

## Assembly Planner and Shop Floor Viewer Change Log

### 11.37.10.0 – Final v11 Release

#### Released October 22, 2021

- Enhancements
  - Virtual Build
    - Added ability to create Multi Routing Workspaces
  - General
    - Added checks to validate file types and max file size when uploading documents
- Bug Fixes
  - Fixed time out issue within Mass Update
  - Fixed issue where the 3D View Gallery would not refresh after deleting a View
  - Bug fixed to enable 3D View Management buttons
  - Pivot Grid Export Module
    - Fixed error when saving templates as Private vs Public
    - Fixed bug preventing users from removing private templates
    - Fixed bug that carried ownership when saving a new template from existing
    - Fixed error that prompted user to save when no changes were made and failed to prompt user to save when changes were made

### 11.36.0.0

#### Released October 7, 2021

- Enhancements
  - Update to Advanced Search Form to include Work Step Fields
  - Pivot Grid Export Update – now includes Work Step Fields & Time Classification Fields
  - Update to allow users to skip cart-units on a scanner and reflect in Pick Sheet Report
  - Ability to Redline Shop Floor Viewer Images attached to Work Instructions
- Bug Fixes
  - Fixed bug related to Hot Calls – error message now displays when user does not define subject value
  - Break is logged for a user anytime they exit Work Instructions within Shop Floor Viewer
  - Once a user has signed off a unit, they are no longer able to use the back arrow to go back into work instructions – the user must complete a sign on to reactivate work instructions
  - Andon Board shows all units signed on for a user
  - Fact Board messages from Shop Floor Viewer only showing once per machine

### 11.35.30.0

#### Released September 27, 2021

- Enhancements
  - Changed Consumption Workbench advance BOM filter to include Child items matching filter condition for the entire BOM
- Bug Fixes
  - Fix bug that did not correctly publish LB Scenario data
  - Fixed bug that presented an incorrect error message instead of a timeout error message
  - Corrected overlapping layout issue in Pivot Grid Export menu
  - Fixed bug in Operation Report filter that did not filter the list of models that are applicable to the selected Operation/Activities

- Fixed a bug that would not allow you to save an Operation Description if no Operation custom fields were visible
- Fixed bug within the LB Scenario Wizard where the Include All and Exclude All checkboxes were behaving incorrectly
- Fixed bug that did not correctly limit string fields to the correct data length for custom fields
- Fixed bug in SFV that auto scrolled to the bottom of the work step grid

### 11.34.32.1

#### Released September 17, 2021

- Bug Fixes
  - General
    - Resolved error thrown when logging out using SSO
    - Fixed bug that prevented the creation of new users
    - Fixed bug that did not correctly reset password

### 11.34.30.0

#### Released August 24, 2021

- Enhancements
  - Shop Floor Viewer
    - Added a sub table to each work step to display the Parts and Tools associated to the Work Step, fields displayed are configurable
    - Build List can now display a filtered list of Options for each Unit
    - New role privilege capability that allows “expert” operators to automatically sign in and sign off of basic activities
    - New capability to capture images and videos from the SFV activity page and store them against the unit-activity that is signed on to
    - Added new Test Type “Text” which allows text entry to an open field within the activity page and can be validated against text requirements
    - Changed behavior to stop time tracking when users exit the work instruction
  - ECO
    - Display Engineering Item Status within ECO Item tab
  - General
    - Moved Custom Field Save methods to common location for security enhancements
    - Modified URIs within certain methods for security enhancements
    - Added checks on document load for valid file type and max file size
    - Improved component where-used performance and updated the Latest Revision Filtering option to use database max revisions
  - Time Study
    - Modified BMOST and MaxiMOST lookupservice to allow ergonomic technical actions to be returned from the lookup template, and allow user to overwrite within the UI
- Bug Fixes
  - Consumption Workbench
    - Corrected issue where the selection form would not resize correctly within the window
    - Fixed error that was caused by not setting default values within advanced search criteria sheet
  - Time Study
    - Fixed bugs in calculating actions within time standards

