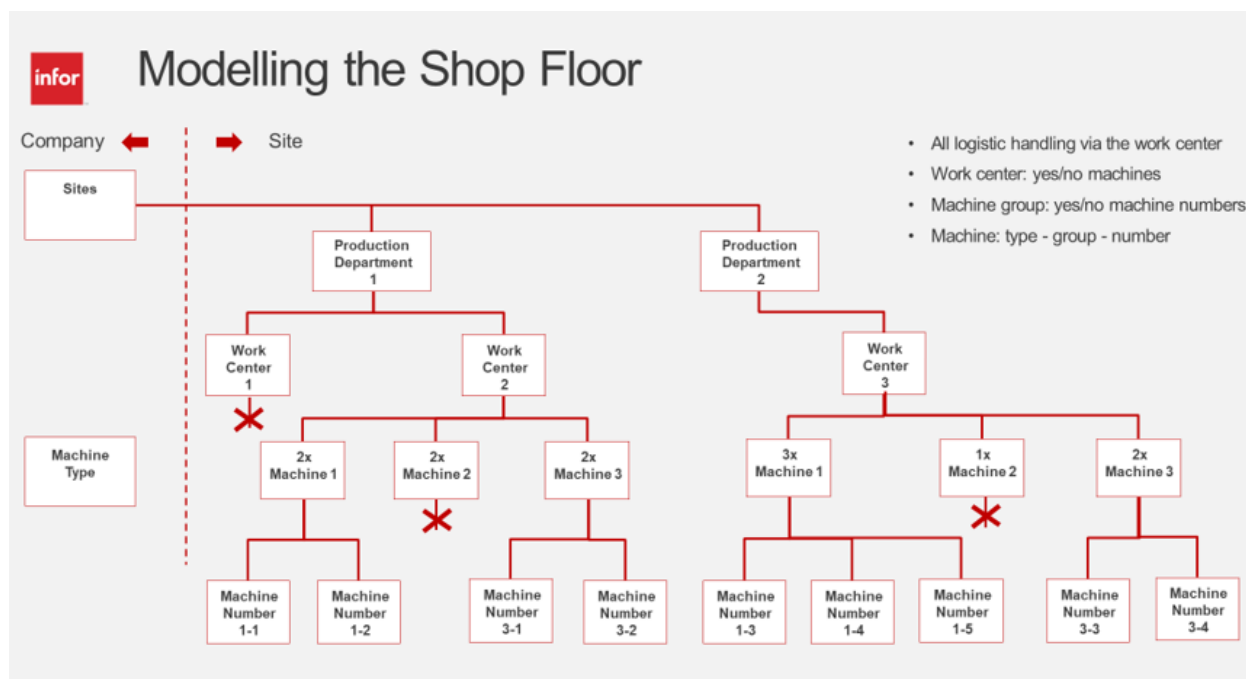
Note: If machine numbers are added to an existing machine capacity group of a work center, the logic of Planning, production orders, and employee hours is not impacted. The method of collecting reporting data can be affected.

Extension of the shop floor model

To model the physical machine, the shop floor model has been extended with the machine number.



Previously, a start was already made to model the actual machine as part of a work center. The Machine, which could be used in the routing definition as a machine type or as a capacity group, was changed to Machine Type and the machine capacity group was added to the work center definition. Now, the Machine Number has been introduced to complete the model for the actual machine.



For each machine capacity group, it can be specified if the actual machines are modeled.

For each actual machine, this data is specified:

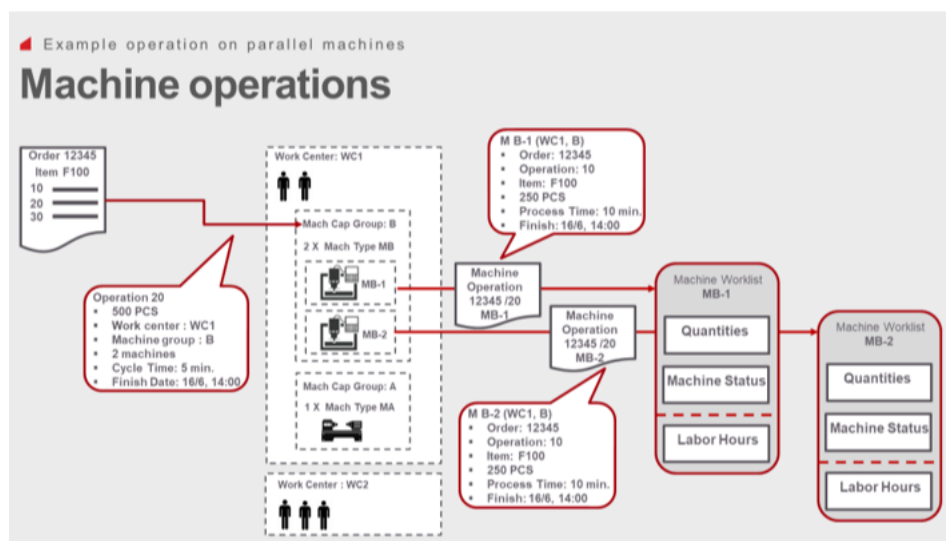
- Machine number
- Machine type (to which machine capacity group it belongs)
- Location (to which work center it belongs)

Machine operation

For each routing operation, it is specified on which machine capacity group the job must be performed and how many machines of the group must be used. The actual machines are assigned when the production order is created.

Assignment of a machine is done through the default sequence specified on the machine capacity group, manually, or if the new scheduler is implemented, by the scheduler.

The information regarding the production of the product on the selected machine is stored on a separate entity: the machine operation. When the production order is released, the machine operation is displayed on the machine worklist of the machine.



Note: If multiple machines are specified for the operation, multiple machine operations will also be created for the operation.

Reporting of produced quantities by machine

Reporting the produced quantities by machine, serves these purposes:

- Determine the production progress of a product. Ultimately, this information is stored on the production order (operation).
- Determine the efficiency of a machine. Ultimately, this information is stored in the performance indicators on the machine for each shift (OEE).

Previously, the reporting on the operations had to be done in sequence and the production order only stored the cumulative results. However, separate bookings for the OEE calculation and out of sequence reporting of operations are required.

To support these requirements, a new reporting process has been introduced:

- Each quantity booking is (temporarily) stored in a separate record.
- The total produced and rejected quantities are always updated on the machine operation.
- The reporting of quantities on the production order operation is done in a separate process, through the **Aggregate Machine Operation Quantities (tisfc4201m000)** session.
- The OEE is calculated at the end of the shift (not yet available).

Reporting of machine hours

The actual machine hours are not registered, but are calculated based on this data:

- The setting of the machine status through the machine worklist.
- The produced quantities (backflushing).

Reporting of shifts

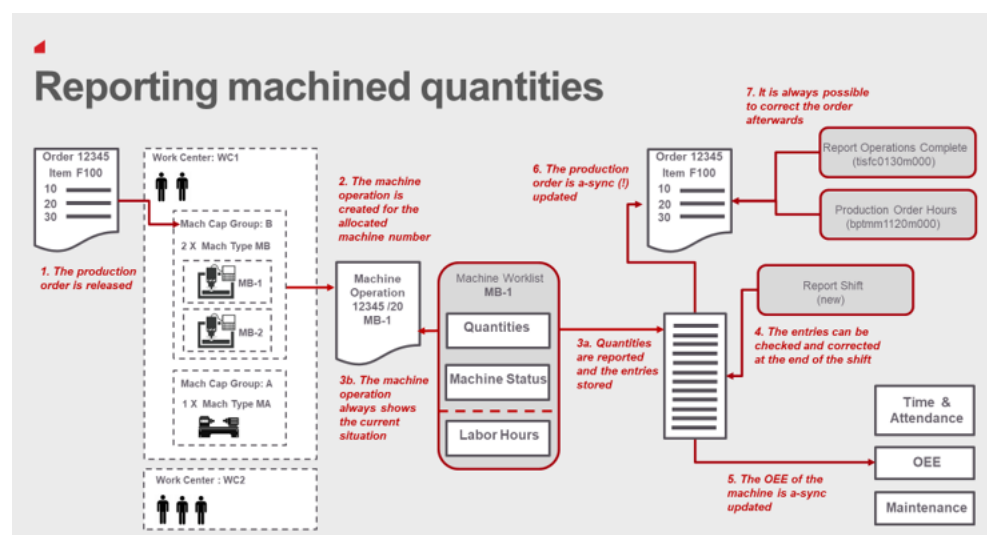
At the end of a shift, a shop floor supervisor usually verifies if the registered quantities and the calculated machine hours are correct. The **Report Shift (tisfc4112m000)** session has been introduced to correct erroneous entries and to handle rejects. Subsequently, the entries can be booked to the production order.

Additionally, in a production order, corrections are based on “deltas”. For example, if 100 pcs are booked instead of 10, this is corrected through a -90 pcs booking. This booking method can distort an OEE calculation and is not in line with the bookings of some Manufacturing Execution Systems. Consequently, the mechanism for correcting quantity bookings has been enhanced. Now, an erroneous booking is corrected by two bookings: a correction of the wrong booking and an addition of the correct booking. In the above example, first a -100 pcs booking is done and then a booking of +10 pcs. All three bookings have the same transaction date (timestamp of the original transaction).

Update of the production order

Many scenarios are available for reporting the produced quantities, actual machine hours, and actual labor hours on the production order and the actual hours of the employee.

With the introduction of the actual machine, an additional level for reporting has been introduced. The machine worklist lists the planned jobs on the machine and is used to report the produced quantities and the actual spent machine hours.



The data is stored in new tables and is used to update this data for the applicable operation of the production order:

- Produced quantities
- Actual machine hours

Several sessions are involved to retrieve quantities and hours to update the production order and the employee hours.

The actual quantities for an operation are retrieved based on these methods:

- Automatic calculation, based on the reported quantity for the next operation (see the **Reporting Method for Previous Operations** field in the **Production Settings by Site (timfc0180m000)** session).

- Manual input in the **Report Operations Complete (tisfc0130m000)** session.
- Manual input in the **JSC Operator Workbench (tisfc8350m000)**.
- Manual input in and update from the **Machine Work List (tisfc4600m000)** session.

The actual machine hours for an operation are retrieved based on these methods:

- Automatic backflushing based on the reported quantities.
- Manual input in the **Production Order Hours (bptmm1120m000)** session.
- Manual input in (start/stop) and update from the **Machine Work List (tisfc4600m000)** session.

The actual labor hours for an operation are retrieved based on these methods:

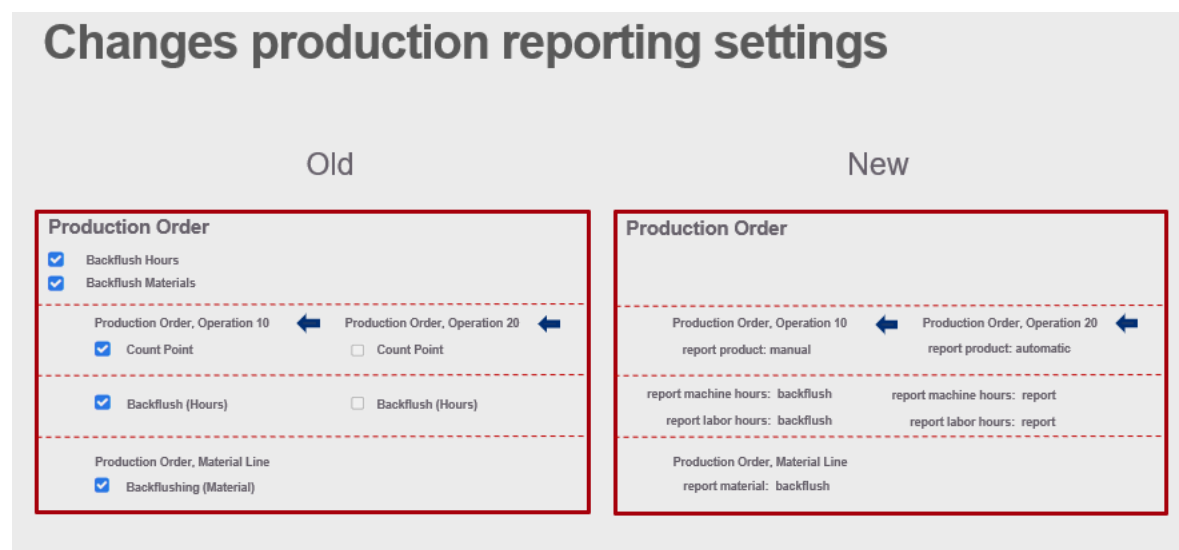
- Automatic backflushing based on the reported quantities.
- Manual input in the **Production Order Hours (bptmm1120m000)** session.

The actual hours for a named employee are retrieved based on manual input in the **Production Order Hours (bptmm1120m000)** session.

Reporting settings

The reporting of produced quantities and spent hours can be done in multiple ways, which is specified on the production order and the production order operations.

Previously, the reporting settings for machine hours and labor hours could not be specified separately. To allow for all logical combinations of reporting, this has changed in LN. The defaulting of the reporting settings has also changed.



Previously, the settings for backflushing hours and material on the production order header were used to support a mass change of the settings on the material lines and operations. In LN, this functionality has been removed.

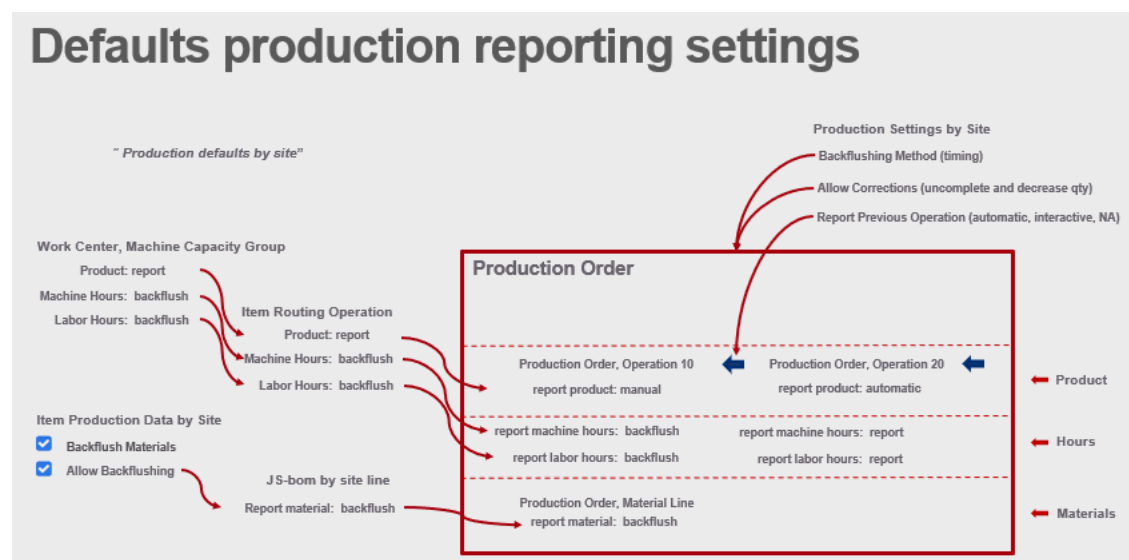
Previously, the reporting settings for machine hours and labor hours could be specified on the production order operation with one parameter for both machine and labor hours. Now, the reporting settings for machine hours and labor hours have been split. Consequently, these reporting modifications have been made:

- Labor hours can be backflushed based on the reported quantities on the operation.

- Labor hours can be reported on the operation through LN People.
- Machine hours can be backflushed based on the reported quantities on the operation.
- Machine hours can be backflushed based on the reported quantities on the machine operation.
- Machine hours can be reported on the operation through LN People.
- Machine hours can be reported on the machine operation through the worklist.

Defaulting of reporting settings

The settings for how reporting is performed, are partly specified on the production order and partly in the **Production Settings by Site (timfc0180m000)** session. To conform to the new reporting procedures, the defaulting of these settings has changed.



This two-stage defaulting applies to product reporting:

- Depending on the layout of the work center, the settings of either the work center, the machine capacity group, or the machine number are used to default the item routing operation.
- The settings on the item routing operation are used to default the production order operation.

This two-stage defaulting applies to machine hours reporting:

- The settings on the machine capacity group are used to default the item routing operation.
- The settings on the item routing operation are used to default the production order operation.

This two-stage defaulting applies to labor hours reporting:

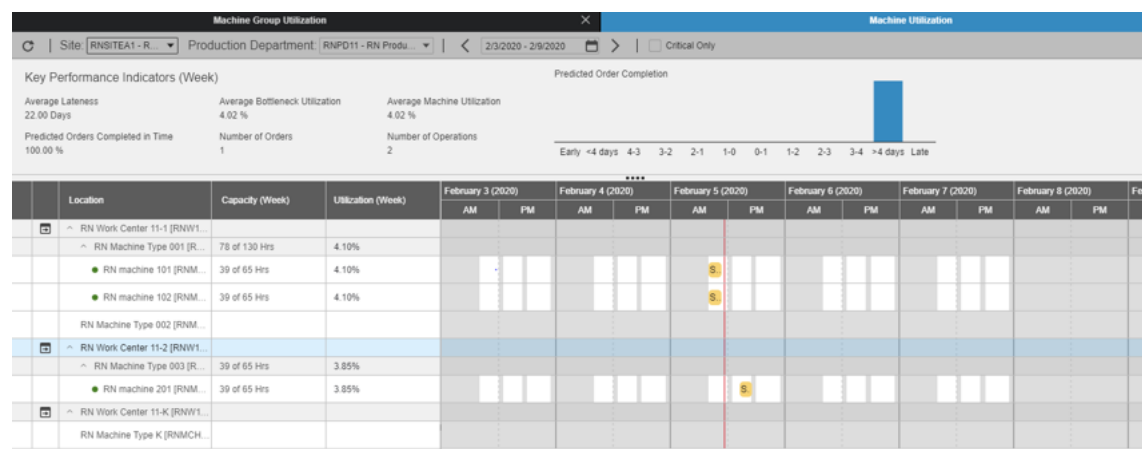
- The settings on the work center are used to default the item routing operation.
- The settings on the item routing operation are used to default the production order operation.

This two-stage defaulting applies to materials reporting:

- The settings on the item production by site are used to default the job shop bill of material line.
- The settings on the item routing operation are used to default the production order operation.

JSC - machine utilization

The **Machine Group Utilization (tisfc0661m000)** session has been extended with the graphical **Machine Utilization** session.



This information is displayed for the selected production department and week:

- Machine capacity groups and machines
- Available hours for the week
- Current utilization for the week
- Applicable operations (created, released, finished, interrupted)
- Key performance indicators:
 - Predicted production order completion
 - Average lateness in days (1 decimal)
 - Percentage orders completed in time
 - Average utilization (including bottleneck machine groups)
 - Average utilization bottleneck machine groups
 - Number of released, active and created orders
- Machine time-outs

JSC - Machine Workbench

The new **Machine Workbench (tisfc8376m000)** is used to show an operator the work to be done and to register the production progress by machine within a machine group under work centers. In this workbench, the planned machine operations for a selected machine and shift are displayed and can be managed.

An operator can perform these actions:

- View and register the machine status by using the **Up/Down** button
- Specify the machine operation hours
- Book completed/rejected quantities

- Complete the machine operation

JSC - mass calculation and update of the order lead time

In the **Job Shop Routing (tirou4600m000)** session, you can now specify how the lead time is calculated. The order lead time can be maintained manually or it can be calculated automatically, based on the lead times of the operations in the routing.

JSC - order block sequencing

Some machining processes require extended setup time. This setup (changeover) time is significantly affected by the condition of the machine due to the previous task. Therefore, the sequence of the different operations on a machine over a period of time determines the total setup time.

Minimizing the cumulative setup time by sequencing the orders is a trade-off between advantages and disadvantages.

Advantages:

- Less setup cost
- Shorter throughput time, thus minimizing work in progress cost
- Better use of the bottleneck machine

Disadvantages:

- Higher inventory cost
- Late deliveries

The process of grouping and sequencing orders was already supported by the order block planning functionality. However, this functionality cannot be used if **Job Shop by Site** has been activated. To also support this scenario, the Order Block Sequencing functionality has been introduced.

Master data

New and extended master data has been added to support the order block sequencing functionality.

This master data is impacted:

- Settings
- Plan groups
- Machine capacity groups
- Setup class sets, setup classes and setup states
- Item setup states

Settings

In the **Scheduler** group box of the **Production Settings by Site (timfc0180m000)** session, these fields have been added:

- **Maximum Number of Setup Classes:** Determines how many setup classes can be specified in a setup class set. The possible values are 1, 2 or 3.
- **Maximum Number of Setup States:** Determines how many setup states can be specified in a setup class. The possible values are 1 - 12.

Note:

Enabling the production order sequencing functionality requires an activation process.

Plan group

The **Work Center Plan Group (tisch0140m000)** session has been extended with two check boxes to determine whether the scheduler or the sequencer is applicable for the plan group.

Machine capacity groups

In the **Planning** group box of the **Machine Capacity Group (tirou4661m000)** session, the **Changeover Critical** check box and **Setup Class Set** field have been added.

Setup class set, setup classes and setup states

For each machine capacity group, a template for the (optimal) production sequence can be specified in the **Setup Class Set (tirou4671m000)** session.

Machine capacity group, setup class set, setup class

Machine capacity group: MC001

Setup class set: 1234

Sequence	Setup Class
10	AAA
20	BBB
30	CCC

Setup class: AAA

Sequence	Machine State
10	A
20	B
30	C
40	F
50	E
60	D

- The setup 'templates' (set, class and state) are always by machine capacity group
- A "setup class set" can have maximal 3 "setup classes"
- The sequence of the sets can be changed with "move up / move down"
- A "setup class set" (and the setup classes) can be copied to another "machine capacity group"
- A "setup class" can have maximal 12 "setup states"
- The sequence of the states can be changed with "move up / move down"

In a setup class set, up to 3 setup classes can be specified. In a setup class, up to 12 setup states and their mutual sequence can be specified.

Item setup states

If the routing of a product uses a machine capacity group that is critical for setup, the setup states for the combination of machine capacity group and item can be specified in the **Item – Setup Class States (tirou4675m000)** session.

Sequencer

Machine capacity Group, setup class set, setup class

Machine capacity group: MC001

Setup class set: 1234

Sequence	Setup Class
10	AAA
20	BBB
30	

Setup class: AAA

Sequence	Machine State
10	A
20	B
30	C
40	F
50	E
60	D

Machine capacity group: MC001

Product: P0001

Set	Class	State
1234	AAA	B
1234	BBB	G

- In the machine capacity group / item table the applicable set / class / state are defined
- Set / class are defaulted with empty states
- It is only possible to define existing states
- A state can be left empty

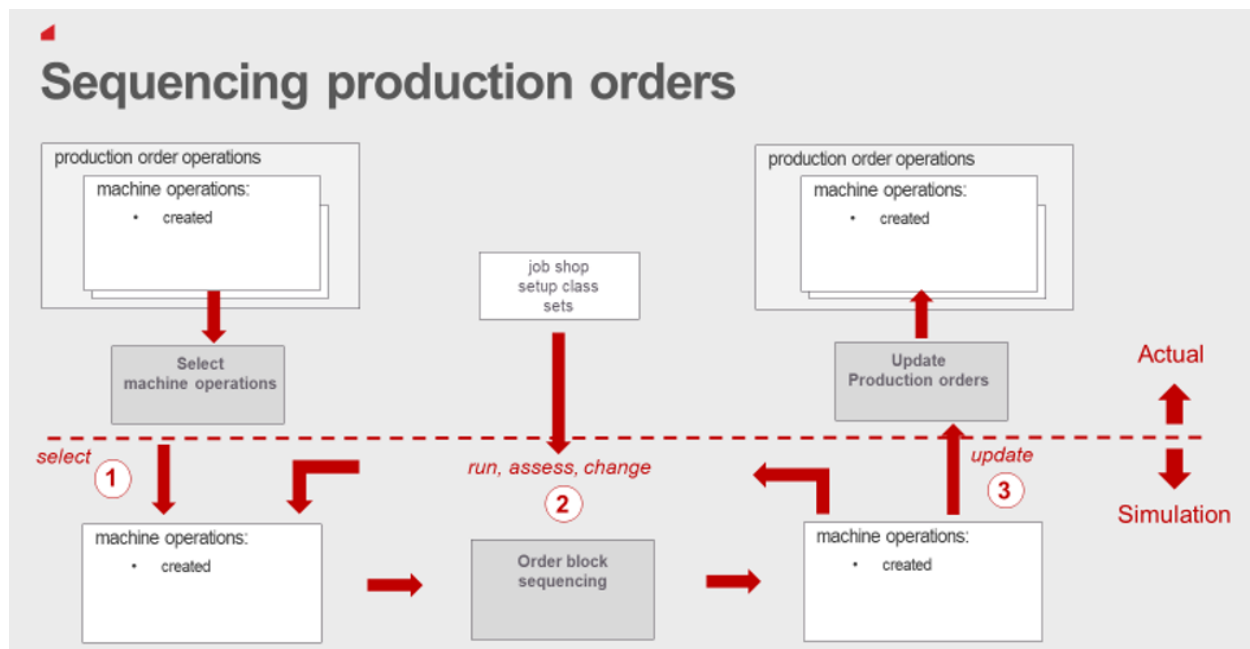
Only classes and states can be selected that have been specified in the setup class set of the machine capacity group. Classes or states can also be blank.

Process

The purpose of the order block sequencing functionality is to minimize the (actual) cumulative setup time on a given machine over a period of time (the order block run).

Order block sequencing is especially applicable to a shop floor where the supply chain has one fixed bottleneck machine with significant changeover variations.

The machine operations that use the same (bottleneck) machine are sequenced. Based on the sequence templates, a sequence of machine operations is simulated on the designated machine. This sequence can be manually changed. Based on the simulation, the applicable job shop orders can be replanned.



Order block run

The order block sequencing functionality is run from the **Order Block Runs (tisfc4120m000)** session. In this session, these actions can be performed:

- Create the run
- Sequence the orders
- Analyze and manipulate the result
- Update the actual production orders

Supported scenarios

As for the existing order block planning functionality, these restrictions apply to the new order block sequencing functionality:

- Order block sequencing is done for one operation in an order
- The machine capacity group has one machine
- The setup time on the (machine) operation is not adjusted
- There is no check on the availability of the required material
- There is no check on the time-outs of the machine
- There is no check on already released orders
- There is no check on missed orders due to a missing setup class set in the **Machine Capacity Group - Item - Setup Class Set** table
- An order block cannot be split

JSC - service orders for machine time out in job shop

Machine (numbers) can be maintained on a regular basis or when they break down. Both situations are supported by service orders.

If planned activities or service orders are available for machine numbers, these orders are now displayed in the **Machine Time Out (tirou4165m000)** session.

JSC - splitting of a production order with machine operations

The functionality for splitting a production order has been extended.

You can now split a production order when one or more operations are performed on a machine capacity group with unique machines. When splitting the order, the applicable order operations and the applicable machine operations are split.

The splitting logic itself has not changed.

MFC - length of item description

The item description has been expanded from 30 positions to 60 positions.

For existing implementations, the use of the long item description can be enabled by a parameter in the **Item Base Data Parameters (tcibd9199m000)** session. When enabled, the applicable forms and reports accommodate the longer description.

For new implementations, the parameter is enabled by default.

MFC - Production Item 360

For companies that have **Job Shop by Site** set to **Active**, the new **Production Item by Site 360 (timcf1500m100)** session replaces the **Production Item 360 (timfc1500m000)** session.

MFC - Work Center 360

For companies that have **Job Shop by Site** set to **Active**, the new **Work Center by Site 360 (timcf1501m100)** session replaces the **Work Center 360 (timfc1501m000)** session.

SCH - production scheduling

Scheduling in LN

The Production Scheduler is new functionality in LN, which is housed in the new Production Scheduling (SCH) module.

Generally, the division between the area of planning and the area of scheduling can be very different. In LN, the new scheduler manipulates production orders and the planning handles planned orders.

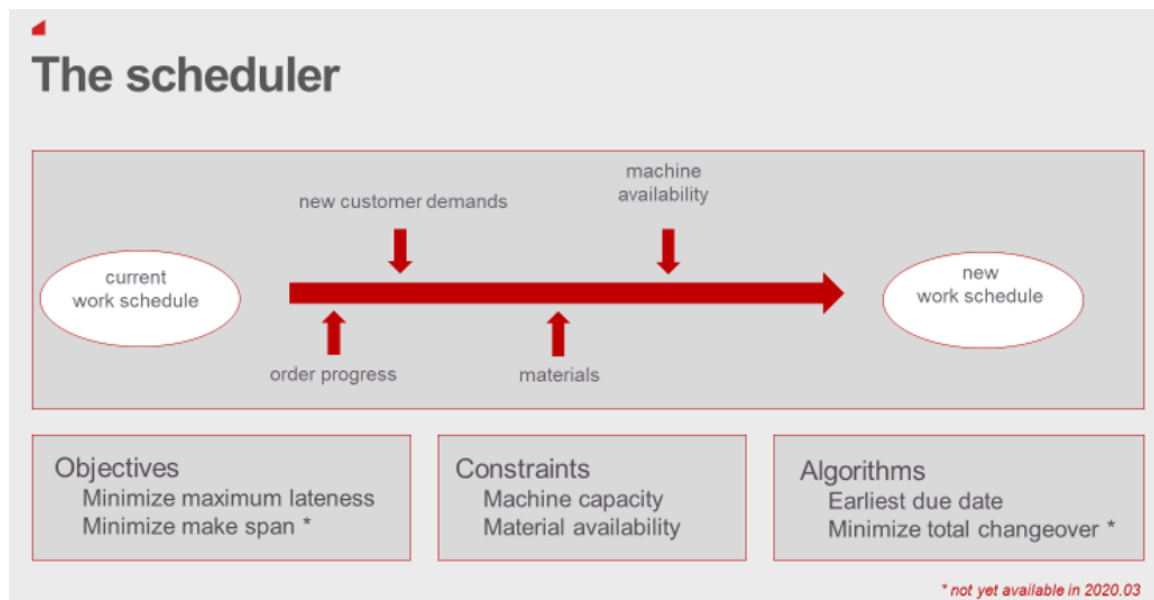
In LN, the scheduler covers the very near future, up to a few weeks. The objective of the scheduler is to minimize the consequences of disruptions such as:

- Additional sales orders that are being accepted within the agreed lead time
- Materials delivered late
- Machine break downs
- Production backlog

To meet this objective, the scheduler performs these tasks:

- Schedules work only after the materials become available
- Prioritizes and sequence work based on rules
- Schedules work on the possible bottleneck machines against finite capacity

Note: A scheduler almost never manages to find the optimum production plan. It mainly tries to make a feasible plan and approximate the overall objective for the applicable orders.



Note: This update only supports minimization of the maximum lateness and the earliest due date algorithm.

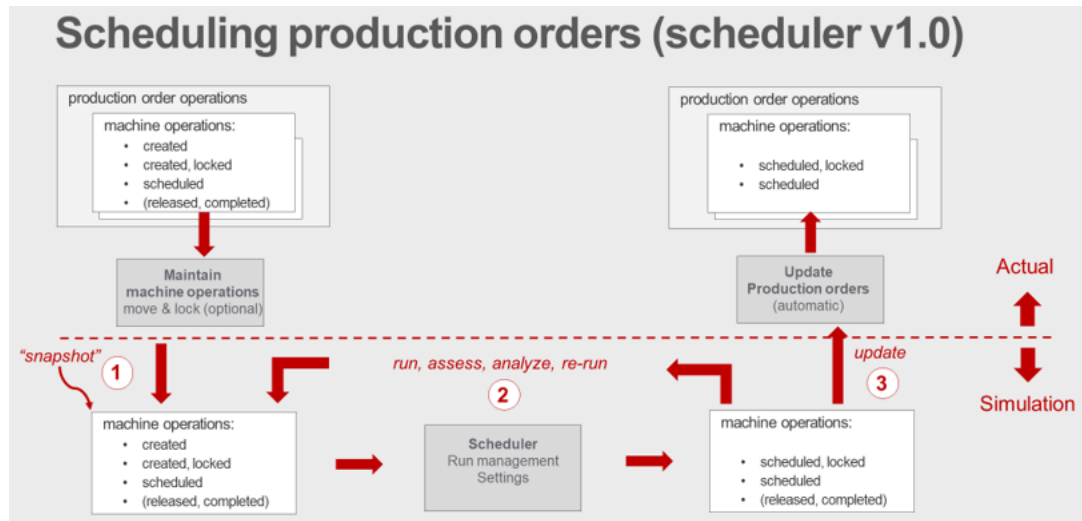
Scheduling process

The new scheduling process is a simulation in a separate environment. The process includes these steps:

- 1 Ensure all reporting is up-to-date. For example:
 - All received purchased materials have been booked in inventory
 - All production progress has been booked, checked and corrected
 - All produced products have been booked in inventory
 - All pegging relations have been generated
 - Any (order) operation that may not be moved is locked
- 2 Create the scheduling run and the snapshot
 - The starting point is created based on the current situation (snapshot)
 - It is stored in separate (SCH) tables
 - The KPIs for the starting point are calculated and stored
 - The settings for the run are maintained and stored
- 3 Run the scheduler
 - The scheduling is done based on the snapshot
 - The results are stored
 - The KPIs for the result are calculated and stored

If required, you can add an additional run with a different objective/algorithm on the same snapshot.
- 4 Compare the results (with the starting data)
 - Between different scenarios
 - Key performance indicators
 - Machine operation schedules
 - Lateness of specific orders
- 5 In the operational environment, use the results to update:

- The machine operations
- The order operations
- The production orders



Note:

- Scheduling of the job shop is optional and is performed as an additional process.
- Comparing the results of two different scheduler setups is typically not done on the fly. Usually, one setup is used for the actual operation. An alternative setup is run in parallel for a longer period of time. The results are compared over time and, if feasible, the alternative setup becomes the actual one.
- A human planner can override the scheduler.
- Because the scheduler is run on a snapshot, the operational environment might have changed between the moment of taking the snapshot and the update based on the scheduler output. Consequently, the update process may partly fail and a report with the discrepancies is generated.

Job shop scheduler

The new **Job Shop Schedule Runs (tisch1100m000)** session is the central session for the scheduler. All functionality is run from this session.

The session provides an overview of all performed runs with the applicable statistics. The view is by site and the sort in reversed order (latest on top).

A run includes this data:

- The date on which the input for the run (the snapshot) is created
- The settings for the scheduler, such as the horizon, the objective, and the algorithm
- The KPIs of the input (snapshot)
- The KPIs of the output (result)

Schedule viewer

The new **Schedule Viewer (tisch8350m000)** session shows the workload of the machines of critical machine groups (possible bottlenecks). The viewer shows either the input (snapshot) or the output (result of the selected scheduler run).

The viewer includes these parts:

- The available capacity and utilization of the machines in the critical machine capacity groups for the time frame. The objective of this part is to assess the workload for the critical areas on the shop floor.
- The key performance indicators for the timeframe. The objective of this part is to provide an assessment of the current situation and a trend analysis over time.
- A Gantt chart with the applicable machine operations and their status. The objective of this graph is to show the result of the scheduling. It shows all critical machine operations and provides detailed information.

Note:

The time frame is the period between the scheduler time fence and the scheduler horizon as specified in the run.

The objective of the schedule viewer is to support an overall appraisal of the scheduling run results. It is not a workbench.

Scheduler setup and prerequisites

Prerequisites

To use the job shop scheduler, these prerequisites are applicable:

- Each work center must be part of a plan group
- At least one bottleneck machine must be specified on the shop floor
- For all items, the operations on the bottleneck machines must be specified
- Machine time-outs must be specified

Plan group

The plan group determines the boundaries of the scheduler. If the scheduler is enabled for a site, the plan group is mandatory for the work centers in the site. Consequently, each work center is always part of one plan group.

Production orders within a site are interwoven, because they are either part of the same supply chain, use the same materials, or use the same machines. Consequently, for a feasible production plan, all production orders for the site must be scheduled in one run.

However, a set of orders can be left out or can be scheduled independently. For example, a site where plastic injection molding parts (plan group 1), metal injection molding parts (plan group 2) and metal machined parts (plan group 3) are produced and delivered directly to the customer, can be run separately for each plan group with different scheduler settings.

Bottleneck machines

The scheduler considers the available capacity of the bottleneck machines.

To schedule the work on an actual machine, that machine must be modeled by the machine number.

A machine number is part of a machine capacity group that can be marked as critical for scheduler. If marked as critical, the machines in the group are possible bottlenecks whose availability is considered by the scheduler.

Machine operations

The work on the actual machine is modeled as machine operations. If a production order has operations for a machine capacity group with machines, machine operations are created automatically.

Machine time-outs

The unavailability of a machine due to maintenance, break down, or replacement must be modeled as a machine time-out for the machine number.

SCH - production scheduling - new algorithm

A new algorithm has been added to the Job Shop Scheduler.

In some production processes, the primary machine setup time takes up a significant portion of the total production time. In addition, the sequence in which the different products are produced on the machine can significantly affect the total setup time.

The changeover time (the required setup time between the end of production of product A and the start of production of product B) can be specified in a setup matrix.

With the new algorithm, the Job Shop Scheduler can use this matrix to minimize the total setup time on the primary machine, accounting for machine availability, material availability, and the due date.

SCH - production scheduling - production scheduler log

In the **Job Shop Schedule Runs (tisch1100m000)** session, a report option has been added. The report supports the planner in analyzing the results of the scheduler.

The report has multiple settings to support different analysis options.

SCH - production scheduling without constraints

A new option is supported for the scheduler algorithm: you can now ignore the availability constraint of purchased materials.

This can be useful in these scenarios:

- A purchased component can be procured within its defined lead time.
- A purchased component can be added to the product at a later moment than the defined production operation.

If the **Ignore Availability Constraint** check box is selected in the **Items - Ordering by Site (tcibd2150m000)** session and the supply source of the item is **Purchased**, then the scheduler algorithm assumes that infinite inventory is available.

Optionally, the `Unknown Material Availability` warning message can be displayed if a shortage happens.

Chapter 5: Procurement

Document authorization for requisitions

If Document Authorization Workflow is used for requisitions and after approval, the **Conversion Type** field is changed, for example, from **Purchase Order** to **RFQ**, a second workflow approval is required. Previously, customers had to extend the workflow business object documents to model this field.

Now, the **Conversion Type** and **Urgent** fields have been added to the document authorization workflow template at the line level. With these fields in the template, customers can model automatic approval rules when changing the conversion type from RFQ to purchase order or vice versa, or when changing the **Urgent** field.

Linking of header special contract

The **Use Only Header Special Contract** parameter has been added to the **Purchase Contract Parameters (tdpur0100m300)** session to ensure that a purchase order uses only one special contract if a special contract is specified on the purchase order header.

If this parameter is selected, and a new line is added to the purchase order, only the header special contract is verified and no other special contracts or normal contracts. If no header special contract is specified, the normal contract search logic applies.

If this parameter is cleared, and a special contract is specified on the purchase order header, a check is made for each line of the purchase order to see if the item is included in that special contract. If it is not included, other special or normal contracts are searched for.

Modification of RFQs with Pending Approval status

Previously, if the **External Integration** check box was selected in the RFQ Parameters, you could not update an RFQ after it was sent to Supplier Exchange. Once the status of the RFQ lines was **Pending Response**, meaning that you wait for responses from Supplier Exchange, updates to LN data were no longer allowed.

Now, the **Allow Updates while Pending Response from External Integration** check box has been added to the **RFQ Types (tdpur0196m000)** session. If this check box is selected, you can update logistic data, such as

the response date on the header, the bidder, the planned receipt date, line quantities, the manufacturer part number, and the manufacturer.

If you change this data, the status of the RFQ header is set to **Modified**. The RFQ can then be reprinted, publishing a new RFQ sync BOD. Supplier Exchange consumes these changes and displays them to the supplier.

Once a Response has been saved or published, it cannot be updated.

Requisition and RFQ archiving

Previously, purchase requisitions and requests for quotation (RFQs) could not be archived. Now, the existing Delete sessions have been modified to archive or delete purchase requisitions and RFQs.

To implement archiving and view the modified sessions:

- For purchase requisitions, the **Requisition Archiving Implemented** check box has been added to the **Purchase Requisitions Parameters (tdpur0100m200)** session.
- For RFQs, the **RFQ Archiving Implemented** check box has been added to the **Request for Quotation Parameters (tdpur0100m100)** session.

Requisition Conversion Workbench

Previously, in the **Purchase Requisition Conversion Workbench (tdpur8360m000)** session, you could filter only on a specific purchase office or specific buyer, or a blank purchase office or blank buyer. You could not see all requisitions across offices or buyers.

An option to show all requisitions has been added to the **User Settings** and the **Filter** option in the session. If selected, you can now see all requisitions regardless of the buyer or purchase office.

Note:

The **Show all Requisitions** option can affect the performance of the workbench. This depends on how many approved requisitions are available in LN for the time frame specified in the workbench.

Export to Excel

The **Purchase Requisition Conversion Workbench (tdpur8360m000)** now supports the export of requisition lines to Excel.

These changes have been made:

- The **Export** button has been added to the toolbar with these options:
 - **All:** All data in the Data Grid is exported to an Excel file.
 - **Selected:** Only the selected row of data is exported to an Excel file.
- Only the visible columns in the Data Grid are considered for export. Header and button columns are excluded.

- The name of the Excel download file is `tdpur8360m000.xlsx`.

RFQ Comparison Workbench

Requests for quotation (RFQs) cannot be converted if the required conversion settings have not been specified.

To streamline the RFQ conversion process from the **RFQ Comparison Workbench (tdpur8366m000)**, the **CONVERT RFQS** option has been added to the toolbar of this workbench. Click this option to start the **Convert RFQs (tdpur1202m000)** session, in which you can verify and specify the required conversion settings.

RFQ criteria

Previously, several subjective RFQ criteria were available, but only a few objective criteria such as **Delivery Time** and **Net Purchase Price**. The **RFQ Criterion Scoring Schemes (tdpur1193m000)** session was a satellite of the **RFQ Criteria Set (tdpur1690m000)** session, but functionally the scoring scheme was a child of the **RFQ Criterion (tdpur192)**.

