BaanERP Configurator Line Assembly Control

Release Notes (Service Pack 5.0)

Miscellaneous P3333A US

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Table of contents

About this document

This document describes the business procedures that are going to be delivered with LAC SP5.0 release.

1.Introduction

1.1 Purpose of the document

This document reveals the changed and added functionality, together with the conversion instructions for the CF LAC SP5 delivery.

1.2 Scope

This document is applicable for the CF SP5 delivery for B51a.

1.3 References

Not applicable.

1.4 Definitions, acronyms and abbreviations

Term	Description
AP	Assembly Part
CF	Configurator
ERP	Enterprise Resource Planning
LAC	Line Assembly Configuration
LSO	Line Station Order
LSV	Line Station Variants
MRP	Manufacturing Resource Planning
OC	Option Combination or Option expression
VB	Visual Basic
XML	Extended Markup Language

1.5 Document reading guide

Not Applicable

2 New and changed assembly functionality

2.1 CF Tools

This LAC SP5 runs with CF Tools 2.1 build 59, which can be obtained via the same Scopus Solution #121042.

2.2 Conceptual enhancements

In this section a short description will be given for the conceptual enhancements included in SP5. Detailed information is described in the referred documents.

2.2.1 Refresh Assembly Orders based on new Line Structure

Once assembly is started on an Assembly Line changes to the Assembly Line are required. For example line stations are removed or added due to preventive maintenance. Once a Line Station is replaced by another Line Station existing Assembly Orders should be refreshed.

Until SP4, replacing Stations in LAC was possible but not within the Assembly Order Time Fence. This enhancement solves this issue.

For a full description see document CS_Refresh_Assembly_Orders_based_on_new_Line_Structure.pdf enclosed in the .ZIP file.

2.2.2 Adjust Assembly Part Requirements

Within the Assembly execution module, issuing requirements from the warehouse to WIP is only possible via backflushing. Until the parts are back-flushed, it is possible to modify the Assembly Order content via the Order Specific Line Station Variants. There are several reasons why the user still wants to modify the requirements even after they are back-flushed. Until SP4 there was no functionality that supported issue or return Assembly Parts to/from the warehouse after backflushing. This has been solved now.

For a full description see document Adjust Assembly Part Requirements (see CS_Adjust_Assembly_Part_Requirements.pdf)

2.2.3 Line Supply Low Volume

The Line Supply concept supported by Baan until SP4 was too strict for the low volume market. The reason for this is mainly the long assembly lead times. In the target market the cycle time on a line station is on an average between 5 till 20 minutes whereas the cycle time in low volume markets is between one and several days. This has impact on timings when the assembly parts are required at the assembly line.

Low Volume requirements:

- No Frozen Time Fence
- Update of (partial) received messages

No Frozen Time Fence means in fact that the changes in the productions bills should be communicated to the suppliers as late as possible.

This issue has been resolved now.

For a full description see document CS_Line_Supply_Low_Volume.pdf enclosed in the .ZIP file.

2.3 Functionality changes

In this section a short description will be given for the functionality changes. Detailed information is described in the referred documents.

2.3.1 Assembly Line Status

Following classes were changed:

1. AssemblyLine
   - Property AssyLineStatus (NotValid/Valid/Replicated) has been added.
   - Enabling/disabling takes into account this new property AssyLineStatus.
2. SegmentWC
   - No change allowed for valid/replicated lines within Freeze Time Fence.
   - If you change the assembly line structure outside Freeze Time Fence, the AssyLineStatus is set to NotValid for that AssemblyLine and its Assembly Lines supplied.
3. LineSegment data manipulation
   - NextAssemblyLine and LineSegment can not be changed if segment is part of line structure in use on Product Variant.
4. Validate line
   - After validation of the line structure AssyLineStatus is set to Valid for the Roll-off Line and its supplying lines.
5. Replicate line
   - Replication is not possible if AssemblyLineStatus is not Valid.
   - Set AssemblyLineStatus to Replicated after replication for Roll-off Line and its supplying lines.
6. Assembly Order Creation/Freeze
   - Only process Product Variants with replicated Roll-Off Line (Roll-Off Line that has AssemblyLineStatus = Replicated).
7. Engineering Driven Refresh
   - Abort Engineering Driven Refresh if one of the Roll-off Lines of the Product Variants is not replicated (Assembly Line of Product Variant has AssemblyLineStatus = Replicated).
8. URepAssemblyLn

- PrintSpecificReport for ReportLineStruc has been updated: property AssyLineStatus of AssemblyLine is printed now as well

2.3.2 Allocation Time Fence

The logic to select Line Station Orders for the allocation process has been changed. Until SP4 the Planned Offline Date of the assembly order had to be before the allocation time fence; otherwise the Line Station Order was not taken into account. This implied that for orders having a long lead time you need a long allocation time fence, otherwise the Line Station Orders are not taken into account.
We changed this as follows. The allocation process takes those orders for which the Planned Start Time of all its Line Station Orders on a certain Assembly Line is within the Allocation Time Fence. This way the Allocation Time Fence can be shorter if you have long lead times.