- Fixed bug populating task sheet within Observed Time tasks window
- Shop Floor Viewer
  - Fixed a bug that made the parts grid too small when jumping to activities with and without parts
  - Fixed bug that did not prompt user to restart after changing the user's role within a session
  - Fixed bug that did not load the menu bar items properly after a refresh
  - Fixed bug that flashed the parts list when navigating quickly through the activity images
- General
  - Fixed bug in mBOM highlighting of the Item Flash BOM Diff Flag that would highlight all revisions of an item, instead of the max revision and ignore the preferential selected color
  - Added trimming of leading and trailing spaces when creating users to prevent errors
  - Fixed bug when refreshing consumption control if Child or Parent Item properties are included in the view
  - Fixed bug where newly created workstations would not appear in the Work Center drop down list unless a restart was performed
    - In addition, the workstations are filtered by the selected Assembly Lines
  - Fixed bug within cloud environments that generated an error within the Template Manager when retrieving files

### 11.33.30.0

Released July 14, 2021

- Bug Fixes
  - Fixed bug within report filtering due to column mismatch

### 11.32.30.0

Released July 13, 2021

- Enhancements
  - Virtual Build
    - Added ability to preview Work Step SOP image
    - Improved workflow for assigning images to Work Steps
    - One Click Consumption Mapping mode, when parts are clicked, they are automatically mapped to selected Activity/Work Step
  - Time Study Module
    - Activity Description can now be updated through Apply Time Study procedure
  - General
    - Within the Component Where Used control, users can perform Mass Edit/Check Out/Check In
- Bug Fixes
  - Virtual Build
    - Fixed confusing behavior that unassigned image to a Work Step
  - Reports
    - Fixed bug in WI Report where Plant custom fields were not displayed if report ran from Line Balancing Module
    - Fixed bug that would cause the WI Report to not generate from the TC Admin page if the user's date time format was not MMDDYYYY
    - Fixed bug within Process Details report when running report for Operations with blank Work Centers, these operations will be ignored
  - General
    - Fixed bug that would display the wrong Work Step time
    - Fixed bug when Cloning a Routing that did not copy the Routing Description

- Fixed a bug that would cause errors for new users when logging in for the first time and making edits
- Fixed bug that caused an Activity to not refresh correctly within the search control during Undo Check Out
- Fixed bug when saving List-Based custom fields when List Show Description option is True
- Routing ID search no longer case sensitive
- Fixed bug when loading videos in Cloud environments for Observed Time Study which did not allow other users to playback the video

### 11.31.30.0

#### Released June 10, 2021

- Enhancements
  - Virtual Build
    - 3D View and SOP Image action buttons added to the home tool bar.
    - Consumption editing is allowed in any mode, no longer required to select edit consumption mode.
    - Moved the process filtering ability from the context menu to the process control dock custom buttons.
  - Shop Floor Viewer
    - Activity Page Layout Changes
      - Activity Description and Index located in top of page banner.
      - New Timer location in the upper right.
      - Removed Keys/Legend/Footer.
      - Top Menu options removed when Activity Page is viewed, menu items remain when viewing the Build List (Build List link added to upper right menu).
      - Lower Left Slide Menu added, with links to Process Tree, Break On, Hot Issue etc.
      - Icon changes and updates.
    - New Role Privileges added to Allow Advance forward or backward on Work Step or Activity (disabling this privilege will hide the navigation buttons)
  - General
    - Updated list of banned characters when creating File
    - Made fields SourceltemID and SourceltemRevision standard in the ECO Item tab.
    - New Preference added called 'Copy User Created Process History Records On Clone', when cloning a Routing, the History records associated with Activities/Operations/Routings will also be copied to cloned Routing
- Bug Fixes
  - Deviation
    - Fixed a bug that would duplicate Item records within the Deviation>Item tab when processing the deviation if no Save was performed.
  - Mass Update
    - Fixed bug that would randomly throw a Service Busy error when attempting to run a Mass Update Job
    - Fixed bug that would prevent Items from being Checked back in after performing a Mass Update
    - Fixed bug during Calc Time update, if the Allowance field was left blank, the warning indicator would highlight the wrong cell.
  - Precedence Graph