Now, the satellite has been moved from the **RFQ Criteria Set (tdpur1690m000)** session to the **RFQ Criterion (tdpur1692m000)** session. Additionally, the list of objective criteria has been extended. These objective criteria have been introduced:

- Net Purchase Price
- Net Bidder Price
- Net Price
- Quantity
- Quantity (Percentage)
- Delivery Time
- Vendor Rating
- Item
- Effectivity Unit
- Manufacturer Part Number
- Manufacturer
- Engineering Item Revision
- Order Quantity Increment
- Minimum Order Quantity
- Supply Time
- Receiving Site
- Warehouse
- Receipt Address
- Length
- Width

- Thickness
- Conformance Code
- Carrier
- Carrier Binding
- Freight Service Level
- Delivery Terms
- Point of Title Passage
- Payment Terms
- Invoice by Stage Payments
- Manufacture Date
- Last Time Buy
- Last Time Buy Date
- Warranty
- End of Life
- Expiry Date
- Price Stage
- Late Payment Surcharge

Except for the criteria **Net Purchase Price**, **Net Bidder Price**, and **Net Price**, a scoring scheme can be set up for the objective criteria.

Depending on the criterion, a scoring scheme can be based on this data:

- **Deviation Value**, for **Quantity** and **Delivery Time**
- **Value Yes/No**, for **Invoice by Stage Payments**, **Carrier Binding**, **Last Time Buy**, **End of Life**, and **Warranty**
- **Deviation Percentage**, for **Quantity Percentage**
- **Alphanumeric Value**, for all other objective criteria

Consequently, more options are now available to analyze RFQ responses.

Update of Purchase Prices and Discounts

The new **Global Update of Purchase Prices and Discounts (tdpur3213m000)** session is used to update prices and discounts of one or more contract lines. An increase or decrease can be made based on percentage or by value. An option is available to also update future effective contract prices. To review the changes prior to an update, the session can be run in simulation mode.

The new session can be started from the **Actions** menu of these sessions:

- Purchase Contracts Workbench (tdpur8330m000)
- Purchase Contract Header (tdpur3600m000)

Chapter 6: Warehousing

ASN cancellation

Previously, when a purchase order was sent to Supplier Exchange and an Advanced Shipment Notice (ASN) was sent back from Supplier Exchange, the purchase order line could not be updated in LN. If the ASN was canceled from Supplier Exchange, the purchase order line could not be updated if the ASN still existed.

Now, the **Remove Cancelled ASNs Automatically** check box has been added to the **Inventory Handling Parameter** session. If this check box is selected, canceled ASNs are removed automatically after which the purchase order line can be updated.

Blocked inventory balance

In scenarios where (partial) stock points are manually blocked while other process-dependent blocks already exist for that stock point, for example, through a regular inspection procedure, the two quantities are now added and are not considered as part of the process-dependent blocked quantity. This means that after completion of the inspection procedure, the quantity that was manually blocked is still present.

Cross-docking and project cost pegging

The processes of dynamic and static cross-docking now also consider the project pegs that are linked to demand and supply. Consequently, if demand is available for a combination of item/project cost peg and specific (project pegged) supply comes in, a link is established between the existing cross-dock order header and the line and the items are cross-docked to a staging location.

If the item received into the warehouse is linked to a different project cost peg for which no demand exists, no cross-docking takes place, also not to satisfy the demand of another project. This is corrected later after put away, through (automatic) cost peg transfers.

Cross-dock orders (demand) and cross-dock order lines (supply) now consider the project cost peg distribution of both demand and supply, because each project peg record has a one-to-one relationship with a cross-dock order and a cross-dock order line.

Customs information in ASN

When goods are shipped across borders, car manufacturers can now request their automotive suppliers for information received from customs in the Advance Shipping Notice (ASN).

For example, the movement reference number, the movement reference date, and the movement type can be sent.

DUNS number for warehouse

Some automotive Original Equipment Manufacturers (OEMs) require their suppliers to specify the Data Universal Number System (DUNS) identification numbers of the issuing warehouses on Advance Shipping Notices (ASNs) sent through EDI.

Consequently, the **DUNS Number** field has been added to the **Warehouses (whwmd2500m000)** session. This alphanumeric field includes a unique identification code that meets official DUNS number standards, as received from the DUNS system. Optionally, this number can be printed on shipping documents.

Goods in transit

Previously, goods that were shipped between warehouses were referred to as in transit inventory. Only the unreceived part of the shipped quantity on warehouse transfer orders was considered in transit inventory.

Now, also purchased items to be delivered and already shipped by suppliers can be considered in transit. Item quantities of these purchased items are not regarded as inventory and are displayed as goods in transit. The quantities are calculated by taking the total item quantity registered on inbound ASNs (related to purchase order/schedule lines) and subtract the quantities that have already been received against these ASNs. Consequently, goods in transit for purchase order/schedule lines are defined as the unreceived quantities on open ASNs.

New **Goods in Transit**, **Inventory in Transit**, and **ASN** number fields have been introduced as initially hidden to these sessions:

- **Warehouse Inbound Order Lines (whinh2110m000)**
- Inventory Position Enquiries: **Warehouse - Item Inventory (whwmd2515m000)**, **Site - Item Inventory (whwmd4504m100)**, **Company - Item Inventory (whwmd4100m100)**
- **Planned Inventory Transactions (whinp1500m000)**
- **Purchase Order Lines (tdpur4101m000)**, **Purchase Schedule Lines (tdpur3111m000)**
- **Purchase Order Intake Workbench (tdpur4601m200)**

Handling unit transfer - light

The warehouse transfer process that involves complete handling unit structures can cause delays, because a complete outbound and inbound procedure must be executed for every handling unit. To increase the performance of this process, the **Direct Process** transfer procedure has been introduced, which can be started from the **Actions** menu in the **Handling Units (whwmd5130m000)** session. The difference between this process and the existing **Full Procedure** option is that no outbound/inbound inspections, shipments, receipts or inbound advices are required to move handling unit inventory between warehouses or within the same warehouse.

If Factory Track's Warehouse Mobility module is used to handle the handling unit transfer procedure, the new **Direct Process** option is always used.

Inventory blocking history

Inventory blocking functionality has been enriched by adding history tables.

When blocking inventory, history records are generated in the background. These records allow users to monitor blocking decisions made in the past, after the active records have been deleted.

Because inventory can be blocked on multiple levels, history tables have been added to all of these levels. Consequently, these sessions have been added to the **References** menu of the existing Inventory Blocking sessions:

- Zone/Location Blocking History (whwmd6560m000)
- Lot Blocking History (whwmd6562m000)
- Stock Point Blocking History (whwmd6564m000)
- Handling Unit Blocking History (whwmd6566m000)

Inventory inspection

Items stored in inventory can be subject to regular or ad-hoc inspections, to verify if they still conform to required quality standards. For example, items that may deteriorate due to sensitivity to corrosion, fragility, limited shelf life or exposure to the environment, require periodic inspection. Ad-hoc inspections can be the result of unforeseen circumstances such as power failure, fire or water damage. Unqualified inventory can be rejected or go through a more extensive quarantine and disposition procedure. This can result in actions such as rework, reclassification, and scrapping.

Previously, inspection procedures were applicable only during goods inbound and outbound procedures. Static scenarios, where goods do not move but remain in inventory, were not supported by an inspection process to monitor quality of inventory, either regularly or incidentally.

LN Warehousing now includes a new process and new sessions for the ad-hoc and periodic inspection of static inventory. The new inspection process is similar to the existing inbound/outbound inspection processes.

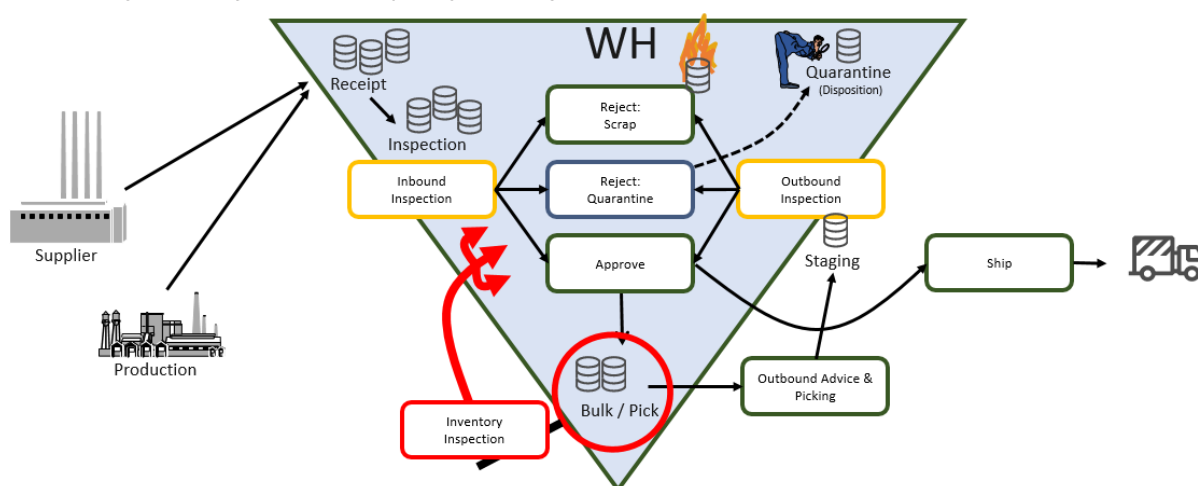
Because inspection-related activities are mainly item-dependent, the most important settings are available as item-related (warehousing) master data. A new **Inventory Inspection** check box and **Freq. Inventory Inspection** field have been added to the **Item - Warehousing (whwmd4600m000)** and **Item Data by Warehouse (whwmd2510m000)** sessions. This frequency supports the process of periodic inventory inspections initiated through the new **Generate Inventory Inspections (whinh2211m000)** session. If required, incidental (manual) inventory inspections can always be recorded. The existing inspection workbench session has been extended to also handle the new inventory inspections.

Additionally, a connection to Quality Management is available through QM Testing Combinations, QM Order Inspections, and Non-Conformance.

Inspection Procedures



In addition to warehouse in/outbound inspection- & quarantine processes, new warehousing functionality has been added to initiate and process inspection- and quarantine procedures on (static) inventory.



Inventory management department

An inventory management department has been introduced. This department, which can be specified on a warehouse, is responsible for the administrative processes of the warehouse, including all orders and warehouse planning.

On an intercompany trade order, some data, such as business partner data, can be specified by department. For a warehouse, the accounting department that is specified in the financial parameters of the warehouse's financial company is used. However, if an inventory management department has been specified on a warehouse, this department is used. This is particularly required when multiple registrations for different countries have been specified within one financial company, because data such as payment terms and financial business partner group vary by country. In this way, logistical data and financial data can be specified on a much more detailed level. The inventory management department is displayed on the intercompany trade order.

Just like to any other department, employees can be linked to an inventory management department. Consequently, these employees can book expenses in People, trigger intercompany trade orders, and use the inventory management department.

Item valuation group by site

The item valuation group is an important element in the integration between financials and logistics to post amounts to the correct (inventory) account. The item valuation group is the logical entity for reconciling the inventory in logistics with the financial stock accounts. Additionally, the (logistic) role of an item can vary per site. For example, in site A the item can be a (purchased) component and in site B it can be an end product.

Previously, the item valuation group could be maintained only at the company (global) level in the **Item - Warehousing** session. The group was defaulted to the **Item - Warehousing by Site (whwmd4604m000)** session, but could not be modified in this session.

If the **Use Global Item** check box is cleared, the **Item Valuation Group** field can now be maintained in the **Item - Warehousing by Site (whwmd4604m000)** session. If the Sites concept is implemented, the valuation group of an item is now retrieved at this level.

Kanban integration

To provide a complete Kanban solution in which LN is seamlessly connected to the Factory Track Warehouse Mobility barcoding solution, the Kanban functionality of both applications has been merged. LN functions as an administrative backbone and holder of master data and parameters. Warehouse Mobility handles the operational side of the Kanban supply concept, such as scanning Kanban labels, monitoring bin/signal statuses, and triggering supply orders.

To synchronize the latest LN functionality with the Warehouse Mobility module, these features have been added:

- The **Use Predefined Kanban Signals** parameter has been added to the **Warehouse Master Data Parameters (whwmd0100s000)** session. If this parameter is selected, customers can apply their own predefined Kanban ID numbers. When new Kanban signals are added to a loop, signal IDs are not generated automatically but must be manually specified.
- To allow users to hold, group or reject supply requests, Kanban supply order advices can now be generated, which is in line with the refill requests known in Factory Track. Because warehouse transfers are the most commonly used supply and refill method in Kanban processes, a new **Warehouse Order Advice (whina3120m000)** session has been introduced.
- To indicate the process of supply and to avoid double scanning, a process status is now linked to a Kanban signal in the **Kanban Signals (whwmd2111m000)** session.

If Factory Track is integrated with LN Warehousing, these features are also supported:

- Automatic release of production orders, which can be specified on item – warehouse level.

- Specification of a dedicated run number for supply orders generated for Kanban signals. This run number can be configured for warehouses and default order types by origin.

An additional Kanban improvement for LN, which does not relate to the LN-FT integration, is that Kanban-related calculations now also consider demand from LN Assembly Control (ASC).

Minimal put away

The existing logic for generating inbound advices involves an alphanumeric search for the first (free) locations where goods can be stored, taking into account capacity constraints and storage conditions. This often results in a considerable number of advice lines that spread the received quantity across many storage locations.

To enhance the process of putting away received goods in warehouse locations and minimize the number of locations and put-away movements, the **Minimal Put Away** check box has been introduced in the **Inventory Handling Parameters (whinh0100m000)** and the **Warehousing Settings by Site (whwmd2101m000)** sessions. This functionality is similar to the **Minimal Picks** functionality for the outbound advice process.

If the **Minimal Put Away** check box is selected, LN tries to limit the number of locations suggested during inbound advice generation. First, a location to store the complete received item quantity is searched for. If such a location cannot be found, the location with the largest remaining space is selected. Next, as few locations as possible are retrieved to store the remaining quantity.

Outbound advice for committed inventory

To enhance the outbound advice process, which currently only considers the outbound order line quantity to check available inventory, a new option has been added to only consider committed inventory. For this purpose, the **Committed Inventory Only** check box has been introduced in the sessions for generating and processing outbound advices. If this check box is selected, only outbound order lines for which a (committed) quantity is available in the **Inventory Commitments (whinp2100m000)** session are considered.

Overdelivery during outbound advice run

For scenarios with identified handling unit structures, more flexibility is provided when generating outbound advices for overdeliveries.

Previously, only the manual outbound-advice process allowed overdeliveries. Now, automatic processes and batch processes are also supported in the **Generate Outbound Advice (whinh4201m000)** and **Process Outbound Advice (whinh4200m000)** sessions.

To enable the generation of outbound advices for overdeliveries, the **Overdelivery Allowed** check box has been added. This check box is applicable only for scenarios with handling units registered in inventory. If this

check box is selected, if insufficient inventory is available, and if the required item is available only in a non-splittable handling unit that is too big, the complete handling unit is still included in the advice, which leads to overdelivery. The overdelivery quantity must fall within the boundaries that have been set for the outbound order line.

Overlapping reasons for stock point blocking

Inventory blocking functionality supports these methods to handle multiple manual blockings for the same stock point:

- The total blocked inventory quantity is determined by the largest blocking record. This implies that all blocked quantities are treated as 'overlapping' and that the maximum blocked stock point quantity is equal to the inventory quantity of the largest block.
- If inventory blocking records do not overlap, the sum of the blocked quantities must be used. A new blocking record is added to the available blocked quantity, which increases the total blocked inventory quantity of the stock point.

The **Allow Overlapping Stock Point Blocking** check box has been added to the **Warehouse Master Data Parameters (whwmd0100s000)** and **Warehousing Settings by Site (whwmd2101m000)** sessions. Additionally, the **Default Blocking Behavior** field has been added to these sessions, which can be set to **Overlapping** or **Not Overlapping**. The setting of this field determines, in the **Stock Point Blocking (whwmd6130m000)** session, whether a new blocked stock point quantity is overlapping or not. Similar functionality is available for the blocking process of serial numbers.

Packaging materials and registration

As a first step towards a fully-fledged packaging item inventory solution, the packaging transactions in the **Shipping Material Accounts (whwmd4670m000)** session are now aligned with the regular inventory transactions triggered by the inbound and outbound flows of empty/standalone packaging material from and to business partners.

When a packaging item with the **Accountable** check box selected is moved independently (empty/stand-alone), packaging and inventory transactions are generated. It is not required to first link a packaging definition (handling unit template) to this packaging item.

Additionally, inventory transactions related to packaging items can be filtered out in sessions such as the **Warehouse – item - Stock Point Transactions (whinr1500m000)** and **Item – Warehouse – Inventory Transactions (whinr1510m000)**.

Note: Because this feature is a first step in a long process, it can be activated with a hidden parameter in the **Custom Parameters (tcmc0195m000)** session. It is not visible in the user interface.

Prepacking advice

Through schedule requirements (EDI X12 862), it is communicated how quantities of parts must be packed. The **Small Lot/Delivery Batch Number** is an identifier used for packing. A small lot/delivery batch may need to be packed in one or multiple containers and controlled outside the staging area.

Because suppliers can have too many small lots at the time of trailer build, the Prepacking Advice functionality has been introduced. With this functionality, multi-item handling units in inventory can be prepacked based on projected shipments. These multi-item handling units are destined for a projected shipment and are presented when the outbound advices are generated.

Printing of documents before shipment confirmation

Only after all shipment-related data and shipping documents have been validated, a shipment planner would confirm the shipment, which is the final step in the shipment execution process. Consequently, the shipment planner must be able to review the complete set of shipping documents before the shipment is confirmed.

The integration between LN and Automotive Exchange now enables the printing of all shipping documents before shipment confirmation. The **Shipping Documents by External Application** option has been added to the **Print** menu of the Shipments and Loads sessions in LN. With this option, shipping documents can be printed by an external application, which is Automotive Exchange Shipping.

This printing step can be specified as a mandatory step in the shipment execution process, based on the configuration in the warehousing order type. In the BODs published by LN, an indicator then triggers the automatic printing of the required shipping documents for a specific business partner.

Process extension for shipment and load building

A process extension has been added to extend the standard set of load/shipment building criteria. This enables a customer to determine in more detail how shipments and loads are composed in LN Warehousing.

On the shipment level, the Hazardous Material Code (UN) and the currency have been added, to ensure that a shipment contains only item lines with a single HazMat code and currency. In addition to the delivery terms, which are printed on shipping documents, the same criteria have also been added on the load level.

Receipt of lots in a multicompany scenario

For warehouse transfers between two companies in a multicompany scenario, if business partner data is not shared and items originate from a business partner that is unknown in the companies concerned, the receipt of lot-controlled or serialized-in inventory items causes problems.

During item receipt, the lot or serial and the buy-from business partner data is populated. If this business partner is unknown in the ship-to company, the receipt process is interrupted.

To resolve this issue and retrieve the business partner in the company where the lot or serial was originally received, the **Business Partner Company** field has been added to the **Item - Lots (whltc1500m000) / (1100m000)** session.

Shipment Execution Workbench

The **Shipment Execution Workbench (whinh8361m000)** is used to display and process shipping information. This workbench has been enhanced with these new features:

- Shipments from all order origins are now included in the workbench.
- Shipments cannot be viewed only on shipment level, but also on load level. Consequently, warehousing activities can be performed also on load level, so for all linked shipments in one step.
- New default values are available in the **User Settings** based on which data is displayed in the workbench. For example, Order Origins, Default View (Load/Shipment), Hide Published Loads/ Hide Published Shipments.
- Functions to publish shipments and loads.
- An **Edit Text** option on load/shipment header level and shipment line level.
- Based on user settings, the available quantity with pegging information is now displayed in the **Shipment Lines** grid. If the available quantity is less than the ordered quantity, shipments are marked as issue (red color).
- Based on user settings, a publishing status is now displayed in the shipment and load details.
- The **Print Shipping Documents by External Application** command on the **Actions** menu of the **Shipment Details**.
- Extended fields (CDF) specified on shipment header and line level, can now be displayed. The fields are displayed based on values specified in the user settings.

Shipment Planning Workbench

The **Shipment Planning Workbench (whinh8370m000)** is used to generate projected shipments. This workbench has been enhanced with these new features:

- The ordered quantity can now be distributed across several moments in time.
- An indicator of distributed quantities on the **Item Card**.
- A **Shipment Planning** button to drillback to the **Outbound Order Line - Planned Shipment Requirements (whinh4183m000)** session.
- The search capabilities for item codes have been extended. In addition to searching for item cards, you can now search for shipments cards that contain specific item codes.
- The customer item number has been added to the item detail panel.
- In addition to searching for LN item numbers, you can now search for customer item numbers.

- When you create a shipment planning record for a quantity less than ordered and close the session, a message is now displayed indicating that the ordered quantity is not fully planned. You can generate a line for the unplanned quantity, so you do not have to perform the calculation yourself.
- You can now display the link between the item and shipment cards that belong to the same requirement (outbound order line).

Shipment validation

Automotive Shipment processes require that goods are packed and labeled according to the packaging instructions prescribed by the OEM. Additionally, the shipment paperwork must be correct and the Advance Shipping Notice (ASN) must represent the truck load to a full extend. If these conditions are met, the goods receipt can be handled efficiently and the internal material flow at the OEM can be managed as required.

The overall goal is to model the logistic flow as lean as possible and to ensure a high process reliability. To avoid any disruptions in the logistic processes, the supplier must follow the rules and regulations of the OEM regarding shipments.

Shipment Validation functionality has now been added to verify if Industry- and OEM-specific requirements are met before shipments can be confirmed and leave the warehouse. The checks can be initiated from the **Actions** menu in the **Shipments** session.

The checks are based on a validation framework, which can be maintained in a flexible way. For this purpose, these sessions are now available in the menu under **Warehousing > Master Data > Miscellaneous**:

- **Validation Rules (whwmd1150m000)**
- **Validation Rules by Business Partner (whwmd1155m000)**
- **Shipment validation Log (whinh4521m000)**

If the new **Shipment Validation** check box is selected in the **Warehousing Order Types (whinh0610m000)** session, shipment validation is a mandatory step in the shipment execution process.

Site-specific lot and serial masks

To support scenarios where serial and lot numbers are determined by the site where an item is manufactured, new features have been added to link lot and serial coding masks to sites, or to include site-specific elements in coding masks.

In this way, the generated serial and lot numbers can automatically reflect the site of origin. This makes it easier to trace a serial or lot number back to the correct (production) site.

Splittable option in handling unit template

Previously, handling units could always be split. To prevent this, you had to manually clear the **Splittable** check box in one of the Handling Unit sessions. This took a lot of time and was prone to errors.

Now, the **Splittable** check box has been added to the **Handling Unit Templates (whwmd4160m000)** session. The setting of this check box is used by default for all new handling units generated from the template. It is positioned at the Node level, so that it can be decided per handling unit level whether splitting is allowed.

Synchronization of planned delivery date from load to shipments

The planned delivery date of a load can now be synchronized with the planned delivery dates of the underlying shipments.

When you modify the planned delivery date of an unconfirmed load in the **Loads (whinh4140m000/4640m000)** sessions, you are prompted whether to synchronize the new planned delivery date with the related shipments.

Consequently, you can now interactively decide to update the planned delivery date on the shipments based on the new date of the corresponding load, but only if changes to the shipment are still allowed.

TPOP and project cost pegging

The Time-Phased Order Point (TPOP) planning method, which is mostly used for supplying warehouses within a planning cluster, now also supports the concept of project cost pegging. Consequently, TPOP can detect project-pegged demand and plan supply orders with a linked project peg (distribution). If during a TPOP run project pegged demand is found, supply is planned with project cost pegs through a production, purchase, or warehouse transfer order.

Warehouse receipts based on BP item code

If suppliers use their own item codes on delivery notes or packing slips, it can be difficult to match the goods received with the related inbound order lines, which contain internally used item codes.

To facilitate the cross-referencing of supplier item codes specified on inbound documents with the item codes used internally, the **Business Partner Item** field has been introduced in the **Inbound Order Lines (whinh2110m000)** session. If a value is specified in this field, the entire receipt procedure is based on the business partner item codes, which are translated into the corresponding internal item codes. The item codes must also be specified in the **Item Code System – Items (tcibd0104m000)** session.

If a business partner item code is correctly recorded in an Item Code System, it is defaulted to the inbound order lines. You can filter inbound order lines based on this external item code in the **Warehouse Receipts (whinh2610m100)** session. The external item code must be specified in the **Item** filter field.

Chapter 7: Freight

Maps integration

From multiple Freight sessions and some Warehousing sessions, you can now have map-based insight in transport-related operations. This includes the geographical representation of load and unload addresses, standard routes, route plans, (consolidated) shipments, and loads/trips. To monitor the planning and consolidation results produced by the planning engine and to manually fine-tune shipments and loads, proper geographical visibility is indispensable.

When you select a specific route, load, or shipment record in a shipping-related session, for example the **Plan Board (fmlbd0215m000)** session, and you then click the **Map** option or icon, the corresponding map is displayed. This map shows the advised route and the visited shipment addresses. When you hover over an (un)load address, the required dates, times, and address details are displayed.

Note: To work with this feature, a (Bing) map license must be obtained.

Maps Connection

The screenshot displays the 'Plan Board' interface with three main sections: 'Freight Orders', 'Plans', and a 'Map' view. The 'Freight Orders' table lists various orders with columns for Order ID, Ship From, Ship To, Planned Load Date, Planned Unload Date, Carrier, and Status. The 'Plans' section shows a list of plans, with 'SFP000015' selected. The 'Map' view shows a geographical representation of the route, with a red arrow pointing from the 'Map' icon in the 'Plans' section to the map view. A tooltip is visible over a location on the map, displaying details for a load and unload address.

Freight Orders

Freight Order	Ship From	Ship To	Planned Load Date	Planned Unload Date	Carrier	Status
SSL000025	Leeuwarden	Leeuwarden	4/16/2014	4/17/2014	10:00 AM	Expected
SSL000026	Berlin	Milan	7/1/2014	7/1/2014	10:15 AM	Planned
SSL000067	Leeuwarden	Milan	8/17/2016	8/18/2016	6:15 PM	Planned
SSL000098	Leeuwarden	New Orleans	8/17/2016	8/28/2016	6:00 AM	Planned
SSL000069	Leeuwarden	Paris - Centre	8/17/2016	8/19/2016	10:00 PM	Expected
SSL000070	Leeuwarden	Washington	8/17/2016	8/29/2016	8:45 AM	Expected
SSL000081	Leeuwarden	Leeuwarden	3/13/2019	3/13/2019	8:26 AM	SIC Expected
SSL000082	Leeuwarden	Leeuwarden	9/25/2019	9/25/2019	6:30 PM	OWN Planned

Plans

Plan	Planning Algorithm	Actual	Estimated Freight Cost	Actual Fee
RJP002482	Pooling		45.50 EUR	0.00
SFP000004	Plan 1 14/04/14			
SFP000015	Trans-atlantic Plan 1			
SFP000018	Plan 2			
SFP000019	Plan 3			
SFP000020	Plan 4			
SFP000041	Trans-atlantic Plan 5			
SFP000043				
SFP000044	Stok MOT Test 1			

Map View

For a geographical representation of routes, addresses, orders, shipments, loads... Available on all route/load/shipment sessions. Map license required to show route information. Hover on (un)load address to view details.

Shipment sequencing in Freight Planning Board

The Freight Planning Board now offers an intuitive process to manually adjust the sequence of shipments (drop-offs/visits) within a planned load (trip).

A shipment can be dragged up or down and repositioned, which changes the time at which addresses must be visited during the trip. In the background, sequence numbers are automatically attached and corresponding lead times and visiting times are recalculated.

Chapter 8: Service

Additional cost lines on claims

With an additional cost line, a certain amount (handling fee) can now be deducted from the approved claimed amount in the **Customer Claim Line (tscmm1110m000)** session. For example, if the claimed amount is 1000 euro and the handling fee is 100 euro, the credit note amount will be 900 euro instead of 1000 euro.

Additional information fields

Except for claims, **Additional Information** fields, which are specified in the **Additional Information Definitions (tcstl2100m000)** session, are now also available for Service.

Advance payments

An installment plan, which could already be linked to sales orders, can now also be linked to service orders in the **Service Order (tssoc2100m100)** session and to maintenance sales orders in the **Maintenance Sales Order (tmsmc1100m000)** session. Consequently, advance payments can be charged to customers before the maintenance work is started.

After sales service – generate service order

When processing sales deliveries to Service, a service order can now be generated. This service order is used to install the delivered product at the customer site.

Assignment line number for service orders

Assignment line numbers have been extended with more positions.

Billable line description for fixed order price and fixed activity price

Fixed order and fixed activity price lines are available in Field Service and in Depot Repair.

In Field Service, the fixed order and fixed activity invoice lines are stored in the **Service Order Fixed Prices (tsoc215)** table. For fixed order and activity price lines, the **Description** field has been added. This **Description** field is automatically filled with the description of the used pricing method. So for a fixed order price line, the value is *Fixed Order Price* and for a fixed activity price line, it is *Fixed Activity Price*. As long as the billable line can be changed, the description of the price can be modified. For new records in the tsoc215 table, this description is mandatory.

In Depot Repair, the fixed price lines are stored in the **Coverage Line (tsmc120)** table. The **Description** field was already available for fixed coverage lines, but could not be modified. The item description of the related activity or order was displayed. Now, for fixed price coverage lines, the **Description** field is automatically filled with the description of the used pricing method, but can be modified.

Contract flown down for claims

When claim lines are generated, additional information of, for example, linked sales orders and purchase orders is now copied to the claim lines. As is applicable for other objects in Service, if a project peg is available on the source object, any missing additional information is retrieved from the project contract and copied to the target object, unless a peg distribution is available.

For purchase orders and supplier claims, which can have a peg distribution instead of a single project peg, the priority of the project pegs in the peg distribution cannot be determined when copying additional information. Consequently, when supplier claims are generated, the additional information cannot be complemented through any of the project pegs in the peg distribution. Only if more pegs are added to the peg distribution later, the additional information from the related project contract can complement the additional information on the peg distribution's parent object.

Counter reading on claim

When a claim is created for a machine (top item), a counter reading value can be specified in the **Customer Claim (tsmm1600m000)** session. For example, the mileage of the machine when it broke down.

Creation of independent parent inspection

In the **Counter Readings by Serialized Item (tscfg2101m000)** session, the **Retrieve Counter Reading From** field determines how the counter value is retrieved for the counter reading. It can be set to these values:

- **Inspection:** The counter reading is an independent counter reading.
- **Physical Breakdown:** The counter reading retrieves its counter value from a counter reading with the same measurement type and measurement position specified for the parent in the physical breakdown. Consequently, a parent can be found with a different item/serial number, but with the same measurement type and measurement position.
- **Specific Item:** The counter reading retrieves its value from a counter reading related to the specified serialized item. In this case, the parent always has a different item/serial number, but the same measurement type and measurement position as the child.
- **Other Counter Reading:** The counter reading retrieves its value from another counter reading related to the same serialized item. Because a counter reading is unique by item, serial number, measurement type and measurement position, the parent has the same item and serial number, but the measurement type or measurement position are different.

This is an example of how the default inspections are created when a reference activity is specified:

- Related to the reference activity, the measurement types MT1 and MT2 are available and the measurement positions are both empty.
- On the service order activity, serialized item S1 is present.
- Two counter readings are available related to serialized item S1:
 - The first counter reading has measurement type MT1 and retrieves its counter value through inspection.
 - The second counter reading has measurement type MT2 and retrieves its counter value from the physical breakdown.

In LN, first an attempt is made to create an inspection for measurement type MT1. If no related counter reading can be found (for the same serialized item, measurement type and position), or if that counter reading retrieves its counter value through inspection, this is an independent inspection. Consequently, the inspection can be created for serialized item S1, measurement type MT1 and an empty measurement position.

For measurement type MT2, a related counter reading is available that retrieves its counter value from the physical breakdown. In LN, the physical breakdown is searched upwards to find a parent serialized item that has a related counter reading with the same measurement type and position as the child. If it is found with serialized item S2 (measurement type = MT2) and this one retrieves its counter from serialized item S3 (measurement type = MT2), then again the counter reading related to serialized item S3 and measurement type MT2 is retrieved to view how that counter reading retrieves its counter value. This counter reading retrieves its counter value from another counter reading, for the same serialized item S3, but a different measurement type/position (measurement type MT3). Next, this parent retrieves its counter value through inspection. Now the process can stop, because the independent parent has been determined.

Instead of creating the inspection related to serialized item S1 and measurement type MT2, which was done previously, an inspection related to serialized item S3 and measurement type MT3 is now created.

Note: In the chain of dependent counter readings, a counter reading cannot be deleted if derived counter readings are available that depend on the parent.

CRM activities for service calls

Activities can be linked to a specific business object through the business object type. In addition to **Opportunity**, **Reminder**, **Contract**, **Project**, and **Bid**, the **Service Call** business object type has been added. Consequently, activities can now be specified for and linked to service calls.

Clicking the **Activities** link in the **Customer Call 360 (tsclm1509m100)** session starts the new **Call - Activities (tsclm1600m200)** session in which the activities for the service call are displayed.

Cumulative cost and sales per serialized item

From an accounting perspective, it is important to know the total cost amount spent on an asset or equipment. It does not matter if the asset or equipment is owned by the company or a customer owned. Related to this, the total revenue is important for determining the gross margin.

To support this, the **Repair Cost and Sales Workbench (tstdm4110m000)** has been added. This workbench can be started stand-alone, or from the **Serialized Items (tscfg2100m000)** overview session.

Customer claims - credit note before part receipt

If the claim method is **Reimburse Cost**, you can now create a credit note before the applicable item is received from the customer. In other words, settlement can be done before the logistical process has started.

Customer claims for open PCS projects

Previously, customer claims could be created for closed PCS projects only.

Now, claims can be specified if the status of the PCS project is **Active** or **Closed**. If the status is Closed, the **In Service** check box must also be selected.

Note: With the PCS project, the project segment of the item code is meant.

Customer owned spare parts in service orders

Service engineers can now use spare parts that are owned by the customer and issued from the customer-owned warehouse.

Dealer Workbench

The **Dealer Workbench (tstdm8350m000)** is used to manage customer data, register serialized items, and create customer claims. This workbench has been enhanced with these new features:

- A claim line can now be created with a serialized item without a serial number.
- A claim can be created for a demo machine.
- Availability of claim count information.

Default warehouse for claims

A warehouse has been added to store items claimed by customers. This additional warehouse can be excluded from Enterprise Planning. Previously, only one warehouse was available that contained both claimed items and new items. This warehouse could not be excluded from Enterprise Planning, which resulted in undesired situations with customer return items.

Definition logging for maintenance sales orders and work orders

A log definition, which could already be specified for service orders, can now also be specified for maintenance sales orders and work orders in the **Log Definition (tsmdm1190m000)** session.

Document authorization on claim header

Document authorization, with or without ION Workflow, can now be performed for an entire customer claim or supplier claim instead of just by claim line.

Equipment as a Service

LN now offers Equipment as a Service. This first delivery is a base version to rent out equipment to external customers. Items of type **Equipment** can be configured as rentables in the new solution.

Rental agreements enable you to reserve and use serialized equipment, and to specify 'on hire' and 'off hire' dates. Additionally, the functionality offers flexible billing options.

The rental period can be specified in **Hours, Days, Weeks, Months, and Years**. In the **Rental Equipment Workbench (tscfg2600m100)**, the corresponding filter options are available.

Equipment Management Workbench

To support Equipment as a Service, the **Equipment Management Workbench (tscfg8351m000)** has been added. The main objective of this new workbench is to assign a specific serial number and one or more operators to a rental agreement.

Functionally, the **Equipment Management Workbench (tscfg8351m000)** has been aligned with the **Resource Management Workbench (tssoc8351m000)**.

Estimated material line from physical breakdown

On the service order activity, you can open the physical breakdown of a serialized item, select one or more lines in the breakdown, and now generate estimated material lines.

GPS tracking for serialized equipment

To populate the location status of a piece of equipment for a specified date and time, the GPS data (latitude/longitude) can now be collected for equipment that is available as a serialized item.

The GPS data can be accessed and displayed on a map through the **Serialized Item (tscfg2600m000)** session. The GPS data can also be accessed from the **Serialized Item 360 (tscfg2100m100)** session.

Group planning - allocate multiple resources per group

Instead of automatically allocating one resource, you can now allocate multiple resources when **Allocate Resources** is selected for a group in Resource Management.

Ignoring of coverage for fixed-price reference activities

For reference activities with the **Use Fixed Price** check box selected, the new **Ignore Coverage** check box can now also be selected.

If the **Ignore Coverage** check box is selected, the pricing method on a service order activity or a maintenance sales order line can be set to **Fixed Activity Price** by default, regardless of whether a warranty or contract coverage is present.

Inheritance of data from original serial

If a serial number is superseded, the existing data from the original serial number is inherited when a new item/serial is created in the **Supersede Serialized Item (tscfg2240m000)** session.

Initial warehouse order status

The status of warehouse order inbound and outbound lines generated from Service now depends on the new **Initial Warehousing Order Status Determined by Warehousing** parameter. This parameter has been added to these sessions:

- **General Service Parameters (tsmdm0100m000)**
- **Service Settings by Site (tsmdm1103m000)**
- **General Service Settings History by Service Site (tsmdm8503m100)**

This parameter is used to determine if Service or Warehousing (via the warehouse order type) is responsible for setting the status.

Internal equipment - rental request from Project

The **Planned Equipment Requests (tppss6125m000)** session has been added in Project to capture an internal equipment request for a project to be considered by Service. The enterprise unit of the project must match the enterprise unit of the rental department (service office).

An internal request can be changed into a planned purchase order in the **Transfer Equipment Request to Planned PRP Purchase order (tppss6252m000)** session. Or a planned PRP purchase order can be changed into a planned equipment request in the **Transfer Planned PRP Purchase Order to Planned Equipment Request (tppss6251m000)** session. After approval in the **Approve Planned Equipment Requests (tppss6222m000)** session and transfer in the **Transfer Planned Equipment Requests (tppss6232m000)** session in Project, the planned equipment request is displayed as an equipment request in Service. It can be converted into a rental agreement via a project peg.

Regardless of the use of rentals in Service, these modifications have also been made in Project:

- An image is now displayed in the **Equipment (tpddm0512m000)** and **Project Equipment (tpddm6512m000)** sessions.
- The **External Equipment** column is now displayed in the **Control Data (Equipment) (tpptc1537m000)** session. It is based on a bottom-up budget to differentiate between internal and external equipment.
- In the **Equipment** field of the **Planned PRP Purchase order Equipment (tpss6111m000)** and **Planned Equipment Request (tpss6125m000)** sessions, you can now zoom to the **Control Data (Equipment) (tpptc1537m000)** session.
- A details option is now available for the **Order Line Balance (Equipment) (tpss6501m000)** and the **Delivered Order Lines (Equipment) (tpss6551m000)** sessions.

Item replacement for reference activities

Materials can be specified as a resource for many reference activities. If specific material must be replaced by other material, the item can now be replaced for a range of reference activities.

Item settings for demand pegging

If the new **Use Item Settings for Demand Pegging** check box is selected in the **General Service Parameters (tsmdm0100m000)** session, the demand pegging settings of an item, as specified in the general item data, are now used by LN Service.

This parameter is available only if Demand Pegging is implemented as a concept.

Log definition for service quotes

A log definition can now be specified for service quotes (EPP).

Margin control in Field Service and Depot Repair

To avoid confusion about what is calculated in the **Service Order Online Margin Control (tsoc4500m000)** session, these field labels have changed:

- **Estimated Margin** has changed to **Actual Margin (Before Coverage)**
- **Actual Margin** has changed to **Actual Margin (After Coverage)**

The margin percentage is calculated with this formula:

$((\text{Actual Total Sales Amount} - \text{Actual Total Cost Amount}) / \text{margin base amount}) * 100$.

The margin base is specified in the **Service Order Parameters (tssoc0100m000)** session.

If the margin base is the sales amount, the actual total sales amount is 100 EUR, and the actual total cost amount is 80 EUR, the margin percentage before coverage is $((100 - 80) / 100) * 100 = 20$ percent.

If 20 EUR is given as discount on the 100 EUR sales, the margin percentage after coverage is $(80 - 80) / 80 * 100 = 0$ percent.

To also incorporate and calculate the estimated data, the **Estimated Margin (Before Coverage)** and **Estimated Margin (After Coverage)** fields have been added to the **Service Order Online Margin Control (tssoc4500m000)** session.

Note: If the **Use Coverage Calculation for Estimates** check box is cleared in the **Service Order Parameters (tssoc0100m000)** session, the estimated margin before and after coverage are always the same.

Master routing for trigger set in a usage-based scenario

Instead of only one reference activity, you can now specify a master routing, which is a group of reference activities, for a maintenance trigger set. This applies to trigger sets linked to usage-based maintenance scenario lines.

Material availability

Actual material lines

When a material line is added for a released activity, material availability is now verified. Previously, this had to be done manually, which often was forgotten.

Planned activities

Previously, the **Material Availability** option was only available for service orders and work orders. The option is now also available for planned activities.

This option enables you to check the material availability for materials that are linked to the planned activity.

Service quotes

In the **Service Quote Parameters (tsepp010m000)** session, the **Material Handling** group has been added. These check boxes can be selected in this group:

- **Create Planned Inventory Transactions:** Planned inventory transactions are written if a quote line has a success percentage equal to or higher than a specified threshold.
- **Check Material Availability:** As for service orders, material availability can now also be checked for service quotes. To select this check box, the **Create Planned Inventory Transactions** must first be selected.

Project pegged inventory

Project pegged inventory is now taken into account when the material availability check is performed.

Material issue before item receipt

In case of a tight maintenance window, work centers are prepared in advance. Work centers can start immediately when the item to be maintained has arrived.