2.3.3 Messages

Sometimes a message is too long (greater than 255) for the message string. Therefore a MessageText is added to the message. The complete error or warning message is saved in this MessageText, while the first 255 characters is in the message string.

When opening an error message in the object browser the MessageText can be read after pressing the button 'Text'.

2.3.4 Ranges

From-To ranges are added for the following business procedures:

- Calculate Option Forecast (ProductFrom-ProductTo)
- Create Pseudo orders (ProductFrom-ProductTo)
- Purge Product Variants (AssemblyLnFrom-AssemblyLnTo)
- Calculate Option Expression Restrictions (AssemblyLnFrom-AssemblyLnTo)
- Calculate Option Expression Requirements (AssemblyLnFrom-AssemblyLnTo)
- CheckATP (ChannelFrom-ChannelTo)

Furthermore, the UI of all From-To ranges is made (almost) similar to BaanERP:

- If From is set than To is made equal to From
- If From is cleared To is set to the default value (which is often ZZZZZZ....)
- From is not mandatory, To is mandatory
- The association for From and To are not mandatory

2.3.5 Costing improvements

There were problems with respect to logging of Financial Transactions during Business Processes Closing of Orders, Closing of Lines, Backflushing Requirements and Completion of Orders in Assembly Control.

Below topics were covered and resolved in this release.

2.3.5.1 Work In process (WIP) Transfer bookings to the Calculation Office of the Assembly Order

Work In process (WIP) Transfer bookings to the Calculation Office of the Assembly Order were not logged at all.

WIP Transfer Bookings to the Calculation office of the Assembly Order are generated during Completion of Assembly Order on the last Line Station of that Roll Off Line. WIP Transfer Issue transactions are generated for the Roll Off Assembly Order on last Station of the Roll Off Line.

WIP Estimates are retrieved for the Assembly Order and that Roll Off Line and are used to log **WIP Transfer Issue** transactions on the last Station of the Roll Off Line. This WIP Transfer Issue transactions for the Roll Off Line Assembly Order are logged in Financial Transactions in BaanERP Assembly Control as well as in BaanERP Finance package.

The **WIP Transfer Receipt** Transactions are also booked from the last Station of the Roll Off Line Order to the Calculation Office of the Assembly Order. The Effective Aggregated Cost Component Structure of the Item is retrieved from CPR. While logging the WIP Transfer Receipt bookings to Calculation Office of the Assembly Order, the 'From' side of the Cost Component is always according to the Cost components defined in WIP Estimates, whereas the 'To' side of the Cost Component is always equal the Effective aggregated material cost Component of the Generic Item of the Assembly Order. So the 'To' side of WIP Transfer Receipt bookings (Credit side) is always equal to aggregated material cost component of the Generic Item of that Assembly Order. The Assembly Line is not filled in Financial Transactions in Assembly Control for this WIP Transfer Booking.

The Transaction Date in Financial Transactions for both the above WIP Transfer bookings is always equal to current date when Completing the Assembly Order on last Station of the Roll Off Assembly Line.

When the Assembly Order is 'Uncompleted' and completed again, WIP Transfer Issue and WIP Transfer Receipt Transactions to the Calculation Office of the Assembly Order are NOT logged again in Financial Transactions.

2.3.5.2 Wrong value of Assembly Line Filled in Financial Transactions in Assembly Control

The value of Assembly Line is **not filled** when below Financial Transactions are logged.

1) WIP Transfer Receipt bookings to the Calculation Office of the Assembly Order when completing the Assembly Order on the last Station of the Roll Off Line.

2) Item Surcharge Receipt bookings to the Calculation Office of the Assembly Order when completing the Assembly Order on the last Station of the Roll Off Line.

3) Additional Calculation Variance Results are logged when the Roll Off Assembly

Order is closed during Close Assembly Orders.

The Assembly Line is not filled to identify whether the WIP Transfer bookings were done between Supplying Lines or were done for the Roll Off Line for the Assembly Order.

2.3.5.3 Wrong value of Line Station values Filled in Financial Transactions in Assembly Control

The value of Line Station is always filled in Financial Transactions. During WIP Transfer Issue bookings, Line Station is always equal to the last Station on the Assembly Line where transactions were generated. During WIP Transfer Receipt bookings to the Calculation Office of the Assembly Order, the value of line Station is always equal to the Calculation Office of the Assembly Order.