- Fixed bug that was not highlighting the correct set of activities when using the Search tool within the Precedence Graph and searching by Model or Effective Dates, the search should now include active tasks instead of searching for an exact effective date match.
- PFMEA
  - Fixed bug within the sheet view that would cause data rows to be deleted, if the user opened the sheet view before checking out the entity.
- Time Study
  - Fixed bug that did not correctly calculate the VA/NVA/SVA values if the preference 'Use Percent for VA/NVA/SVA' was set to True and the study was performed with Estimate Time.
- Plant Library
  - Fixed bug within the Workstation list that would update the Modified On and Modified By fields for all Stations for any edit within the sheet.
- ECO
  - Removed the 'Change Item Revision' and 'Delete' menu options from the right click menu in the BOM tab.
- Publishing
  - Corrected typo within the Add/Edit History screen.
- Consumption Workbench
  - Corrected punctuation within the legend.
- Model-Option Library
  - Fixed bug that would perform a where used validation when deleting a newly added ID, new IDs would not have processes associated and validation was unnecessary.
- Component
  - Fixed bug that would not allow you to Check Out a Parent Item in the Where Used control unless the Child was Checked Out.
- Virtual Build
  - Fixed bug that would allow users to take snapshots when the Routing was not checked out in some scenarios.
  - Fixed bug that left the consumption editing active when switching between workspaces.
  - Fixed bug that would throw an exception error within the process tree if the selected Operation did not contain Activities.
  - Fixed bug that enabled the Add Part to Consumption button when not in editing mode.
- Shop Floor Viewer
  - Fix bug in Activity Change history that caused issues when editing change request with and without work steps.
- Authentication Service
  - Fixed a bug which set the wrong Type of user if that user logged in after being deleted from the auth service only.

### 11.30.0.0

Released May 17, 2021

- Enhancements
  - WI Reporting – AP-SFV

- Made changes the reporting capabilities within the AP-Thin Client Admin screen and SFV Work Instruction Generator to stay consistent with the WI Report from the Library for customers with these features.
  - ECO Processing
    - Modified standard warning message when selecting Revision Date Changes to notify users that records may be past effective and not only future effective.
  - BOM Compare Report
    - Added ability to filter the standard BOM Compare reports with a Unit Serial Number (USN).
  - Publishing
    - Added ability to prevent WI Publishing based on the EngItemStatus of Items consumed within the WI data set being published.
  - Shop Floor Viewer
    - Added ability to view and generate WI reports from SFV based on WI Rev.
    - PFEP Mobile App – added version number to the login page and server address page on startup.
    - Added ability to existing API call to accept the Work Step Tree order in addition to the Activity ID.
- Bug Fixes
  - Sequence Planner
    - Fixed a bug that would prevent Sequence Mass Update to implement changes to a Sequence Planner Study if a workday did not have shifts defined in the work schedule.
  - Template Manager
    - Changed the default CustomShapeDefinitions.json configuration template, removed sample annotations.
  - Library – Routing – View Model Option Data
    - Improved performance where the application would become frozen when mass amounts of data was being loaded to the Advanced view within Model Option Data Screen.
  - Deviation
    - Fixed a bug that caused the Deviation Summary Report to throw an error when no deviation custom fields existed.
  - Library – Component
    - Improved performance when adding a new item in the Component Library where the load times were high due to a high number of available revisions.
  - ECO
    - Fixed a bug within the ECO BOM tab when trying to change an item revision, the function is disabled in this screen and Item revision should be changed from the Item or Parent tab
  - Line Balancing
    - Fixed a bug within the LB Reports that would throw an error if there was a mix of new and existing stations in the instruction set.
  - Shop Floor Viewer
    - Fixed a bug when creating a new user without an email.