Now, the material handling for all delivery types has moved from the work order release stage to the work order plan stage.

Mobile service enhancements

These enhancements have been introduced:

- LN Mobile Service is enabled for iOS devices.
- Installations, prices, and inventory are shown based on LN settings.
- The database can be uploaded to LN from Android or iOS.
- Order text can be specified and accessed in schedules.
- Text can be added for all service order cost lines.
- Serial installation time and repairable item are shown.
- Visit appointment indicator and sales representative are shown.
- Badge count is shown on document tabs.
- The **Installation Group** field has been added to Mobile Service. Consequently, users can now specify the installation group when creating a new visit or activity. The installation group determines which item/serial can be specified.
- On the Activity level, search capability is available. Activities can now be filtered based on status.
- Settings for all mobile instances can be managed on a central global level. The file with the required settings can be downloaded and installed on local devices.
- With a new filter option, only bench stock items can be displayed that are On Order.
- A new parameter determines whether all visits must be displayed or only visits for a specific period.
- With the **Register zero travel hours** option, it is no longer required to specify travel information for a second visit at the same site.
- These fields have been introduced and be used on a visit report in LN Mobile Service (Windows only):

- Sold-to Business Partner
- Invoice-to Business Partner
- Ship-to Business Partner
- Ship-to Business Partner Name
- Installation Time
- Location Information
- A finalized visit can now be modified. With this new option, you can add, for example, additional costs such as hotel expenses. This new option is available only if the corresponding parameter is set in the **User Template**.
- If service order notes are available, these notes are now also displayed in the serial history.
- Ordered materials are now displayed in one overview. When you right-click a selected record, additional information is displayed. Consequently, all material-related order information is now available in one place.
- A multi-level physical breakdown structure is now displayed in LN Mobile Service, which enables service technicians to view the complete structure of a product.
- In addition to viewing the physical breakdown, service engineers can now also edit the physical breakdown in LN Mobile Service.
- When a material is ordered, a carrier can now also be specified. Consequently, a service technician can, for example, specify how the required material must be delivered to a service car.
- The scanning of barcodes for items and serials is now supported.
- Service engineers can add notes to an activity. They can now also specify if a note is for internal or external (customer facing) use.
- You can now set which map provider to use. This setting is for the Windows version of the device only. The options are the map available on the windows device, or the Open Street Map.
- You can now change inspection data from a past inspection.
- LN Mobile Service can now be managed through dedicated Mobile Device Management (MDM) software. Several mobile service settings are controlled from LN. The settings in the Mobile Service application can be controlled by LN through an app settings file. All these settings require Mobile Service to be connected to LN. An administrator might want to specify some settings before a connection is established with LN. These settings can now be specified through Mobile Device Management for Android and iOS.
- The Start/Stop /Finish action can be performed for all activities at the same time.
- A visit report can be customized and used for Android and iOS.
- Travel hours can be recorded by using Start/Stop options instead of specifying a travel end time.
- Phone numbers of all contact persons are displayed.
- Text from Mobile Service, such as the order number, can be copied and used in, for example, a word document.
- In the settings for the visit report, the PDF conformance level can be specified. These levels are supported:
 - PDF/A-1b
 - PDF/A-2b
 - PDF/A-2u
 - PDF/A-3b
 - PDF/A-3u
- In Mobile Service, a user can indicate on a material line if the material has been installed, removed, or replaced. This information is used in LN Service to update the physical breakdown structure.

- If a service order is generated from a service call, the call number is now displayed in LN Mobile Service. Additionally, the call number can be printed on the visit report.
- If you use LN Mobile Service on an Android device, the minimum supported Android version is now 7.1 (Nougat), to increase security and stability.
- The start date and end date of labor hours can now be printed on the visit report.
- If Other Costs are used on a service order activity, these costs are now available in the Serial History.
- For items and serials, detail screens have been added to navigate to detailed item or serial information. In every place where items and serials are used, links have been added to start these screens.
- The **Documents** window has been extended with the possibility to filter and sort the available documents. These sorting options are available:
 - Document Name (Ascending - Descending)
 - Document Type (Ascending - Descending)
 - Date (Ascending)
- Rental agreements are now supported in the app. However, not all options related to rental agreements are available. For example, the user cannot create a new rental agreement.
- Planned times can now be used as actual times on assignments. These options are available to determine the time for the actual start and finish times when clicking the start and stop buttons:
 - The current time
 - The planned start and finish time

MSO header set to Costed if all lines are Costed

The status of the Maintenance Sales Order header is now set to **Costed** if the status of all lines is **Costed**. Consequently, if the last line of the maintenance sales order is set to **Costed**, the header status is automatically changed to **Costed**.

Multiple calls for one part maintenance line

Multiple service calls can now be linked to one maintenance sales order - part maintenance line. The reference to a call is stored at the work order activity level.

Notes for work order activities

Notes can now be specified for service work order activities.

Notification of existing service orders when specifying a new service order

When specifying or updating a service order, or when copying a service order in the **Copy Service Order (tsoc2280m000)** session, a search for matching service orders is performed based on various fields.

If service order parameters have been specified on the service office level, the **Service Office** field is considered in the search. If set in the **Searching Based on** field of the **Service Order Parameters (tsoc0100m000)** session, the **Sold-to Business Partner**, **Installation Group**, or **Serialized Item** are considered. Additionally, various other fields are taken into account.

If a matching service order is found, a message is displayed that includes the service order number. If several matching service orders are retrieved, the number of matches is shown in the message.

When searching for matching service orders, these conditions are applicable:

- The service office and order procedure must always match
- The sold-to BP and invoice-to BP must match when specified
- If the **Searching Based on** field is set to **Installation Group** or **Serialized Item**, these fields must match

In the **Statuses for notifying** group of the **Service Order Parameters (tsoc0100m000)** and **Service Offices (tsmdm1100m100)** sessions, a time fence can now be specified for the **Completed**, **Costed**, **Closed**, and **Canceled** statuses. When searching for existing service orders, only the orders with the selected status that fall in the specified time fence can be considered as matches.

Optimization of mean-time calculation

For each Service Type and Call Group, you can now specify if it must be used for the mean-time calculation.

Order acknowledgement for service orders

An order acknowledgement is now available for service orders. With this acknowledgement, you can formally acknowledge the agreed order.

Order lines for multiple selected serials

The **Serialized Item 360 (tscfg2100m100)** session has been extended with these new options:

- Generate new orders for one or more selected serials.
- Link one or more selected serials to an existing order in Service.

Owner versus user for anonymous items

When generating serials on the fly, it was not clear who the serial owner was.

With the new **Ownership Context**, it is now visible who is the owner of the newly created serial.

Picture on claim line

The **Picture required** check box has been added to the **Customer Claim Line (tscmm1110m000)** session. If this check box is selected, the claim line can be processed only if the line includes a picture.

Planned Activity Workbench

The **Planned Activity Workbench (tsspc2600m100)** session has been added to handle planned activities in an easy way.

Preferred operator for serialized items

A preferred operator can now be specified for a serialized item in the **Preferred Operator** field of the **Serialized Item (tscfg2600m000)** session.

Price stages for service material lines

The price stage functionality is now available for the material lines of a service order and for the coverage lines (material) of a maintenance sales order.

Pricing in service material lines

The setup of service-specific matrix types for price, line discounts, and total discounts are now supported. A parameter has been added to determine whether the service or the sales specific matrix types are used in Service.

The price and discount matrix definitions have been extended with service-specific attributes, such as service type, service area, and service item groups. These service attributes are available in both the sales setup and service-specific setup.

The price simulator and price calculation sessions have been extended to support the service-specific functionality. A maintenance sales part delivery can now be generated from the price calculations.

Pricing of Other Costs

For Other Costs, pricing enhancements have been made. Multiple discounts can now be assigned and retrieved from the Pricing module.

Printing of cost types for quotes and order acknowledgements

When printing service quotes or service order acknowledgements, you can now select the cost types to be printed. So, when you choose to print cost types, you can specify which cost types must be printed on the documents.

Reason code for claim approval

Previously, a reason code could be specified only when a claim was rejected. Now, you can also specify a reason code during customer or supplier claim approval.

Release Materials for Approval option

The **Release Materials for Approval** option can now be executed for multiple selected claim lines instead of for one line at a time in the **Customer Claim (tscmm1600m000)** session.

Relinking of work orders for non-serialized items

In case of a too-late-scenario, if multiple quantities are involved, a work order can be completed for the finished quantities. For the remaining quantities, a new part maintenance line and a new work order are generated.

Replanning of service order activity

Instead of replanning an entire order, a single service order activity can now be (re)planned in the **Service Order (tssoc2100m100)** session.

Resource Management Workbench

These enhancements have been made to the **Resource Management Workbench (tssoc8351m000)**:

Gantt – Set Day Hours

This new option is used to set the start and end time of the day on the gantt time scale. The gantt shows assignments within the selected **Set Day Hours** range and the availability of the engineer on the engineer row. This feature provides a clear overview of the time scale and removes the unnecessary times of the day.

Gantt – Display Density

The display density specified in the LN user profile preferences is now applied to the workbench. The vertical distance is controlled based on the user preference.

Gantt – Navigation Shortcuts

New shortcut keys (Shift + Left Arrow and Shift + Right Arrow) are available to move the time scale left and right.

Grid – Date Filter

This new option is used to filter grid data rows based on the selected date filter. First, the selected date filter is applied to the workbench data, which is retrieved from the backend based on the selection criteria (departments, planning horizon dates, origin statuses etc.). Next, the selected column filters are applied. The selected filter is applied to the **Planned Start Time** date column of the Service Order / Work Order / Planned Activity. This option is available on all the grids in the workbench and enables a planner to start the day with only the required data.

Grid – Missing Mandatory Skills

This new feature shows the planner when the mandatory skills of an engineer and activity do not match for an assignment. If the required skills do not match, the background color of the **Service Engineer / Service Engineer Name** cells is changed and the missing mandatory skills are shown in the tooltip of the cells.

Backlog data

This new option is used to retrieve backlog records before the selected planning horizon. The available backlog can be further filtered using a combination of the statuses **Unassigned**, **Assigned**, **Accepted**, and **Started**.

Multiple Planned Activities Conversion

This new option is used to convert multiple planned activities to service/work order activities. This feature is enabled if one engineer and multiple planned activities are selected.

Planning Factor

A planning factor for project activities is now available. This factor is an indicator of how many employees are required to execute the activity.

Activities By Serial - Columns

On the **Service** tab of the **User Settings** screen, the **Activities By Serial - Columns** section has been added. This section includes these columns as data rows:

- Serial Number
- Item
- Item Description
- Installation Group
- Installation Group Description
- Alternative Serial Number

Users can re-order a selected row by using the up and down buttons. A resource column can be included or excluded through the **Include** check box.

Note: Changes are applied after reopening the workbench.

Adoption of data-authorization settings

If the user of the workbench is not allowed to see specific data, then this data is not displayed in the workbench.

Custom working hours

Custom working hours, such as Holiday, Training, Weekend Duty, and Doctor can now be specified. To support this, users can now perform these tasks:

- 1 On the **Gantt** tab of the **User Settings** screen, specify, modify, or delete custom working hours in the **Custom Working Hours** grid. Use the **New**, **Edit**, or **Delete** options in the grid context to do this.
- 2 Select the **Custom Working Hour Menu** check box in the **Custom Working Hours** grid to add the custom working hours as options to the **Custom Working Hour** menu in the Gantt context menu.
- 3 Select an option and run the created or modified work hour for the selected date, based on the custom work hour settings defined for that work hour.

Ship-to address in activity tooltip

Because the ship-to address can deviate from the location address, the Activity Tooltip now also shows the ship-to address information.

RFID tags to track serialized items

To track and trace equipment, for example at the construction site, you can now specify a label layout and an RFID structure for serialized items. You can print labels for serialized items based on the defined label layout.

Selection of lines when copying from original document

For claims generated from an original document, for example a sales order, you can now select specific sales order lines in the **Customer Claim (tscmm1600m000)** session.

Service maintenance for project contract deliverable

On the **Deliverables** tab of the **Contract (tpctm1600m000)** session, **Maintenance** has been introduced as a new type of deliverable for the project contract deliverable line. From a contract deliverable line of type Maintenance, you can now generate a maintenance sales order with part maintenance lines.

Service material availability and project pegging

When checking material availability in Service, project pegs are now considered.

Service type for customer and supplier claim lines

Previously, the service type was available only on the claim header. Now, the service type has been added to the claim lines where it can be used as an integration element with Financials.

Session to generate serials

Previously, authorization for specifying serials in Service could not be set up. Now that Generate Serial has changed to a session instead of a button, authorization can be specified for this new session. Only authorized employees/users are now allowed to generate serials.

Shifts functionality in Depot (work orders)

In the **Labor Utilization Graph (tisfc8370m000)** workbench, you can now calculate KPIs and the predicted order completion for work orders in Service.

Sold-to contact and address for service calls

The sold-to contact and address can now be specified in service calls.

Supplier claim for rejected customer claim

Supplier claims can now be generated for rejected customer claims in the **Generate Supplier Claim (tscmm1260m000)** session.

Transfer of service calls to a work order

A service call or multiple calls for the same company-owned part can now be transferred to the same work order.

To support this functionality, the **Allow Transfer of Calls to same Part Maintenance Line** parameter has been renamed to **Allow Transfer of Calls to same Order in Depot Repair** in the **Call Parameters (tsclm0100m000)** session.

Transferred to Service Department option

If returned materials had to be inspected to approve or reject the claim, it was difficult to locate the materials after issuing from the warehouse to the service department. An option is now available in the **Customer Claim (tscmm1600m100)** workbench to filter the lines that have been issued to the department for inspection.

Turn Around Time (TAT)

The actual receipt date specified for the warehouse receipt is now used as the TAT Start Date instead of the system date.

For some industry-verticals, such as Train MRO, defining TAT in days is not accurate enough. Consequently, turnaround time can now also be specified in hours.

Usability improvements on claim lines

Usability improvements have been introduced for claim lines in the **Customer Claim (tscmm1600m000)** session. For example, updating the **Generate Supplier Claim** field, the **Claim Method** field, and the **Return Material Required** field from several selected claim lines.

Wait on Supplier Claim Approval check box

If the new **Wait on Supplier Claim Approval** check box is cleared in the **Customer Claim Line (tscmm1110m000)** session, after a supplier claim is generated from a customer claim, the customer claim can be processed without approval of the supplier claim. Consequently, processing the customer claim has become more independent from the supplier claim.

Warranty handling for superseded items

If an item with a linked warranty is superseded, the existing warranty information of the superseded item can now be copied to a new item in the **Supersede Serialized Item (tscfg2240m000)** session.

Warning if reference is already used

If a claim is created for a reference (sales order number or invoice number) that is already used on another claim, a warning message is now displayed in the **Customer Claim (tscmm1600m000)** header session.

Where-used item in physical breakdown

The **Where-used in Physical Breakdowns** command has been added to the **References** menu of the **Items - Service (tsmdm2100m000 / tsmdm2600m000)** session.

If you click this command for a selected item, the **Physical Breakdowns - Where-used Components (tscfg2510m100)** session is started in which you can view the physical breakdowns in which the item is used.

Workbench for billable costs

For large projects, and contracts with many transactions, it can be difficult to evaluate transactions to be invoiced.

To support evaluating transactions to be invoiced, the **Billable Costs (tppin2600m000)** workbench has been added. The workbench focuses on one contract, one project, or one employee and displays the number and amount of billable and approved lines.

Chapter 9: Quality

Access to additional failed components from FRACAS session

Additional Failed Components has been added as a tab to the **Failure Reporting Analysis and Corrective Action System Header (qmpqm2600m100)** session. Consequently, the **Additional Components Failure and Action Details (qmpqm2104m000)** session can now be accessed directly from the FRACAS header session.

Access to FRACAS session from related order

When opening a failure document from a related order, the **Failure Reporting Analysis and Corrective Action System Header (qmpqm2600m100)** session is now started, allowing you to use all FRACAS session abilities.

Addition of image to FRACAS

Image fields have been added to the Corrective Action Plan and FRACAS.

In FRACAS, two image fields have been added to capture the reported failure at the time of reporting and after repair.

Assignment of employee to order inspection

The **Employee (Owner)** field has been added to Order Inspections. The employee specified in this field can act as the person ultimately responsible for the order inspection. The employee is retrieved from the testing combination by default.

Ship to Stock (STS)

Ship to Stock (STS) is a new concept whereby components are shipped directly to stock without the traditional inward inspection of goods and any sample testing. Traditional inward inspection can be time-consuming and incur costs. But if the supplier of goods is reliable, the inward inspection can be skipped. Similarly, if the production process is considered reliable, operation or final inspections (end item inspections) can be skipped.

A solution framework is now provided in which users can specify criteria for starting and exiting Ship to Stock. If Ship to Stock applies, order inspections are automatically created and processed. Non-conformities or FRACAS may invalidate Ship to Stock applicability.

Ship to Stock is supported for Purchase, Warehouse Transfers (Inward), Production, and Routing origins.

Chapter 10: Financials

Accounts Payable Invoice automation solutions

Several external solutions are available for Accounts Payable Invoice Automation. Typically, these solutions are used as an ERP agnostic tool for purchase invoice processing. The ERP is used as the backbone for purchase orders, warehouse receipts, master data, open entry control, payments, and management reporting.

To enable the interface between LN and external AP invoice automation solutions, functionality has been added to LN to support sending and receiving required data to and from these external solutions.

BODs have been added and modified, so master data, project-, order-, and receipt-related data is sent from LN and consumed in the AP invoice automation solution. The external solution sends purchase invoice, matching, and approval information to LN through a BDE/web service. In LN, this information is stored in staging tables and a success or error message is returned. To view the data in the staging tables, these sessions have been added:

- **External Invoices (tfacp7100m000)**
- **External Invoice (tfacp7600m000)**
- **Receipts by External Invoice (tfacp7105m000)**
- **Cost Lines by External Invoice (tfacp7110m000)**
- **Project Costs by External Invoice Cost Lines (tfacp7111m000)**
- **Subcontracting by External Invoice (tfacp7120m000)**
- **Tax Lines by External Invoice (tfacp7121m000)**

The **Register and Process External Invoices (tfacp7200m000)** session has been added to generate registration, matching, and approval transactions in LN. The generated purchase invoice document number is stored in the staging tables, along with the information whether the process succeeded or failed. This information can then be retrieved by the AP invoice automation solution through a BDE/web service.

If the process failed, these new sessions can be used:

- **Reverse Register and Process External Invoices (tfacp7200m100)**
- **Error Log (tfacp2580m000)**

After the invoice data is processed successfully, the purchase invoice information is available for open entry control, financial and management reports, and the payment process in LN. When the purchase invoice is paid, the PayableTracker BOD is used to provide the payment date and payment batch number to the AP invoice automation solution.

If the AP invoice automation package supports functionality to allocate costs to a project, then the interface ensures that the correct transactions are generated in Financials and Project. To support this, the **Cost Amount in Home Currency (Debit)** field has been added to these sessions:

- **Cost Entry (tpppc2605m000)**
- **Material Costs (tpppc2111m000 / tpppc2511m000)**
- **Labor Costs (tpppc2131m000 / tpppc2531m000)**
- **Equipment Costs (tpppc2151m000 / tpppc2551m000)**
- **Subcontracting Costs (tpppc2171m000 / tpppc2571m000)**
- **Sundry Costs (tpppc2191m000 / tpppc2591m000)**

The **Cost Amount in Home Currency (Debit)** field is now also available in many of the reports linked to the **Print Costs (tpppc2411m000)** session.

Optionally, you can log history for the staging tables, which can be viewed in these new sessions:

- **External Invoices History (tfacp7550m000)**
- **External Invoice Receipts History (tfacp7555m000)**
- **External Invoice Cost Lines History (tfacp7560m000)**
- **External Invoice Cost Lines Project Costs (tfacp7561m000)**
- **External Invoice Subcontracting (tfacp7570m000)**
- **External Invoice Tax Lines History (tfacp7571m000)**

For more information, see KB Article [2263967](#) on the Infor Support Portal.

Advance-payment assignment during invoice registration

Typically, advance payments are made to a supplier before the purchase invoice is received. To avoid overpayment of invoices, new functionality has been added to assign advance and unallocated payments to the purchase invoice during invoice registration. Additionally, invoices can now be assigned directly and a separate process is no longer required.

To use this functionality, in the **Transaction Entry Defaults (tfgld0131m000)** session, a transaction type for advance and unallocated payments must be set up for the user and the **Use for Direct Transaction Entry** check box must be selected.

In the **Purchase Invoice Entry (tfacp2600m000)** and **Purchase Invoice Inquiry (tfacp2600m100)** sessions, the **Assign Adv./Unall.Payments** command is now available. When you click this command, the **Assign Advance/Unallocated Payments to Invoices (tfcmg2131s000)** session is started. For the business partner on the invoice header and in the **Pay-to** field that has a balance, this session lists all advance and unallocated payments. You can automatically assign one or more advance or unallocated payments by selecting the payments and clicking **Process**.

If manual assignment is required, for example to indicate payment differences or payment discounts outside the thresholds, you can go to the details of the advance or unallocated payment, or use the **Assign Invoice to Adv./Unall. Payment** command. Both actions start the **Assign Unallocated/Advance Payments to Invoices (tfcmg2106s000)** session where the manual assignment can be performed.

After an assignment is processed, an assignment document is automatically created for the transaction type that you specified in the **Transaction Entry Defaults (tfgld0131m000)** session for assigning advance and unallocated payments. The invoice registration can be continued, but after assignment, the header fields **Amount**, **Rate** and **Currency** cannot be changed. To change these fields, you must withdraw previous assignments.

If Segment Reporting is implemented, the assign advance and unallocated payments functionality can be used only if the invoice is segmented. This means that a cost invoice must be fully posted to ledger accounts and dimensions. Order-related invoices must be fully matched and approved.

Automatic transaction enhancements

The **Automatic Transaction (tfgld0130s000)** session has been enhanced to support these features:

- Generate the automatic transaction only when a debit or credit posting on the source ledger account is made.
To support this, in addition to the transaction type and ledger account, now also a **Debit/Credit** indicator is available to specify the source.
- Generate the automatic transaction only when a certain ledger account and dimension combination is used.
To support this, the **Specific Source Dimension Combination** check box has been added to indicate if you want to use a specific dimension combination to determine the source transaction. If this check box is selected, you can set up the applicable dimension combination.
- Generate transactions in another transaction type than the source transaction.
To support this, you can insert a transaction type in the new **Target Transaction Type** field.
- Compress the generated transactions.
To support this, the **Compress** check box has been added to indicate if the generated transactions must be compressed.
- Indicate, for each dimension type and debit or credit line, if you want to copy the dimension from the original transaction or use a fixed dimension.
To support this, for each dimension type on the debit line, the **Copy Specific Debit Dimensions from Original Transaction** check box has been added. For each dimension type on the credit line, the **Copy Specific Credit Dimensions from Original Transaction** check box has been added.

Balance reference in reconciliation transactions

The purpose of the **Sort Position** field in the **Integration Transactions (tfgld4582m000)** and **Reconciliation Transactions (tfgld4595m000)** sessions is to sort the data. The field was also used as the basis for final acceptance for certain reconciliation groups, but this was not easy to understand.

The **Balance Reference** field has now been added as the basis for reconciliation and final acceptance. This new field is filled when integration- and reconciliation transactions are logged for reconciliation groups that have the **Basis for Final Acceptance** field set to **Business Object + Balance Reference**. The values **Business Object + Sort Position** and **Business Object + Business Object Reference** have been expired for the **Basis for Final Acceptance** field.

For existing data, the **Balance Reference** field must be updated to use it as the basis for reconciliation. The field must be updated before reconciliation data is accepted or currency differences are calculated. To update the existing data, the new **Update Balance Reference (tfgld4295m800)** session can be used.

Blocking of bank accounts

A start date and end date can now be set on the supplier's bank accounts. This is useful if the supplier sends a notification about the expiration of the current bank account, which will be replaced by a new bank account.

The **Start Date** and **End Date** fields have been added to the **Bank Account by Pay-to Business Partner (tccom4125s000)** session. It is optional to specify a value in these fields. Additionally, the **Created by**, **Creation Date**, **Last Modified by**, and **Last Modification Date** fields are new in this session to keep track of who made the change to a supplier bank account.

The start date and end date are considered in these sessions:

- Received Invoices (tfacp1500m000)
- Received Purchase Invoice (tfacp1610m000)
- Purchase Invoice Entry (tfacp2600m000)
- Purchase Invoice Inquiry (tfacp2600m100)

If the due date in these sessions is not in the date range of the assigned bank account, a warning message is displayed. This is only a warning, because the user who enters the invoice might not be allowed to change the bank account, or the actual payment is in the effective date range.

These sessions use the start and end date of the supplier's bank account to block the payment if the payment date is not in the date range:

- Standing Orders (tfcmg1510m000), in case of single payment
- Trade Note Payable (tfcmg1125s000)
- Audit Payments (tfcmg1255m000)

Blocking the unapproval of paid purchase invoices

In some companies, it is not allowed to unapprove paid supplier invoices. To accommodate this, the **Block Unapproval of Paid Supplier Invoices** parameter has been added to the **ACP Parameters (tfacp0100m000)** session. If this parameter is selected, you cannot unapprove supplier invoices that are anticipated or paid. A message is displayed when you try to unapprove such an invoice.

These sessions have been modified to support this:

- **Process Purchase Invoices (tfacp2107m000)**
- **Purchase Invoice Entry (tfacp2600m000)**

Business object information when printing reconciliation report by reference link

The **Reconciliation Data by Reference Link** report that can be printed using the **Print Reconciliation Data (tfgld4495m000)** session, now prints the Business Object Information.

Business partner for advance payments and receipts

To determine the correct tax number for the business partner in case of advance payments or receipts, the **Buy-from/Sold-to BP** field has been added (initially hidden) to these sessions:

- **Bank Transactions (tfcmg2500m000)**, for advance receipts and advance payments.
- **Direct Debit Advice (tfcmg4609m000)**, for advance receipts.
- **Direct Debit Advice Lines (tfcmg4101m000)**, for advance receipts.
- **Payment Advice (tfcmg1609m000)**, for advance payments.
- **Payment Advice Lines (tfcmg1101m000)**, for advance payments.

The **Repay Advances (tfcmg6201m000)** session has been modified to pass on the correct sold-to business partner to Invoicing.

Buy-from business partner for received purchase invoices

The **Buy-from Business Partner** field has been added to the **Received Purchase Invoice (tfacp1610m000)** session to determine the correct tax number for the business partner. If the invoice is imported, the buy-from business partner is retrieved during the import process.

To retrieve a default buy-from business partner:

- 1 If the business partner tax ID is specified, the buy-from business partner linked to this ID is used.
- 2 If the logistic company and order number or packing slip information is available, the buy-from business partner from the order is used.

Calculation of currency difference by payment schedule

If a receipt or payment schedule applies to an invoice, the invoice is received or paid in multiple payments, each with its own due date. When reporting open entries to assess risks on current assets and liabilities, these different due dates should be considered. If the invoice is in a foreign currency, then the reports must consider the different due dates when assessing the risk to a company from changes in currency rates.

These changes have been made:

- In the **Write off Currency Differences (tfacr2250m000)** and **Write of Currency Differences (tfacp2240m000)** sessions, the currency differences are now recorded and posted per receipt or payment schedule line instead of per invoice. Existing unrealized currency differences that are posted on invoice level (old situation) are reversed and unrealized currency differences are calculated and posted by receipt/payment schedule line.
- To view the currency differences by receipt/payment schedule line, fields to display amounts in the home currency have been added to the **Receipt Schedules (tfacr1103m000)** and **Payment Schedules (tfacp1103m000)** sessions.
- On receipt or payment of a schedule line, these situations can apply:
 - For invoices for which currency differences are calculated and posted on schedule line level (new situation), the unrealized currency profit/loss to be reversed and the realized currency profit/loss are determined and posted by the received or paid schedule line.
 - For invoices for which currency differences are calculated and posted on invoice level (old situation), the realized currency differences to be posted and the reversal of the unrealized currency differences are calculated and posted on invoice level.
- For invoices with schedule lines, the reversal of the unrealized currency differences and the calculation and posting of the realized currency differences, is now performed by receipt schedule line in these sessions:
 - **Send Documents to Factor (tfacr2212m000)**
 - **Write Off Bad Debts (tfacr2255m000)**
- Various print and display sessions, such as the **Calculate Aging Analysis (tfacp3525m000)** and **Print Aging Analysis (tfacr2420m000)** sessions now consider the posted currency differences and report the correct amounts in the home currency.

Cancellation of advance/unallocated payment or receipt assignments

You can now cancel the assignment of advance or unallocated payments or receipts.

To support this, the Include **Fully Paid** command has been added to the **View** menu of these sessions:

- Assign Advance/Unallocated Receipts to Invoices (tfcmg2130s000)
- Assign Advance/Unallocated Payments to Invoices (tfcmg2131s000)
- Assign Unallocated/Advance Receipts to Invoices (tfcmg2105s000)
- Assign Unallocated/Advance Payments to Invoices (tfcmg2106s000)

When you select this new view, also the advance receipts or payments with a **Balance Amount** of zero are displayed. You can go to the details of such a line and undo the assignment.

This functionality was initially required for Russia, but has been added to the standard for general use.

Cash flow - update of period totals

When multiple users update transactions with the same cash flow reason, locking problems can occur. This is because for each cash flow reason posting, the period totals for that cash flow reason are updated.

To avoid these errors, companies can postpone the update of period totals for cash flow. If the new **Postpone Updating Period Totals - Cash Flow** parameter is selected in the **Group Company Parameters (tfgld0501m000)** session, period totals are not updated in the **Period Totals - Cash Flow (tfgld219)** table during transaction processing. The new **Update Period Totals - Cash Flow (tfgld2219m000)** session can be run at regular intervals, such as at the end of each month, to calculate these totals for reporting purposes.

Column totals in aging analysis details

When analyzing the aging analysis details of a customer, the totals by aging analysis bucket are now available. In the **Aging Analysis Details (tfacr2522m100)** session, at the bottom of the **Amounts in Aging Currency** tab, a line has been added that displays all the column totals.

Consequently, it is no longer required to go to the summary session to view the business partner totals.

Contribution to Project (PCS) WIP

Because we recommend to map the PCS-related transactions to PCS-related ledger accounts, for example Project (PCS) WIP, and the anonymous transactions to anonymous ledger accounts, for example Inventory, the **Contribution to Project (PCS) WIP** field has been added to these sessions:

- **Mapping Scheme (tfgld4573m000)**. Available on the **Mapping Scheme Details** tab, but initially hidden.
- **Mapping by Element Group (tfgld4667m000)**.
- **Integration Document Type by Transaction Origin (tcfm0110m000)**. Available for the debit and credit side.
- **Integration Document Types by Reconciliation Group (tcfm0115m000)**.

Note: The field is displayed only if PCS is implemented for one of the companies in the environment.

Data by bank and payment method

The usability for setting up data by bank and payment method has been improved.

When you zoom to the details of a line in the **Data by Bank/Payment Methods (tfcmg0545m000)** session, the new **Data by Bank/Payment Method (tfcmg0645m000)** session is started. In this session you can, in the same view, also maintain the Posting Data by Bank/Payment Method.

Default dimensions

In LN, you can specify twelve additional dimensions for a ledger account. Such a complex financial accounting system facilitates multidimensional data analysis, but also complicates the registration process. Especially when manually entering documents.

The **Default Dimensions (tfgld0145m000)** session has been introduced to specify default dimensions for these levels of detail:

- Dimensions
- Account / Dimensions
- User / Account
- Business Partner / Account

In the **Finance Company Parameters (tfgld0503m000)** session, you can activate this functionality and set the priorities for the levels of detail in case of an overlap.

Defaulting of dimensions is used in these sessions:

- **Transactions (tfgld1102m300)**
- **Received Purchase Invoices (tfacp1110m000)**
- **Manual Sales Invoice Lines (cisli2125m000)**
- **Matched Purchase Invoice/Statement Line Transactions (tfacp1133s000)**
- **Sales Invoices (tfacr1110s000)**
- **Posting Data of Standing Orders/Stand-Alone Payment (tfcmg1115s000)**
- **Purchase Invoice Entry (tfacp2600m000)**
- **Bank Transactions (tfcmg2500m000)**
- **Payment Advice Lines (tfcmg1101m000)**
- **Direct Debit Advice Lines (tfgmd4101m000)**
- **Enter Payment Amounts for Assignment (tfcmg2119s000)**
- **Remittance Advice Lines (tfcmg2151m000)**

Element filter in mapping scheme for ledger and dimension mapping

Filtering has been added to the **From Element** and **To Element** fields in the **Mapping by Element Group (tfgld4667m000)** session. This enables you to filter on any element value used in that session.

Formatting of amounts in Print Integration Transactions by Business Flow

If the **Print Integration Transactions by Business Flow (tfgld4482m100)** is used to generate a CSV file, you can now specify this data:

- Amount Format
- Date Format
- UTC Date Time Representation

This enables a smooth import of amounts and dates in another application.

General Ledger Analyzer – export data to Excel

The option to export data to Excel has been added to the **General Ledger Workbench (tfgld8350m000)**.

If you click the **Export** button, you have these options:

- **All** - all data is exported
- **View** - the filtered data is exported

General Ledger Workbench

The general ledger is the basis for many management reports. It often contains enormous amounts of data, because any transaction with a financial consequence ends up as a journal voucher in the general ledger.

The **General Ledger Workbench (tfgld8350m000)** has been added to analyze the data for the identification of anomalies and outliers. It enables users to drill down from the parent ledger account to the original transaction.

The workbench supports these features to analyze the general ledger:

- Compare the figures of the current period with the previous period.
- Compare the figures of the current period with the financial budget of that period.
- Compare the figures up to and including the current period with the same period of the previous year.
- Compare the figures up to and including the current period with the same period range of the budget.
- Show the variances of the compared data in amounts or percentages.
- Start from the totals on the top level parent ledger account or dimension code, and then drill down to the financial transaction lines or the originating logistic transaction.
- Set thresholds by using easy filtering to find areas that require attention.

Home currency amounts in fixed asset invoice list

In the **Print Asset Invoice History (tffam1431m000)** session, amounts can now be printed also in the home currency.

Ledger account history by business partner

The **Print Invoice-to Business Partner Transactions (tfacr2416m000)** and **Print Invoice-from Business Partner Transactions (tfacp2416m000)** sessions use the ledger account history by business partner data. This data is not available in earlier versions, such as BaanIV and BaanV. Consequently, when migrating to LN from an earlier version, the data must be generated to use these print sessions.

To support this, the **Rebuild Period Balances after Currency Initialization/Migration (tfgld3205m000)** session has been changed. If you run the session with the new **Only Ledger Account History by Business Partner** check box selected, the ledger account history by business partner data is generated.

Multicompany improvements for received invoices and process payables

To support the multicompany setup of received invoices and unprocessed invoices, changes have been made to these sessions:

Received Purchase Invoices (tfacp1110m000)

The session now shows all the invoices of companies that share the **Received Purchase Invoice** tables with the current company. The **Financial Company** field has been added to show the applicable finance company.

Process Payables Workbench (tfacp8350m000)

The session now shows all the received invoices of companies that share the **Received Purchase Invoice** tables, and the unprocessed purchase invoices of companies that share the **Open Items A/P** tables. The **Received Invoice Company** and **Financial Company** fields have been added to indicate in which company the invoice was received and in which company the invoice is registered. The new **Financial Company** filter can be used to filter the invoices based on all, one, or several companies.

Multiple tax lines for invoice scanning

The interface between (Ephesoft) and LN now supports the capturing of purchase invoices with multiple tax codes. A maximum of three tax lines can be scanned from the tax summary on the invoice.

To enable this functionality, a new batch class must be implemented by Ephesoft and the ION mapping must be imported again. For details, see KB Article [2000198](#) on the Infor Support Portal.

Payment discounts for selected purchase invoice lines

To comply with legal requirements and best business practices in Germany, functionality has been added to exclude purchase invoice lines from payment discount calculation. A tax correction is made with the correct amount and reported to the correct tax codes if payment discounts must be subtracted upon payment of the invoice.

The **Exclude from Payment Discount** check box has been added to these sessions:

- Received Tax Lines (tfacp1610m000)
- Received Invoice Tax Lines (tfacp1112m100)
- Invoice Tax Lines (tfacp1112m000)
- Transactions (tfacp1102m300), for cost invoices

The field is initially hidden and only applicable if payment discount is set up in the terms of payment selected on the invoice. This payment term must have the **Discount Including Tax** check box selected in the **Payment Terms (tcmcs0513m000)** session. Excluded lines are not considered for the payment discount calculation, nor for tax corrections if the payment discount is subtracted in the payment.

Period status by year

The **Fiscal Year, Period Type, Period** option has been added to the **View** menu of the **Period Status (tfgld0107m000)** session. Consequently, you can now change the period status for a specific year or period for all period types.

Period status by year report

These features have been added to the **Print Period Status by Year (tfgld0407m000)** session:

- To verify for which financial company financial periods are not yet closed, the **Period Status** has been added as a selection criteria.
- To verify the period status of a module, the check boxes **All**, **ACP**, **ACR**, **CMG**, **INT**, and **GLD** have been added as selection criteria.
- To run the session in a job, the **Use Job Reference Date** check box and **Job Reference Date** field have been added.

Point in time revenue recognition

Together with the Point in Time Revenue Recognition functionality, which was introduced in Central Invoicing in an earlier release, additional interim accounts were added for the revenue transactions Interim Revenues 21 and 22. Now, these interim transactions are also considered in these sessions:

- **Print Postings by Sales Invoice (tfacr1450m000)**
- **Detailed Cash Flow Information (tfgld2561m000)**

Posting of expense tax to inventory at receipt

To comply with the accounting requirement to have the most accurate inventory value (actual costing) possible, the expense tax can be posted to inventory or WIP when the goods are received in LN.

To enable this functionality, select the new **At Receipt** check box in the **Consume Expense Tax in Inventory / WIP** group box of the **ACP Parameters (tfacp0100m000)** session. The existing **North American Expense Tax** parameter has been renamed to **At Invoice Approval** and has been placed in the same group box.

When an item with an expense tax code is received, the financial company of the purchase order's purchase office is used to determine the applicable expense tax parameter.

Now, if the **At Receipt** check box is selected, the net amount of the receipt is posted, and the expense tax amount. This is done by using the same integration document type (IDT) Purchase order/Receipt as the normal receipt transaction.

The **Tax Indicator** integration element has been added to distinguish between the net amount and the expense tax amount. If required, this indicator can be used to map expense tax transactions to different ledger accounts or dimensions. This new integration element is set to **Not Applicable** for normal (net) purchase order and receipt transactions and to **Expense** for expense tax transactions.

The expense tax amount is calculated from the receipt transaction amount multiplied by the applicable expense tax percentage. In the event of a variance between the calculated expense tax posted at receipt and the actual invoiced expense tax, this variance is posted at invoice approval through the existing Purchase Order/Price Variance IDT.

Expense tax handling at receipt has been implemented in these areas:

- Purchase order receipts
- Purchase schedule receipts
- Supplier stage payments
- Landed costs on receipts
- Additional cost transactions
- Cost to be specified
- Cost invoices in Financials
- Freight shipments
- Freight order clusters
- All intercompany trade scenarios

For freight shipments and freight order clusters, expense tax at invoice approval can now also be handled.

Postponement of background process

After non-finalized transactions have been created, the automatic start of the background process can now be postponed.

The background process is used to update the non-finalized totals by ledger account and ledger account/dimension, and to generate tax transactions or intercompany/intersegment transactions. When finalizing the transactions, the background process is automatically rerun before the transactions are finalized.

If sessions are closed in which non-finalized transactions are created and, shortly after that, the bshell is closed, the background process can still be running. Consequently, the status of documents is set to **In use by the background process**. The background process must be restarted to resolve this blocking situation.

This situation often occurs in case of integration transactions where many transactions are generated. Usually, after these transactions have been generated, they are immediately finalized (which reruns the background process). If the background process can be postponed for these type of transactions, the background process need not be restarted and time is saved because the background process is run only once for the transactions.

To support this functionality, the **Activate Background Process** field has been added to the **Transaction Types (tfgld0511m000)** session. The field can be set to these values:

- **Always** (default value): when non-finalized transactions are created for the transaction type, the background process is always started.
- **Postpone**: when non-finalized transactions are created for the transaction type, the background process is never started. Only during finalization, the background process is started.
- **Postpone when in Job Mode**: When non-finalized transactions are created for the transaction type by a job, the background process is never started. Only during finalization, the background process is started. When non-finalized transactions are manually created for the transaction type, the background process is started.

Process Payables Workbench

In the **Process Payables Workbench (tfacp8350m000)**, the invoices are shown based on the selected financial company. If no financial company is selected, then all registered invoices from all the shared companies are shown.

This is applicable only if the table tfacp500 is shared.

Purchase invoice matching by packing slip

To support third party Accounts Payable (AP) automation solutions, the packing slip number can now be added to the existing PurchaseInvoice BDE. During purchase invoice processing, this packing slip number is used to correctly match the related receipts.

Note: A BDE (Business Data Entity) is an XML message, like a BOD (Business Object Document). However, instead of using ION as a means of transport from one package to another, a BDE uses web services for communication.

Range of dimensions for transaction templates

In the **Transaction Templates (tfgld0512m000)** session, you could specify a transaction template only for one dimension. Now, a transaction template can be specified for a transaction type (optional), a ledger account, and a range of dimensions. Consequently, templates can be set up much quicker and maintenance is reduced.

Reason codes for credit notes

In some countries companies must provide a reason for credit notes.

A return reason code could already be specified on return purchase orders. Now, the **Return Reason Code** (initially hidden) field has been added to the header of the **Purchase Invoice Entry (tfacp2600m000)** session and is enabled when a credit note is specified. If a purchase order number is specified in the header of the credit note and this order has a return reason code, the return reason of this purchase order is used. The return reason can be modified as long as the selected reason code is effective on the invoice date.