Table below will give more information about the Assembly Line and line Station values filled in Financial Transactions for various 'Financial Transaction Types'.

Transaction Origin	Financial Transaction	Entity From	Entity To	Assembly Line	Line Station
ASC Production	Issue	Warehouse	Line Station	Yes	Entity To
ASC Production	Issue (Invoiced)	Warehouse	Line Station	Yes	Entity To
ASC Production	Operation Costs	Line Station	Line Station	Yes	Entity To
ASC Production	Line Surcharges	Line Station	Line Station	Yes	Entity To
ASC Production	Production Result	Line Station	Line Station	Yes	Entity To
ASC Production	WIP Transfer Issue	Line Station (Assembly Line From)	Line Station (Assembly Line From)	Yes	Entity To
ASC Production	WIP Transfer Issue (Invoiced)	Line Station (Assembly Line From)	Line Station (Assembly Line From)	Yes	Entity To
ASC Production	WIP Transfer Receipt	Line Station (Assembly Line From)	Line Station (Assembly Line To)	Yes	Entity To
ASC Production	WIP Transfer Receipt (Invoiced)	Line Station (Assembly Line To)	Line Station (Assembly Line To)	Yes	Entity To
ASC Production	WIP Transfer Receipt	Line Station (Assembly Line From)	Calculation Office	No	Entity To
ASC Production	WIP Transfer Receipt (Invoiced)	Line Station (Assembly Line To)	Calculation Office	No	Entity To
ASC Production	Issue (Direct Receipt)	Purchase Office	Line Station	Yes	Entity To
ASC Production	Add. Calc. Office Result	Calculation Office	Calculation Office	No	Entity To
ASC Production	Item Surcharge (Receipt)	Calculation Office	Calculation Office	No	Entity To
ASC Production	FTP Result	Warehouse	Line Station	Yes	Entity To
ASC Production	FTP Result (Direct Receipt)	Purchase Office	Line Station	Yes	Entity To

2.3.5.4 Wrong Production Results calculated during Close Lines/Orders

Production Results were not calculated correctly during Closing Orders / Lines in Assembly Control. The formulae for calculating Production Results is as follows:

Production Results = ESTIMATES – ACTUALS – Already logged Production Results.

That is:

Production Results = (WIP Estimates) – (Operation Costs + Issue + WIP Transfer Receipt (assembly line is filled) – Line Surcharges) – Already Logged Production Results.

Item Surcharges Receipt, WIP Transfer Receipt bookings to the Calculation Office of the Assembly Order and Additional Calculation variance are NOT included in the Production Results. Additional Calculation variance bookings are done to the Calculation Office of the Assembly Order. Production Results are always logged against the last Station of the Assembly Line.

Additional Calculation variance results = WIP Transfer Receipt bookings to Calculation Office of Assembly Order + Item Surcharge Receipt bookings to Calculation Office of Assembly Order.

The debit side ('To Side') of the Additional Calculation variance and the 'From' side bookings can have Aggregated Material Cost Component of the Generic Item of the Assembly Order or aggregated surcharge cost component as well. The Assembly Line is **not filled** when Additional Calculation variance results are booked on Calculation Office of the Assembly Order.

2.3.5.5 Logging of Item Surcharge Receipt Transactions for the Generic Item in ASC was not happening at all

Item Surcharge Receipt Transactions are logged when the Assembly Order is completed on the last Station of the Roll Off Assembly Line. The Added and Total Costs from WIP Estimates of the Assembly Order are sent to CPR and valuation Item Surcharges of Type 'Receipt' are calculated. The 'To' side of the Item Surcharge Receipt Transaction is always equal to the Effective Aggregated Material Cost Component of the Generic Item defined in Item Base Data. The Transaction date for this Financial Transaction in Assembly Control is always equal to current date when Completing the Assembly Order on last Station of the Roll Off Line. When the Assembly Order is 'Uncompleted' and completed again, Item Surcharge Receipt Transactions are NOT logged again in Financial Transactions.

2.3.5.6 Logging of Line Surcharges during Closing Lines / Orders.

During Calculation of Line Surcharges, the Added and Total Costs retrieved from financial transactions logged are sent to CPR to calculate the new Assembly Line Surcharges. Recalculate the Line Surcharges for the Assembly Order by deducting them from already logged Line surcharges for the same Assembly Order. The delta changes in Recalculated Line Surcharges for that Assembly Order are then logged in Financial Transactions in Assembly Control. These recalculated Line Surcharges are then considered when calculating new Production Results. This procedure of recalculating Line Surcharges and Production results should always be done when Assembly Order is Closed, then Reopened and Closed again.