## 11.29.0.0

Released April 23, 2021

- Enhancements
  - Consumption Workbench
    - Added advanced filtering capabilities (BOM/Item and Process/Consumption) which will filter branches/children, allowing for specific products or processes to be excluded from the

workbench. For example, below the buy components could be filtered from the data set while the components needed by assembly are included.

- Line Balancing
  - Removed the Map Operations by Operator preference
- Shop Floor Viewer
  - Added a default sort and auto complete to the Model drop down in the PDF work instruction generation page
- PFEP Mobile Android
  - Added an alert when the build list does not contain enough units to fill the capacity on the cart
  - Added application version number to the login and server address pages
- Bug Fixes
  - Mass Update
    - Fixed a bug in the Mass Update module causing Activity-Calculated Time-Recalculate Predetermined Time Studies to fail due to time standards codes being duplicated sent to the service
  - Time Studies
    - Fixed an error causing missing complex MUDA highlighting to fail as the time precision of the MUDA and the calc time rows was different (e.g. 7.75 MODS in MUDA vs 7.8 MODS in Calc Time row)
    - Fixed an error during Save after deleting a MOST or MTM calc time row
  - Consumption Workbench
    - Fixed an error causing the Routing-Operation list to not show the correct checked in/out status if a checked in process is loaded into the workbench selection then checked out via the search control
    - Fixed an error causing the workbench to traverse one level less then the selected multi level setting.
  - Order Data Management
    - Fixed an error causing changes to order data (order list, line schedule date) to cause the option data on the order to be deleted
  - Line Balancing
    - Fixed an error causing the Minimize Cycle Time auto balance routine to fail due to an incorrect 'if' condition preventing grouped tasks from being assigned properly
  - Shop Floor Viewer
    - Fixed an error causing the station list to be sorted based on UID and not the Station-Order attribute.

### 11.28.0.0

Released April 13, 2021

- Enhancements
  - Order Data
    - Implemented functionality to allow for filtering (work instruction revisions, operations, activities, consumption, and resources) by Unit-Station-Date. Previously each Unit could have a single date, not each station may have a unique filter date.
    - Added new control to see the Station-Date within the Order Data Management module.
  - Modified date-time code to retrieve the time zone for the environment instead of using the default SQL date-time. For Azure based environments this will use the defined time zone instead of the default Azure time zone.
  - Shop Floor Viewer

- Modified the logic for the activity timer to follow new rules – If anything is presented to the user then the auto advance will shut off, but the timer will keep going.
- Bug Fixes
  - Activity Consumption
    - Fixed an error which caused unsaved consumption records to be incorrectly duplicated when navigating in/out of the tab in the Activity module (e.g. Item and Resource Where Used).
  - BOM Changes
    - Fixed an error in the BOM Changes module which caused Item-Description values to not populate in the grid.
  - Precedence Graph
    - Fixed an error in the Precedence Graph causing cluster to cluster links to be removed when a new cluster and new activity is added
  - Time Studies
    - Fixed an error causing an unhandled exception when generating the Observed Time Archive report
    - Fixed an error causing tasks to not save correctly in Observed Time Archive after deleting/archiving
  - Scheduler
    - Fixed an error causing serial numbers to duplicate after assigning, deleting serials, and inserting new orders.
  - Component Library
    - Fixed an error in the component custom fields control which caused list descriptions to not display
  - Process Publishing
    - Fixed an error causing Activity-Option Mapping custom fields to not publish
  - Shop Floor Viewer
    - Fixed an error causing the Change Review page to not allow paging when large quantities of history records were present