If the credit note is linked to multiple orders, a return reason must be manually specified on the credit note header. The return reason codes of these orders can be verified on the **Matched Lines** tab.

After the purchase credit note has been finalized, the **Return Reason Code** field can be maintained in these sessions:

- **Purchase Invoice Inquiry (tfacp2600m100)** (field is initially hidden)
- **Invoice-from Business Partner Open Entries (tfacp2520m000)** (field is initially hidden on the **Miscellaneous** tab).

Reconciliation improvements

Several enhancements are required to improve the initial setup, data growth, and performance related to Financial Integration and Reconciliation.

Check Mapping Scheme (tfgld4573m000)

To prevent reconciliation problems, several new checks are executed in this session. A warning message is displayed in these situations:

- Reconciliation elements have not been specified for reconciliation groups for which **Write Reconciliation Data** is selected and **Basis for Final Acceptance** is unequal to **Reference Link between Business Objects**.
- Ledger mapping or dimension mapping is based on elements that have not been specified as reconciliation elements on reconciliation groups for which **Write Reconciliation Data** is selected and **Basis for Final Acceptance** is unequal to **Reference Link between Business Objects**.
- **Log All Reconciliation Elements** is selected for reconciliation groups for which **Write Reconciliation Data** is selected.

Close Reconciliation Data (tfgld4295m900)

This new session generates reconciliation opening balances for reconciliation groups with a never ending balance, for example, inventory. This enables you to archive the data for which opening balances have been generated and to continue reconciling the data. The session creates the reconciliation opening balances in the next fiscal period by reconciliation element combination.

The value of the **Fiscal Period** field is retrieved from the last **Finally Closed Period** in the **Period Status (tfgld0107m000)** session. The session can be executed only for fiscal periods with the status **Finally Closed**. The status of the reconciliation data that is available before or in the selected **Fiscal Period** range, must be **Finally Accepted**.

Note:

PCS project-related postings have the **Project** field specified in the reconciliation transactions. Those postings have an ending balance at project closure. Consequently, PCS project-related postings for reconciliation groups with the **Basis for Final Acceptance** set to **Not Applicable**, are not closed. For example, Inventory/1-related postings on project items are skipped in this session.

Reconciliation and Archiving Period Status (tfgld0177m000)

The **Period Closed** and **Period Opening Balance** fields have been added to this session. These period fields are automatically populated by the **Close Reconciliation Data (tfgld4295m900)** session.

Change Reconciliation Elements (tcfm0220m000)

This session now considers the **Period Reconciled** in the **Reconciliation and Archiving Period Status (tfgld0177m000)** session and changes reconciliation elements only for later periods. For example, if the close reconciliation process is done for 2019\12, the **Period Reconciled** is set to 2019\12 for the reconciliation group and the reconciliation elements are changed only for the periods later than 2019\12.

We recommend to archive the closed reconciliation data before changing the elements.

A warning message is displayed if opening balances are available. Manual action is required to specify the reconciliation opening balances on the new elements.

Operations Management - Financial Reconciliation (tfgld4595m000)

This session now includes these modifications:

- By default, only the open reconciliation data is displayed. If you deselect **Show Only Open Reconciliation Data**, the closed transactions are displayed and the created opening balances are not shown. In an archiving company, this filter is not available because this company includes only archived data up to and including the closing balance.
- For analysis purposes, the **Show All** command has been added. If this command is selected and the close reconciliation data process was executed with unarchived transactions, duplications will be displayed.
- Automatically created opening balances cannot be deleted unless the opening balance amount is zero.

- You cannot change manual opening balances or create reconciliation corrections before or in the **Period Reconciled**.

Print Reconciliation Data (tfgld4495m000)

For reconciliation groups with a never ending balance, for example inventory, the **From Automatic Created Opening Balance** check box has been added to this session. This check box is applicable only if a **Period Opening Balance** is available in the **Reconciliation and Archiving Period Status (tfgld0177m000)** session for the selected reconciliation group.

If this check box is selected:

- The **From Fiscal Year/Period** is defaulted based on the **Period Opening Balance** in the **Reconciliation and Archiving Period Status (tfgld0177m000)** session and made unavailable.
- The **Include Opening Balance Transactions** check box is selected and disabled.

If the **From Automatic Created Opening Balance** check box is cleared, the automatically generated opening balances are skipped.

Note:

For PCS project-related postings, no opening balance is created. Consequently, if you do not change the period for reconciliation in this session, which is defaulted to the opening balance for the reconciliation group, PCS project transactions may be missing on the report.

For example, a PCS item is purchased in period 6 and sold in period 10, so the balance is zero. For reconciliation group Inventory/1, period 8 is closed and an opening balance is created in period 9. When the report is printed for Inventory/1, the **From** period is automatically set to 9, because that is the period of the opening balance for Inventory /1. However, a balance is shown for the PCS item because only the sales posting is within the period range. The purchase posting of period 6 is not considered. To avoid this and to include all PCS project postings, set the **From** period to the start of the PCS project and the **To** period to the closure of the project. In this example, from 6 to 10.

Accept Reconciliation Data (tfgld4295m000)

The **Fiscal Period (From)** field is now retrieved from the **Opening Balance Period** field in the **Reconciliation and Archiving Period Status (tfgld0177m000)** session.

Finally Accept Reconciliation Data (tfgld4295m100)

The **Fiscal Period (From)** field is now retrieved from the **Period Reconciled** field in the **Reconciliation and Archiving Period Status (tfgld0177m000)** session, plus a value of one.

Archive / Delete Reconciliation Data (tfgld4295m200)

For reconciliation groups with a never ending balance, this session now verifies whether the **Close Reconciliation Data (tfgld4295m900)** session has been run to make sure that opening balances are available for the period after the period range to be archived.

Calculate Currency Differences for Integration Accounts (tfgld4295m400)

Because the automatically generated opening balance for reconciliation is a sum of amounts not related to a rate date, currency differences are not recalculated for these amounts in this session.

Calculate Rounding Currency Differences for Integration Accounts (tfgld4295m500) / Create Reconciliation Corrections (tfgld4295m700)

These sessions now only consider unreconciled data, which is the data that is after the **Period Reconciled** in the **Reconciliation and Archiving Period Status (tfgld0177m000)** session.

Correct Project (PCS) in Reconciliation data (tfgld4295m650)

The **PCS Project (tfgld495.proj)** field, which is filled during logging of the reconciliation data, is not always filled correctly. This can lead to differences between the **Print Reconciliation Data Project (PCS) Work in Process (tfgld4495m300)** session and the **Print Project Work in Process (tipcs3480m000)** session.

The new **Correct Project (PCS) in Reconciliation data (tfgld4295m650)** session is used to correct this **PCS Project (tfgld495.proj)** field. The session provides a simulate option and process and error reports.

Reversal date as rate date

For reversal journals in a foreign currency, the rules and regulations regarding the currency rate to be used can be followed more closely. In the **Journal Voucher Documents (tfgld0618m000)** session, the **Use Reversal Date as Rate Date** check box has been added for this purpose.

Reverse entry enhancements

The **Reverse Entry (tfgld1295m000)** session has been enhanced to support these features:

- Copy a journal voucher to a new one without generating a reversal transaction.
To support this, the **Create Reversal Document** check box has been added.
- Create the reversal document with negative amounts, if allowed by the transaction type, or with reversed debit/credit signs.
To support this, the **Reverse with negative Amounts** check box has been added.
- Use the original rates from the source transaction for the newly generated document.
To support this, the **Use original Rate** check box has been added.

Select all and deselect all batches for finalization

In the **Finalization Run Number (tfgld1609m000)** session, you can now select or deselect all batches for finalization. Easy filtering is also considered.

To support this, in the **Action** menu on the **Batches by Finalization Run** tab, the **Select All** and **Unselect All** commands have been added.

Select all and deselect all transactions for account matching

In the **Account Matching (tfgld1550m000)** session, you can now select or deselect all transactions for account matching. Easy filtering is also considered.

To support this, in the **Action** menu, the **Select All** and **Unselect All** commands have been added.

Tax declaration file check

If a tax declaration is not yet approved, the new **Show file** command in the **Tax Declarations (tfgld1625m000)** session can be used to download and check the tax declaration file.

Tax improvements for purchase invoice registration

Tax handling in the purchase invoice process has been enhanced with these features:

- To analyze tax transactions, the **Tax Lines** tab has been added to the **Process Purchase Invoice (tfacp2607m000)** and **Purchase Invoice Inquiry (tfacp2600m100)** sessions. This tab includes the tax summary information of the purchase invoice, just like in the **Invoice Entry (tfacp2600m000)** session. The only difference is that it is read-only.
- To have an overview of how the purchase invoice amount is distributed across the matched orders and additional cost lines, the additional cost lines are combined in the matched lines. This is also useful when checking the purchase invoice in an automated process, such as for invoice scanning, supplier exchange, and XML invoices. An overview of all matched and generated additional cost lines is displayed in the **Invoice Entry (tfacp2600m000)** and **Process Purchase Invoice (tfacp2607m000)** sessions. The lines on the **Matched Lines** tab are read-only so cannot be updated. Only if tax consistency is implemented, the **Matched Tax Country/Code** fields can be updated. Changing, adding, or deleting lines can be done through the matching actions or through the **Additional Cost** tab.
- If, in the **ACP Parameters (tfacp0100m000)** session, the **Tax Consistency** check box is selected:
 - On the **References** menu of the **Tax Lines** tab in the **Invoice Entry (tfacp2600m000)** and **Process Purchase Invoice (tfacp2607m000)** sessions, the **Matched Lines by Tax Code** option has been added. It becomes available when a single tax transaction line is selected. This option starts the new **Matched Data by Invoice (tfacp2556m100)** session. On the **Views** menu of this session, the **Hide Invoice Lines** option can be marked or not marked. All data in this session is read-only, except for the **Matched Tax Country/Code** fields on the matched lines. Consequently, the tax can be made consistent.
 - **Generate Tax Transactions** has been added to the **Purchase Invoice Entry (tfacp2600m000)** session. When this action is selected, the tax transactions are generated automatically based on the **Matched Tax Country/Code** fields of the matched and additional cost lines.

Transaction currency and bank transaction rate checks after finalization

After finalizing a bank statement with payments or receipts, for which the transaction currency differs from the bank currency, you can now check the currency and rate for the transaction.

To support this, the **Transaction Currency** and **Bank Transaction Rate** fields have been added to these sessions:

- **Invoice-to Business Partner Open Entries (tfacr2520m000)**, on the **Miscellaneous** tab.
- **Invoice-from Business Partner Open Entries (tfacp2520m000)** session, on the **Miscellaneous** tab.
- **Receipt Details (tfacr2524s000)** session, on the **Bank Details** tab.
- **Open Entry (tfacp2100s000)** session, on the **Payment Data** tab.

Withholding tax for received purchase invoices

You can now use withholding tax codes when you set up rules for tax codes in the **Received Invoice Rules (tfacp1115m000)** session. Consequently, withholding tax codes are automatically assigned to the received tax lines in the **Received Purchase invoice (tfacp1610m000)** session.

Tax date in open entries sessions

To provide additional information and to be used as a selection option, the **Tax Date** field has been added to these open entries sessions:

- **Received Purchase Invoices (tfacp1110m000)**
- **Invoice-from Business Partner Open Entries (tfacp2520m000)**
- **Print Invoice-from Business Partner Open Entries (tfacp2421m000)**
- **Open Entries by Segment (tfacp2500m100)**
- **Open Entry Details (tfacp2525s000)**
- **Calculate Payables Aging Analysis (tfacp3525m000)**
- **Aging Analysis Details (tfacp2522m100)**

Chapter 11: Invoicing

Advance payment rates for revenue recognition

According to IFRIC 22, when advances are received before goods are delivered, the transaction date of these advances must be considered in foreign currency translation for revenue recognition purposes.

To support this, the **Use Advance Payment Rates for Revenue** parameter has been added to the **Invoicing Parameters (cisli0100m000)** session. If this new parameter is enabled, when posting the settlement invoice, recognized revenues are adjusted with the currency rates applicable to the advance payment rates, up to the size of each settled advance amount. These adjustments are available in the **Revenue Lines (cirrc1610m000)** session with the revenue origin set to **Advance Currency Rate Difference**.

To track the advance payments and related settlements, these sessions are available:

- Advance Invoice Line Payments (cisli3118m000)
- Advance Invoice Line Payment (cisli3618m000)
- Settled Advance Payment (cisli3122m000)
- Revenue Invoice Line Settled Advance Payments (cirrc1132m000)

This new functionality is applicable only if the **Point in Time Revenue Recognition** check box is selected in the **Implemented Software Components (tccom0100s000)** session.

Bank relation

The **Default Bank Relations (tccom1551m000)** session can now be used to default the own bank to the billable lines. In addition, the defaulted own bank can be modified in these session:

- **Billable Lines (cisli8110m000)**, if the status of the billable line is **On Hold**.
- **Invoice Header (cisli3105m000)**, if the invoice status is **Ready to Print**.

The own bank is a fixed composing criterion during invoice composition.

Billable lines – net line amount

An additional column has been added to **Billable Lines (cisli8110m000)** session to show the net billable line amount. The **Billable Amount** is the amount that remains after order and line discounts have been deducted.

Gapless invoice line numbering

Occasionally, gaps may arise in the numbering of invoice lines. This can happen, for example, in these cases:

- When invoice lines with an amount of zero are suppressed for printing
- When invoice lines are aggregated

In this release, printed invoice lines are now also considered. Consequently, invoice line numbering is sequential and without gaps.

Invoice layout defaults

The new **Invoice Layout Defaults (cisli1170m000)** session can be used to specify invoice layout defaults based on values for these attributes:

- Tax Country
- Department
- Invoice-to Business Partner

The attributes to use for defaulting and the priority of these attributes can be specified in the **Search Priorities (cisli0130m000)** session.

If defaults cannot be retrieved from the **Invoice Layout Defaults (cisli1170m000)** session, the existing setup logic is used for defaulting.

Invoicing user profile – posting allowed

The **Posting Allowed** field has been added to the **Invoicing User Profiles (cisli0110m000)** session. If this check box is cleared for a user login, posting is not allowed for that user.

Note: Composing and printing may still be allowed based on other company, session and data authorizations.

Point in time revenue recognition

Revenue can be controlled with the new **Revenue Recognition Workbench (cirrc1620m100)** session. These sessions have also been introduced:

- **Revenue Contracts (cirrc1100m000)**
- **Revenue Document Lines (cirrc1110m000)**
- **Revenue Lines (cirrc1120m000)**

IFRS 15

IFRS 15 includes new and changed regulations on how to recognize revenue on contracts, where a contract is an agreement between a seller and a buyer.

The requirements for recognizing revenue apply to all contracts with customers, except for lease contracts (IAS 17), insurance contracts (IFRS 4), financial instruments (IFRS 9), and barter transactions between firms to meet customer demand. The contracts include Sales orders, Sales Schedules, Service orders, Maintenance Sales orders, and Contract Deliverables.

Before the IFRS 15 regulation was active, revenue was taken at the moment of invoicing. IFRS 15 requires revenue to be taken when the performance obligation has been met. Usually, the moment the performance obligation is met is equal to the moment of invoicing. But, depending on the details of the contractual agreement, these moments can differ. Also, the revenue amount can differ from the invoiced amount (transaction price).

According to the new IFRS rules for revenue recognition, revenue can be recognized in these steps:

- 1 Identify the contract
- 2 Identify performance obligations
- 3 Determine the transaction price
- 4 Allocate the transaction price
- 5 Recognize the revenue

Performance obligation

The performance obligation is a good or service delivered to the customer, per the contractual agreement. The performance obligation should be distinct, which means it can be consumed by the customer and the goods and services can be separately identified from other goods and services.

Based on the contractual agreement, the performance obligation can be different, although it concerns the same goods and services.

In LN terms, a performance obligation is, for example, a sales order line, service order line, or contract deliverable. A performance obligation can be fulfilled with the delivery of goods or services.

Timing of revenue recognition

If Point in Time Revenue Recognition is used, the timing of revenue recognition lays between the moment of starting the contractual agreement and the moment of closing the contract. The moment of revenue recognition is always explicitly stated in the contract.

The moment the performance obligation is fulfilled, depends on the contractual agreement. If revenue recognition is triggered by, for example, a shipment, a period after the shipment can be excluded from revenue recognition. For example, the performance obligation can include transportation of products to a certain location after shipment, or can require installation of license keys after a software delivery.

Bundling

Bundling in IFRS means that different activities or deliverables are bundled into one performance obligation. A typical example is the delivery of goods with a service to install the goods, or a training to use the goods.

Consequently, a difference exists between recognizing revenue for the performance obligation 'delivering a product', and 'ensuring a working solution'. In both cases, goods are shipped, but in the latter case, revenue can be recognized only after confirmation of a working solution. In LN, the service or training can be maintained in Service, and the shipment of goods can originate from a sales order. The lines can be bundled using a Revenue Contact.

Bundling is also applicable for performance obligations that require a total quantity of goods to be delivered. For example, the performance obligation of a 'working car' is not met with the delivery of three tires, because four wheels are required.

Transaction pricing

The amount to be recognized is based on the sale amount. However, factors such as certainty of the performance obligation, or prudence of financially responsible employees, can affect the amount.

The amount can be modified during the process of recognizing revenue.

Price corrections for self-billing

Self-billing has been extended on the sales side for trading partner compatibility.

These features are now supported:

- Additional self-billing invoice types, such as price variations, debit and credit notes.
- Combined functionalities of self-billing and retro-billing.
- Price components for material and logistics.

Sessions have been added to analyze all invoicing transactions that are related to, for example, a specified shipment.

Selection on delivery terms for revenue recognition

Delivery terms can now be selected in revenue recognition point in time. A revenue recognition method can be defaulted to a revenue document line based on the delivery terms of the originating document.

Self-Billing Workbench

These usability improvements have been made to the **Self-Billing Workbench (cisli5620m000)** session:

- Several commands, such as **Match** and **Approve**, have been added to the header section of this session.
- If a self-billed invoice line has an exception, this is now displayed directly in the **Self-Billed Invoice Lines** session that is linked to the workbench. The **Exception** field is initially hidden and can be displayed through personalization.

Settlements addendum

Detailed information regarding the settlements and installments that are linked to a sales invoice is now included in the Invoice Settlements Addendum. To print the addendum, select the **Print Invoice Settlements** check box on the **Reports** tab of the **Invoicing Options (cisli1520m000)** session. You can also specify a device [here](#).

The Invoice Settlements Addendum includes the reference of the original invoice, the settled amount, the tax amount, the total settled amount, and the settlement document type. All amounts are displayed in the local currency and the home currency. The Invoice Settlements Addendum shows the information for these documents:

- Advance payment requests
- Advance invoices
- Normal installments
- Guarantee installments
- Progress payment requests

These documents apply to manual sales invoices, sales order invoices, service invoices, and project invoices.

Note: In the case of Project, settlements can be created only for advance payments, advance invoices, or progress payment requests. When the installments are created, the settlement is also created and displayed in Invoicing. The progress payment request must not be confused with the progress invoice (installment).

In addition, significant changes have been made to the InvoiceBOD publication related to installment invoices. See KB Article [2251923](#) for more information.

Tax amount in local currency

Foreign currency self-billed invoices can now receive and store tax amounts in the tax currency and exchange rates for conversion from invoice currency to tax currency. This information is used when an invoice is created in LN.

These sessions are used to store this information:

- Tax currency rate information, tax date, and tax rounding in the **Self-Billed Invoices (cisli5600m000/cisli5100m000)** session.
- A tax summary for self-billed invoices in the **Self-Billed Invoice Tax details (cisli5120m000)** session.

If an exchange rate is available on the received self-billed invoice, it is used to calculate the tax amounts in the tax currency during invoice creation. If the new **Use SBI Tax Amounts** parameter is selected in the **Invoicing Parameters (cisli0100m000)** session, tax amounts in the tax currency of the self-billed invoice are used.

To ensure that incorrect tax amounts are not inherited from self-billed invoices, these actions are performed:

- The tax consistency between the net amounts of the self-billed invoice lines and the self-billed invoice tax details is verified.
- In the **Self-Billing Authorizations (cisli0120m000)** session, a tolerance percentage for deviations can be specified. If the deviation between the calculated tax amounts in LN and the self-billed invoice tax amounts is within the tolerance, then the tax amounts are taken from the self-billed invoice. If the deviation exceeds the specified tolerance, then no invoice is created in LN. In this case, the self-billed invoice tax amounts must be verified. If necessary, a different user with a higher tolerance percentage specified in the **Self-Billing Authorizations (cisli0120m000)** session can create the invoice.

Transaction type defaults

The new **Transaction Type Defaults (cisli1170m100)** session can be used to specify transaction type defaults based on values for these attributes:

- Tax Country
- Department
- Invoice-to Business Partner

The attributes to use for defaulting and the priority of these attributes can be specified in the **Search Priorities (cisli0130m000)** session.

If defaults cannot be retrieved from the **Transaction Type Defaults (cisli1170m100)** session, the existing setup logic is used for defaulting.

Transaction types – sales order installments

In the **Transaction Types (cisli0101m000)** session, you can now specify a **Transaction Type** and **Series** for sales order installments. Consequently, the numbering of sales order installment invoices can differ from other sales order invoices.

VAT agent

OEMs, such as Volvo, require the address of a VAT agent registered in the Invoice EDI message.

Different countries have different VAT rules. If an OEM company is VAT-registered in a foreign country, a VAT agent/representative is required. The VAT agent handles obligations derived from the VAT registration.

The VAT Agent registration address has been added to the **Tax Numbers by Business Partner (tctax4100m000)** session and can now be published in the corresponding EDI message.

XML invoice layouts

A decimal sign and grouping sign can now be specified on the XML invoice layouts. The defined sign is used to format the decimal values. If not specified, the current decimal and grouping sign are used.

XML invoicing

These improvements have been made for XML invoicing:

- Several invoicing elements can now be mapped to a code list as required by the specific format specification for XML invoicing.
- In the new **Data Element Mapping Scheme (cisli1660m000)** session, LN invoicing data (source value) can be mapped to a code (target value).
- The mapping scheme can be linked to the XML tag in the **XML Invoice Layout (cisli1651m000)** session.
- If the **Invoice Print Output** parameter is set to **XML Document** in the **Invoicing Parameters (cisli0100m000)** session, LN now supports distribution of XML invoices through Document Output Management. The document provider, Infor LN XML Invoice report (infor.ln.xml.invoice.report), is available for configuration in Document Output Management.

If an LN data element is mapped to a code value, this value is used when generating the XML invoice.

Chapter 12: Common

Archive General Data report

These improvements have been made to the **General Archive Data (tccom0250m000)** session:

- It is now optional to print a report.
- The report layout has been changed.
- A new option is available to print only the changed tables instead of all tables.

Attendance module

In the LN menu under Common, the Attendance (bpxtm) module has been added.

This new module is used to store, process, and report the attendance of employees at their workplace.

These features are supported:

- Generation and storage of planned attendance for employees, including shifts and detailed absence. Planned attendance includes information about normal hours, breaks, standby work, and overtime settings on a daily basis.
- Storage of time registrations, which contain information about the type of attendance, such as normal work, overtime, and standby hours, with a start and stop indicator.
- Based on the planned attendance and time registrations, calculation of actual attendance and display of this in attendance balance overviews.
- Due to distinct local laws, company rules, or individual employment contracts, manipulation of actual hours using specific calculations.
- Periodic sharing of actual attendance with a payroll company to calculate wages of employees.

Bank guarantees

Bank Guarantee is a new concept in the Trade Management module of Common. It is similar to the Letters of Credit concept, but it is less restrictive. A Bank Guarantee can be defined as an independent documentary undertaking by which the guarantor (a bank or legally qualified entity), issues, at the request of the customer

(instructing party), its irrevocable guarantee to pay a sum of money to the beneficiary (a third party), provided a complying document is presented.

In LN, the Bank Guarantee concept can be enabled in the **Financial Parameters (tcgtc9199m000)** session. The session includes these parameters:

- Parameters to create Beneficiary and Applicant type bank guarantees and specific trade types for Export, Import, Domestic Outbound and Domestic Inbound.
- A number group and series for the different trade types of bank guarantees.
- Reason codes for exceeding the maximum amount of the bank guarantee during linking.

For each trade type and kind of bank guarantee (accessory or independent), bank guarantee master data types must be specified in the **Bank Guarantee Types (tcgtc0115m000)** session. Additional master data can be specified in the **Costs (tcgtc0116m000)** and **Cost Sets (tcgtc0118m000)** sessions, which identify how much a bank guarantee may cost or the fees for obtaining it. The **Actions (tcgtc0117m000)** session enables you to track the actions assigned to users for the creation and completion of the bank guarantee.

Bank guarantees can be created in the **Bank Guarantees-Beneficiary (tcgtc0660m200)** and **Bank Guarantees-Applicants (tcgtc0660m300)** workbenches. User authorization sessions are available to specify approval limits and authorizations for changing the status.

These user authorization sessions are available:

- **User Authorizations for Bank Guarantee - Beneficiary (tcgtc0104m000)**
- **User Authorizations for Bank Guarantee - Applicant (tcgtc0104m200)**

Depending on the trade type, bank guarantees can be linked to logistics transactions such as Sales Orders, Purchase Orders, and Contract Deliverable Lines. One or multiple bank guarantees can be linked to a logistic transaction.

These features are also applicable for bank guarantees:

- Statuses are available for the bank guarantee to monitor the process of obtaining the guarantee and ensuring that all participants have the signed version.
- Amounts are consumed on the bank guarantee when orders are linked and receipts or shipments are confirmed.
- During linking, compliance checks are executed for the bank guarantee to verify if the amount available for linking is not exceeded (based on an indicator on the bank guarantee).
- Users can specify if advance or installment amounts can be excluded from the amount to be checked and consumed on the bank guarantee.

Default bank relation

The **Default Bank Relation (tccom1551m000)** session has been added to specify a default (own) bank relation for a combination of **Business Partner**, **Department**, and **Currency**. It is used to default a bank relation on the sales invoice.

When selecting a default, the invoice currency must be allowed by the bank relation.

The new **Default Bank Relation Simulator (tccom1251m000)** session can be used to simulate the defaulting based on the setup in the **Default Bank Relation (tccom1551m000)** session.

Economic zones

Economic zones are now supported in LN. An economic zone is a special zone with simpler tax handling and easier legal compliance for companies. Economic zones are located within a country's national borders, but are treated as foreign territory for tax purposes. The supply from and to economic zones is handled differently than the regular supply.

Because economic zones are considered to be located in a foreign territory, the transactions with economic zones can be classified as exports and imports.

These characteristics apply to exports:

- Goods or services are taken out of a country or from an economic zone.
- Goods or services are supplied from one unit in the economic zone to another unit in the same economic zone or in another economic zone.
- Goods are supplied from a domestic area to an economic zone.

Because supplies to an economic zone are the same as for any other export, VAT taxation is also as for any other regular export.

Special Economic Zones with a separate tax registration, and Export Oriented Units without a separate tax registration, are required and supported especially for India. However, for economic zones in other countries, this functionality can also be used.

If required, a separate registration can be specified for an economic zone and an address can be designated as part of an economic zone. Through tax exception modeling, the correct tax code is set as a default. This can be done for own locations and for business partners.

EDI – BEMIS to BOD

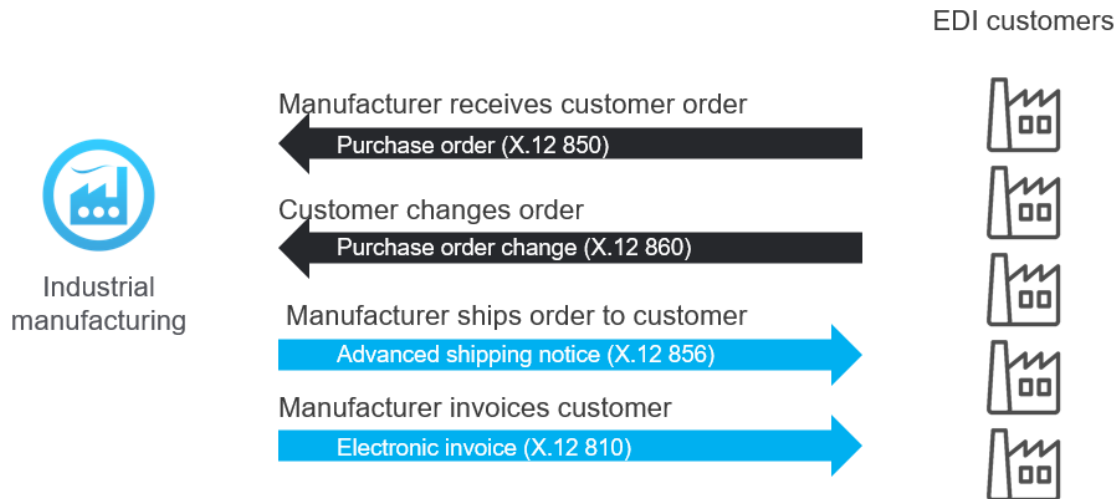
The Baan Electronic Message Interchange System (BEMIS) inhouse format is used to handle EDI messages.

The file-based BEMIS interface has been replaced with a BOD-based interface in combination with Infor's Transformation Services. In Transformation Services, EDI messages are converted to BODs and vice versa.

A set of transformation maps in the EDI format ANSI ASC X.12 has been delivered, which covers the sales discrete order process based on BODs. This delivery includes maps for these EDI messages, which are used in Transformation Services:

- X.12 850 Inbound Sales Order
- X.12 860 Inbound Sales Order Change
- X.12 856 Outbound Advance Ship Notice (ASN)
- X.12 810 Outbound Invoice

Customer-facing EDI: Discrete order process



This generic set of customer-facing EDIFACT maps based on BODs has also been delivered for use in Transformation Services:

- EDIFACT ORDERS - Inbound Sales Order
- EDIFACT ORDCHG - Inbound Sales Order Change
- EDIFACT DESADV - Outbound Advance Ship Notice (ASN)
- EDIFACT INVOIC - Outbound Invoice
- EDIFACT INVOIC - Inbound Self-Billing-Invoice (SBI)

With this, in Infor's Transformation Services, the transformation from and to EDI messages is done for a discrete order process.

Embargoes and boycotts

The Embargoes and Boycotts functionality has been added to Trade Management.

An embargo is generally driven by regulations or rules at a country or international organization such as the United Nations that must be followed. Embargoes are used to stop a country from selling to or buying items from a country. In LN, the country or groups of countries that cannot sell to or buy from a specific country or group of countries can be modeled. The embargo can apply to all items, specific groups of items, or harmonized tariff codes. Embargoes can have an export or an import scenario. In the case of export, this applies to sales orders, contract deliverables, service orders, maintenance sales orders, and work orders. In the case of import, this applies to purchase orders, services orders, maintenance sales orders, and work orders.

Boycotts are used to stop working with specific business partners or countries by not selling to or buying items from a specific business partner or country. In LN, the business partner, groups of business partners, country, and groups of countries can be modeled for which the export and domestic outbound to and the

import and domestic inbound from, is stopped. The boycott can apply to specific items or all items. In the case of export or domestic outbound, this applies to sales orders, contract deliverables, service orders, maintenance sales orders, and work orders. In the case of import or domestic inbound, this applies to purchase orders, services orders, maintenance sales orders, and work orders.

The Embargoes and Boycotts functionality, including the applicable trade scenario, number group, and series, can be implemented in the **Trade Management Parameters (tcgtc0100m000)** session. Consequently, **Embargo** and **Boycott** become available as document check sources in the **Document Compliance Check Results (tcgtc1610m000)** session.

Employee details selection

The **Selection Details (bpmdm1800m000)** session is used to narrow down the selection of employees and can be started from several sessions in LN People. The selection by range of **Employee**, **Employee Type**, **Department Type**, and **Department**, which was already available, has been extended with **Trade Group** and **Supervisor**.

E-signatures

E-signatures are used to sign off documents for legal purposes or strict internal control, following the standards of organizations like eIDAS. Example documents are Bills of Material, Shipments, and Payment batches.

You can specify these qualifications for documents:

- The situations in which an e-signature is required or triggered
- The person who must sign off, based on the business case

The document data with the signature is stored, separately from the active LN applications, in the E-signatures table in LN Tools. Because it is stored separately, data security is guaranteed. The data, including the related data such as names and descriptions, can never be changed.

To meet legal obligations, the stored data with the e-signature can be audited by certifying institutions such as the FAA or FDA. Internal control or auditors can also run audits to meet internal procedures, depending on internal business cases.

The data in e-signatures can bypass the GDPR regulations, as the name of the person who signs is not anonymized. Any other name or description in the e-signature is also not anonymized or erased. The data for e-signatures cannot be archived or removed.

This table shows the sessions with an e-signature and the triggers:

Session	Trigger
Production Model	Approval
Production Bill of Material	Approval

Session	Trigger
Job Shop Bill of Material	Approval
Job Shop Routing	Approval
Production Order	Release
Service Order	Completion
Work Order	Completion
Order Inspection	Closure
Non-Conformance	Disposition
Non-Conformance	Closure
Conformance Document	Certification
Corrective Action Plan	Closure
Corrective Action Plan	Completion
Receipt	Confirmation
Receipt	Correction
Shipment	Confirmation
Trade Compliance Check Results	Override
Bid	Approval
Budget (LN Project)	Adjustment
Payment Batch	Approval
Direct Debit Batch	Approval
Task	Approval
Task	Rejection

GDPR

GDPR legislation has been active for a while. The functionality in LN has been enhanced with the possibility to anonymize persons or business partners. Reports have been added that describe and proof what has been done in LN, or what will be done. Additionally, a certificate has been added to proof that the person's or business partner's data has been anonymized.

General projects

New columns have been added to the **General Projects (tcmcs0552m000)** session to show the PCS Project Status and TP Project Status. These columns are initially hidden and available for personalization.

GRC - application of authorization and security permissions

Data authorization can be set for just one record at the time for these objects:

- Project
- Project (PCS)
- Business partner
- Item
- Contract
- Service order
- Work order
- Sales order

A purchase order that is transferred from a planned purchase order can be authorized immediately.

GRC - export and import of authorization and security settings

The authorization and security settings can now be exported to a file, and then imported to another LN environment, for example, from a test environment to a production environment.

The settings of the target system can be respected, or overwritten.

The active permissions are not included, because the data in the target environment is different.

The permissions can be made active and can be applied during the import.

GTC - end user statements

Previously, Global Trade Compliance (GTC) included single item license management and checks.

Now, parameters have been added to support these new concepts:

End User Statement

This is a document that a customer fills out to detail the end use and end user of the sold item. It is used for Military Items or Dual Use Items that must be tracked during export, import, or domestic outbound and inbound transactions.

End User Declarations

This is an addition to the end user statement. It is used to manage the import of specific items to comply with the item that is sold to the end user. Check boxes have been added to manage the buying and making of items linked to an end user statement. Thus, only those items can be used in making and selling the end item. End user declarations can have a **Re-Export Type**, which allows changing ownership from one end user statement to another. The re-export is performed in Warehousing as part of the ownership change of existing inventory.

To support end user statements and end user declarations, these improvements have been made for licenses:

- Multiple items are allowed on a license.
- Conditions (called provisos) can be used to limit logistic steps, such as release to warehousing if a proviso has not been completed.
- A license can be a child license for a specific country or component. Exporting an item that contains parts from, for example, the USA or UK can require the exporting country license and the export license for the USA or UK. Consequently, the item shipment can be tracked by multiple licenses for the end item and key components.
- Licenses can track consumptions during demand entry for an order or contract deliverable. So, Order Consumptions can be tracked.

End user statements can now also be used by service objects, such as maintenance sales orders (part delivery), and field service orders (material lines).

GTC - extension of failure message

Previously, the **Failure Reason Code** in the **Document Check Results (tcgtc1610m000)** session was only used to determine the cause of a GTC failure, but it was not always informative.

Now, the failure message in the **Document Check Results (tcgtc1610m000)** session and similar sessions has been extended to record more details about the cause of the GTC failure. For example, the failure message now contains details of quantities or amounts that have been exceeded.

GTC - usability improvements

GTC now supports these usability improvements:

- Creation of licenses for export or import.
- Copying a canceled license.
- Visibility of the **License Status** and **ID** on all tabs (**General**, **Limits**, and **Miscellaneous**).

- Multiple linking from the **License** session to End User Declarations (EUD) and End User Statements (EUS).
- Multiple linking of an EUS to multiple contract deliverables. If EUS is not required, multiple linking of a license to multiple contract deliverables.

Incoterms

The International Chamber of Commerce (ICC) has replaced the Incoterm Delivered at Terminal (DAT) with Delivered at Place Unloaded (DPU). Consequently, DPU is now available as an option in the delivery terms.

Integration with ZWF

ZWF IT + Consulting AG is a software and consulting company that focuses on ERP-integrated customs and export solutions, and simplifies the complex areas of logistics, export, and export control.

ZWF shipments and export processes can now be integrated with LN. If the appropriate software licences have been activated, **ZWF AG Shipments and Customs** is available as an entry in the LN menu under **Common**. The new tz package is used to handle the ZWF functionality.

These ZWF modules are available in LN:

- ZWF AG Generic Solutions (tzzwf)
- ZWF AG Shipment Module (tzzfs)
- ZWF AG Customs Module (tzzfc)
- ZWF Preferential Calculation (tzzfp)

The Shipment Module provides an intuitive way to create shipment information. You can create packages, select their contents based on multiple LN documents such as sales orders, shipments, and invoices, and merge them into one shipment. All available data is automatically collected from the LN documents in your shipment. Within shipments, customizable workflows can be used to guide you through the process of creating a shipment, including packing, sending out reports, etc. With the shipment module, all relevant shipping data can be created within minutes, and shipment data (weights, packaging structures, measurements) can be refined without requiring access to the LN master data. All required data is collected in one session.

The Customs Module provides an easy way to create basic export declarations, accumulation by commodity codes, separation of main and additional package positions, and automated creation of customs document codes based on the item and commodity code information. The export processes collect data from LN and merge this data with templates and customs code lists to automatically create (German) ATLAS export declarations. Customs declarations are sent to the customs authorities using web-based interfaces. Return information is read into LN. You can manage the export allowance, which is used for further checks, and the code lists. These lists can be automatically read and updated when they are updated by the customs authorities.

The Preferential Calculation module supports all steps related to preferential calculations and offers these capabilities:

- Performing calculations for items, sales orders, or invoices.

The material that is used for the manufactured items is retrieved, related supplier declarations are verified, and prices are retrieved. The calculation results are displayed including detailed loggings to retrace the steps.

- Requesting supplier declarations, or sending out own declarations with the preferential states that are generated by calculations.
Declarations and information received back can be managed, and steps can be automated.
- Specifying preferential rules of origin on which calculations are based.
For each company, separate rules must exist or a rulebook must be shared between companies.

Infor Customs Export Control (ZWF)

International restrictions and security policies regarding the sale and shipment of goods demand a complex and safe export control process for every company. To integrate export control checks in LN processes, Export Control is available in the ZWF AG Customs Module (tzzfc) of ZWF AG Shipment and Customs. Export Control provides automatic checks of trade transactions.

Export control checks in LN, for example in the sales order approval process, allow users to check orders against a customizable set of rules. In this ruleset, which is based on countries and items, all restrictions of governments, national agencies, and international agencies can be maintained.

If the predefined ruleset is used, ZWF AG Export Control can block a process if further investigation is required by an export control officer. It also provides information about the reason for blocking. The blocks are integrated in standard processes and are automatically executed when necessary.

Users of Export Control can be informed about export control-related transactions through email. They can maintain the block level: either release or block the order completely.

UPS interface

An intuitive way of creating shipment and package information is available in the ZWF shipment module of Infor Customs. Shipment and package information can be transferred automatically to the United Parcel Service (UPS).

This UPS interface has been implemented in LN. An add-on communicates directly to the public UPS web interface, so no additional software is required.

All UPS processes and products can be used. Package labels can be printed directly from the application and the generated tracking can be used to track the shipping process to the customer.

Intercompany Trade

Intercompany trade relationship exceptions based on tax country

The intercompany trade relationships are specified using the department or warehouse, enterprise unit or financial company. The agreement can also depend on the tax country, especially when multiple registrations within one financial company are used. In that case, the sales office can use a different registration based on

the tax country. If, on an intercompany trade order, the sales office and the delivering warehouse use the same tax country, another agreement can be used. For example, because no internal invoicing is required, another transfer pricing rule must be used, or because no intercompany trade transactions are required at all (see the "Intercompany trade order without transactions" section).

Through relationship extensions, a specific agreement can now be specified based on the tax countries. This is available if **Registration by Tax Country** is active.

Intercompany trade order without transactions

In some scenarios, it is required to specify an intercompany trade order without transactions. Because no transactions are created, this is similar to the scenario without an intercompany trade order. However, on such an intercompany trade order, intercompany trade transactions can be enabled manually and the appropriate transfer pricing rule and other agreement details can be specified. This requires approval from the buyer and the seller.

For example, intercompany trade orders without transactions can be used in these scenarios:

- In general, intercompany trade is not applicable, but only required for specific transactions, for example, in the case of expenses. If an intercompany trade order without transactions exists, intercompany trade transactions can be specified after creation of the order or expense booking.
- A new enterprise unit has been created, but no intercompany trade agreements have been made yet. With an intercompany trade order without transactions, intercompany trade transactions can be enabled on the intercompany trade order after creation of a warehouse transfer or sales order (before actual shipments).
- Intercompany trade is applicable between two enterprise units, but not for an internal transaction if this transaction is taxable in the same country. In this case, an agreement can be specified at a lower level between tax countries, which overrules the agreement at a higher level. An intercompany trade order without transactions can be created for this.

Delivery terms and point of title passage retrieved from the originating order

Through tax exceptions, the tax countries and code can be specified on the intercompany trade order based on the delivery terms and the point of title passage. This is required, for example, when the delivery terms are ex works in which case domestic tax may apply. Therefore, it is required to retrieve the delivery terms and the point of title passage from the originating order instead of the internal business partner.