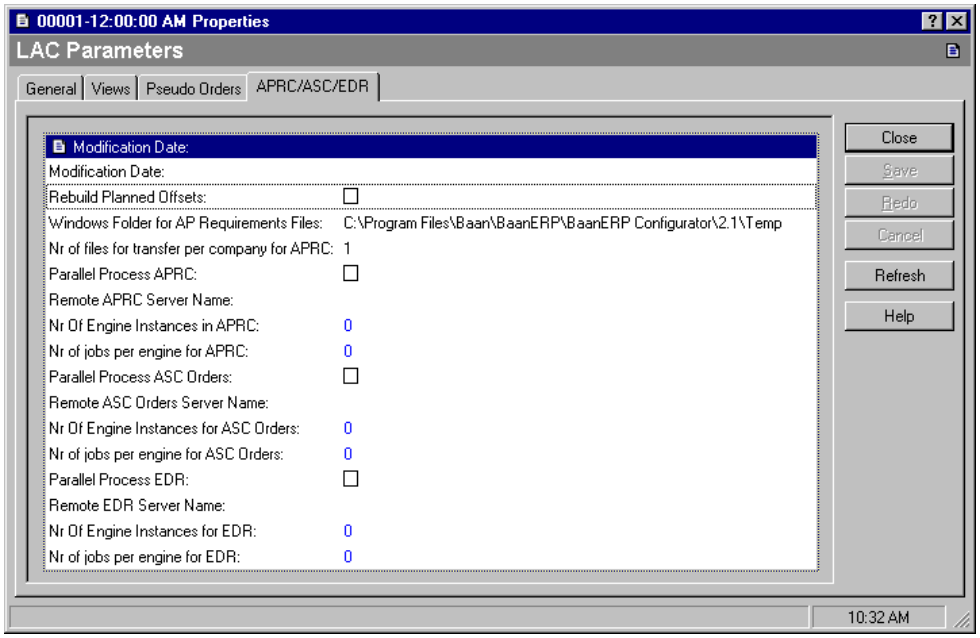
2.4 Other topics

2.4.1 Help

Help has been extended. A new help file is included in the .ZIP file. Besides this for the new and changed sessions for the conceptual enhancement ‘Adjust Assembly Part Requirements’ (see 2.2.1 Refresh Assembly Orders based on new Line Structure, page 4) help has been added. This help can only be viewed in the Baan Help Viewer, not as Windows Help. To see the BaanERP Help you have to run session ttadv5230 (Create Run Time Help).

3 Performance Improvements

3.1 Parallel mode for Engineering Driven Refresh



Parameters for parallel Engineering Driven Refresh (EDR) work exactly like parameters for parallel Assembly Part Requirements Calculation (APRC) and parallel Assembly Order Creation & Freeze (ASC Orders):

- Parallel Process EDR
  Indicates if EDR runs in parallel mode
- Remote EDR Server Name
  Specifies on what machine parallel engines will be started
- Number of Engine Instances for EDR
  Specifies how many parallel engines will be started
- Nr of jobs per engine for EDR
  Specifies in how many jobs the total workload per engine will be split. This is a more technical tuning parameter: if there is a lot of difference in workload per job, many jobs per engine are adviced. If jobsize is small, or the workload per job is always about the same (depends on the data) less jobs per engine are adviced. Again: this is a tuning parameter, that means that the ideal value can only be obtained after some runs.

3.2 Assembly Part Requirements Calculation uses temporary files

Assembly Part Requirements Calculation consists of 4 major blocks:

- Initialization
- Engineering Module Count
- Assembly Part Count
- Enterprise Planning Transfer

Files were already created in the transfer to Enterprise Planning.

Now in parallel mode also in the Assembly Part Count files are created. They are temporary files that contain the Assembly Part Requirements calculated for an engine. If set parameter Nr Of Engine Instances for APRC to 8, then 8 temporary files are created. After merging these files the temporary files are automatically deleted, and the final files to be send to EP are created.

The final files take up less hard disk space than the separate files for all engines: some extra hard disk space should be available for this.

4 Conversion

4.1 Assembly Line Status

Assemblyline table gets new column AssyLineStatus.

Initial value should be 5 (not valid). If initial value is not set, 0 is the default provided by database. This results in errors since checks like "If AssyStatus = NotValid" are not true if database value is zero. That is the reason you have to change this.

4.2 Messages

Because the MessageText is a mandatory property you must delete all messages before you install SP5.