### 11.27.0.0

Released March 19, 2021

- Enhancements
  - ECO
    - Documents
      - Added support for Documents in the ECO module against the ECO and ECO-Items
      - Added role privileges for editing documents (add/delete)
      - Added history records when ECO documents are edited
      - Added logic to prevent editing of documents once an ECO is processed (based on ECO status)
    - Updated the ECO Dashboard Report to show the count of MCOs in In Process/Complete status per stage. Also, adjust the sort order of the 'Delays' section to show the average number of days from arrival to complete per stage.
  - Activity – Observed Time Archive Manager
    - Replaced Save/Cancel buttons with OK/Cancel for standardization
    - Removed restriction on the number of new rows which can be added
    - Removed restriction requiring the user to reopen the Archive Manager to generate reports with newly added studies
    - Changed the selection drop down list to display both the time and description



- Sequence Planner
  - Added new system preference and Tools>Preference control to set the default for 'Allow Publishing Partial Days'
- Component Library
  - Added new input filter to the Routing Tree Export to allow for filtering by date
  - Restored the 'New' eBOM part flag to exist alongside the 'Add' flag
- Export Data
  - Removed the 'Get ECO Data' button from the PPR export user interface
- Shop Floor Viewer
  - Added capability to publish Activity-Option mapping custom fields
  - Kit Cart Report modifications to adjust the template, print service settings, and APIs
  - Modified the Administrator>Add User control to add the new userID to the Auth Service tables.
  - Enabled SSO for Factboard and PFEP Mobile Android app
  - Angular Conversions
    - Factboard
    - PFEP Dashboards
    - Unit Operator Sign Off Report
  - Removed aspx and other unnecessary files
- Bug Fixes
  - Shop Floor Viewer
    - Fixed a bug causing the work step tree order attribute to not be set correctly when publishing the work instructions. If the tree order is used for sorting the work steps in the Shop Floor Viewer, then the step would be displayed in the incorrect order.
  - Line Balancing
    - Fixed a bug in the MUDA chart showing idle time above the TAKT line for station-operators with unclassified time
  - Time Study
    - Fixed a bug causing the Observed Time report to not follow the correct time precision for the new Unclassified time column

## 11.26.0.0

### Released February 19, 2021

- Enhancements
  - CAD Library
    - Initial release of a new module in the Library section of Assembly Planner allowing a user to upload CAD files, queue for conversion, and view the history of converted files.
  - Component Library
    - BOM Change Flag default priority updated to match prior hard coded sequence
    - Removed eBOM 'Remove' and 'Last Usage' flags
    - Removed mBOM 'New' flag and replaced with 'Added' flag
    - Added new mBOM flag for 'Added' and convert existing eBOM flag 'New'
    - Modified mBOM flag for 'Timeout' to instead use the 'RemovePartFlag'
  - Consumption
    - Added capability to view all parent and child item master attributes in the Consumption screen
  - SSIS Jobs
    - Added capability to send error notification emails for SSIS jobs which currently log failures to the SSISPackageLog table
  - Shop Floor Viewer

- Admin – Clear Station Sign Off was modified to delete Activity Skips associated to the data being cleared
  - Activity Skip – Added Reason Code drop down. List is called ‘SkippedTask.Reason’ with default values of Unavailable, Damaged, and Incomplete Assembly.
  - Updated the Hot Issues screen to reduce button clicks and typing. The changes will now better guide the user and provide drop down selection filtered by prior selections.
    - Problem Type – Added ‘Other’ selection value
    - Subject Type – Added a drop down list instead of open text
    - Severity – Default value set to warning
    - Submit Type – Default value set to both (Factboard and Email)
    - Email List – Based on users tied to Subject Type
  - Updated Factboard Andon to display the count of the open issues for the station-operator based on severity (critical/warning).
  - Added role privileges for the PFEP Mobile Application
    - Allow editing of mobile server address
    - All editing of mobile application settings
    - Allow use of mobile kitting tools
- Bug Fixes
- Image Editor
    - Fixed a bug causing a failure during a save of edited shape text when the shape still has focus
  - Shop Floor Viewer
    - Fixed a bug causing the Operator ID to not be stored in the browser local storage when selecting in the Build List page.