To support this, the **Default for Delivery Terms and Point of Title Passage** parameter has been added to the **Intercompany Trade Parameters (tcitr0100m000)** session. This parameter is used to specify whether the delivery terms and the point of title passage on the intercompany trade order must be retrieved from the internal business partner or from the originating order.

Letters of credit

In LN, a new **Validate** command has been added for letters of credit. If you click this command, a report is printed that shows which fields must be filled prior to approval. If all fields are filled, the **Validate** command is disabled.

Additionally, advance payments or installment amounts, which may be paid prior to shipment, could not be excluded from the letter of credit check. Now, these fields have been added to the Letter of Credit:

- **Exclude Advances**
- **Exclude Installments**
- Fields that show the advance and installment amounts that are excluded

Because contract deliverables and purchase orders do not have advance payments, the new fields are applicable only for sales orders.

Limits of quantity and amount

Previously, trade compliance licenses could have quantity limits or amount limits, but not both. Now, all license types can have limits of quantity and amount.

Look and feel of archiving sessions

The look and feel of all archiving sessions in LN has been modified. The layout is now the same for every archiving session, including the name of the session and the naming and positioning of fields in the session.

Multiple registrations by financial company

The functionality of multiple registrations by financial company supports transactions for different tax countries with different tax registrations within a single financial company.

These variants are supported:

Basic

Registration by tax country

Extended

Extended registration management

Additional functions have also been added, such as tax reporting in tax currency and tax configuration enhancements.

Registration by tax country

If an enterprise with a legal entity in one country does business in another country, a tax registration in that other country may be required. For example, if an enterprise has a legal entity in a country in which the main (production) facilities are located, but also has a local distribution center located in another country, which is managed by an LSP, a tax registration in this other country is required.

Because the local activities are financially managed by the legal entity, a multiple of financial companies means additional complexity. Therefore, under several restrictions, multiple tax registrations in one financial company are now supported.

To further support this functionality, these enhancements have been made:

- An inventory management department has been introduced to support the retrieval of business partner data and for use on intercompany trade orders.
- In intercompany trade, relationships can be created based on tax countries, intercompany trade orders can be created without transactions, and the delivery terms and point of title passage on an intercompany trade order can optionally be retrieved from the originating order instead of from the internal business partner.
- The tax country is defaulted with the country of the department or warehouse, instead of the country of the financial company.

These functions are supported:

- Specification and use of registrations.
- Printing and display of the correct registration ID on legal documents, such as the sales invoice and order acknowledgement.
- Tax reporting by tax country.
- Sequential numbering of sales invoices by tax country.
- Purchase invoice registration by tax country.
- Intrastat and ESL reporting by tax country.
- Local reporting for Spain (SII) and Slovakia (Sales Listing, Intrastat and VAT return).

Note: Functions not mentioned here, are supported at financial company level only.

Most settings are available at financial company level only and are therefore driven by the main country. For example:

- Local currency
- Localization functionality
- Parameters
- Nonregistration-related master data
- Financial reporting

Extended Registration Management (ERM)

A legal entity may require multiple tax registrations, for example, in these cases:

- It does business in several countries and a registration is required in each of these countries
- A country requires separate registrations by state

- A country requires a separate registration for an economic zone
- Different tax types require different registrations

These features are supported:

- Several registrations within a country and state
- Economic zones with specific registrations
- Storage and reporting of the correct tax and registration data on order transactions, sales and purchase invoices, and in Finance
- Tax reporting by registration ID or in a specific country by registration ID
- Sequential numbering, by registration, of invoices and other financial documents
- A life cycle for each registration number, so it can be used during a specified period of time
- Availability of a registration number by country or legal entity for an enterprise, and other types of registration numbers that may vary by state or economic zone
- Availability of multiple registrations for customers and suppliers, depending on the jurisdiction and the type of registration
- Tax and registration workbench, showing all tax transactions with multiple filters and drill down capabilities

The registrations can be implemented in a single financial company.

Note:

- If **Extended Registration Management** is active in the **Global Registration Parameters (tctax2100m000)** session, **Registration by Tax Country** is also active.
- This solution may exclude other functionality, such as various localizations. Details are available in the Online Help.

Import journals

The **Registration Code** and **BP Identification Number** fields, together with their descriptions and legal name fields, have been added to the **Import Journal Workbench (tfgld2616m000)** sessions. Additionally, these validations have been added:

- Per document, the tax country must be equal for all lines.
- The registration code, if specified, must match the tax country.

When an imported journal is posted in the **Post Import Journals (tfgld2216m000)** session, a journal document is created for each document number in the grid. If all lines of the journal document have the same registration code, the **Multiple Registrations by Document** check box is cleared and the registration code is filled on the document header. If the lines have different registration codes, the registration code on document-header level remains empty and the **Multiple Registrations by Document** check box is selected.

In the session, the registration code for the relevant series is shown for the transaction currency journal and the multi-functional currencies journal.

Withholding tax CMG (on payments)

The **Registration Code** and **BP Identification Number** fields, together with their descriptions and legal name fields, have been added to the **Withholding Tax Amounts (tfcmg2503s000)** session.

Tax on discounts

Changes have been made to ensure that tax transactions for payment discounts are created using the own and business partner registration data of the original invoice.

Reporting GLD

The **Own Identification Number** and **BP Registration Identification** have been added as report input fields to these sessions:

- Print Non-Finalized Transactions (tfgld1401m000)
- Reprint Journal Report (tfgld1410m000)
- Print Journal Report – Belgium (tfgld1442m000)
- Print Journal Report – Finland (tfgld1446m000)
- Print Periodical Journal Report (tfgld1411m000)

Reporting ACR

The **Registration Code** has been added as a selection field in these sessions:

- Print Statements (tfacr3440m000)
- Print Reminder Letter (tfacr3405m100)
- Print Accounts Receivable Ledger (tfacr2426m000)
- Print Invoice-to Business Partner Open Entries (tfacr2421m000)
- Print Invoice-to Business Partner Balances (tfacr2424m000)

The **Own Registration Identification** has been added as a selection field in these sessions:

- Print Accounts Receivable Ledger (tfacr2426m000)
- Print Invoice-to Business Partner Open Entries (tfacr2421m000)
- Print Invoice-to Business Partner Balances (tfacr2424m000)

Reporting ACP

The **Registration Code** has been added as a selection field in these sessions:

- Print Statements (tfacp3441m000)
- Print Accounts Payable Ledger (tfacp2426m000)
- Print Invoice-from Business Partner Open Entries (tfacp2421m000)
- Print Invoice-from Business Partner Balances (tfacp2424m000)
- Print Tax Details for Unpaid/Partially Paid Invoices (tfacp2423m000)
- Print Interim Purchase Tax Account Transactions (tfacp2435m000)
- Print Expense Purchase Tax Account Transactions (tfacp2436m000)

The **Own Registration Identification** has been added as a report input field in these sessions:

- Print Accounts Payable Ledger (tfacp2426m000)
- Print Invoice-from Business Partner Open Entries (tfacp2421m000)
- Print Invoice-from Business Partner Balances (tfacp2424m000)
- Print Tax Details for Unpaid/Partially Paid Invoices (tfacp2423m000)

The **BP Registration Identification** has also been added as a report input field in the **Print Tax Details for Unpaid/Partially Paid Invoices (tfacp2423m000)** session.

Reporting CMG

The **Own Registration Identification** and **BP Registration Identification** have been added as report input fields in the **Print Standing Orders (tfcmg1410m000)** session.

Tax reporting

In the **Print Yearly Tax Report (Business Partners) (tfgld1432m000)** session, the **Registration Code** and **Jurisdiction Code** have been added to the selection. The **Own Registration Identification** and description fields have been added as report input fields.

In the **Print Tax Analysis (tfgld1420m000)** session, the **Registration Code** and **Jurisdiction Code** fields have been added to the selection. Own registration is now used for grouping and own- and business partner-registration number have been added to these reports:

- Tax Analysis by Tax Period
- Tax Analysis by Fiscal Period
- Tax Journal

In the **Print Statement of Withheld Income Tax & Social Contribution (tfgld1436m000)** session, the **Registration Code** field has been added to the selection. The grouping is done by Own Registration and fields regarding own and business partner registration number have been added to the report.

Intrastat

The own identification number is now available as an attribute that can be maintained until the intrastat transaction is processed or the invoice data is updated on the intrastat transaction.

Own and business partner identification numbers are retrieved from the identification numbers of underlying taxable transactions, if countries match. If not, they are retrieved based on the declaration entity and business partner country.

The own identification number is available as a selection criterion in these process sessions:

- Process Intrastat Transactions (tccom7271m000)
- Update Intrastat Transactions with Invoicing Data (tccom7271m100)
- Distribute Intrastat Amounts for Cost Items (tccom7271m200)
- Print Intrastat Transactions (tccom7471m000)

In the **Process Intrastat Transactions (tccom7271m000)** session, you can now specify the **INSTAT/XML Party Definition from Own Identification Number**. This definition is used if, for the specified own identification number, different data must be used in the INSTAT XML file than specified in the **Intrastat Parameters by Country (tccom7107m000)** or **Intrastat Parameters (tccom7500m000)** sessions.

Sales listing

The own identification number is now available as an attribute in the **Sales Listing (tccom7570m000)** session. This is the own identification number of the sales invoice.

The own identification number has also been added as a selection criterion in these sessions:

- Print Sales Listing (tccom7470m000)
- Process Sales Listing (tccom7270m000)
- Update Deductions in Sales Listing (tctax7200m000)

Purchase listing

The own identification number is now available as an attribute in the **Purchase Listing (tccom6195m000)** session. This is the own identification number of the purchase invoice.

The own identification number has also been added as a selection criterion in this session:

- Print Purchase Listing (tccom6495m000)

Received invoices and commission invoices

Previously, the activation of Extended Registration Management (ERM) was blocked if received invoices or commission invoices were used. Also, if ERM is active, received invoices or commission invoices could not be used. Now, these limitations have been removed.

For commission invoices, these modifications have been made to determine the tax and registration data:

- The registration code is determined based on the transaction type series used for commissions.
- If the series allows other registrations, a registration code is determined based on the tax country used on the commission invoice.

However, multiple identification numbers of the same registration type for a tax country are not yet supported for commission invoices.

For received invoices, the registration data is determined based on the selected transaction type series set up in the **Defaults for Received, Generated and External Invoices (tfacp1118m000)** session. However, multiple identification numbers of the same registration type for a tax country are not yet supported for received invoices.

Additionally, the text of the Received Purchase Invoice is now copied to the Purchase Invoice during registration.

Defaults for received, generated, and external invoices

The **Defaults for Received, Generated and External Invoices (tfacp1118m000)** session has been modified to determine the transaction type and series for generated and external invoices, not only for received invoices but also for future functionality.

Multiple tax registrations - tax currency

Multiple tax registration functionality allows a legal entity that operates in multiple countries to handle country-specific taxes in a single financial company

Previously, tax reporting in a currency other than the home currency of the financial company was not supported. Now, tax reporting can be handled in currencies other than the home currency and several countries can be included in a financial company.

These features are supported:

- Specification of the tax reporting currency and exchange rate type in the **Tax Parameters by Country (tctax0101m000)** session.
- Specification of the currency rates for tax reporting in the **Tax Currency Rates (tcmcs0108m100)** session.
- Availability of tax currency rates and amounts in these areas:
 - Invoicing (billable lines, invoice - tax details)
 - Financials (tax details, tax analysis)
- Enablement of tax reporting in the tax currency for these documents:
 - Tax Declaration
 - Intrastat
 - Sales Listing
 - Purchase Listing

Note: The features are available only if the **Registration by Tax Country** concept has been activated in the **Global Registration Parameters (tctax2100m000)** session.

Tax configuration enhancements

The configuration to retrieve tax defaults for various taxable transactions has been improved. In the Tax Exceptions by Country and Tax Exceptions by Country Set sessions, tax defaulting has been improved and these functions have been added:

- Jurisdiction to Use (Own and Business Partner): Instead of specifying the tax country through exception modeling, you can now specify the address, such as buy-from, sold-to, and department, from which the tax country can be derived.
- Tax Code to Use: Instead of specifying a tax code on exceptions, you can now specify the tax code to use. For example, Domestic, ICT, Import, Export, which is specified in the standard tax handling library.

Extended tax configuration can be activated in the **Concept Activation** workbench. With extended tax configuration, these additional features are supported:

- Tax defaulting for interstate and intrastate transactions (India).
- Optimization of tax defaulting based on goods and service categories.
- Standard tax defaulting improvements.
 - Default setup of a goods and service category and state.
 - Advance invoice defaulting based on a standard tax library.
- Improvements for Tax Exceptions by Country and Tax Exceptions by Country Set.
 - Default setup of a goods and service category and state.

The new Goods and Service Category has these functions:

- Categorize the goods and service for tax purposes
- Map to these attributes:

- Item
- Item Group
- HS Code
- Service / Contract Type
- Coverage Type
- Retrieve tax defaults in:
 - Tax Handling
 - Tax Exceptions by Country
 - Tax Exceptions by Country Set

Tax defaulting

If **Registration by Tax Country** is active in the **Global Registration Parameters (tctax2100m000)** session, the defaulting of tax data using a standard tax library has been improved. To retrieve the countries, now the department country is considered instead of the financial company country.

Additionally, the appropriate country is considered to determine the tax number. It is no longer retrieved from the General Company Data.

This enhancement reduces the need to specify exceptions for the handling of registrations in different countries.

Net change for Apply Latest Permissions session

The **Apply only New and Changed Documents** check box has been added to the **Apply Latest Permissions (tcsec3200m000)** session. If this check box is selected, only documents are processed that are new or for which the characteristics that control the document's authorization have changed.

The new check box is used to apply permissions only for new and changed documents. It should not be used for a change in permission settings. If it is used to change permission settings, a full run of **Apply Latest Permissions (tcsec3200m000)** must be performed, because the permission settings for all documents can be affected.

Optional refreshment of totals in workbenches

Calculating totals can reduce performance. For this reason, you can now deactivate the automatic calculation of totals.

To support this, the **Calculate Totals** command has been added to various workbenches across LN. By default, this command is unmarked. You can mark it if totals should be retrieved automatically.

The setting of the command is saved for the next time you start the workbench.

Pattern - list detail

Several existing details sessions have been replaced by the new list detail pattern. Instead of displaying only the details of a record, the list detail pattern shows the list with records on the left side of the screen. The items in this list can be clicked to open the corresponding details form, which is then displayed on the right side of the screen. This eliminates the need to navigate back to an overview session to open a different detail. The list area has a search box for quickly searching through items. The area can be completely collapsed if you want the details session to look like it used to.

This table shows the overview sessions for which the detail sessions have been updated with the list detail pattern:

Domain	Session title	Session code
Project	Contract Deliverables	tppdm7100m100
Project	Project 360	tppdm6500m100
Project	Employees - Project	tppdm8101m000
Project	Items - Project	tppdm0505m000
Project	Equipment	tppdm0512m000
Project	Project Equipment	tppdm6512m000
Project	Project Subcontracting	tppdm6513m000
Project	Project Tasks	tppdm6511m000
Project	Sundry Costs	tppdm0514m000
Service	Employees – Service	tsmdm1140m000
Service	Items – Service	tsmdm2100m000
Service	Serialized Items	tscfg2100m000
Service	Installation Groups	tsbsc1100m000
Service	Installations	tsbsc1110m100
Service	Reference Activities	tsacm1101m000
Service	Master Routings	tsacm1101m100
Service	Warranty Templates	tsctm0120m000
Service	Contract Templates	tsctm0150m000
Service	Preventive Maintenance Scenarios	tsspc1130m000
Service	Call Overview	tsclm1509m000
Service	Maintenance Notifications	tscfg3110m000
Service	Service Engineer Assignments	tssoc2505m000

Domain	Session title	Session code
Warehousing	Transport Means Groups	fmfmd0150m000
Warehousing	Warehouses	whwmd2500m000
Warehousing	Item – Warehousing by Site	whwmd4104m000
Warehousing	Package Definition Levels	whwmd4520m000
Warehousing	Items – Warehousing	whwmd4500m000
Warehousing	Packaging Items	whwmd4505m000
Warehousing	Package Definitions	whwmd4110m000
Production	Product Variants	tipcf5501m000
Production	Items - Production	tiipd0101m000
Purchase	Items – Purchase	tdipu0101m000
Purchase	Purchase Order Types	tdpur0194m000
Sales	Items – Sales	tdisa0501m000
Sales	Sales Order Types	tdsls0594m000
Finance	Assets	tffam1500m000
Finance	Chart of Accounts	tfgld0508m000
Finance	Dimensions	tfgld0510m000
Common	Employee 360	bpmdm0101m100

Pattern - tree detail

The tree detail pattern has been introduced to display (homogenous) hierarchical structures on the left side of the details screen. By clicking the items in the tree, you can quickly navigate to the details of the various records inside the tree. Most of the tree detail sessions cannot be reached independently, but are accessed through another session.

The new pattern is available through these sessions:

Domain	Session	Navigation
Project	Structural Elements (tpest1120m000)	Click Structural Elements Tree on the References menu.
Project	User Defined Structure Elements (tppdm0596m000)	Click View Tree Detail on the References menu.

Domain	Session	Navigation
Service	Serialized Items (tscfg2100m000)	Click Physical Breakdown Details on the References menu.
Financials	Chart of Accounts (tfgld0508m000)	Click View Tree on the Views menu.
Financials	Dimensions (tfgld0510m000)	Click View Tree on the Views menu.
Financials	Taxonomy (tfgld1670m000)	Click View Tree on the Views menu of the Taxonomies Accounts tab.
Common	Employee 360 (bp-mdm0101m100)	After opening the details of an employee, click View Supervisor Tree on the References menu.

Pricing - total price calculator

Pricing - total price calculator

A new price calculation tool has been created for Sales, Service and Procurement. In the **Pricing Parameters (tdpcg0100m000)** session, a new number group and series have been added for Sales, Service, and Purchase price calculations.

Several new sessions have been added. Most sessions can be started from these overview sessions:

Sales Price Calculations (tdpcg2100m000)

For the Sales and Service origins, this session is used to identify for a customer and several items, a total sales price, and information about prices, discounts, and material pricing per item. The total price and discount sources can originate from sales contracts, sales price matrices, and item sales data. In addition to the pricing information, an order discount can be specified in this session.

Purchase Price Calculations

For the Procurement origin, this session is used to identify for a supplier and several items, a total price, and information about prices, discounts, material pricing, and landed costs per item. The total price and discount sources can originate from purchase contracts, purchase price matrices, and item purchase data. In addition to the pricing information, an order discount can be specified in this session.

The **Kind of Price Calculation** field can be set to these values in the Price Calculations sessions:

- **Price List:** Used for sharing with customers/suppliers and storing in history to see how pricing has changed overtime. One or more lines, excluding a total order discount, can be converted to an order or quote.
- **Order Preparation:** Used for preparing pricing details, including a total order discount, before converting all lines to an order or quote.

If multisite is implemented, price and discount sources can be retrieved from the office or from the site.

Taxation - billable lines

Checks have been introduced in the billable lines to ensure that an intracommunity tax code can be used only if a verified tax number is available for the business partner.

This table shows the checks:

Tax Country	Tax Code	Business Partner Tax Number	Description
EU	Intracommunity tax code	Not available	Billable Line status is set to On Hold during creation. Billable lines can be confirmed only if one of these conditions is applicable: <ul style="list-style-type: none"> Tax code is non-ICT BP tax number is available and verified
EU	No intracommunity tax code	Not available	Allowed
EU	Intracommunity tax code	Available but not verified	Billable Line status is set to On Hold during creation. Billable lines can be confirmed only if one of these conditions is applicable: <ul style="list-style-type: none"> Tax code is non-ICT BP tax number is available and verified
EU	No intracommunity tax code	Available but not verified	Allowed
EU	Any	Available and verified	Allowed
Non EU	Any	Available or not	Allowed

Taxation - new legal intrastat requirements

From 2022, Intrastat requires these new data elements from exporters:

- The VAT number of the partner company (importer)
- The country of origin for the exported goods

The **Business Partner Identification Number** is an existing attribute in the **Intrastat Transactions (tccom7171m000)** session. If the business partner has an identification number in the partner country (ship-to country), then this identification number is automatically retrieved by LN. If the business partner does not have an identification number in the partner country, this number could not previously be retrieved and remained blank. Before processing intrastat transactions, the business partner identification number can be manually specified or modified.

Intrastat logging and processing have been improved to retrieve a default business partner identification number if it is not known. These additional parameters can be specified in the **Intrastat Parameters (tccom7500m000)** and **Intrastat Parameters by Country (tccom7107m000)** sessions:

- **Defaults for Business Partner Identification Number when Empty**
- **Defaults for Business Partner Identification Number when Temporary**
- **Defaults for Business Partner Identification Number when Empty (Triangular)**

These fields are used as defaults when creating intrastat transactions, if the business partner identification number is empty.

The same fields are also available in the **Process Intrastat Transactions (tccom7271m000)** session and are applied if the business partner identification number is blank when creating the intrastat file. This session can be used for data created before defaults were specified in the Intrastat Parameters.

Note: The fiscal ID is no longer considered as business partner identification number for intrastat.

The **Country of Origin** is also an existing attribute in the **Intrastat Transactions (tccom7171m000)** session, which is filled based on the country of origin specified in the Item Data. This country can now be modified manually to take into account the country of origin specified in warehouse shipments.

Trade compliance for service documents

For items that are subject to trade compliance, compliance checks can be executed. This could be done for external facing documents, except for Service documents.

In LN, trade compliance checks can now be executed for these Service documents during entry:

- Field Service Order Material lines
- Maintenance Sales Orders (all variations)
- Work Order Material Lines
- Work Order Subassembly (outgoing and incoming)
- Customer Claim Delivery Lines
- Supplier Claim Receipt Lines

For these new documents, the same checks are executed as for other documents. If a subject to trade item on one of these documents fails a compliance check, the record is blocked and the **Blocked** check box is selected. Simultaneously, a record with the **Blocking Reason** set to **Trade Compliance** is logged in the **Blocking Reasons (tsmdm1101m000)** session.

A new **Critical for Activity Release** check box has been added to the **Resource Requirements (tsacm2120m000)** session. This check box identifies if the related activity can be released if the item fails the compliance check. The setting of this check box is defaulted to Service Orders and Work Orders. If it is not selected on the reference activity or if reference activities are not used, the check box can be manually selected.

The **Subject to Trade Compliance** and/or **Critical for Activity Release** check boxes have been added to these sessions:

- Service Order Material Costs (tssoc2122m000)
- Maintenance Sales Order – Part Maintenance (tsmsc1110m100)
- Maintenance Sales Order – Part Loan (tsmcs1110m200)
- Maintenance Sales Order – Part Delivery (tsmcs1110m300)
- Maintenance Sales Order – Part Receipt (tsmcs1110m400)
- Work Order Material Lines (tswcs4110m000)
- Work Order Outgoing Subassembly (tswcs4150m000)
- Work Order Incoming Subassembly (tswcs4151m000)
- Customer Claim Delivery Line (tscmm1112m000)
- Supplier Claim Part Receipt Line (tscmm2113m000)

VAT agent

You can now indicate in the **Tax Numbers by Business Partner (tctax4100m000)** and **Registrations by Business Partner (tctax4102m000)** sessions whether a business partner tax number comes from a VAT agent.

This indicator is then displayed in the sales invoice BOD that is generated for invoicing.

Note: The indicator is initially hidden in the sessions.

VIES tax number check

The EU VAT directives have been amended to have a valid VAT identification of a customer from another member state as a condition of intracommunity exemption. To meet this requirement, these features are now supported in LN:

- Periodic verification of BP tax numbers
- Prevention of intracommunity exemption on invoices if the business partner's tax number has not been verified

The **Verify EU Tax Numbers (tctax4200m000)** session has been added to periodically verify the tax numbers of all or a selection of business partners and country. This new session supports these options:

Verify Registered Address

When a registered address is specified in the **Tax Numbers by Business Partner (tctax4100m000)** session, optionally, it can be verified if the registered address details match with the address in the VAT database. This is supported only for a limited number of countries.

Action on Registered Address Mismatch

Warning or **Blocking** can be selected for a mismatch between the registered address and the address in the VAT database.

If the verification fails because the tax number is not valid, or if there is mismatch of address and the action for the mismatch is Blocking, the verification details are emptied and **Invoicing Allowed** is set to **no** in the **Tax Numbers by Business Partner (tctax4100m000)** session. Consequently, it is not allowed to release billable lines with this tax number to invoicing.

Workbenches for price calculations

For the price calculation functionality, these workbenches have been added:

Sales Price Calculations (tdpcg2600m300)

For the sales origin, this workbench enables filtering based on sales office, sold-to business partner, site, and item.

Purchase Price Calculations (tdpcg2600m400)

For the purchase origin, this workbench enables filtering based on purchase office, buy-from business partner, site, and item.

In both workbenches, filters are also available for the statuses **Draft**, **Finalized**, and **Reopened**.

Chapter 13: Enterprise Modeler

Role data

The new **Copy Role data (tgbg8210m000)** session can copy role-related data to another role. The data can be linked to a selection of business processes or employees. The copy action can include sub roles.

Chapter 14: Product Lifecycle Management

Infor PLM for Discrete

Infor PLM for Discrete is a comprehensive product lifecycle management (PLM) solution for engineering and discrete manufacturing businesses in high-tech electronics, automotive, industrial machinery, and aerospace and defense industries.

Now, a direct integration is available between LN and PLM for Discrete. This is a direct integration, because, if the **Product Lifecycle Management (PD)** check box is selected in the **Implemented Software Components (tccom0100s000)** session, PLM for Discrete is an integrated package of LN. Product Lifecycle Management is then displayed in the main menu of LN.

The integration supports these features:

- The integration is based on DLLs, making a direct integration available between both applications. PLM for Discrete uses the functions of the Common and People packages in LN.
- The new PLM for Discrete is written in the LN Technology Toolset. This toolset offers more functionality with respect to Excel integrations and user experience.
- For companies in make-to-order, engineer-to-order, configure-to-order, assemble-to-order, and project-based businesses, PLM for Discrete in the Infor CloudSuites is preconfigured. It includes efficient industry-specific functionality to enable fast deployment and personalize the user experience. Additionally, PLM for Discrete minimizes time to value and cost of ownership.
- PLM for Discrete is deeply integrated with LN for enhanced manufacturing interoperability and efficient BOM transfer.
- PLM for Discrete integrates effectively to many leading CAD systems. It simplifies viewing the CAD-generated files from the built-in viewers, or for non-PLM users, from Infor's Document Management system (IDM).
- PLM projects are supported by user and role management. Users can be assigned to multiple PLM projects. The roles in PLM projects can be different for each user, which determines the permission a user has with regard to the objects under the PLM project.
- The new PLM for Discrete includes object management. Objects are Items, Item Structures (BOM), Documents, Folders, and Files. All objects are revision-controlled and managed under the PLM-project umbrella for authorizations based on user roles. Object management includes the vaulting of files and documents that are created in various CAD applications and saved to PLM. In object management, these functions are also supported:
 - Mask management - used to automate the generation of key fields when generating objects
 - Category management - used for integrity checks and various ways to review and manage structures
 - Defaults management - used to pre-populate the fields in objects during creation
 - Cost roll-up
 - Mass BOM changes

- PLM for Discrete supports supplier, customer and manufacturer part numbers. Both manufacturers and manufacturer part numbers are supported in the definition of the PLM Items object.
- Revision management is managed through a workflow mechanism. Workflows are templates of business process. A business process is an instance of a workflow template for a specific change, approval process, or a new product.
- The engineering BOM can be changed to a site-specific BOM before it is sent to production. This functionality is used to support multi-site scenarios in an ERP implementation.

Actions for linked objects

When checking out a PLM object, the actions to be performed on the linked objects are interactive.

When checking out or deleting a PLM object, you can decide whether the action also applies to the linked objects. For example, you can check out a PLM item without checking out the document at the same time.

Addition of site in PLM user preferences

In addition to the default company that can be specified in MyPLM Preferences for the integration with production, a default site can be specified. That is, if sites are used, **Send to Production** may require company and site.

Addition of thumbnail column to session grid of items and documents

For PLM items and PLM documents, the visualization of thumbnails in the grid of the related sessions can be activated by selecting the **Show Thumbnails for Item/Document in Session Grid** parameter in the **PLM Preferences** sessions for users.

The addition of thumbnails to the grid provides a quick and visual recognition point when looking through a series of records.

Advanced export

PLM Export is a feature to export product data together with all design and reference documents. For a selected PLM item, PLM Export extracts all meta data and related files into a zip file that can be downloaded.

With the PLM Export Setup, users can select the data to be exported and the types of file to be included in the export file. The exported files can be shared with other stakeholders for collaboration.

Advanced import

PLM Import functionality is used to import item, document and folder structures together with other related objects. The import is based on an XML file format.

These features are available:

- PLM import setup: Enables users to specify the data mapping and validations to be performed during the import.
- PLM workbench: The **PLM Import Workbench (pdimp8200m000)** session enables users to interactively modify the data before it is imported. Users can approve or reject PLM objects before they are imported.

Validation and mapping

Mapping functions are available to modify the data before import. In the Import configuration, these mapping functions are supported:

- Active Revision - set active revision according to Date/LatestCreated
- Allow update released - rule about updating released objects
- AutoNumber - set auto number to field
- Concat - concat value to field
- Constant - set constant to field
- Conversion Table - perform conversion from external to internal values
- Copy - copy value from one field to another
- Copy Attribute - copy value from one attribute to another
- Current Date - set current date to field (current time optional)
- Current Project - set current project to field
- Current User - set current user in field
- Default - default value for empty field
- Delete - remove a field from xml node
- ERP Item Defaults -perform select for reference values
- Field Reload - get latest value and reload for field
- File Rename - set the name of the file
- Parameter - set current parameter to field
- Previous Revision - set active revision according to DATE/LAST
- Rename - rename attribute

These validation functions are supported:

- Document File - Validate the document file
- Mandatory - Check mandatory fields
- Manufacturers - Check manufacturers
- Reference Designators - Check reference designators

- Subcontractors - Check subcontractors
- Suppliers - Check suppliers

Advanced search

Advanced search can be used to query PLM objects based on values of the PLM objects or the linked objects. The search can be based on the value of any attribute, including category attribute values.

These are examples of PLM item queries:

- Query all items created on a particular date or that have Nut in the description.
- Query all items that have document Doc-001 linked or that have Item-100 as a component.

When a query is run, the results are opened in the list session of the object.

Each query can be saved.

Users can see their own queries and the queries created by other users.

Alternative viewers

Some native file formats have non-published interfaces and cannot be opened by 3rd party viewers, such as the Inventor Drawing file format.

To support customers who use native file formats with the corresponding viewer from the CAD vendor, such as Autodesk, the option to specify the viewer to use for a particular file format is supported.

Consequently, you can open inventory file formats with the CAD or Autodesk native viewer from Infor PLM for Discrete.

Infor Disclaimer:

- While Infor opens the opportunity to use the Autodesk® Forge Viewer, we are not responsible for any issues arising from the use of this Viewer.
- As the functions used by Infor are public APIs, we endeavor to support the functions as published (<https://forge.autodesk.com/en/docs>). Changes in the availability and the functions of the APIs can cause disruption to the interface outside the direct control of Infor.
- Infor takes no responsibility for the APIs or functions offered by Autodesk.
- To use this viewer, we expect you to use your own bucket, client ID, and client secret for the authentication.
- ® Autodesk is a trademark of Autodesk, Inc. and/or its subsidiaries and/or affiliates, in the United States.

BOD based integration with LN on premises

A bi-directional integration is supported between the current PLM package in LN and previous on-premises versions of LN.

The current release supports the exchange of Business Object Documents (BODs) to on-premises LN versions.

This data can be retrieved from an on-premises ERP:

- Units
- Item defaults
- Work centers
- Machines
- Manufacturers

These BODs can be published and used in the local instances of the ERP:

- Process.ItemMaster
- Process.BillOfMaterials
- Process.ManufacturerPartyMaster
- Process.ManufacturerPart

Additionally, BODs are available for the integration with TP Project. Bill of resources are available for the integration with the BOM and routing for non-TP Project based structures. The additional BODs support the creation of product routings in a non-site scenario, and TP Project structure data and material budget lines.

From PLM, these BODs can be published and used in the local instances of the ERP:

- Process.ProjectMaster
- Process.ProjectBudget
- Process.BillOfResources

CAD connectors

CAD is a type of software that many industries rely on to create drafts and models. It can be used to design 2D drawings and 3D models with precise measurements. Many industries use CAD every day, including engineering, industrial design, architecture, and product design.

Infor PLM for Discrete provides connectors to interface CAD applications with Infor PLM.

CAD to PLM - Batch Register

Batch Register is a utility to upload files in PLM, which requires no user interaction during the operation. The batch register includes an input directory that contains files to be uploaded in PLM. After clicking the **Register**

button, the files are sent to PLM. The utility also shows the status of the operation, such as the number of files uploaded, and the number of files that could not be uploaded.

The utility supports these options:

- Saving drawing files along with model files
- Rebuilding configurations in parts/assembly files
- Specifying the save operation type
- Generating neutral files (PDF, BMP, etc.)

The **Refresh Files from PLM into CAD** option is available in the Infor PLM menu of the CAD connector. With this option, CAD users can view and download updates created by other users in CAD files.

Note: This option is available for Solidworks, Autocad and Inventor. It is not supported in Creo due to limitations in APIs.

CAD utility for PLM

The main functionality of the CAD utility is to perform file operations in the background for CAD and MS Office files.

This utility can perform operations, such as mapping and generating thumbnails and PDFs, for files in a background process. This background process is accessible from the workflow and triggers operations for files after they are released.

The utility is installed and executed on an on-premises Windows machine, which can communicate with PLM.

Component engineering

If you use the component engineering feature, PLM for Discrete can integrate with a third-party service provider. This is a service used to search components on the go and create a BOM for production.

Component engineering provides universal part search within the Silicon Expert Database and enables customers to stay informed about part changes and BOM changes.

The component engineering feature provides customers with these benefits:

- Identify components at risk and gain visibility into electronic component lifecycle status, multi-sourcing, available inventory, and predicted years to end of life.
- Keep company and product up to date with reporting requirements and data on which components are at risk for compliance issues. Stay compliant with up-to-date data for social, environmental, and political regulations.
- Find billions of electronics parts using partial part numbers or description searches. Avoid unplanned redesigns.
- Select the right part at the right time, manage component lifecycle and obsolescence risks, access lead time, pricing, and availability analysis in simple steps.

- View parametric data, packaging, regulatory compliance, obsolescence forecasts, component risks, datasheet histories, and inventory from authorized distributors.
- Identify non-compliant components with data for environmental and government legislation such as REACH, RoHS, WEEE, and conflict minerals.
- Gain up-to-date information on delays, shortages, and global market shifts to mitigate risks within your supply chain.
- Detect and avoid counterfeit parts.

Note: This functionality interfaces with Silicon Expert services and requires a license for Silicon Expert. This license must be purchased separately.

Copy of product structure

With the **Copy Product Structure** command, which starts the **Copy Product Structure (pdcps1601m000)** session, you can create new structures based on the attributes and links of a source object to facilitate the design of similar products. This feature is available for PLM items, PLM documents, and PLM folders.

In the **Copy Product Structure (pdcps1601m000)** session, you can perform these actions:

- Copy the structure either within the current project or to another project.
- Use copy and link options to specify exactly how to copy or link objects that are linked to the parent object.
- Copy the full structure.
- Set rules for naming the objects, and whether they apply to the new objects by type, such as items and documents.
- Intervene in the pre-copy structure for each object, and decide not to copy the new object but to skip it or link it to an existing object.

This provides full flexibility in how the target structure and the links are created.

Conditional workflows

Conditional workflow supports the automation of rule-based workflow step assignment. Conditional workflow supports these rules:

List Driven conditions

Conditions that can be set based on the value of a business-process list attribute and that can be used for these scenarios:

- Assign to User: A selected step in a workflow that can be assigned to a particular user based on business attribute values.
- Assign to Group: A selected step in a workflow that can be assigned to a group based on business process attribute values.
- Leave Alone: A step without conditions that follows the predefined settings from the workflow design.
- Skip Step: A step that is skipped in a specific workflow-based business process attribute value.

Non Updatable Step

This condition is used for steps that cannot be modified at the business-process level. The user or group assignment of the steps is retrieved from the conditional workflow setup and this assignment cannot be modified.

Step Depends on Step

This condition is used if steps later in the workflow must be assigned to the same person as in the previous step.

Skip Steps Assigned to Originator

This condition skips the step if the step is assigned to the user who is the originator of the business process. Consequently, the workflow step is redundant if it is assigned to the originator.

Skip if No

This condition skips the step if the value of the business process attribute that is specified in the condition is **no**.

Unskippable Step

This condition is used if a workflow step can never be skipped.

Display of PLM objects

To enable PLM users to work effectively with PLM objects and related revisions, and to align with the concept of implemented components of LN, these features are supported:

- For CAD Connectors, only the sessions for active CAD integrations are displayed. For this purpose, the **Implemented CAD Connectors (pdadm0108m000)** session is available.
- In the zoom sessions to select PLM objects, revision filters are available to control the selection view.
- A warning message is displayed when a user checks out an old revision.
- From the **PLM Items** grid view, **Where Used** can be started without having to drill into the individual record.

Electronic signatures

A business process can have the approval processes supported by an electronic signature. To achieve this, users must authenticate themselves when approving or rejecting business process tasks.

Electronic signatures can be configured at the workflow-template level or at the business-process step level. This is supported for user and user group workflow steps.

Email option for workflow distribution step

A step of the type distribution is available in the PLM workflow template to send emails to defined recipients. The recipients receive an email through the SMTP server defined in tools, which connects to the eMessage connector in LN Tools.

Recipients can be defined as PLM-Users, PLM-Groups, or non-PLM Users.

In the workflow template definition, a template for the body of the message and a subject for the email can be specified.

In the definition of the workflow distribution step, variables such as business process field values can be specified.

Engineering find number for reference (digital thread)

A digital thread is used to understand any changes that occur in the lifecycle of a product.

An important way to monitor and visualize this is to track changes made to the original revision after derived structures are generated. For example, a derived structure can be a master or production BOM, or a JS BOM that is site-specific by nature.

When a site-specific BOM is created in PLM, any variations made to the original as-designed BOM can be used to track changes from that original. This is a basic step to obtain complete digital wire information at the data level.

IDM document types

If a value is specified in the **IDM Document Type** field of the **PLM Project (pdadm3600m000)** session, when sending PLM documents to IDM, all documents that belong to the project are transferred to the specified document type.

If no document type is specified at the project level, documents are transferred to the default document type, which you can specify in the **IDM Preferences (pdadm0103m000)** session.

Impact analysis

Impact analysis provides PLM users with a set of tools to ask LN how a change can affect the logistics domain.

Because different investigations may be required, several answers to typical questions are offered about PLM items related to the logistics domain, such as:

- What is the cost of this item?
- What is the purchase price of this item?
- How do the prices of component A, B and C relate to each other? Answer: give purchase prices for all three parts in one screen
- How is this item serviced?
- How many configurations are available for this (serialized) item in the field?

Impact analysis visualizes current inventory levels, planned inventory levels, and service and purchase data, so PLM users have answers to basic questions before making changes to items and item structures.

In addition to the basic questions regarding purchase, cost, and service, more advanced queries are also supported.

The advanced queries address the inventory impact. Tools are provided to query warehouse data and planned inventory transactions, to get an idea about usage and consumption, and to query how often a part is used in an active product structure.

Impact analysis provides a 360-degree view from purchase, to production, storage, and service. It visualizes current inventory levels, planned inventory levels, and service and purchase data, so PLM users have answers to basic questions before making changes to items and item structures.

Integration with LN Project

The integration between PLM for Discrete and LN Project supports the creation and modification of project structures and project budgets from PLM to LN using DLLs.

In PLM for Discrete, a Work Breakdown Structure (WBS) can be specified that includes these elements:

- WBS elements
- Work Package (WP) elements
- Project items
- Links to engineering items

After a work breakdown structure is approved and released, the entire structure can be sent to LN Project.

If modifications are required for project-management components, you must check-out the required components and make the changes on the new revision of the components.

When a new revision of WBS, WP, or project item is released, the new component with its structure must be sent to LN Project. This operation overwrites the existing data in LN Project.

If LN users have added new elements to the work breakdown structure, and a new revision is sent from PLM, the new elements in LN must not be removed from the structure. Because LN project-management data does not include a revision field, the revision of the PLM element and the description of the object in LN are concatenated.

Integration with LN Quality

To support design changes resulting from quality issues, an option is available to initiate PLM business processes, such as ECN, ECR, and ECO, from quality business processes, such as non-conformance (NCR), corrective actions (CAP), or FRACAS.

There is a bi-directional link. So, from the PLM business processes, there is drill-down capability to the individual NCR, CAP or FRACAS that initiated the process. From Quality Management, drill-down to the linked PLM business process is supported.

Integration with Infor OS

PLM for Discrete supports integrated Infor OS features, such as Single Sign-On (SSO) and user generation and updates in combination with Infor Federation Services (IFS).

The LN Technology Stack is used as the basis of this integration. A mandatory entry in the User Administration of LN Tools is required for PLM users.

PLM for Discrete also supports these OS features:

- Modifications and notifications through ION
- Publication of PLM-related tables to Data Lake
- PLM-related widgets on Homepages
- Use of mobile apps, such as Infor GO, IDM, and Infor Ming.le
- Together with the release of item revisions to production, sending documents created in PLM to IDM

Item structure reports

These reports are available:

Item structure with documents and drawings

This report prints the BOM structure, related documents, and drawings for each child item. The item, revision, effective date, and number of levels can be selected.

Item structure with reference designators and manufacturers

This report is similar to the report above, but shows reference designators and manufacturers for each child item.

Linking of multiple objects (select source and link selected)

You can link multiple PLM objects at a time in the Item, Document, and Folder sessions for object links.

These sessions support links to these objects:

- **PLM Item (pdpdm1600m000)**
 - Multiple documents on the **Documents** tab
 - Multiple folders on the **Folders** tab
 - Child components of one item to another on the **BOM** tab
- **Folder (pdpdm3600m000)**
 - Multiple documents on the **Documents** tab
 - Multiple items on the **Items** tab
 - Multiple folders on the **Child Folders** tab
- **Document (pdpdm2600m000)**
 - Multiple items on the **Items** tab
 - Multiple folders on the **Folders** tab
 - Multiple documents on the **Child Documents** tab

Markup support by AutoDesk viewer

The ability to mark up CAD files for Inventor drawings is supported by the AutoDesk viewer.

For authorized users, the **CAD Viewer Workbench (pdpdm8500m000)** supports these features:

- Creating markups and saving them into PLM
- Opening the CAD viewer in the PLM application without leaving the PLM application to access the third-party CAD viewer

The workbench has these advantages for customers:

Effectiveness of flow

PLM for Discrete interfaces with the CAD viewer out of the box. Non-CAD users can access design files that are already available in PLM. All authorized users can search, browse, view, and mark up the design files in the system. Markup details are saved into PLM and can be accessed by any authorized user.

Seamless integration

It provides the CAD viewer as an embedded component of PLM. Using the workbench, users can access the CAD viewer software and access all features of the viewer within the PLM session.

Enterprise-wide access

Markup details are stored in the system and are accessible to the entire organization without the need for expensive and complex CAD applications.

Infor Disclaimer:

- While Infor opens the opportunity to use the Autodesk® Forge Viewer, we are not responsible for any issues arising from the use of this Viewer.
- As the functions used by Infor are public APIs, we endeavor to support the functions as published (<https://forge.autodesk.com/en/docs>). Changes in the availability and the functions of the APIs can cause disruption to the interface outside the direct control of Infor.
- Infor takes no responsibility for the APIs or functions offered by Autodesk.
- To use this viewer, we expect you to use your own bucket, client ID, and client secret for the authentication.
- ® Autodesk is a trademark of Autodesk, Inc. and/or its subsidiaries and/or affiliates, in the United States.

Mass BOM Changes (MBC)

Mass BOM Changes (MBC) is a function offered with PLM for Discrete to change multiple bills of material. Within the MBC, you can specify modification rules for any BOM that matches the modification rule. After the rule is set for one of the child items, applicable parents can be shown for selective application of the rule.

The MBC can be used to replace parts with new parts. In the setup of the rule, the BOM quantities can be recalculated and modified as part of the process.

The MBC can be executed as a minor or major check-out and combined with a check-in as part of the same process.

The MBC can also be run as part of a business process. An option is to combine the modification with a **Send to Production**.

MBC can be used for released parents, unreleased parents, or in design parents

PBOM revision control

To support revision control, these fields are available in the PBOM:

- **Status** - can be set to **Draft** or **Approved**. Only approved PBOMs can be sent to LN.
- **Sequence** and **Sent to Production** - used as additional status indicators in the process.

These fields are used to control the modification of the PBOM.

If the status of the PBOM is **Approved**, it cannot be modified. To modify the PBOM, its status must be changed to **Draft**. Changing the status to **Draft** can be done only if the PBOM has not yet been sent to production.

PLM item features

These features are supported for PLM Items:

- The CAD integration with PLM items supports mapping to categories and category values. This simplifies the process from CAD to PLM and reduces the need to process the same data object twice. Category values of the PLM items and documents can also be mapped to the custom properties in CAD.
- A function is available to replace an item in the BOM.
- A weight roll-up can be performed, so assemblies have a calculated weight from the lower levels.
- Filtering is based on effective revision.
- Information is provided regarding the **Lifecycle** field to inform the user about vault operations and whether the item has been sent to production.

Resource management for PLM users

PLM for Discrete includes a module that manages all changes, approvals, and new product introductions through an internal workflow. The PLM workflow engine is task-oriented.

Tasks can be linked to a more extensive task library called Reference Activities. This works in the same way as in LN Service. A reference activity is a template for a task that specifies its duration, work time requirements, and resource skills requirements.

In a future release, these building blocks will be used for a more accurate planning and use of this data in Resource Management. The master data has now been added for this.

Satellite sessions in structure workbenches

Depending on whether you start the structure workbench from an item or a document, either the **Item Structure Workbench (pdpdm8100m000)** or **Document Structure Workbench (pdpdm8100m000)** is started. In these workbenches, a thumbnail and detail panes are shown.

To view detailed data of the object directly in the workbench, these features are supported:

- Related documents and files information in the Item Structure Workbench
- Related files and related items information in the Document Structure Workbench
- An option to link and unlink the related data

Search based on field description

Fields can be searched by field description, which simplifies the specification of mask conditions, or advance conditions in PLM Export.

Skipping of component to production

When you send an EBOM or PBOM to production, you can skip a component in the BOM. For this, the **Skip to Production** check box is available on the BOM line and in the **Item Structure Workbench (pdpdm8100m000)**.

This check box affects the Send to Production step from an item and from a workflow or business process.

Synchronization of data between LN and PLM

For non revision-controlled items, which are referred to in PLM as standard components, a synchronization option is available to load these items in PLM.

For revision-controlled items, some fields are controlled by logistics. PLM users might not want to receive all changes from logistics back to the PLM item. For example, they might only want to know when a planner has phantomized a product or set it to expired.

Consequently, regarding the synchronization of fields back to PLM, users can switch fields on and off.

Topdown load for CAD connectors

The topdown load feature of PLM supports the definition of items and their bill of materials and the creation of the design to match the product structures in CAD applications.

This only applies if a CAD connector is installed for the respective CAD applications and enabled on the CAD design system.

Transfer of item thumbnail

Thumbnails provide visual information about PLM items. They are usually generated by CAD applications and saved in PLM.

For LN users who cannot access PLM data, these thumbnails can be very useful. Consequently, if a thumbnail exists in PLM, the thumbnail image is also displayed in the general item data of LN.

Workbench - Business Process Workflow Editor

The **Business Process Workflow Editor Workbench (pdwfl8120m000)** is a graphical editor to visualize the steps of a business process graphically for tracking its progress. A business process is an instance of a workflow and relates to one or more objects such as PLM Items or PLM Documents. The business process steps are of a certain type, such as user, group, check-in, check-out, send to production, and notification. A blue-dot indicates the current tasks in the business process. The editor allows authorized users to modify the business process while it is in progress. Actions such as skip, delete, or the introduction of new steps can be performed in the active business process.

The workbench can be activated from the **Business Process** session after marking a specified business process. If you mark a business process step in the graphical flow, the details of the business process steps or tasks are shown on the right side of the screen. With the **Edit** option, changes can be made to the steps of the business process that have not been run.

The business process editor offers the same options as the workflow template editor, but these are specific to only one instance. Any changes made in the Business Process Workflow Editor only apply to the business process it relates to and not to any other business process.

Workbench - CAD Viewer

With CAD-viewer software, users without CAD applications or CAD-usage experience can open, view, print, and mark up design files. CAD-viewer software is typically used by non-designers to reduce the high licensing costs of CAD applications and also to avoid the knowledge acquisition required to use them. A CAD viewer is also delivered with Infor PLM.

The **CAD Viewer Workbench (pdpdm8500m000)** provides a seamless integration between PLM for Discrete and on-premises CAD-viewer software. You can open the CAD viewer in this workbench and access all features of the CAD viewer.

For authorized users, the workbench supports these features:

- Search for CAD files, components, assemblies, and drawings, and open them in the CAD viewer
- View CAD structures and perform operations for which no CAD application is required
- Create markups and save them into PLM
- Open the CAD viewer in the PLM application without leaving the PLM application to access the third-party CAD viewer

The workbench has these advantages for customers:

Effectiveness of flow

PLM for Discrete interfaces with the CAD viewer out of the box. Non-CAD users can access design files that are already available in PLM. All authorized users can search, browse, view, and mark up the design files in the system. Markup details are saved into PLM and can be accessed by any authorized user.

Seamless integration

The **CAD Viewer Workbench (pdpdm8500m000)** provides the CAD viewer as an embedded component of PLM. Using the workbench, users can access the CAD viewer software and access all features of the viewer within the PLM session.

Enterprise-wide access

Markup details are stored in the system and are accessible to the entire organization without the need for expensive and complex CAD applications.

Workbench - Compare Product Structure

In engineering, comparison of product structures and detection of any differences between those structures is required. To support this, the **Compare Product Structure Workbench (pdwfl8170m000)** is available. This workbench provides a structure review method.

These features are supported:

- Two multi-level product structures are placed side by side after which an overview of the differences is provided in a single screen.
- Colors and icons are used to show the differences between the structures, for example, if field values are different or components are missing.
- Structures are compared based on a template, which you can specify in the **Compare Product Structure Templates (pdpdm1571m000)** session. Because not all fields must always be compared, a template is used to indicate which fields must be compared. In the template, you can specify if the comparison must be done on the position number in the BOM or on the PLM item code in the item structure. You can also specify the number of levels for the comparison and if reference designators must be compared.
- Structures with a large number of components can be collapsed and compressed and differences can be filtered.

To initiate the comparison of two PLM BOMs based on a comparison template, use the **Compare Product Structure (pdpdm1275m000)** session.

In addition to the functionality to compare product structures, the PLM BOM or engineering BOM can also be compared with the site-level BOM in LN (the Job Shop BOM), or with the non-site specific Production BOM.

Workbench - Item Structure

In PLM, a multilevel item structure is usually received from CAD when a **save to PLM** is performed in the CAD application. In the **Item Structure Workbench (pdpdm8100m000)**, you can view and modify this structure. You can, for example, add components to the multilevel structure, replace parts, change quantities, exchange items, or add substitutes.

Changes are made directly in the structure. At any level for any component, you can update its details. You can activate the **Details** function so that the details of the item or component line become editable for the marked structure lines.

A reverse structure view with similar options and functionality is also available. A reverse structure is a multilevel 'where-used' with edit capabilities.

If activated within the screen, the thumbnails of the marked components are shown in one of the panel windows.

With the **Collapse** and **Expand** options, you can navigate through the structure.

The (reverse) structure browser is available also in documents and folders in PLM, with similar functionality.

From the **Actions** menu of the PLM item and the PLM document, you can click **Structure** to start the **Item Structure Workbench (pdpdm8100m000)** session. The workbench includes all actions that can be started from the grid and that are more widely applicable. Functions such as impact analysis, cost roll-up, and check-in and check-out can be performed from the workbench, by right clicking on the PLM object that requires the action.

Workbench - Workflow Template Management

The **Workflow Template Management Workbench (pdwfl8200m000)** includes a graphical editor to build the steps of a business process graphically for tracking its progress. A business process is an instance of a workflow and relates to one or more objects such as PLM Items or PLM Documents. So the workflow template is the source, each new business process is derived from a workflow template, and after the copy process, the copy follows its own path.

With the workflow editor, admin users can set up new workflows by dragging and dropping multiple steps into a visual diagram of sequential and parallel tasks or activities. The workflow template steps are of a certain type, such as user, group, check-in, check-out, send to production, and notification. The editor is used to model how a specific business process is set up, including the classification of the type of business process.

The workflow templates can be used for:

- Engineering change notices
- Engineering change orders
- Engineering change process
- Approval process
- Engineering change requests
- New product introduction

The editor enables authorized users to modify the templates. Actions such as skip, delete, or introduction of new steps can be performed in a template. Skipped steps are still visible, but have a lilac color.

If you mark a workflow step in the graphical flow, the details of the business process step or tasks are shown on the right side of the screen. With the **Edit** option, changes can be made to the planned steps of the business process.

Workbench - Workflow Template Viewer

Before a business process is launched, you can now first check the workflow before you commit the launch of the business process. During the Dispatch step, on the **References** menu, click **View Workflow** to start the **Workflow Template Viewer Workbench (pdwfl8200m000)**.

Remaining enhancements

These additional features are supported:

- In the **Masks** session, a sequence range for key fields in masks can be specified. Customers can specify the start and end sequence for the key fields, depending on their business needs.
- The **Revisions** satellite session of PLM Items, Documents, and Folders shows an indicator if the revision has content in the **Text** field. It allows users to quickly see whether a revision of an object has a text.
- The **Unit of Measure** field is available for the item multilevel view. When a user opens the multilevel view of an assembly structure, the unit of measure of each component is displayed.
- To support selecting and linking a source for an item BOM, a single item or multiple items can be selected in the list sessions. These items can then be linked to a parent item in the details session of the BOM satellite session.
- The **Document Files (pdpdm5500m200)** session is available to view document and file information together.
- The duplicate option is available in the PBOM to copy the child components. This facilitates copying a PBOM from one site to another.
- You can use a mask to generate the BOM ID.
- The **Update** action is available in the Item Categories and Document Categories session to update category attributes.
- A check box is available in Project to send emails from business processes in a project. This option enables users to configure mails for specific projects.

Chapter 15: Reporting

These reports have been added to LN:

ASN expected deliveries

For each ASN that is sent by a supplier, this report checks for shipments that are yet to be delivered. The report lists all active ASNs that fall within a specified range of scheduled delivery dates.

To print the report, select the **Expected Deliveries** check box in the **Print Shipment Notices (whinh3400m000)** session.

ASN late deliveries

For each ASN that is sent by a supplier, this report checks for shipments that are yet to be delivered. The report lists all active ASNs with a scheduled delivery date earlier than the current date.

Calculation: days late = current date - ASN scheduled delivery date.

To print the report, select the **Expected Deliveries** check box in the **Print Shipment Notices (whinh3400m000)** session.

ASN purchase orders and purchase schedules discrepancies

For each ASN that is sent by your supplier, this report lists all active ASNs with shipment quantities that do not match the purchase order quantities. Information is listed by ASN scheduled delivery date.

Calculation: variance column = ASN line ship quantity - order quantity.

To print the report, select the **Shipment Notice Lines** check box in the **Print Shipment Notice Differences (whinh3400m200)** session.

Customer open sales invoice

This report provides a list of open sales invoices by customer.

To print the report, select the *Open entries by Company, BP, Document Date* report in the **Print Invoice To Business Partner - Open Entries (tfacr2421m000)** session.

Open purchase order and purchase schedule quantity by item

This report lists all active purchase order quantity details by item.

To print the report, set the **Sort By** field to **Buyer, Buy from BP, Item** in the **Print Purchase Order Lines (tdpur4409m000)** session.

Open purchase order and schedule quantity by order and by schedule

This report lists all active purchase order quantity details by order.

Use the **Print Purchase Order (tdpur4405m000)** session to print the report.

Contract schedule - planning schedule details

This report shows information for the latest revision of a planning schedule that is linked to a contract.

To print the report, set the **Selection** field to **Planning Schedule Details** in the new **Print Contract Schedule (tdsls3407m200)** session.

Contract schedule – shipment details

This report lists shipped quantities by contract, item, and shipment number.

To print the report, set the **Selection** field to **Shipment Details** in the new **Print Contract Schedule (tdsls3407m200)** session.

Contract schedule – shipment schedule details

This report shows the sales schedule requirement details for the latest revision of a schedule that is linked to a contract.

Use the **Print Contract Schedule (tdsls3407m000)** session to print the report.

Inventory days of supply

This report can be printed in the new **Print Inventory Days of Supply (whinp1400m100)** session. Inventory Days of Supply is an efficiency ratio used to measure the average time (in days) it takes a company to sell its entire inventory.

On the report, **Days Supply** is calculated by dividing the **On Hand Quantity** by the **Ordered Quantity / Day** for the specified reporting period.

Open receivable details

This report provides a list of all open account receivable transactions by customer.

To print the report, select the *Open entries by Business Partner* report in the **Print Invoice To Business Partner - Open Entries (tfacr2421m000)** session.

Open receivable summary

This report includes a summary of all current and past due account receivable transactions by customer.

To print the report, select the *Open entries by Company* report in the **Print Invoice To Business Partner - Open Entries (tfacr2421m000)** session.

Shipment schedule - consignment inventory consumption details

This report shows the replenishment shipments and the consumptions of an item in a consignment warehouse.

To print the report, set the **Selection** field to **Consignment Inventory Details** in the new **Print Contract Schedule (tdsls3407m200)** session.

Shipment schedule - in transit shipment details

This report lists all shipments that have been shipped but for which the customer has not yet received the goods because of a planned receipt date in the future.

To print the report, set the **Selection** field to **In-Transit Shipment Details** in the **Print Schedule and Shipment Information (tdsls3407m200)** session.

Shipment schedule - in transit summary

This report shows information for the latest revisions of a shipping schedule that is linked to a contract. This report provides a summary of in-transit goods by company, contract, and item.

To print the report, set the **Selection** field to **In Transit Summary** in the new **Print Contract Schedule (tdsls3407m200)** session.

Shipment schedule - raw material/fabrication authorizations

This report shows the sales schedule FAB and RAW information for an item by customer and contract.

To print the report, set the **Selection** field to **FAB-RAW** in the new **Print Contract Schedule (tdsls3407m200)** session.

Note: Before you can use the reports, you must complete the steps in KB Article [2028708](#).

Report personalization for Sales Invoice report

The LN Report Designer - Content Pack has been extended with a report personalization for the sales invoice report. It is used as a starting point for personalization of the sales invoice.

This report personalization is linked to the classic invoice (report code: cisli120011000).

Chapter 16: Factory Track

Activation of Kanban integration

To provide customers with a complete Kanban solution in which LN is connected to the Factory Track (FT) Warehouse Mobility barcoding solution, the Kanban functionality has been merged for both applications. LN is used as the administrative backbone which includes the parameters and master data. Warehouse Mobility is used to handle the operational side of the Kanban supply concept, such as scanning Kanban labels, monitoring bin/signal statuses, and triggering supply orders. The integrated solution can now be activated.

To activate the integration, in the LN menu, go to **Common > Factory Track > Kanban**. These enhancements have been made:

- The **Integrate Kanban with Warehousing** field has been added to the **Kanban Parameter (brkan0100m999)** session to prepare the activation of the integration.
- New sessions are available to set up Kanban integration defaults on the company, site, and warehouse level, specify item settings by warehouse, Kanban signals, and related supply orders.

In the **Concept Activation Workbench (tcecm4600m100)** session, the **KANBAN INTEGRATION** button has been added. Clicking this button starts the **Concept Activation (tcecm4600m000)** session in which the related activation activities are displayed.

Assembly Control

The Assembly Control transaction has been added to the Production submenu in the Warehouse Mobility module of Factory Track. With this new transaction, line station and buffer orders can be reported complete.

Note: Feature RS9257 must be turned on in Factory Track for this.

Picking and shipping by handling unit

To support the process of picking and shipping 'parent' handling units through Factory Track, these LN options are now available for multi-item (parent) handling units in Factory Track:

- Pick Advice
- Freeze

- Re-open
- Confirm
- Set Not Shipped
- Reset Not Shipped

Consequently, Factory Track users can now perform key outbound transactions directly against these ‘parent’ handling units, instead of having to pick and ship each individual bottom-level ‘child’ handling unit.

Radio-frequency identification (RFID)

Radio-frequency identification (RFID) is a key technology to handle the digitization of the material flow in an efficient and reliable manner. Because more and more car manufacturers introduce RFID technology to increase transparency and to automate material movements, automotive suppliers are requested to support various RFID-based business processes.

Consequently, RFID has now been added to the shipment process.

Single-use RFID

For each handling unit that is used for shipping, a barcode label is printed by the automotive supplier. A formatted number is created in LN and stored as an asset tag number of the handling unit. During printing of the label, this number is written to the embedded RFID tag. An RFID barcode label printer is used for this.

To simplify the goods receipt process for the customer, the asset tag number is also sent to the customer in the Advance Shipping Notice (ASN).

Multi-use RFID

Each empty handling unit that is sent from the customer to the automotive supplier has an RFID tag with a unique number. The automotive supplier must specify and return the handling unit.

During a Factory Track transaction in the shipment process, the RFID number is scanned by using an RFID scanner. The RFID number is stored as an asset tag of the handling unit.

To simplify the goods receipt process for the customer, the asset tag number is sent to the customer in the Advance Shipping Notice (ASN).

Chapter 17: Widgets

Activity Ready to Start

This new widget displays the list of project activities that are to begin, for the selected manager. This widget enables the project manager to analyze the activities that are to start.

The manager can also view the readiness percentage for the selected activities. With color coding, the candidate activities to be started are highlighted.

The overall readiness percentage of an activity can be detailed to the readiness per budget cost type. When the budget cost type is critical, an alert icon is displayed.

The status of external and internal equipment are displayed. The equipment required internally is considered planned if a rental agreement has been planned.

Average Order Value (sales)

The purpose of this widget is to provide a high-level overview of the average order value of sales orders in a certain period compared to a previous period.

The average order value is based on this data:

- Printed and posted invoices for the origins Sales Order, Project Contract, and Manual Sales. Other origins and credit notes are excluded.
- The selection of sales office, sales representative, customer, and period. Periods can include weeks, months, years, month to date, and year to date.

This widget can be used both as a banner widget and a regular widget.

Customer Contacts and Supplier Contacts

If you click on the **Primary Phone Number**, or **Email Address** fields in the Customer Contacts and Supplier Contacts widgets, the supported calling application or email client can now be accessed. Additionally, a **Do Not Call** indicator has been added to these widgets.

Employee Availability

The new **Employee Availability** widget enables managers to view the overall availability of their employees. It enables managers to balance the workload based on the availability of the employees for a specific period. The widget also displays a bar chart representing the availability and the planned activities of the employees.

Gross Sales Invoiced

The purpose of this widget is to provide a high-level overview of the gross sales that has been invoiced in a certain period compared to a previous period.

The gross sales invoiced is based on this data:

- Printed and posted invoices for the origins Sales Order, Project Contract, and Manual Sales. Other origins and credit notes are excluded.
- The selection of company, office, customer, and period. Periods can include weeks, months, years, month to date, and year to date.

This widget can be used both as a banner widget and a regular widget.

Inventory Aging

The Inventory Aging widget has been added to provide insight in the age of the available inventory for specific items in one or multiple warehouses that belong to a specific site or company.

The new widget uses dates and quantities of incoming and outgoing inventory transactions, and compares receipt dates with consumption dates. Its main purpose is to indicate which inventory is not very current or used frequently and which items may become obsolete. Additionally, it shows the storage duration of the items in a warehouse.

A reference date can be specified that deviates from the current date. The receipt transaction dates are subtracted from this date to calculate the storage duration of not fully consumed received quantities. The current date is used as the default reference date.

The information and quantities displayed in the widget can be aggregated by item and site or company.

Late Orders

The Job Shop Control module handles the creation and planning of production orders, and the procedure related to the execution of these orders. A production order includes the order to produce an item and the

conditions under which manufacturing takes place, such as the routing that is used, the delivery date, and the order quantity.

The Late Orders widget is used to display the late delivered orders of completed production orders in the specified time period. This is based on the actual delivery date versus the planned delivery date or requested delivery date.

Lead Time Trend

The Job Shop Control module handles the creation and planning of production orders, and the procedure related to the execution of these orders. A production order includes the order to produce an item and the conditions under which manufacturing takes place, such as the routing that is used, the delivery date, and the order quantity.

The Lead Time Trend widget is used to display the lead time trend of the completed operations of production orders in the specified period.

Manufacturing On Time Delivery

The Job Shop Control module handles the creation and planning of production orders, and the procedure related to the execution of these orders. A production order includes the order to produce an item and the conditions under which manufacturing takes place, such as the routing that is used, the delivery date, and the order quantity.

For completed orders, the Manufacturing On Time Delivery widget provides information about the quantity ratio of orders delivered on time. On-time delivery is based on the actual delivery date and the planned or requested delivery date.

Non Conformance Materials By Origin

A non-conforming material report can be generated if a warehouse or quality inspection process is applicable for sales, purchase, production, assembly orders, or warehouse transfers.

This widget shows all non-conformance orders based on item and these order origins:

- Sales
- Sales Schedule
- Sales (Manual)
- Adjustment Order
- SFC Production

- SFC Production (Manual)
- Production Schedule
- ASC Production
- ASC Production (Manual)
- Service
- Maintenance Work
- Batch Repair
- Maintenance Sales
- Service Call
- Batch Repair
- Transfer (Manual)
- Project
- Project (Manual)
- Project Contract
- Purchase
- Purchase Schedule
- Purchase (Manual)
- EP Distribution
- Storage Inspection
- Warehouse Inventory
- Not Applicable

Non-Conformance Materials by Type

This new widget shows the count of non-conformance materials by type for the non-conformance report on a monthly and annual basis.

A non-conformance material report is generated for sales, purchase, production, assembly orders, or warehouse transfers when a warehouse or quality inspection process applies.

Non-Conformance Materials Reject Reasons

This new widget shows the count of material reject reasons for the non-conformance report on a monthly and annual basis.

A non-conformance material report is generated for sales, purchase, production, assembly orders, or warehouse transfers when a warehouse or quality inspection process applies.

Operational Equipment Effectiveness (OEE)

The Job Shop Control module handles the creation and planning of production orders, and the procedure related to the execution of these orders. A production order includes the order to produce an item and the conditions under which manufacturing takes place, such as the routing that is used, the delivery date, and the order quantity.

The Operational Equipment Effectiveness (OEE) widget provides information about the OEE for the specified period. Calculation:

$OEE = \text{Availability} * \text{Performance} * \text{Quality}$

$\text{Availability} = \text{Runtime} / \text{Planned production time}$

$\text{Performance} = (\text{Ideal Cycle Time} * \text{Total Count}) / \text{Run Time}$

$\text{Quality} = \text{Good Count} / \text{Total Count (tisfc001)}$

Operational Status

The Job Shop Control module handles the creation and planning of production orders, and the procedure related to the execution of these orders. A production order includes the order to produce an item and the conditions under which manufacturing takes place, such as the routing that is used, the delivery date, and the order quantity.

The Operational Status widget is used to display the operational status of completed production orders in the specified period.

Potential Stock Shortage

The new Potential Stock Shortage widget provides quick insight to potential and current stock shortages for items in a warehouse, site or company.

Project Progress

This new widget is used to graphically display information about the execution progress of project activities, activity hours, and activity budgets.

This data is shown in a chart:

- Project activity - Period data, such as the count of started activities, completed on time, completed too late, and not finished, but should be finished.

- Project activity hours - Count of the project activities for which actual hours are within budget, or for which there is an hours overflow based on progress.
- Project budget - Count of the project activities for which actual costs are within budget, or for which there is a cost overflow based on progress.

Data is displayed based on company, employee, and role as selected in the Configure widget.

Options are available to go to the **Activities (tpss2100m000)** session and change the used currency.

Project (PCS) Progress

This new widget is used to graphically display information about the execution progress of project (PCS) activities.

For project activities, this period data is shown in a chart:

- Count of started activities
- Completed on time
- Completed too late
- Not finished, but should be finished

Data is displayed based on company, employee, and role as selected in the Configure widget.

Storage Capacity and Utilization

The new Storage Capacity Utilization widget shows the total storage-location capacity of a warehouse and the occupancy of the locations. It can be shown as a banner widget in the form of a column graph. The total storage capacity of a warehouse is calculated by adding together the capacities of each pick and bulk location of a location-controlled warehouse.

Locations with infinite capacity are omitted, because these locations have no capacity constraints.

Supplier Claim Totals

This new widget, which can be configured by cost type or origins, displays claim totals of suppliers.

If the widget is configured by **Origins**, the widget displays the total claim amount for each origin from which the supplier claim is generated.

If the widget is configured by **Cost Type**, the widget displays the breakdown of a total amount into amounts by cost type, such as material and labor. The origin of those amounts is also displayed in the widget.

Supplier Rating

The new Supplier Rating widget is used to provide insight into the performance of different suppliers and the items they produce.

The widget shows the supplier rating of a supplier and the items bought from that supplier by company, office, and buyer. Buyers can review the supplier and item vendor rating and retrieve details and trends based on LN data.

Top 20 Customers

This widget displays the top customers with the highest revenue, which is calculated based on the sales, returns, and the receipts in the financial tables.

Depending on the end user selection, this widget shows YTD (Year to date) and MTD (Month to date) information.

Top 20 Suppliers

The purpose of this new Top 20 Suppliers widget is to provide quick insight into the top 20 suppliers based on the amount of service the company has received from the suppliers.

It helps the end users to gain insight into the performance of the suppliers.

Top Claims

This new widget, which can be configured by customer or supplier, displays top business-partner claims with the highest claimed amount.

If the widget is configured by **customer**, the widget shows the 10 sold-to business partners who claimed the most. The Claimed Amount and the Approved Amount are displayed.

If the widget is configured by **Supplier**, the widget shows the 10 buy-from business partners who claimed the most. The Claimed Amount and the Approved Amount are displayed.

Unposted Bank Statement Lines

The new **Unposted Bank Statement Lines** widget is used to display all the unposted bank statement lines.

This workload indicator widget shows bank statement lines with these statuses:

- Not Matched
- Partially Matched
- Fully Matched

Unprocessed Purchase Invoices

For payable analysts, this new widget displays the purchase invoices that are in process. Data is displayed in a bar chart, based on these invoice statuses:

- **Draft**
- **Imported**
- **Validated**
- **Validation Errors**
- **Registered**
- **Registration Errors**
- **Matched**

You can hover the pointer over the bar chart to view the number of invoices with the specific status.

Chapter 18: Mobile apps

All mobile apps

All mobile applications now support Dark Mode. This is applicable for Android and iOS devices.

Mobile device management (MDM)

To set up an application, many applications require users to specify various configuration data such as URL, port, and email address. These manual configurations can affect the adoption and success of the mobile app for an organization, increase the burden on a help desk, and require updates of the documentation when new updates for the application become available.

Basic support is now provided to remotely configure the user's environment setup. This eliminates the need for QR code scanning for customers using mobile device management.

When a device is lost or stolen, an MDM-enabled app admin can erase or uninstall an app from the MDM portal to ensure corporate data safety.

LN As Built Scanning

This new app supports these features for users:

- View and check the as-built structure of an end-item product. To retrieve the information, the serial number is used, which is scanned using barcode, QR Code, or NFC.
- Scan using the serial number or lot code of the as-built components.
- Add, duplicate, or delete as-built components from and to as-built structures.
- Edit component details.
- Validate the as-built structure.

LN Call Requests

If the Sites functionality is active for a company, the site is now also considered when creating a new request in the LN Call Requests app.

LN Customer 360

The LN Customer 360 mobile application now supports these new features:

- Use of attachments, through the IDM integration.
- Capture on camera of the contact's picture when creating a new contact for a customer.
- Tracking of GPS coordinates.

When a task is completed and the status of an appointment meeting is set to **Held**, GPS data can be captured and transmitted to LN. The phone or tablet that uses the customer 360 app must have the GPS data capture active to send the GPS data to the **Employee GPS Data (tccom0105m000)** session in LN. You must enable **Location Tracking** in the **Settings** screen of the customer 360 app.

When the status of an appointment meeting is changed to **Held**, an icon enables you to identify your location by looking at the read-only map. When saving the changed appointment, the GPS data is sent to LN for storage.

- Information about service orders, service calls, maintenance sales orders, claims, and project contracts.
- Use of maps. You can now see the customer's location on a map in relation to the user's GPS location. In addition, the location's pushpin icon shows any open sales quotes or opportunities.

LN Depot Repair

This new app is used to support the depot repair operator. These functions are available:

- View my assignments
- Report tasks complete
- Add a new activity
- Issue materials
- Start, stop, and complete activities

LN Hours Registration

The LN Hours Registration mobile application now supports these new features:

- Bulk approval of all employees hours by managers.
- Indicator of the hours that have been approved.
- For Project PCS hours, registration of the hours required by a machine for a specific order or project.
- Reminder for users to complete timesheets. If the reminder functionality is enabled, the app checks the logged hours and whether hours are missing. If the timesheet is not filled completely, a reminder is sent on the last day of the current week. Users can modify the time of the reminder.
- To get missing production orders to book hours against, the date range has been expanded. In total, users now have a time horizon of four weeks to get production orders.

- Extension of the date horizon for all origins. Users can select a previous and next week for which orders or projects must be handled. This option was already available for job shop orders and is now also available for other origins.
- Registration of the department as part of the General Hours, both for indirect and absence hours. The logic to retrieve a default department is based on this order of priority:
 - 1 General task
 - 2 Employee department
 - 3 User profile

LN Non-Conformance Reporting

The new Quality Non-conformance mobile application provides the ability to record and report non-conformance directly from the place of observation, such as the shop floor, raw materials warehouse, or finished goods warehouse. The observed non-conformance can be related either to products or processes.

Bar coded serial numbers can be scanned to record the item details against a specific serial number. Non-conformance can be recorded even if the reporter is offline and then synced with the LN application when the network is available. Tablet mode is also supported.

For more information, see KB Article [2098079](#) on the Infor Support Portal.

LN Project Receipts

The objective of this new app is to receive goods for the project at the project site. It handles the receipt of materials from a supplier on a project, which means a purchase order is available for the project. After registration and successful upload to LN Procurement, the process can continue. Because goods are received directly for the project and not in a warehouse, the receipts are potential cost commitments in LN Project.

Users can perform these actions:

- Specify a delivery date.
- Specify a delivery ticket number, which is the corresponding delivery reference number of the supplier. Multiple ticket numbers can be available and the related quantity per day for bulk materials.
- Specify the quantity received.
- Capture a copy of the supplier's delivery note.
- Add notes in the Notes section. This is communicated back to LN and can be viewed and printed as part of the Purchase Actual Receipts.

For an item that is marked as a Critical Safety Item, a special icon is displayed.

LN Quality Inspections

This new mobile app provides the ability to record inspection test results at an inspection location, such as shop floor, raw materials warehouse, or finished goods warehouse.

Bar coded serial numbers can be scanned to record the item details against a specific serial number. Results can be entered even if the inspector is offline and then synced with the LN application when the network is available.

LN Requisition

The new LN Requisition app offers these capabilities for users:

- Create requisitions from a phone or tablet.
- Submit requisitions and send approved requisitions to LN.
- Easily request one or more items for the office or home office.
- Store purchase catalogs, which can be used to create new requisitions.
- Save requisitions as a template based on which new requisitions can be created. This is useful if an item is ordered frequently.
- Copy requisitions that are created in the app.
- Store defaults to create requisitions faster.

LN Resource Assignments

The **LN Resource Assignments** mobile application now supports these new features:

- A **Location** field for project and service order assignments.
- Transfer of hours from the Resource Assignments app to the Hours Registration app. This new feature is applicable for the origins **Project**, **Job Shop Order**, and **Project (PCS)**.
- Acceptance or rejection of service order assignments. In the case of rejection, a reject reason can be selected from a list. These actions are available only if this is required in LN.
- Communication of the user location when the assignment is started or completed. This will update the GPS location of an employee in LN. Based on the latest available user location, customers can schedule the next task near this geolocation. To use this feature, the **Enable location tracking** option must be selected in the **Settings** screen. Users also have a read-only map to check the current location.
- If the address of a specific project activity is specified in LN Project, it is now displayed in the app. If the activity address is not specified, the project address is displayed.

For projects spread over multiple locations, this new feature helps the employee to know where the assignment takes place.

- Ability to set the actual start and end time if the start or end time has passed and would not be correct otherwise. For example, an employee completed a task just before lunch, but forgot to use the app to

report it as completed. Later in the afternoon, the employee specifies the actual finish time. By saving this data, the assignment is reported as completed.

LN Service Requests

If the Sites functionality is active for a company, the site is now also considered when creating a new request in the LN Service Requests app.

LN Warehouse Receipts

This new app has been added to remotely register warehouse receipts. Users can specify warehouse receipts on a device, based on open orders (expected inbound order lines) that are retrieved from LN.

The app runs on iPhone or Android smartphones and tablets. It functions both online and offline to avoid delays when the app is not connected to the LN backend.

Chapter 19: Application extensibility

LN public interfaces and process extensions

Since the previous major update of LN, several public interfaces and process extensions have been added.

See the documents attached to KB article [2003722](#) for the list of public interfaces and process extensions.

Chapter 20: Integration updates

Infor CPQ

In addition to the multi-tenant integration between LN and CPQ, these hybrid integrations are now also supported:

- LN multi-tenant with CPQ on premises
- LN on premises with CPQ multi-tenant

With these solutions, the transition from an on-premise to a cloud implementation can be performed in steps. LN and CPQ can be moved to the cloud separately.

Additionally, a part of the products can be configured in the cloud and another part included in an on-premise CPQ implementation.

New parameters are available in the **CPQ Configurator Settings (tipcf0111m000)** session to specify the type of CPQ environment.

LeaseQuery©

In the accounting of leased fixed assets, multiple regulations apply. Public and private companies must record and summarize the financial transactions of a lease and report the results in the financial statements. Leased assets, both capital lease and operation lease, must be included in the balance sheet and profit and loss statements, and the financial transactions must be recorded.

To help organizations achieve compliance and eliminate accounting errors, LN can now be integrated with LeaseQuery.

LeaseQuery is a third party software application that includes software for these lease accounting standards:

- US: GAAP-FASB (ASC 842)
- World: IFRS (IFRS Chapter 16)
- State and local government: GAAP-GASB (GASB87)

In the integration, LeaseQuery is the system of record for all leased assets. The master data is stored in this application as well as the subledger, the lease payments, ad hoc reporting, and disclosures. By clicking a button, all transactions are transferred to LN through an API.

In LN, the transactions are received, processed, and converted to a standard Journal Voucher transaction BOD, which is then consumed by the LN General Ledger. A finance batch and non-finalized transactions are created. After finalizing, all ledger accounts and dimensions are updated based on the mapping in LeaseQuery.

The integration requires this software:

- Infor LN
- License for Product ID 7056 (Infor LN Adapter), which is required for BOD enablement
- LEASEQUERY (LeaseQuery©) with the latest updates
- Infor ION 12 or later, including the connector

Chapter 21: Country availability

Angola

To be certified by the Angolan tax authority and used by companies in the country, Angola is now available as a country in LN.

These features are supported:

- Tax compliance in the **Tax Compliance (lpago0103m000)** session. Because it is mandatory for companies to make backups, invoicing is allowed only if users have confirmed the creation of the backup.
- SAF-T (AO) in the **Create Standard Audit File - Tax - Angola (lpago2211m000)** session. LN generates the auditing file based on the Angolan requirements.

Receipt acknowledgements

In Angola, receipt acknowledgements that are printed for advanced and unallocated receipts cannot be included in the SAF-T (AO). Because these receipt acknowledgements use the same series as those that must be included in the SAF-T (AO), the records are not sequential and the file is not accepted.

To resolve this issue, the receipt acknowledgements for advanced and unallocated receipts now use a different series. These series can be specified in the **CMG Parameters (tfcmg0500m000)** session, or in the **Select Receipts for Acknowledgement (tfcmg2200m000)** session when selecting the receipts for acknowledgement.

Additionally, the receipt acknowledgements that are printed for Angola in the **Print Receipt Acknowledgments (tfcmg2420m000)** session now also include the text *Processed by Certificate Program No 287/AGT/2021*.

Argentina

Perception tax

If the localization parameter for **Argentina** is enabled in the **Implemented Software Components (tccom0500m000)** session, perception tax functionality is now available for Argentina in the sales invoicing flow.

You can configure the perception tax details, including business partner-specific perception taxes, tax rates and thresholds in these sessions:

- **Perception Tax Code (lparg0110m000)**

- **Business Partner Perception Tax Rates (lparg0120m000)**

When taxes are calculated in Invoicing, in addition to VAT, the perception taxes are calculated, stored, printed and posted.

Brazil

Master data synchronization

Master data that is specified in LN is automatically synchronized to the Tax Engine (BT).

If it is required to run the synchronization standalone, the **Synchronize Data to Tax Engine (lpbra0200m000)** session can be used.

Master and common data

Anonymization is now supported for attributes of business partner data and addresses.

Purchase receipts

Procurement processes are now integrated with the Receipt of Brazilian Fiscal Documents (NF).

These functions are supported:

- The inventory receipt is confirmed when the fiscal document is approved
- The **Packing Slip** field is updated with the Brazilian fiscal reference for automatic matching purposes
- MAUC costing and payable receipt amounts have values returned from the Brazilian Fiscal Document (NF)
- The matching process is partially automated. Taxes, general ledger entries, and standard history code are retrieved from the Brazilian tax document (NF). The ledger account for control account, merchandise, and sales revenue is still retrieved from LN (mapping scheme and financial group of business partner definition).

Sales orders and schedules

Sales processes are now integrated with the Issue of Brazilian Documents (NF-e).

These functions are supported:

- In Central Invoicing, Brazilian invoices are sent to the Brazilian Invoicing Module (BT) where taxes are calculated and invoices (NFe) are submitted for approval by the local tax authorities.
- If IPI tax is applicable, in the GL transactions of the accounts receivable document, the sales revenue is split in two postings.

Service

Sales and receipt processes are now integrated with the Receipt and Issuance of Brazilian Fiscal Documents (NF).

These scenarios are supported:

- Maintenance sales order part delivery and receipt (company or customer owned)
- Maintenance sales order part loan
- Maintenance sales order part maintenance
- Maintenance sales order handling equipment
- Service contracts
- Service orders

These features are also supported:

- Automation of the Part Delivery Return fiscal document.
- Substitution of customer owned components.
- Fiscal Documents (NF-e) for service cars. When a service car leaves the company, a fiscal document must show the content (spare parts) that leave the company.
- Registration of used parts upon return.

PCE – periodic costing

PCE includes an engine that calculates inventory period values after the end of the period based on the cost occurred during the period. The general ledger posting are updated for this period. For Brazil, it is mandatory that the inventory value and the profit and loss statement are updated with the real costs incurred during the period.

The PCE engine enables calculation of historic actual cost for purchased and manufactured items, regardless of their inventory accounting method. The general ledger can be updated with any variance between the current product cost and the historic actual cost. Production and service hours costs and their general ledger postings can also be updated.

The historic actual cost represents the accurate cost of the material or operation related to the product, because it is based on real costs incurred during the accounting period or the company-defined date range. PCE applies the historic actual cost to the material or operation, throughout the product structure up to the top item, without changing the cost calculated for the inventory accounting method. The PCE engine then calculates the difference between these costs, so that companies can identify them and act on them as part of the product costing.

After average costs have been calculated for items by the Periodic Cost Engine (PCE), the inventory valuation for TP and PCS items is transferred to the respective modules. The revaluation is added to the project costs.

Electronic documents and SPED interface

These functions are supported:

- A JSON protocol is used to deliver fiscal and financial reports to the government

- A SOAP protocol is used to communicate nota fiscal events to the Brazil government (SEFAZ). Brazil is one of the most complex countries, because it must adhere to several technical requirements released by the government.

Electronic banking payments

In Brazil, the national agency that regulates banks has established a standard communication procedure that requires all electronic transactions with banks to have a specific layout. For electronic banking payments, files are exchanged with banks and events that are controlled in LN.

Costing

To update average costs with the correct values in Shop Floor, man and machine hours can now be reprocessed with adjusted rates.

To account for costs that did not occur on shop floor orders but that do affect the average costs, cost variation values can now be added to the average costs.

Financials

The banking interface now handles direct debit authorizations.

These purchase orders are now matched automatically based on the values of the Brazilian Fiscal Receipt Document:

- Purchase orders with goods receipts
- Purchase orders with landed costs
- Purchase consignment orders
- Purchase orders with stage payments

The PIX payment type has been added to the banking files. Additional instructions are now sent in the bank files to handle PIX payments.

These financial features are also supported:

- When posting Fiscal Documents (NF-e) in the Sales Invoicing module, update of the **Reference** field with information of the Fiscal Document (NF-e) in the financial transaction.
- Automatic creation of a credit note when receipts are reversed.
- Optimization of the automatic purchase matching process so that financial documents can be approved automatically.
- New functionality for the Banking Interface to support and process penalties and interest calculations.

Purchase importation

You can now modify the exchange rate of the fiscal receipt and purchase invoice.

Brazilian tax estimates

On purchase and sales orders, you can now view and estimate the taxes that are due upon invoicing or fiscal receipt.

Reporting

These interfaces are now supported:

- Interface w/ 3rd party for Ledger Reporting
- Interface w/ 3rd party for Inventory Reporting

Inventory reporting

Bloco K

In SPED reporting, the folders called K are now supplied to the SPED interface tables, so SPED software from partners can handle this data and issue the files.

Kardex

The report has been added.

Fiscal documents

FCI calculations

The Importation Sheet (FCI) is calculated based on received goods with **Importation** as origin. The Bill Of Material is also considered if imported components are used in a production process. The FCI information approved by the Government is stored and used on issued invoices.

Reverse NF-e

You can now reverse some NF-es, even after 24 hours.

Purchase order receipt XML file

The NF-e XML file issued by suppliers can now be received in LN if Compliance is used as the NF-e interface software.

Tax complements IPC/ICMS

Complementary invoices can now be handled for taxes. An integration with Accounts Payable is available.

Remaining features

These features are also supported for Brazil:

- A new option to fill the issued quantity from the inbound fiscal document for subcontracting production orders.
- A price list price on the outbound fiscal document so that the actual cost price of the components is not shown in case of subcontracting.
- Ability to modify the due date in AP and AR invoices.
- PCE costing for repetitive manufacturing.
- Issue of Electronic Service Invoice (NFS-e) when using third-party Compliance software.
- Consideration of withholding taxes, as calculated on the Brazilian Fiscal Document, in AP and AR invoices and the banking interface.

Chile

Monetary correction

In Chile, it is required to have a monetary correction system (inflation adjustment) for certain assets based on changes in the consumer price index (CPI) and the foreign exchange rates. The monetary correction impacts the annual income tax return (annual tax payments for the income generated) and is required by the SII. The monetary correction calculation is performed on item level and the rules depend on whether the item is acquired nationally or abroad.

LN now supports this monetary correction requirement of Chile.

Depending on whether an item is acquired nationally or through import, a correction of the inventory value is calculated using the **Monetary Correction Calculation (lpchl2213m000)** session.

If an item cannot be classified as exclusively 'nationally purchased' or 'imported' with a single foreign currency, the item will be classified as 'mixed'. For these items, no monetary correction is performed and manual calculation is required.

In cases of actual costing, the inventory value is derived from the purchase currency. Consequently, these settings must be applicable:

- The **Inventory Valuation Method** is unequal to **Standard Cost**
- The **Default Inventory Receipt Value** parameter is set to **Inventory Value**

China

Invoice splitting in Golden Tax System

The import of invoices from the Golden Tax System has been improved to handle LN invoices that have been split into multiple golden tax invoices. An LN invoice can now be processed if it matches the related set of split golden tax invoices.

Colombia

Colombia is now available as a country in LN.

You can activate the Colombian country localization in the **Implemented Software Components (tccom0500m000)** session.

To comply with the tax regulations and follow the codifications required by the tax authority DIAN (Dirección de Impuestos y Aduanas Nacionales, National Directorate of Taxes and Customs), the Colombian localization includes country-specific master data, withholding tax processing, and various reports.

Withholding tax calculation

If the **Calculate Withholdings** check box is selected for the transaction type in the **Transaction Types – Fiscal Data Colombia (lpcol1100m000)** session, you can calculate and post withholding tax for Colombia. In the sessions that are used to insert financial transactions, you can click **Documents with Colombia Withholding Tax** to start the **Documents with Colombia Withholding Tax (lpcol2102m000)** session. This session calculates the withholding taxes in test mode, taking into account the withholding setup specified for the business partner in the **Business Partners – Fiscal Information Colombia (lpcol0108m900)** session.

For purchase invoices and sales invoices, the control-account posting is reduced by the withholding amount. The purchase invoice matching process considers the withholding amount.

This functionality is also used by Sales Orders and Manual Sales, through the **Colombia Sales Order Tax Data (lpcol3100m000)** and **Colombia Manual Sales Invoice Tax Data (lpcol3110s000)** sessions.

Withholding certificates

The periodic and annual withholding certificates can be printed with these sessions:

- **Periodic Withholding Certificates (lpcol2408m000)**
- **Annual Withholding Certificates (lpcol2408m001)**

In accordance with the dispositions of DIAN, withholding certificates are requested by customers and suppliers in Colombia to confirm the withholdings applied to them in purchase or sales transactions. The certificates can be printed annually, monthly, or as required by law. These certificates are available:

- Withholding at the Source (income Tax) certificate
- Withholding ICA (Impuesto de Industria y Comercio, Industry and Trade Tax) certificate
- Withholding VAT certificate

Inquiries

With these inquiry sessions, you can view the withholdings from accounts payable and accounts receivable:

- **Outstanding Supplier Invoices – Header Tax (lpcol2506m000)**
- **Outstanding Supplier Invoices – Line Tax (lpcol2507m000)**
- **Outstanding Customer Invoices (lpcol2509m000)**

Legal reporting

In accordance with the national rules and principles required by the Colombian authorities, legal reporting sessions are available to produce the books for recording the economic facts.

These books are available:

- **General Ledger and Balance Book:** This book includes the summary of all transactions for each ledger account, including the previous balance, its debit and credit movements, and the final balance. The report can be printed from the **Print Chart of Account – Additional Data Colombia (lpcol0411m001)** session.
- **Inventories and Balance Book:** This book includes the ledger accounts' closing balance. Only ledger accounts with sublevel 0 are included. You can print the report from the **Print Chart of Account – Additional Data Colombia (lpcol0411m001)** session.

- **Journal Book:** This book records general ledger transactions in chronological order, individually or through global summaries. You can print the report from the **Print Journal Book (lpcol1406m000)** session.

Legal forms

For business partners who have the **VAT Regime** field set to **simplified** in the **Business Partner – Fiscal Information Colombia (lpcol0108m900)** session, the legal form Equivalent Purchase Invoice can be generated in the **Print Equivalent Purchase Invoices (lpcol2400m100)** session.

Auxiliary reporting

Several auxiliary reporting sessions are also available. You can, for example, print the withholding details and analysis, the ICA auxiliary, the sales list, the business partner balances, the general ledger transactions, and the list of business partners which do not have fiscal information for Colombia.

These sessions are supported for auxiliary reporting:

- **Print Withholding Details per Purchase Invoice (lpcol2406m900)**
- **Print Withholding Details per Sales Invoice (lpcol2409m900)**
- **Print Withholding Analysis (lpcol2405m900)**
- **Print Withholding Analysis by Account (lpcol2405m900)**
- **Print VAT Analysis – Purchase/Sales (lpcol1410m000)**
- **Print ICA Auxiliary (lpcol1406m002)**
- **Print Sales by City (lpcol3405m003)**
- **Print Business Partner Balances (lpcol2410m000)**
- **Print General Ledger Transactions (lpcol1406m004)**
- **Print Business Partners without Fiscal Information Colombia (lpcol1400m000)**

Utilities

It is required to structure information by a business partner's tax identification. Consequently, to update the opening balances and the accounting movements, these utility sessions are available:

- **Initialize Business Partners Opening Balance (lpcol2210m000)**
- **Rebuild Business Partner Ledger Movements (lpcol2210m001)**

Master data

In the Master Data menu of the Colombian localization, these sessions are available:

- **Billing resolution (lpcol0180m000)** - Used to register the invoicing resolutions assigned to each company by the tax authority DIAN.
- **Equivalent Purchase Invoice Configuration (lpcol0185m000)** - Used to store the authorization to issue equivalent purchase invoices.
- **Withholding Certificates Configuration (lpcol0180m000)** - Used to include the fiscal data that refers to the different withholding types.

In relation to configuration details and DIAN codifications, the Withholding Manager subfolder includes these sessions:

- **City DIAN Codes (lpcol0101m000)**
- **Country DIAN Codes (lpcol0112m000)**
- **Commercial Activities (lpcol0102m000)**
- **Effective ICA Rates (lpcol0103m000)**, by city and commercial activity
- **Companies – Fiscal Parameters (lpcol0100m000)**, by financial company
- **Withholding Tax Codes (lpcol0104m000)**, where the linked concept type can be specified
- **Tax Regimes (lpcol0106m000)**
- **Tax Codes by Country – Additional Data Colombia (lpcol0110m000)**
- **Chart of Accounts – Additional Data Colombia (lpcol0111m000)**
- **Transaction Types – Fiscal Data Colombia (lpcol1100m000)**

Magnetic Media

The Colombian Tax Authority DIAN (Dirección de Impuestos y Aduanas Nacionales) requires that companies, public institutions, and natural persons report their annual financial operations by business partner through the Magnetic Media scheme, also called Exogenous Information.

For the Colombian localization, the required data can be generated in these legal reports, as defined in the Colombian Resolution number 000124 and its annexes:

- Format 1001 – Expenses and related VAT and withholdings
- Format 1003 – Withholding tax charged at source by the customers
- Format 1005 – Deductible VAT from Purchases and returned Sales
- Format 1006 – Generated VAT from Sales and returned Purchases
- Format 1007 – Gross Revenues
- Format 1008 – Accounts Receivable Balances as of December 31st
- Format 1009 – Accounts Payable Balances as of December 31st

These steps are completed in the process:

1 Master data configuration

- In the **DIAN Report Formats (lpcol4120m000)** session, the predefined Magnetic Media format codes are initiated by the **Generate Supported Report Formats** action.
- In the **Concepts by DIAN Report Format (lpcol4121m000)** session, you configure the relationship between a format and the concepts, which are minor groupings or subgrouping of information specified in the Magnetic Media resolution. The available parametrization enables you to specify these relationships as indicated in the resolution.
- In the **Accounts by Report Format and Concept (lpcol4122m000)** session, the accounts are assigned to each format and concept.
- In the **Transaction Types to Report (lpcol4124m000)** session, you specify if the transaction types created in LN must be reported on Magnetic Media.
- In the **DIAN Report Format Fields (lpcol4126m000)** session, the information fields of the partner and the values to be extracted are configured, including the identification document type, number, and other details.
- In the **Country DIAN Codes (lpcol0112m000)** session, the country codes that are defined by DIAN are assigned.

2 Magnetic media process

- The **Generate Magnetic Medium Transactions (lpcol4430m000)** session extracts the accounting and withholding tax information.
- The **Generate Supplier Balances (lpcol4430m001)** session extracts the information for the balances of the supplier documents from the Accounts Payable module. The **Generate Customer Balances (lpcol4430m002)** session extracts the information for the balances of the customer documents from the Accounts Receivable module. For both sessions, an additional report is generated listing the omitted documents.
- The **Classify Transactions According Minimum Value to Report (lpcol4430m003)** session classifies the summed amount by Year, Partner, Format, and Concept, based on the definition of the minimum value to report. It also updates the status of the record.
- The **Generate Magnetic Medium Details (lpcol4235m000)** session consolidates the information by Year, Partner, Format, and Concept and populates the partner's information fields such as address, country, and municipality. Additionally, it changes the company name or name of the partners with smaller amounts, as required by the Colombian Authorities. For example, tax identification: 2222222222, company name CUANTÍAS MENORES.

Note: These sessions must be run when no financial transactions are being inserted in LN by users.

3 Validation of the generated data

- The **Transactions Magnetic Media (lpcol4530m000)** session allows a detailed query of the extracted transactions.
- From the **Generate Magnetic Media Transactions (lpcol4430m000)** session, you can download and review the information from Magnetic Media in Microsoft Excel before uploading it to the DIAN.

4 DIAN applications

The DIAN application Tax Prevalidador (Prevalidador Tributario in Spanish) can be used to convert the extracted data into XML files, which are flat files that are required for the transmission of the information through the application on the DIAN web page.

The DIAN application MUISCA (Single Model of Entry, Service, and Automated Control) can be used for registering the files corresponding to Magnetic Media. Within the DIAN application, the files are placed in the taxpayer's inbox. The request to send the files can be filled out and the files can be sent.

Czech Republic and Slovakia

Fixed assets enhancements

If the localization parameter for Czech Republic or Slovakia is selected for the company in the **Implemented Software Components (tccom0500m000)** session, the Fixed Asset module of LN now supports technical upgrade transactions.

The **Use Technical Upgrade** parameter has been added to the **Czech Parameters (lpcze0100m000)** and **Slovak Parameters (lpsvk0100m000)** sessions. If this parameter is selected, when posting invoices with a fixed asset integration, the fixed assets' Amount to be Capitalized is increased. Next, the country-specific sessions **Process Amount to be Capitalized (lpcze3201m000 / lpsvk3201m000)** can be used to create acquisition or technical upgrade transactions.

Improvements have been introduced for these depreciation methods:

- Czech Straight Line Depreciation
- Czech Accelerated Depreciation
- Slovak Straight Line Depreciation

Specific rules related to technical upgrade transactions are taken into account when applying those depreciation methods.

Germany

Tax reconciliation

Tax reconciliation (VAT verification) is used to check VAT and provide information about the correctness of the accounting. Tax reconciliation is carried out periodically by the tax authorities as part of a tax audit. Companies use tax reconciliation to detect errors in their accounting. These errors must be corrected in a timely manner because significant differences can lead to tax evasion charges.

The purpose of tax reconciliation is to check whether the declared VAT amounts correspond to the VAT base amounts.

This functionality has been added to comply with the legal requirements for tax reconciliation in Germany, but can also be used for tax reconciliation in general.

These features are now supported:

- The **Select Tax Declaration Lines (tfgld1226m000)** session now updates the selected lines from the **Tax Analysis (tfgld1520m000)** session with the **Net Amount Tax Position** and the **Tax Amount Tax Position** to declare the tax analysis line.
- The **Tax Declaration Analysis** tab has been added to the **Tax Declarations (tfgld1625m000)** session. For this tab, these data views are available:
 - View 1: Tax Declaration / Net Amount Tax Position / Tax Amount Tax Position
 - View 2: Tax Declaration / Tax Origin / Tax Country / Tax Code / Tax Rate
- The **Declaration Analysis Details (tfgld1520m100)** session has been added to display the tax analysis lines so that they meet the German tax reconciliation requirements.
- The **Tax Declaration Analysis (tfgld1528m000)** session has been added to show the tax analysis data as aggregated balances. From the **Views** menu, these views can be selected:
 - View 1: Tax Declaration / Net Amount Tax Position / Tax Amount Tax Position
 - View 2: Tax Declaration / Tax Origin / Tax Country / Tax Code / Tax Rate
- If analysis is required on already declared tax analysis data, the **Refresh Tax Declaration Analysis (tfgld1228m000)** session is now available to update the existing data with the new **Net Amount Tax Position** and **Tax Amount Tax Position** fields.

Hungary

Hungary is now available as a country in LN. Various Hungarian requirements are supported.

Master data

These features are supported:

- Entry of organization number and VAT registration number for the company, suppliers, and customers according to the format and control methods used in Hungary
- Business partner tax number – local tax number
- Zero tax categorization

Country specific reporting

With the report designer, you can personalize these reports to fit your business or local regulatory requirements:

- Balance sheet, profit and loss, cash flow statement
- Trial balances
- User-defined cost center analysis, contribution analysis
- Budget/actual comparison in any time frame

General ledger

These features are supported:

- The most commonly used chart of accounts
- Multiple accounting dimensions
- Foreign currency revaluation
- Debit/Credit handling (Tartozik/Követel)
- Multiple taxonomies
- Intercompany with trade and logistics
- Periodic revaluation of open balances in foreign currencies to account for unrealized currency gains or losses
- A standard general ledger interface to upload transactions from spreadsheet files or other legacy systems
- Print trial balances by account or dimension
- External integration to export financial documents, general ledger balances and general ledger movements
- Year and period closing routines

Accounts receivable

These features are supported:

- Invoicing requirements
- VAT on prepayments
- Open item reports and account statements

Accounts payable

These features are supported:

- VAT and customs invoices connection for foreign supplies
- VAT date handling on delivery
- Accrual VAT accounting for invoices and unreceived goods
- Prepayments
- Open item reports and account statements

Sales invoicing

These features are supported:

- The Hungarian invoice layout includes invoice date, due date and delivery date
- Online upload of Hungarian invoices to the tax authority's portal

Tax management

These features are supported:

- XML audit report of Sales invoices
- VAT report1 – Inland sale and purchase detailed reports
- VAT report2 - Inland sale and purchase for special (commodity codes) items
- Calculation of VAT according to laws in Hungary
- Tax declaration through configuration
- The attributable VAT calculation for EU purchases and the self-assessment or “tax shift” requirement for non-domestic, non-EU supplier services
- EU triangulation, EU simplified triangulation, and fiscal representation from a VAT, EU sales, and Intrastat perspective
- Intrastat Reporting
- Sales Listing EU

Fixed assets

These features are supported:

- Straight, user defined and declining depreciations
- Fixed asset catalogue
- Increased FA value
- Reduced economic lifetime
- Printing of historical values and other reports

Current assets

Valuation methods for inventory are supported, which include FIFO, LIFO, Moving Average Unit Cost (MAUC), Lot costing, and Standard cost.

SHA3 support

The Hungarian tax authority will modify the invoice upload method with strict SHA3-512 hash usage. To support this, you can select the applicable hash usage in the **Hash Algorithm** field of the **Payment/Receipt Method (tfcmg0540m000)** session.

EKAER

EKAER is an electronic system operated by the Hungarian state tax and customs authority and is intended to monitor compliance with the tax obligations arising from the transportation of goods on public roads from a member state of the European Union to the territory of Hungary or vice versa, or in the context of internal trade, inside the territory of Hungary. An EKAER number identifies a product unit that is transported from a consignor to (multiple addresses of) a single consignee in a single motor vehicle, via a certain route.

Companies are required to send the Hungarian authorities a digital document for each address delivery that leaves the premises. This document includes information such as the contents of the shipment and the carrier. To avoid sending incorrect information or resending a document many times, the shipment should be more or less final.

An official unique sequence number (EKAER code) is issued by the authorities and attached to the EKAER file. This number is also printed on shipping documents. It is important that the transport operator or transport organizer is informed about the EKAER number.

In LN, the EKAER procedure is applicable if these conditions are met:

- The **Hungary** check box is selected in the **Implemented Software Components (tccom0100s000)** session.
- The **EKAER Implemented** check box is selected in the **Hungarian Parameters (lphun0100m000)** session.
- At least one of these conditions applies:
 - The ship-from country belongs to the European Union and the ship-to country is Hungary.
 - The ship-from country is Hungary and the ship-to country is in the European Union.
 - Both the ship-from country and the ship-to country is Hungary.

To support the EKAER procedure in LN, an additional communication activity has been added to the shipping process. For loads and shipments, a trade card is applicable. Trade cards, which are displayed in the **Trade Cards (lphun4135m000)** session, include the required shipping information to decide whether to send an EKAER request to the authorities.

In the loads and shipment sessions of the Hungarian Localization module, such as lphun4140m000, lphun4640m000, and lphun4130m000, data can be modified. In this way, the EKAER request can be influenced. If all the data on the trade card is correct, the EKAER request can be sent.

The data that is required to decide whether to request an EKAER number is gathered during the freezing of a load and stored in new tables in the Hungarian Localizations (lphun) module. Based on this data, the transport administrator determines if an EKAER number is required.

The response from the government authorities can be a failure or a success. In the case of a failure, the data must be modified and an update of the trade card / EKAER request is sent. If the response is a success, the transport administrator can still decide that changes are required. Several updates of the EKAER request can be sent. If the result is correct and accepted, the request can be finalized. The EKAER number is then stored on the shipment, also in LN Warehousing, and the warehousing procedure can continue.

Alternatively, an EKAER request can be skipped. If it is skipped, the **Trade Card Complete** check box is selected on the LN Warehousing shipment and the procedure can continue.

Note:

- Loads for which an EKAER number is requested must be frozen in LN Warehousing.
- If an EKAER number is available, the load and shipment(s) can be confirmed in LN Warehousing.

India

Various Indian requirements are now supported.

Master data

- Country (PAN), State (GSTIN), and Special Economic Zone level tax registration numbers can be maintained for the own organization and the business partner. The registration numbers are retrieved during transactions.
- The tax setup has been improved to maintain and retrieve default values for intra-state, inter-state, export and import taxes. (Aggregate) tax codes can be retrieved during transactions.
- HS codes can be maintained for goods and services. HS codes can be retrieved during transactions.
- Reverse charge (shifted) tax can be maintained. Reverse charge can also be part of the aggregate tax code.
- The Own Registration code can be used as one of the dimensions to enable ledger postings by dimension for the tax transaction line. The registration code is automatically filled as a dimension for all tax postings. For an indirect tax type, this facilitates the creation of one tax code for the entire country.

Sales

These sales scenarios are now supported:

- Domestic intra-state sales, B2B and B2C
- Domestic inter-state sales, B2B and B2C
- Direct exports, with or without payment of taxes
- Exports to SEZ units, with or without payment of taxes
- Deemed exports

Purchase

These purchase scenarios are now supported:

- Domestic intra-state purchases
- Domestic inter-state purchases
- Direct imports
- Imports from SEZ units
- Reverse charge (shifted tax) purchases
- Purchases involving expensed purchase tax

Transfer

A transfer between two warehouses in different GST jurisdictions can be set up as a taxable transaction.

Delivery challans

- Delivery challans can be generated for goods movement
- Delivery challans can be generated also after shipment confirmation
- Delivery challans can be created for cost items (not via shipments)
- E-way bill data can be generated for these challans
- Inward challans are available for sales returns

Subcontracting challans

- Subcontracting challans can be generated for delivery of components to the subcontractor
- When a finished product is received, receipts can be linked to one or more challans, which enables complete tracking of the material sent out
- E-way bill data can be generated for these challans

Shipment charges

For a direct export order, shipment charges such as freight, insurance and handling can be added to a shipment. One or more of these shipment charges can be considered for FOB value calculation.

Letter of undertaking and shipping bill

For a direct export order, letter of undertaking and shipping bill details can be maintained.

Invoicing

- Invoice series by registration numbers can be maintained
- For direct exports, a separate tax invoice can be generated

E-invoicing - Sales

- An e-invoice can be generated for all required invoices
- API based e-invoices are supported
- Signed invoices are received which can be used to retrieve a QR code and Invoice Reference Number (IRN)

E-invoicing - Purchase

A QR code can be scanned for purchase invoices.

Withholding tax

- Business partner PAN-wise thresholds can be maintained
- For each threshold, a different tax rate can be maintained

- The appropriate tax rate is retrieved during invoicing transaction

Withholding tax – return file generation (E-TDS)

TDS tax transactions can now be uploaded in a prescribed file format to the Income Tax department of the government of India where they can be received and maintained through OLTAS (Online Tax Accounting System).

So, an option is available to generate the file with all the TDS tax transactions in the acceptable format.

Tax Collected at Source (TCS)

- Business partner PAN-wise turnover can be derived on a periodic basis
- A debit note can be generated to collect TCS from the customer

Tax declarations

Tax declarations by registration number are now supported.

Tax reporting

These declarations are now supported:

- Sales declarations (ANX-01 or GSTR1)
- Purchase declarations (ANX-02 or GSTR2)

Tax accounting

An Intercompany Trade parameter has been introduced to determine registration numbers, tax jurisdiction, and tax codes based on ship-from state and ship-to state. Options have been added to the Intercompany Trade Relationship. You can now maintain a relationship to trigger an intercompany order only if registration numbers differ.

Purchase invoices can now be matched and approved based on an import reference number. A view filter can be applied to show only the data for which the Import Reference is specified. The import reference is an equivalent of the bill of entry and must be stated on the warehouse receipt during receipt confirmation.

2A/2B reconciliation

The input tax credit rules now state that only GST taxes declared by suppliers on their tax returns and communicated to the buyer through their monthly GSTR2B are available as input credit for the monthly tax. GSTR2B lists invoices, credit notes, and debit notes submitted by suppliers in their tax returns against the buyer's tax registration number.

To comply with the tax credit rules, functionality is now available for buyers to import GSTR2A/2B data in LN and reconcile it with GSTR-2. Input tax credit can be used only for records that are reconciled with GSTR2A/2B.

Classification schemes

Classification schemes, which are used to support the classification of goods and services for different countries, have been extended to support the classification of financial transactions.

The **Additional Reporting Data (lpind5118m000)** session has been added and is available from multiple financial sessions. In this session, you can view and maintain these attributes:

- Scheme Base
- Classification Scheme
- Classification Scheme Code

This session is available in places where financially taxable transactions are specified, for example, for these financial documents:

- Purchase invoices – cost invoices and match to order
- Sales invoices, manually specified in Financials
- Bank transactions
- Payment advice and direct debit advice lines
- Standing order and standalone payments
- Journal vouchers

The classification scheme code from the **Additional Reporting Data (lpind5118m000)** session is used when generating tax reports for India.

This functionality is available only if the classification functionality and the India localization are both implemented.

D3 intimation

When items are received in a warehouse for depot repair, a D3 Intimation document can now be generated to record the details of the received goods. When goods are repaired and shipped, D3 intimations can be linked to the shipment. Consequently, a record can be kept of receipts, shipments, and balances.

Export promotion schemes

From time to time, the government of India introduces schemes to encourage the export of goods and services, for example, MEIS and SEIS. And to refund taxes and fees that are non-recoverable, for example, RoDTEP.

A generic framework is now provided to support this. Users can define this framework, both for goods and services. After a GSTR 1 record is created, the applicable promotion lines and schemes can be specified.

Generation of non-API based e-invoices

The government of India does not allow the use of direct APIs for organizations with an invoice amount less than a certain value. Consequently, an option is now available to generate a CSV file with sales invoices that can be uploaded to the tax portal for generating Invoice Reference Numbers (IRNs).

Use of tax credit

There are rules for using the available tax credit against the payment of tax. For example, the input tax credit that is available for State GST cannot be used for Central GST. A framework is now provided to align input tax credit with tax liabilities.

Deferral of input tax credit for reverse charge

In the **Tax Code by Country (tcmcs0636m000)** session, you can now defer the declaration of tax transactions for additional scenarios.

These additional check boxes can be selected:

- **Defer Declaration of Sales Tax Transactions**
- **Defer Declaration of Purchase Tax Transactions**
- **Defer Declaration of Input Shifted Tax Transactions**
- **Defer Declaration of Output Shifted Tax Transactions**

If a check box is selected, the declaration of the respective tax transactions is deferred by default. You can manually allow deferred taxes to be declared.

Factory Track integration enhancements

If Factory Track (FT) is used for imported goods in India, you can now specify the bill of entry number, date, and port details in LN before confirming the warehouse receipt.

The warehouse receipt and the lines are created from Factory Track, but the receipt is not confirmed. You must specify the above details and confirm the receipt from LN.

Note: This functionality applies only to India.

Indonesia

Indonesia is now available as a country in LN.

You can activate the Indonesian country localization in the **Implemented Software Components (tccom0500m000)** session.

These country-specific features are supported:

- Invoicing with a predefined tax invoice number issued by the tax authorities
- Configuration of a business transaction code for invoicing usage
- Printing of withholding tax certificates
- Periodical withholding tax report (PPh23/PPh26)

e-Invoicing

These features are supported for e-invoicing:

- Specifying business transaction codes in the **Business Transaction Codes (lpidn0102m000)** session.
- Linking business transaction codes to tax codes in the **Tax Codes by Business Transaction Codes (lpidn0103m000)** session.
- Specifying tax invoicing series authorized by the Indonesian tax authorities in the **Tax Invoice Series for Indonesia (lpidn0104m000)** session.
- Generating e-Faktur version 3.0, which is required for Indonesia in combination with Infor Localizations Services Platform (LSP). This is only required if **Use External Invoicing System** is enabled for the invoicing method of the invoicing billable lines.
- Viewing the e-invoicing status of invoices in the **Indonesia Tax Invoices (lpidn1150m000)** session. In this session, you can also modify the status with the **Approve**, **Reject**, or **Cancel** options.

VAT declaration

The Indonesian VAT declaration - SPT Masa PPN 1111 (Pajak Pertambahan Nilai) is supported.

You can use the **Print SPT MASA PPN (lpidn0200m100)** session to print this VAT declaration.

Italy

e-Invoicing

Italian FatturaPA e-invoice XML files are now supported for sales invoices and purchase invoices through integration with Infor Localizations Services Platform (LSP) .

This process is followed:

- 1 Sales invoices from the Invoicing module of LN are published with the InvoiceBOD.
- 2 LSP receives the BOD and generates the FatturaPA e-invoice XML.
- 3 The FatturaPA e-invoice XML is copied from multi-tenant to on premises using the File Transfer Service.
- 4 The FatturaPA e-invoice XML is communicated to the Italian SDI using the on-premises connector of LSP.

For purchase invoices, LSP converts the received FatturaPA e-invoice XML files to a SupplierInvoiceBOD, after which they are stored as received purchase invoices in LN.

Improvements have been made for Italian e-invoicing in these areas:

- Integration with sales orders
- Generation of integration documents from purchase
- Other tax scenarios

Integration with sales orders

Generation of the tax connector data is now triggered earlier in the process. The additional details can be retrieved and modified in the sales order. Next, they are automatically transferred to Central Invoicing and to LSP for generating the e-invoice XML. It is not required to interrupt the invoicing process to manually correct billable lines.

Generation of integration documents from purchase

Functionality has been added to comply with a new legal requirement to replace the former Esterometro report. In the case of national reverse charge invoices or imports invoices, the integration documents in XML can be generated by LSP when completing the purchase invoice in LN. A defaulting mechanism has been added to select the correct document type (TipoDocumento) that is required by the authorities, such as TD16, TD17, TD18, TD19. In the new **Tax Connector Purchase Tax Codes (lpita0130m000)** session, a tax code can be linked to a document type and to the desired date-derivation logic. Additionally, for the same requirement, the handling of invoices in foreign currencies has been improved in LSP. Now, both the amounts in EUR and the original amounts are displayed.

Other tax scenarios

The **Tax Exemption Letter by Business Partner (tftax2121m000)** session has been improved. The full exemption protocol and date have been added, as well as an activation mechanism. E-invoice generation for various tax scenarios, such as stamp tax, reverse charge, and split payment is now fully supported. In addition to the new tax exemption information, the correct tax amounts and the law reference (RiferimentoNormativo) are now included in the BOD and transferred to LSP.

The enhancements also require the upgrade of the Localization Service Platform (LSP).

Document type and identifier tags for e-invoicing

The document type FatturaPA tag <TipoDocumento> and the customer identifier tag <CodiceDestinatario> are supported in e-invoicing for Italy.

The information is stored in these sessions:

- **Document Types for Italian e-Invoicing**
- **E-Invoicing IDs by Business Partner**

You can maintain the details in the **Additional Data for Italian eInvoicing** session, which can be accessed from Central Invoicing during the invoicing process. Next, the information is transmitted by ION to Infor Localizations Services Platform (LSP) to generate the Italian XML invoice.

The Document Type and SDI Identifier information are localized composing criteria. If they are different in the billable lines, they cannot be combined into one invoice.

Tax exemption enhancements

The current tax exemption functionality has been modified because of regulatory changes. These requirements must be supported:

- For each tax exemption letter sent to a supplier, an electronic file must be provided to the tax authorities
- Tax exemption limit checks must be available at the supplier and customer level, and at the company level for all suppliers
- On the purchase side, the plafond of the consumed tax exempt amount must be calculated based on the purchase invoice date period

The modified tax exemption functionality affects these processes:

Purchase

For each supplier, the exporter determines the exemption limits for the tax year. These limits, together with the exempt certificate, must be specified in the **Tax Exemption Letter (tftax2121m0000)** session. The tax

exemption letter is printed and sent to the supplier, and an electronic version of this letter is sent to the tax authorities using a .txt file with a specific trace.

When a purchase invoice or purchase credit note is specified, the applicable exempt certificate is retrieved from the **Tax Exceptions by Country (tctax1100m000)** session.

To maximize the use of an exemption, an exporter can inform the supplier by letter that the plafond has been raised. This is allowed only if the exemption limit is not exceeded at the company level. To verify this, the consumed amount at the supplier level is checked and the total consumption at the company level.

Sales

When the supplier of an exporter receives the tax exemption letter, this letter, including the exempt certificate and the tax exemption limit for the year, is registered in the **Tax Exemption Letter (tftax2121m0000)** session. After consumptions have been registered for this exempt certificate, the tax exemption letter can no longer be modified.

When a sales order, service order, maintenance sales order, or manual invoice is specified, the applicable exempt certificate is retrieved from the **Tax Exceptions by Country (tctax1100m000)** session.

Tax exemption limit consumption

When an exporter receives an invoice with tax exemption from a supplier, the consumed tax exemption is registered based on the supplier invoice date and not on the date or period in which the invoice is registered.

Tax exemption limit reporting

To prevent that supplier invoices are received with incorrect exemptions, the exporter periodically reviews the total exemption used by all suppliers. If the exemption limit is about to be reached, the exporter may inform one or more suppliers that the exemption certificates should no longer be used.

If the customer (exporter) notifies the supplier that an open exemption certificate should no longer be used, the supplier must also register that the certificate is no longer valid.

Upon printing the periodic VAT liquidation report, only posted and not blocked invoices are printed with an invoice date in the printed period.

The modified tax exemption functionality affects these sessions in LN:

Tax Exemption Letter by Business Partner (tftax2121m000)

These fields have been added to this session:

- **Customs:** Select this check box if the supplier is a forwarding agent for which zero VAT must be applied on invoices. If the **One Operation** check box is selected, this check box is automatically selected.
- **Commodity Description:** A description can be specified only if the **Customs** check box is selected. If the **One Operation** check box is cleared, the description must read *beni e/o servizi* (= goods and/or services).
- **Customer Protocol:** This field is applicable only if the **Tax Type** is set to **Sales** and is filled with the exemption certificate received from the customer (exporter).
- **Status:** The status of the exemption letter.
 - **Free:** This status is assigned when a new record is inserted. The tax exemption limit can be modified until the tax exemption letter has been printed. You can change the status to **Active** or **Withdrawn**.
 - **Active:** The tax exemption limit can be consumed. You can change the status to **Free** if the exemption limit must be modified. You can also change the status to **Withdrawn**.
 - **Consumed:** This status is assigned if the exemption limit is fully consumed. You can change the status to **Free** if the exemption limit must be modified.

- **Withdrawn:** If the amount is not (totally) consumed, you can withdraw the exemption letter and issue a new one. An exemption letter with this status cannot be used for consumption.

An additional search key has been added to this session to find the latest letter issued to a supplier.

Exemption Letter File Setup (tftax2130m000)

This new session shows the file setup of the various record types including the required fields. These records can be initialized using the **Initialize** option from the **Actions** menu. Next, you can change the **Field Description** and **Field Value**.

Create Exemption Letter File (tftax2221m000)

This new session is used to generate the Exemption Letter File (.txt) to be sent to the tax authorities. If an exempt certificate is selected, the **Replacement** check box is enabled. If selected, the **Protocol Number** (17 digits) and the **Progressive Number** (6 digits) must be specified.

Tax Exemption Limit by Company (tftax2122m000)

This new session is used to register the total tax exemption limit for the financial companies by year. It also shows the total amount consumed by all suppliers and the total remaining amount.

Purchase Invoice Entry (tfacp2600m000)

When a purchase invoice with tax exemption is received from a supplier, the consumed tax exemption is now based on the supplier invoice date.

Tax Exemption Limit (tftax2125m000)

The **Amount Consumed** field has been added to this session, including a company total at the bottom of the grid.

Print Tax Exemption Letter by Business Partner (tftax2421m000)

This session can now be used to print tax exemption letters not only for invoice-from business partners, but also for invoice-to business partners. The (fiscal) exemption letter can be printed if the **Tax Type** is set to **Purchase**. If the **Tax Type** is set to **Sales**, the **Exemption History Book** check box can be selected.

Sales Order Lines (tdsls4101m000) / Service Order Actual Other Costs (tssoc2141m000) / Maintenance Sales Order - Coverage Lines (tsmsc1120m000) / Billable Lines (cisli8110m000) / Manual Sales Invoice Lines (cisli2125m000)

In these sessions, you can now zoom to and select the available exempt certificates.

Print Tax Exemption Limit (tftax2425m000)

The report printed with this session has been extended with these new columns:

- Consumed Amount
- Cumulative Consumed Amount (a running total)

Additionally, the **Limits by Company** check box has been added. Limits by company can be reported if the **Tax Type** is **Purchase** and all business partners and exempt certificates are selected.

Sales deferred invoices (TD24 and TD25)

In certain situations, you can issue a deferred sales invoice called fatturazione differita in Italian. It must usually be issued within the 15th of the month following the shipment or provision of services, as stated in art. 6 and 21 of the Presidential Decree 633/1972. The invoice must be forwarded to the Italian Tax Connector (SdI) with the relevant document types, TD24 and TD25, to backdate the tax date.

These enhancements and modifications have been made:

- In addition to deferred invoicing in the same tax period, deferred invoicing in the next tax period is now supported in LN. The new functionality is also applicable if LN is integrated with Infor Localization Services (LSP) and can be used with or without backdating. To enable the functionality, select the **Sales Deferred Invoice** check box for the tax connector document type in the **Tax Connector Document Types (lpita0110m000)** session.
- You can now specify a dedicated transaction type and series for normal invoices and credit notes. We recommend using a different transaction type for these invoices in the VAT book and journal book and optionally including them in a specific VAT book section.
- If the **Sales Deferred Invoice** check box is selected for the document type, the tax date is now calculated based on the tax delivery date. In this case, the **Tax Date** parameter in the **Invoicing Parameters** is ignored.
- If multiple billable lines exist with different delivery dates in the same period, the last delivery date is considered for the tax date calculation.
- The tax period is calculated based on the tax date, but you cannot defer invoicing between years. Consequently, the tax period that is derived from delivery date-functionality cannot be used if the delivery date is in December and the transaction entry date is in January.
Note: In the billable line, you can manually modify the delivery date.

Installment e-invoices (TD02)

Installment plan functionality, including installment invoices and final invoices, is now supported for the e-invoice integration of LN with Infor Localization Service (LSP) and the Italian Tax Connector SdI. You can now generate the correct XML file (FatturaPA) for installment plans, including advance invoices and normal installments.

These enhancements have been made:

- In the **Tax Connector Document Types (lpita0110m000)** session, the **Default for Installments** check box has been added. If this check box is selected, the document type, usually TD02, is automatically applied to all the billable lines that are generated from installment plans and displayed in the **Tax Connector Invoice Data (lpita1110m000)** session.
- After performing **Undo-Confirm**, you can still modify the document type of the automatically generated billable line. This can be useful, for example, if an advance payment (installment) must be composed together with normal billable lines.
- In the BOD and in the XML file of the invoice, the different prices and amounts are displayed. In the installment invoice, the item description refers to the installment. In the final invoice, the tag <DatiFattureCollegate> is filled with the linked installment invoice number, as required by the Italian authorities. A negative line is added to subtract the installment amount and tax amount.

Note: Guarantee installments and advance payment requests are excluded for this release.

Tax connector data for manual sales invoices

On the **References** menu of the **Manual Sales Invoices (cisli2520m000)** and **Manual Sales Invoice (cisli2620m000)** sessions, you can now click **Tax Connector Invoice Data (Default)**. The tax connector invoice data specified in the **Tax Connector Invoice Data (lpita1110mm000)** session is applied to the related manual sales invoice lines.

Enhanced defaulting

New defaulting logic based on tax code by country is available for document types. Document types can now be linked to a tax code in the **Tax Connector Tax Codes Defaults (lpita0130m000)** session, which was previously used only for purchase transactions.

Tax connector data is retrieved from these entities in this order of priority:

- 1** Installments: For advance invoice or normal installments, from the **Tax Connector Document Types (lpita0110m000)** session.
- 2** Tax codes: From the **Tax Connector Tax Codes Defaults (lpita0130m000)** session.
- 3** Header: From the object header, currently sales order or manual sales invoice.
- 4** Business partner: From the **Tax Connector Data by Business Partner (lpita0120m000)** session.
- 5** If a document type cannot be retrieved from LN, this LSP defaulting logic can be used to add TD to the e-invoice XML:
 - a** Transaction type translation: A mapped translation in LSP based on the LN transaction type for the sales invoice.
 - b** TD01/TD04: Document type TD01 for all sales invoices, and TD04 for all credit notes.

Administrative reference

The tag 2.2.1.15 <RiferimentoAmministrazione> of the Italian e-invoice scheme FatturaPA is now populated by the **Reference B** field in the **Sales Order Header (tdsls4100m000)** session, or the **Second Reference** field from Invoicing, for example the **Billable Lines (cisli8110m000)** session.

Mexico

CFDI - different invoice and payment currencies

The CFDI files for the complement of payment receipts in Mexico are generated by Infor Localization Services Platform from the ReceivableTrackerBOD.

Previously, the integration between LN and Localization Services Platform required the currency of the payment receipt to be the same as the currency of the invoice. For example, an invoice in USD had to be paid through a payment receipt in USD.

This restriction has been removed and the currency of the payment receipt can now differ from the currency of the invoice.

CFDI - invoice lines without item

The CFDI files for sales invoices in Mexico must have a SAT Commodity Code for each invoice line. This SAT Commodity Code is linked to the item of the invoice line. These improvements have been made:

- The SAT Commodity Code for Advance Invoices is no longer based on the item of the invoice line, but is a fixed code. This SAT Commodity Code for Advance Invoices can be specified in the Mexican Parameters.

- If invoice lines were generated without an item code, the SAT Commodity Code could not be determined. A default item code for sales invoice lines can now be specified in the Mexican Parameters. This item code, with its linked SAT Commodity Code, is used for invoice lines without an item code.

The improvements have been implemented in the InvoiceBOD for the integration between LN and Infor Localization Services Platform.

CFDI version 4.0 enhancements

As of July 1st 2022, it is mandatory to include the name of the issuer and the receiver of the electronic invoice (CFDI) in Mexico. In addition, all names must be in upper case, and a suffix indicating the type of company is not allowed.

To comply with the new regulations:

- CFDI 4.0 must include the legal name and legal address of the invoice-from and invoice-to parties.
- Legal names must be in capitals, which is handled by Infor Localizations Services Platform (LSP).
- CFDI must contain the tax regime of the receiver.
- The **ObjetoImp** field has been introduced to indicate if the product or service is taxable.
- The business partner code must be amended so that it does not include the suffix for the company type. For example, *Infor Mexico Softwares, S.A. de C.V.* must be changed to *Infor Mexico Softwares* in the **Business Partners (tccom4500m000)** session.
- The tax type used for all sales invoices must be set to **On Payments** in the **Tax Codes by Country (tcmcs0536m000)** session.
- Payment Complement 2.0 has now been introduced and will be mandatory in Mexico from January 1, 2023.
- Payment Complement 2.0 is compatible with CFDI 4.0.
- The **ObjetoImpDR** field has been introduced to indicate if the product or service is taxable.
- Payment Complement 2.0 helps identify whether an invoice has already been paid.
- Payment Complement 2.0 must be generated no later than the 10th calendar day of the next month in which the payment was received. For example, if a payment is received on July 12, then the payment complement must be generated no later than August 10.

See also KB Article [2243390](#).

Foreign payments on withholdings

The Withholdings and Payments Information CFDI is a voucher that includes the withholdings and payments that are done. It is an electronic document, similar to the CFDI invoice, that details the VAT withholdings and payment information for a specific supplier. This document is usually issued in January for withholdings that are related to the past year.

Before the electronic VAT withholding and payment information CFDI is sent to the SAT, it must be certified by a PAC, with a digital stamp applied. The CFDI can then be sent to the recipient and used in the event of a transaction or tax requirement.

If foreigners receive payments for a wealth source located in the Mexican national territory, the Foreign Payments Complement for the Withholdings and Payments Information CFDI is applicable. Foreigners must pay income tax in Mexico only for wealth sources.

According to the ISR (Tax Income) Law, Title V, this document applies to these wealth sources:

- Subordinate salaries or personal services
- Retirements, pensions, and others
- Independent personal services or fees
- Remuneration of directors, administrators, commissioners, and general managers
- Real estate leasing
- Leasing of movable property
- Affreightment
- Shared time
- Alienation of real estate
- Disposal of shares
- Exchange of public debt for capital
- Financial operations derived from capital
- Dividends
- From non-profit legal entities
- Financial leasing
- Royalties, technical assistance or advertising
- Construction sites
- Awards
- Artistic, sporting activities or public shows
- Debts forgiven
- Granting of the right to participate in a business
- Compensation for damages and criminal clauses
- Disposal of commercial credit
- Income from premiums to reinsurers

Any other income not specified in the ISR (Tax Income) Law, is not considered to have a Mexican source of wealth.

Because only specific payments to foreigners must be included in the file, payments are now classified. The **Reason for Payment** field has been added for this purpose. The reason for payment is sent in the PayableTracker BOD of the payment transaction. A translation table is available in LSP that indicates whether CFDI withholdings are required for a particular reason.

Payment transactions can be created in these ways:

- By using a cash transaction type in the **Transactions (tfgld1101m000)** session.
If the **Type of Transaction** is set to **Payment Transaction**, the Reason for Payment is retrieved from the invoice, but it can be changed.
- By using a payment batch in the **Process Payments (tfcmg1240m000)** session.
A payment batch is first created with the payment advice lines. In the **Payment Advice Lines (tfcmg1101m000)** session, the **Reason for Payment** field is displayed on the **Payment/Bank Details** tab.

HS codes support

In Mexico, these catalogs, which are used to classify items and services, are published by the SAT:

Catálogo CFDI 4.0

The section **c_ClaveProdServ** includes all the Commodity Codes (HS codes) that are used for domestic trade and are mandatory when creating an electronic invoice (CFDI).

Fracción Arancelaria

This catalog uses tariff codes and is intended to classify the items that are subject to import and export. The codes are used by the SAT to determine if the import item or export item is taxable and to calculate the applicable tax rate.

The **HS Code** field in the **Items (tcibd0501m000)** session is used to determine the commodity code for an item. However, previously, a commodity code and tariff code could not be linked to an item at the same time.

Now, when a billable line is created, new logic is available to retrieve the HS code from the correct classification scheme. Fields have been added to the billable lines to enable modification of the retrieved classification scheme before the invoice is created.

Additionally, the **Classification Scheme** value has been added to the **Origin for Catalog of products / services** field in the **Mexican Parameters (lpmex0100m000)** session. Set this field to **Classification Scheme** if you want to use the new logic HS code logic for Mexico.

If an order is created for two Mexican companies, the HS Code is retrieved and published in the SyncInvoice BOD. If imports or exports are involved, for example a sales order between a company in Mexico and a company abroad, then both the HS Code and the Tariff Code are published in the SyncInvoice BOD.

Invoice cancellation

The **Canceled in PAC Portal** field has been added to the **CFDI Information by Document (lpmex1500m000)** session. If this field is set to **Yes**, the invoice was manually canceled in the SAT portal.

After the invoice is (manually) canceled in the SAT portal, these actions are performed:

- You can set the invoice to **Canceled** in LN.
- If a credit note is linked to the canceled invoice, the SyncInvoice BOD for the credit note includes a new tag. This tag indicates that the invoice is canceled in the SAT portal, so that Localization Services Platform (LSP) does not communicate the change to the PAC.
- A new billable line is created automatically. If required, you can modify specific line data, such as the payment terms and address details. This billable line is used to compose a new invoice with a reference to the canceled invoice, so that the SAT knows it is a replacement.

Norway

SAF-T Financial

The Norwegian tax authorities have modified the standard SAF-T by changing the format. As a result, a new session has been added to export the file respecting the specific Norwegian format.

Peru

Peru is now available as a country in LN.

These features are supported:

- Electronic sales invoices in the **Electronic Sales Invoices (lpper0121m000)** session.
- Electronic delivery notes in the **Electronic Delivery Notes (lpper0125m000)** session.
- Withholding tax handling.
- Detraction tax handling.
- Trade note division per direct debit advice.
- Legal reports.

Withholding tax handling

When a purchase invoice is paid, a certain percentage can be withheld. The tax code that is used in the purchase invoice determines if the withholding is applicable. The tax code must be for withholding income tax on payments.

The withholdings are generated when payment transactions are created in the **Bank Transaction (tfcmg2500m000)** session. A document with the withholdings can be printed in the **Tax Voucher (lpper0480m000)** session and sent to the supplier.

Detraction tax handling

When a purchase invoice is created in the **Purchase Invoice Entry (tfacp2600m000)** session, the obligation to withhold is also created. The tax code that is used determines if a detraction is applicable. These tax codes are specified in the **Tax Codes with Detraction (lpper0129m000)** session.

The detraction amount must be transferred to the supplier's national bank account in the **Invoices with Detraction (lpper0131m000)** session.

Poland

Split payment of VAT amount

In Poland, the split payment mechanism is mandatory for domestic sales that meets these conditions:

- At least one item of the invoice is included in Appendix No. 15 of the Polish Value-Added Tax Act (concerning the supply of goods and services for which the reverse charge was applied before 1 November 2019)
- The gross sales value is at least 15.000 PLN
- The sale is made between taxable persons – B2B, regardless of whether the buyer is an active or exempt VAT taxable person
- Tax liability, supply of goods or services, and the invoice date is not before 1 November 2019

Tax payments must be made using a dedicated payment file layout. To support this, an additional Elixir report for split payment of VAT amount has been added in the LP POL package.

Complete these steps:

- 1** Set up the new report as a localized report with these settings in the **Payment/Receipt Method Reports (tfcmg0630m000)** session:
 - Payment Report: Split Payment for VAT Amount (lppol923001000)
 - Country: POL
 - IBAN Enabled: Yes
- 2** Initialize the report
- 3** In the **Payment/Receipt Methods (tfcmg0540m000)** session, create a new payment method with these settings:
 - Payment Report: Split Payment for VAT Amount (lppol923001000)
 - Composing Option: Invoices
 - Composing Limit: 1
 - IBAN Account Required: Yes
 - Foreign Currency Allowed: No
 - Currency: PLN
- 4** Select a payment device for which the **Device Type** is set to **Append to file** and the **Page Length** is 1. Any other length results in unnecessary blank lines at the end of the file, preventing the file from importing into the bank system.

Split payment for invoices in foreign currencies

In Poland, it is common practice to send domestic invoices in another currency than the local currency (Polish Zloty). If such an invoice is received, the net amount of the invoice can be paid in the foreign currency. However, the tax amount must be paid in the local currency using a special payment file structure. This so-called split payment mechanism has now been added to the standard and is active only if the localization parameter for Poland is selected for the company in the **Implemented Software Components (tccom0500m000)** session.

If the split payment functionality is used, the payment to the business partner is automatically split into the net amount payable in the invoice currency and the VAT amount payable in the home currency. The net amount of the invoice is paid from the company bank relation stated in the payment advice, to the bank account of the business partner. The VAT amount is paid from the VAT subaccount associated with this bank relation, to the VAT bank account specified for the business partner.

This functionality includes these new features:

- In the **Payment/Receipt Methods (tfcmg0540m000)** session, a payment method must be specified where the Polish payment report is for VAT amounts. The currency of the payment method must be equal to the home currency.
- In the **Payment Terms (tcmcs0113s000)** session, the **Distribute Tax Based on Schedules** option has been added. This option controls the split payment functionality for the purchase invoice. Additionally, the **VAT Payment Method** field has been added in which the payment method for VAT amounts must be specified.
- In the **Bank Relations (tfcmg0110s000)** session, the **VAT Bank Relation** field has been added. This field is used to set up the bank relation for the VAT payments in the home currency. This bank relation is used instead of the original bank relation on the invoice, which is still used for the net amount in the foreign currency.

- In the **Pay-to Business Partner (tccom4124s000)** session, the **VAT Bank Account** field has been added. In this field, you can specify the business partner's bank account that is used for VAT payments in the home currency.

When registering a purchase invoice with a payment term set up for split payment, LN automatically creates a payment schedule with two lines: one with the net amount in the foreign currency and one with the VAT amount in the home currency. If the payment method also includes a payment schedule with a distribution in percentages, LN generates net-amount lines in the foreign currency and tax amount lines in the home currency based on this distribution. The VAT lines in the home currency are excluded from the write-off currency differences functionality.

In the **Payment Schedules (tfacp1103m000)** session, you can check the generated schedule lines. The net amount lines are generated with the default supplier's bank and payment method of the invoice. The VAT amount lines are generated with the default supplier's VAT bank and the VAT payment method.

The schedule line data is used when the payment selection is run. This ensures that the net amounts are paid in the invoice currency via the payment method linked to the invoice. The VAT amounts are paid in the home currency using the VAT payment method with the special VAT payment file layout.

Whitelist

From January 1, 2020, transactions of more than PLN 15,000 paid by bank transfer may only be made to bank accounts that are included in the list of VAT payers (the so-called white list or KAS database [Krajowa Administracja Skarbowa – National Tax Administration]). According to the Polish Ministry of Finance, such a payment is safe and has no negative financial consequences.

This functionality is now supported and includes these tasks:

- Setting up online verification in the **Polish Localization Parameters (lppol0100m000)** session
- Verifying the taxpayer status in the **Verify Business Partner Online (lppol4250m000)** session
- Verifying bank accounts in these sessions:
 - **Verify Business Partner Bank Accounts (lppol4250m100)**
 - **Print Business Partner Verification Log (lppol4450m000)**
 - **Business Partner Verification Log (lppol4550m000)**
- Creating bank accounts in the **Import Bank Accounts (lppol4550m100)** session

Currency exchange rates

Importing currency exchange rates from the European Central Bank and National Bank of Poland is now supported.

You can use the **Exchange rate Provider (tcmcs1670m000)** session to initialize the required parameters for the European Central Bank and National Bank of Poland. You can also configure services and currencies to import.

You can use the **Import Currency Rates (tcmcs1270m000)** session to import the currency rates from a specific provider. The imported rates are available in the **Currency Rates (tcmcs0108m000)** session.

Elixir payment format for Citibank

In Poland, the standard Elixir payment format is used. However, the Citibank uses its own variant of this payment standard. This specific payment format has now been added to LN.

Complete these steps:

- 1 Set up the new report as a localized report with these settings in the **Payment/Receipt Method Reports (tfcmg0630m000)** session:
 - **Payment Report:** CitiDirect SEPA (Poland) (lppol923000800)
 - **Country:** POL
 - **IBAN Enabled:** Yes
- 2 Initialize the report.
- 3 In the **Payment/Receipt Methods (tfcmg0540m000)** session, create a new payment method using the **CitiDirect SEPA (Poland) (lppol923000800)** payment report

Portugal

Business partner tax number compliance

After an invoice has been printed with an invoice date that is within the effective date of the tax number, the business partner tax number can no longer be modified or deleted. This is to ensure that, if the invoice must be reprinted, the business partner tax number of the original invoice is printed.

Consignment invoice

The proforma invoicing functionality has been extended. You can now create a consignment invoice when shipping to a consignment warehouse.

To support this, the pro forma invoice type **Consignment Invoice** has been introduced in the **Pro Forma Invoicing Types (tcmcs0167m000)** session. If a pro forma invoice of type Consignment Invoice is printed from a warehouse shipment, a consignment invoice is created in Invoicing. The invoice can be handled in the **Pro Forma Invoicing Workbench (cisli3640m000)** session.

These features also apply to consignment invoices:

- Digital signatures required by Portuguese tax authorities
- Reporting in the standard audit file – SAFT-PT generated

QR support

The Portuguese tax authority has announced a new requirement to include a unique document code ATCUD (Sequential Number Validation Code) and bar code (QR code) in invoices and relevant tax documents. This requirement will be mandatory from January 2022.

To comply with this requirement, these conditions must be met:

- The tax country of the transaction must be set to PRT or PT.

- For ATCUD, the new **ATCUD Active** check box must be selected in the **Portuguese Parameters (lpprt0100m000)** session.
- For ATCUD, the code received from the tax authority must be recorded in the **Validation Code by Document Type (lpprt0102m000)** session.

If the conditions have been met, the ATCUD is included in the SAF-T (PT) file and the ATCUD and QR codes are included in these legal documents:

- Sales Invoices
- Consignment invoices
- Packing slips
- Bills of Landing
- Delivery Notes
- Receipt Acknowledgements

If the **ATCUD Active** check box is cleared, the ATCUD functionality is not applicable and only the QR is printed in the documents.

Sales listing XML output

The tax authority now requires the Sales Listing for Portugal (Declaração Recapitulativa) in XML format.

To comply with this legal requirement, **XML – Portugal** has been added to the **File Data Format** field of the **Process Intracommunity Listing (tccom7270m000)** session.

SAFT enhancement

The receipt acknowledgements for unallocated and advanced receipts are now included in the SAF-T (PT) audit file that is generated through the **Create Standard Audit File - Tax - Portugal (tftax2211m000)** session.

COPE enhancements

Statistics on External Transactions and Positions (COPE) is mandatory for all legal persons who reside or pursue their business in Portugal, conduct external economic or financial transactions or foreign exchange operations, pursuant to the provisions of Decree-Law No 295/2003 of 21 November 2003. External statistics are part of the official statistics produced by Banco de Portugal (Bank of Portugal) and aim to portray Portugal's relationship with non-residents.

The **Auxiliary report for COPE (tfcmg3250m000)** session is available to create an auxiliary report for COPE with all transactions listed. Now, this session can also generate an XML according to the Banco de Portugal specifications, by period, and including the distinction between transactions and positions.

Transaction

A transaction (COPE – Entrada/Saída) is any operation conducted by entities residing in Portugal that originates or extinguishes, fully or partially, external assets or liabilities.

Position

A position (COPE – Posição) is the stock or balance of financial assets or liabilities of Portuguese entities vis-à-vis non-residents. An identifier is assigned in the XML to the end of the month positions. This represents the outstanding amount observed at the end of each month.

If the **Create XML file** check box is selected, the XML file is generated to the specified path, within the LN server or the client.

The auxiliary report with the full list of transactions, including the transaction type and series, is printed for auditing purposes.

QR Barcode and ATCUD on shipping document

For shipments subject to tax in Portugal, it is required to print additional information on the shipping documents, such as packing slips or waybills.

The Portuguese law requires the printing of the ATCUD, a unique document ID defined by the Portuguese Tax Authority, a QR barcode, and some other data.

For companies in the automotive business, the packing slips according to DIN 4994 and VDA 4939, and the GALIA waybill are printed in Automotive Exchange.

The required information is now transferred from LN to Automotive Exchange and the shipping documents are compliant with the Portuguese law.

XML tax declaration enhancements

The initialization of the XML file in the Tax Declaration Master is now supported for VAT in Portugal. With the initialized Tax Declaration Master, an XML file is created in the tax declaration in LN Financials.

If the total VAT must be reimbursed, i.e. if the tag **reembolso** > 0, then details for the supplier annex that correspond to the summary of the invoices declared in the declaration box numbers 20, 21, 23, and 24, are also exported to the output XML file.

Customer operations are not included and must be added manually on the Tax Authority website before the declaration is submitted. Also, details for regularization annexes that correspond to box numbers 40 and 41 must also be added manually if they exist.

Romania

Romania is now available as a country in LN. Various Romanian requirements are supported.

Master data

LN supports entry of organization numbers and VAT registration numbers for the company, suppliers, and customers according to the format and control methods applicable for Romania. Tax ID format: 2 to 10 digits; the last digit is a check digit.

Country specific reporting

With the report designer, you can personalize these reports to fit your business or local regulatory requirements:

- Romanian trial balances

- Trial balances of non-finalized transactions
- Trial balances for two-dimension types

General ledger

These features are supported:

- National chart of accounts structure: the first 3 characters represent the legal chart of account
- Inventory trial balance
- Multiple taxonomies
- Intercompany with trade and logistics
- Debit/credit handling
- Periodic revaluation of open balances in foreign currencies to account for unrealized currency gains or losses
- A standard general ledger interface to upload transactions from spreadsheet files or other legacy systems, either once or on a periodic basis
- Printing of trial balances by account and/or dimension
- External integration to export financial documents, general ledger balances and general ledger movements
- Multiple accounting dimensions
- Chess master ledger
- Year and period closing routines

Cash management

The IBAN bank format is supported.

Petty cash handling

Print cash register is supported.

Payment transfers

These formats are supported:

- MT103 format
- MT100 format

Tax management

These features are supported:

- VAT declaration: Requirements through configuration
- VAT reporting: Sales Journal (“Jurnal de Vanzari”) and Purchase Journal (“Jurnal de cumparari”)
- VAT payments in advance
- Intrastat statement (XML)
- Sales / purchase listing
- D300 (XML)
- D390 (XML)

- D394 (XML)

Sales invoicing

The Sales Invoice template can be used as is or customized to each specific format. For invoices sent with advanced electronic signatures, it is mandatory to use qualified, certificated, and secure-signature-creation devices, as per Law No 455/2001 on electronic signatures.

Fixed assets

These features are supported:

- Classification codes for Romania
- Additional transfers
- Inventory lists
- Fixed asset transfer note
- Printing of inventory list
- Straight and declining operational depreciations and automatic changes
- Different base values for depreciation
- Parallel depreciation methods
- Printing of historical values and other reports

Current assets

These features are supported:

- The valuation of inventory at the lower of cost or net realizable value (NRV)
- Other valuation methods for inventory, which include FIFO, LIFO, Moving Average Unit Cost (MAUC), Lot costing, and Standard cost
- As an EU member state, listed companies in Romania report under IFRS rules and value their inventory and work in progress according to IAS 2

Receipt order (incoming) form

The “NIR (Nota de Intrare Receptie)” document for purchasing is supported. This document is printed for each item received for purchase orders.

Inventory transfer report

These documents are supported:

- Raw materials document – “Bon de consum”
- Finished goods document – “Bon de predare”
- Inventory transfer between warehouses document – “Bon de transfer”

Sales transport document

The Packing slip / Delivery Note (Aviz de insotire a marfii) document shows details on transported goods, including the transfer of goods between two locations. It includes various details, such as information about sales, subcontractors, rentals, and repairs.

Intrastat (ILS Tstat)

The Infor Localizations Services Platform document flow for LCL_TStat4_TradeStatistics is now used to transform the Intrastat XML document that is generated from LN to a proprietary message that can be processed and accepted by the Romanian government. This process automates the Intrastat generation and converts the Intrastat XML file generated by LN into a SyncLCLTradeStatistics BOD.

In case of a goods transport transaction between Romania and another EU member state, an Intrastat transaction record is created in the **Intrastat Transactions (tccom7171m000)** session. This transaction can be processed in the **Process Intrastat Transactions (tccom7271m000)** session.

From the LCL_TStat4_TradeStatistics document flow, these activities are triggered:

- Detection: Specific values are verified, such as Country of Origin, Number of Declarations, and Declaration Period.
- Validation: Because the LCL_TStat4_TradeStatistics document flow is enabled for several countries, the validation mapping is used to route the data to Romania and apply the correct transformation process.
- Transformation: The Intrastat XML file is transformed into a Sync.LCLTradeStatistics BOD, which is converted to a Proprietary Intrastat BOD that is accepted by the Romanian government.

Saudi Arabia

E-invoicing (phase 1)

Phase 1 of the e-invoice (Fatoorah) for Saudi Arabia is now supported. LN has been found compliant by the Zakat, Tax and Customs Authority, that has included Infor Saudi Arabia among the solution providers that have passed the qualification process.

During phase 1, no XML is required, but an e-invoice must include all required fields, as defined in Article 53 (5,8) of the VAT Implementing Regulations.

The LN Report Designer tool already supports the generation of invoices with all details that are required by the authorities. Now, these enhancements have also been made:

- A Saudi Arabia country parameter has been added to activate the QR code expression `r.qr.code.text`, which can be included in the invoice reports using Report Designer.
- The input field `r.in.idat`, including the time value, is now available in the Classic Invoice report.

Slovenia

In LN, these features are now supported for the Republic of Slovenia:

- Tax reporting, including VAT declaration, received and issued invoices, recapitulative statement, and PD-O
- Advance invoicing

Note: These features are applicable only if Slovenia is activated as a country in the **Implemented Software Components (tccom0500m000)** session.

Tax reporting

Tax reporting includes the configuration, aggregation, and cross-checking of the tax data required by the Financial Administration of the Republic of Slovenia (FURS). These obligatory reports can be generated:

- VAT Declaration Report (DDV-O)
- Register of Received Invoices
- Register of Issued Invoices
- Recapitulative Statement
- Reporting on the supplies pursuant to article 76A of the ZDDV-1 (PD-O)

The generated reports are available in the legal file format, ASCII or XML, and are ready to be uploaded to the tax authority using the eDavki webportal.

To cover the Slovenian legal requirements, the tax declaration and sales listing functionalities have been enhanced with several features:

- New localized sessions to print detailed reports that are required, for example, to calculate the aggregated declaration amounts to be submitted to the FURS. These sessions have been added:
 - **Print Register of Received Invoices EV-RI (PR) (lpsvn1401m100)**
 - **Print Register of Issued Invoices EV-II (IRS) (lpsvn1401m200)**
 - **Print Recapitulative statement (RP-O) (lpsvn1403m000)**
 - **Print Supply Statement (Article 76a) (lpsvn1402m000)**
- Tax Positions concept, which is used to calculate amounts in additional VAT reports. You must maintain the **Tax Position Mapping in VAT Reporting (lpsvn1501m000)** session and the **Tax Declaration Master (tfgld1620m000)** session.
- Ability to verify data in the **Tax Declaration (tfgld1625m100)** session before submission.
- **Consignment Transactions for Recapitulative Statement (lpsvn1503m000)** session, which is used to manually specify consignment-transaction data that must be printed in the Recapitulative Statement report, in sections C, D, E, F and G. Data for sections A and B of the Recapitulative Statement is collected from the Sales Listing transactions.
- New iCode values for the Slovenian sales listing reports Exempt Supplies (CP42/CP63) and Consignment Invoiced.
- **Supply Statement (Article 76a) Corrections (lpsvn1502m000)** session, which is used to create VAT correction transactions for section B of the Supply Statement (Article 76a) report (PD-O Form) as printed in the **Print Supply Statement (Article 76a) (lpsvn1402m000)** session.

Note: The tax reporting functionalities for the Republic of Slovenia are applicable only if the declaration country is Slovenia.

Advance invoicing

In the Republic of Slovenia, advance payments may be negotiated in sales contracts. The pro forma invoicing functionality can be used to generate a sales offer including the agreed payment terms information.

If an advance payment is received, the legal advance invoice must be issued by the supplier. This invoice must include VAT if the goods invoice is not issued in the same tax period. This is because the VAT amount on received advances must be declared in a VAT declaration in the tax period of the issued advance invoice.

These sessions have been added:

- **Generate Advance Invoices (lpsvn2201m000)** - can be used to select advance receipt documents for advance invoicing.
- **Advance Invoices (lpsvn2501m000)** - can be used to maintain the advance invoice data.
- **Print Advance Invoices (lpsvn2401m000)** - can be used to print the Advance Invoice report.
- **Delete/Archive Advance Invoices (lpsvn2201m900)**

When a final delivery invoice is issued and an advance receipt is assigned to a sales invoice, the VAT on the advance amount that was declared in a previous tax period must be deducted from the VAT amount to be paid in the tax period of the final delivery invoice. The information is stored in the related pro forma invoice lines.

Additionally, the localized functionality enables you to compose and print an advance invoice based on the posted advance receipt financial document.

In the **Slovenian Localization Parameters (lpsvn0500m000)** session, you can set the **Generate New Advance Invoice Number** and **All Advance Receipts must be Invoiced** parameters.

Spain

SII update

New checks have been implemented to consider the new validations from the Spanish Tax Authority (AEAT) effective since October 2019.

SII legal changes

On June 30, 2020, the Spanish Tax Authority published a document with the new validations for SII. The validations came into effect on January 4, 2021, and are intended to improve the quality of the information provided.

To comply with the legal requirements and to prevent the rejection of the SII file by the tax authority, LN now considers the new validations during these actions:

- When the SII records are selected in the **Select SII Transactions (lpsp2206m000)** session
- When SII transactions are manually changed in the **SII Purchase and Sales Transactions (lpsp2106m000)** session
- When the XML is generated in the **Generate XML Files (lpsp2208m000)** session

If validation is not passed during any of these stages, you must correct the data before the file can be created.

The legal document also includes the introduction of a new SII book for Intracommunity Consignment Operations (LRVC). In LN, these consignment types are supported:

- Consignment Owned: The administrative warehouse is replenished through a sales order or sales schedule transfer for which payment is set to **Pay on Use**. Customer consumptions are registered in the **Inventory Consumptions (tdsls4140m000)** session.
- Consignment not Owned: The own warehouse is replenished through a purchase order or purchase schedule for which payment is set to **Pay on Use**. Consumptions can be triggered by any transaction, which results in a payable receipt or purchase order of type **Payment**.

Note: Both consignment types are not restricted to warehouses of type consignment owned or not owned.

If the localization parameter for Spain is selected in the **Implemented Software Components (tccom0500m000)** session for the financial company of the own warehouse, the replenishment and consumption transactions are published to the Localization (lp) package when the transaction happens. The own warehouse is the replenishment warehouse in case of consignment not owned, and the ship-from warehouse in case of consignment owned. In the Localization package, the data can be used to generate the required XML message.

The transactions are registered only if these conditions are met:

- A VAT number has been registered for the sold-to and buy-from business partner.
- The tax country of the sold-to and buy-from business partner are the same as the ship-to and ship-from country.
- Goods move physically between Spain and another EU country.

Transactions are registered with a quantity in the inventory unit. The amount must be expressed in euros. In LN, the local currency of the own warehouse is used. Because this is a Spanish warehouse, this local currency must be euro. Conversion is done with the internal rate type (value in EUR from a Spanish company perspective).

If you use the old LN order types for consignment handling, that is, consignment replenishment, consignment invoicing, and consignment payment, the related SII consignment messages cannot be generated automatically in a consignment owned (sales) scenario. The messages cannot be generated for these reasons:

- At the moment of replenishment, the sales amount is not known. The amount always is zero on the order line for orders of type consignment replenishment.
- At the moment of consumption, the reference to the original replenishment is not known in LN. However, this reference is required to determine whether the consumption must be registered and to determine the original registration ID and transaction data, which are both elements of the message.

Using these specific order types is not blocked, but the replenishment and consumption message must be created manually. Therefore, we recommend that you do not use these specific consignment-related order types for consignment owned scenarios. Instead, use normal order types for which payment is set to **Pay on Use**. For this new type of consignment handling, the SII consignment messages are created automatically. This restriction does not apply to consignment not owned scenarios.

The SII ICT sales and purchase transactions can be verified in the **SII for ICT Sales & Purchase Consignment (lpesp2136m000)** session.

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SII enhancements

A setup option has been added to identify the purchase invoices linked to an asset (Bien de Inversión). For a specified tax code, you can now select the **Fixed Asset** check box in the **Exceptions by Tax Code (lpesp0102m000)** session. When the tax code is used in a purchase invoice, the field is retrieved correctly in the **SII Purchase & Sales Transaction Details (lpesp2116m000)** session and the tag `<sii: BienInversion>` under `<sii: DetalleIVA>` is included when the XML file is generated.

The **Blocked** check box has been added to the **Codes by Transaction Type (lpesp0101m000)** session. This check box is used to automatically block a transaction before it is submitted to the Tax Authority. This to enable manual actions before submission. If the check box is selected, the transaction is selected by the **Select SII Transactions (lpesp2206m000)** session and included in the **SII Transactions for Purchase (LRFR) & Sales (LRFE) (lpesp2606m000)** session with the **Blocked (lpesp206.bloc)** check box selected.

Basque e-invoicing TBAI

For Infor customers who report to one of the Basque Tax Agencies, communication of TicketBAI invoice files is now available for LN. The communication uses the Infor Localization Services Platform (LSP) to generate the TicketBAI invoice xml file, sign it, generate the identifier and QR code, communicate it to the tax authorities, and return the outcome of the communication to LN.

LN setup

- The localization for Spain must be activated in the **Implemented Software Components (tccom0500m000)** session.
- The **Electronic Invoicing** parameter must be activated in the **Spanish Parameters (lpesp0100m000)** session.
- **Use External Invoicing System** must be selected for the invoicing method in the **Invoicing Methods (tcmcs0555m000)** session.

LSP setup

In the **Tax Reporting Translation Maintenance** screen of LSP, specify the tax reporting translation for the tax codes that are used on the LN sales invoices. With this mapping, LSP can convert the LN tax codes that are received on the Invoice BOD to the standard codes used in TicketBAI. You must also specify, and specifically for non-domestic tax codes, whether the tax code relates to services.

Process

- 1 After a billable line is composed in the **Invoicing (cisli3600m000)** session, the invoice can be submitted to the external system, through **Actions** on the **Invoice** tab. An invoice BOD is then sent to LSP.
- 2 After receipt of the invoice BOD, LSP verifies whether a TicketBAI invoice xml can be created. LSP verifies whether it can map the tax code to one of the standard tax codes and whether the required information exists on the BOD. If the TicketBAI xml cannot be generated, this information is sent to LN, which changes the invoice status to Rejected by External System. In this situation, printing cannot proceed unless the error is corrected and the corrected BOD is resent to LSP.
- 3 When LSP has managed to generate the TicketBAI invoice, it signs the invoice and generates the TicketBAI identifier and QR code, which are sent to LN where the invoice can be printed with these elements. Note that these input fields must be added to the invoice report using Report Designer so that they are visible on the printed invoice.
- 4 After the QR code and TicketBAI identifier are forwarded to LN, LSP attempts to communicate the TicketBAI xml to the tax agency. This does not affect the printing process, because printing can be performed already after signing the TicketBAI invoice xml in LSP. The outcome of the communication

along with any error messages is displayed in the **Electronic Invoice Information by Document (lpep0111m000)** session.

Limitations

These limitations apply to the process:

- Credit notes without a linked original invoice are communicated as negative sales invoices to the tax agency and not as rectification invoices. This is because it is mandatory to identify the original invoice on the TicketBAI schema.
- The TicketBAI field **Clave for Regimen especial** has a default value of 01 (General), except if the customer is outside the EU. In this case, the field is set to 02 (Export). Other special tax regimes are currently not supported.
- To modify a TicketBAI invoice file that is signed but rejected by the Administration, a different webservice called Zuzendu must be used. This service is not yet supported.

Sales consignment in Modelo 349

Previously, the registration of intracommunity consignment operations via SII could be performed in the **SII for ICT Sales & Purchase Consignment (lpep2136m000)** session.

Now, consignment operations are also included in the Modelo 349 output file if the **Process Intracommunity Listing (tccom7270m000)** session is run for declaration country **Spain** and option **ASCII - Spain**.

Note: Exporting consignment operations in Modelo 349 only occurs for SII consignment records with an operation type of 01 (Shipment), 02 (Substitution), or 07 (Replenishment Return), and a status of **Accepted**.

Accepted corrections specified for SII records are also considered on the output file. However, registration of corrections specifically related to Modelo 349 consignment operations is not supported.

Switzerland

Paynet Six PDF in XML

LN can now be extended with functionality to generate an e-invoice XML file for Paynet Six in Switzerland. LN publishes the InvoiceBOD and an ION mapper can be created to map the data of the InvoiceBOD to the required e-invoice XML file format. The base64 encoded invoice PDF can be included in the e-invoice XML file.

These enhancements have been made in LN:

- Document Output Management (DOM) has new functionality to generate the InvoiceBOD from the document rendering and distribution in DOM.
- The InvoiceBOD has new functionality to include the base64 encoded invoice PDF if the InvoiceBOD is published from the document rendering and distribution in DOM.

These enhancements simplify the creation of an extension for this e-invoicing method. See KB Article [2141567](#) on the Infor Support Portal for more details.

QR-bill

Since 30 June 2020, QR-bills have replaced the Swiss red and orange payment slips. From this date, companies must be able to process payments for QR-bills.

For QR-bills, these options are available:

- QR-IBAN with QR reference
- IBAN with ISO creditor reference
- IBAN without reference

For invoicing, there is a transition phase (until 2022) with parallel use of the QR invoice and payment receipts. The end date for the cessation of payment slips is not yet known.

QR codes on sales invoices

To comply with the legal QR-billing requirement in Switzerland, LN now prints the QR-billing slip for sales invoices.

To use this functionality, these conditions must be met:

- The localization parameter for Switzerland is selected for the company in the **Implemented Software Components (tccom0500m000)** session.
- QR-billing is applicable for the invoice-to business partner in the **Invoice-to Business Partner (tccom4112s000)** session.
- QR-billing is applicable for the currency in the **Additional Currency Features (tfgld0129m000)** session.
- QR-billing is applicable for the own bank in the **Bank Relation (tfcmg0510m000)** session.

Note: Before you can print the Swiss QR invoice, you must complete the steps in KB Article [2028708](#).

Localization Services GEMS – Banking

The integration between LN and Infor Localization Services GEMS – Banking has been extended.

Supplier payments in Swiss pain.001.001.03 format are now supported.

Thailand

Thailand is now available as a country in LN. Various Thai requirements are supported.

Master data

These features are supported:

- Parameters for Thailand, such as Branch Code, Branch Name (establishment code and name), and Withholding Certificate Series.
- Session for Income Types for Withholding Reporting, in which a relationship between the tax position and type of income can be specified. The type of income determines the print position in the withholding tax certificate.

Country specific reporting

With the report designer, you can personalize these reports to fit your business or local regulatory requirements:

- Tax Invoice
- Credit Note
- Debit Note
- Sales Tax Report
- Purchase Tax Report

Withholding Tax (WHT) certificate

These features are supported:

- Printing of WHT certificates per payment document per payment advice batch, with the amounts grouped based on income types. Certificates differ for individual and corporate tax, for example, PND3 and PND53.
- Generation of monthly and yearly WHT reports.
- Withholding certificate PND54 to print withholding tax profit remittances. This report handles the reporting of WHT payments related to section 70 and section 70 BIS of the Thai tax department.

Free trade zone - inventory movement tracking

Goods that move in and out of a free trade zone (FTZ) can be recorded with a reference to the import bill of entry.

The **Import Reference Number** and **Date** fields have been added to warehouse receipts, inventory adjustment, and cycle counting sessions. The import entry bill and date can be specified in these sessions. Additionally, in the shipment session, the shipping bill number and date can now be specified.

When a receipt transaction takes place, receipt details are recorded against the import reference number in the new **Import Reference Receipts** table for Thailand. When a shipment takes place, shipment details are recorded against the export reference number in the **Consumptions** table. Based on the setup in the Thai parameters, the consumed quantity from receipts is reduced either on a FIFO or LIFO basis.

USA and Canada

Vertex

Vertex O Series 9 is now supported in LN.

Vietnam

Vietnam is now available as a country in LN.

Country specific reporting

With the report designer, you can personalize these reports to fit your business or local regulatory requirements:

- Chart of Accounts
- General Ledger Level 1
- General Ledger Level 2
- Trial Balance
- Balance Sheet
- Income Statement
- Cash Flow
- Sales Register
- Purchase Register
- Tax Invoice

Various countries

These countries have been added to the list of certified countries in LN:

- Algeria
- Botswana
- Egypt
- Estonia
- Honduras
- Iraq
- Jordan
- Kuwait
- Latvia
- Lebanon
- Malta
- Morocco
- Namibia
- Nicaragua
- Nigeria
- Oman
- Panama
- Qatar
- Suriname
- Tanzania
- Zimbabwe

For these countries, no separate localizations have been added in LN, but the flexible Finance package including tax management and central invoicing can be configured or used to accommodate compliance in these countries.

These requirement types are considered:

- Legal requirements
- Business practices

Note:

We cannot guarantee that we meet all requirements for a country. LN can support compliance with the requirements for the targeted industries in the respective CloudSuites.

Aggregate tax

Aggregate tax is existing functionality for which several tax codes can be linked to an aggregate tax code. This results in taxable transactions with tax codes linked to the aggregate tax code. This functionality is available for all countries.

These improvements have been made to the aggregate tax functionality:

- Aggregate tax codes can be used for debit and credit notes
- Indirect tax codes can be linked to an aggregate tax code
- Aggregate tax code with **Tax on Separate Invoice** is enabled
- Aggregate tax codes can be used in tax handling if extended tax configuration is active

Global classification schemes - Sales

Regulations in many countries require all taxable transactions to be classified during reporting. Commonly used classification schemes are the Harmonized (HS) code and United Nations Standard Products and Services Code (UNSPSC), but other schemes are also in use.

Classification schemes include taxonomy of goods and services. They enable sellers and buyers to describe goods and services in a common way.

The classification-scheme solution provides a framework for specifying more than one classification scheme and mapping transaction attributes to a classification scheme code. Classification scheme and scheme codes are supported for all outgoing transactions that result in billable lines.

Invoicing improvements

These invoicing improvements have been made for all countries:

XML invoicing - extensibility

For XML invoicing, you can now map and use custom data elements with process extensions. With process extensions, you can specify custom data elements and use these custom data elements when creating the XML invoice.

This functionality supports the extension of the XML invoice with custom- and country-specific data elements.

XML invoicing - language

You can now configure the language in which the XML invoice is created. You can specify the **Data Language** in the **XML Invoice Layouts (cisl1151m000)** session. These data-language options are available:

- User Language (default)
- Printed Invoice Language

If the data language is set to **Printed Invoice Language**, when printing the invoice, the XML invoice is generated in the same data language as the language of the printed invoice. This applies to language-dependent components, such as texts.

Delivery notes

For all source types, delivery notes can now be used as a selection criterion for batch processing in Invoicing. Previously, this selection was available only for billable lines from Sales. Consequently, the Delivery Notes selection has been moved to the **Common Selection Criteria** group of the **Invoicing Batch Templates (cisl1125m000)** and **Invoicing Batches (cisl2100m000)** sessions.

Transaction type defaults

If extended registration management is active, transaction type defaults can now be specified by registration code. To set this up, the use of registration codes must be enabled in the **Search Priorities (cisl0130m000)** session. Next, you can specify transaction type defaults by registration code in the **Transaction Type Defaults (cisl1170m100)** session.

Chapter 22: Language availability

Translations of LN have been added for these languages:

- European Portuguese (PT-PT)
- Finnish (FI)
- Hungarian (HU)
- Korean (KO)
- Romanian (RO)
- Swedish (SV)
- Thai (TH)
- Turkish (TR)
- Ukrainian (UA)
- Vietnamese (VI)