### 11.25.0.0

#### Released February 5, 2021

- Enhancements
- Updated video service components to better support storage and playback on Azure
    - Upgraded .NET framework to use .NET Core 3.1
    - Modified the to-be encoded video stack from a file based list to a queue
  - Updated Excel-based exports to handle non-text values or cell types appearing in the export sheet template row specifying export column headers
  - Component Library
    - Added a new Engineering and Manufacturing Item Status value called ‘PrototypeReleased’
    - Added Routing Tree Export which generates a parts list, including replacement assemblies, when searching across multiple routings based on model and routing-item mapping data.
  - Time Studies
    - Added a new time classification for ‘Unclassified Time’. Previously, time which had not been coded against a MUDA category, or directly set as VA/NVA/SVA, was always considered to be non-value added time.
    - Updated the line balancing charts to accommodate unclassified time
    - Updated the following standard reports: Estimated/Observed/Calculated Time Report, Process Time Report, Balance Utilization Report
  - PFEP Consumption Workbench
    - Updated logic to always clear the results in the Where Used control if the input selections have been modified (top left control)
    - Updated logic to only clear the results in the Where Used control if the input selections in the top right controls were changed and the previous Where Used was done for a single option ID

- Shop Floor Viewer
  - Updated the public Get Work Instructions API to accept the activity ID
  - Implemented performance improvements for the Get Configured Task List and Sign Off Report by Date procedures
  - Updated the Kit Cart Report with the following changes: renamed Check column to Skip Status. Skip Status now shows a red block if the part was skipped. Unit which have not been picked and have instead been skipped will show a strike through.
  - Updated the Workstep Key Images logic to maintain aspect ratio to reduce blur
  - Updated the NCR API to remove the characters trailing and including the @ symbol for user IDs in the json export
  - Updated video component to access videos from a protected blob storage account
  - Process Tree – Skipped Activities updated to not display text in the Closed On field if the value is at the default (e.g. 1/1/1900)
  - Angular Conversions
    - Administrator Kitting Tools
    - Administrator Kitting Dashboard Settings
    - Part List Report
- Bug Fixes
  - Time Studies
    - Fixed a bug causing the Activity Module - Observed Time Study Archive Report to fail to generate
    - Fixed a bug in the Observed Time Report which caused the per task observation list to include all observations in the study instead of filtering to only those observations tied to the task.
    - Fixed a bug in the Time Study Module – Tasks Tab which caused the ‘Average’ for the Observed Times to display in the Calculated Time section.
  - Order Data Management
    - Fixed a bug causing the Part Usage Report to not generate due to changes in the kitting stored procedures. Also updated report column headers.
  - Pivot Grid Export
    - Fixed a bug causing Save As to fail when the export had not been modified.
  - PFEP Publishing
    - Fixed a bug causing newly created Kanban cards to not be returned during PFEP publishing
  - Consumption Workbench
    - Correct docking and anchoring of controls in the Edit Selection form
  - PFEP Consumption Workbench
    - Fixed a bug in the Where Used refresh causing the results to not be updated after selecting the button
  - Line Balancing
    - Fixed a bug in the Yamazumi chart footer for displaying the count and time of the selected tiles when using VA/NVA/SVA Time Category color coding
  - Mass Update
    - Fixed a bug causing the Finalize / Undo function to fail for jobs which have been queued.

## 11.24.0.0

Released January 17, 2021

- Enhancements
  - Pivot Grid Export

- Enabled horizontal scroll bar for the Export Data control when the total column width exceeds the screen width.
    - Added logic, overriding the default behavior, to allow for space characters to be added to all selected field alias values.
    - Suppressed the default right click context menu in the Export Data control. Only the Proplanner custom menu will now appear.
  - Mass Update
    - Moved the Summary and Results section within the Run Tab to smaller text boxes to indicate status.
    - Job Status
      - Disabled the expand symbol for the Job.
      - Hid the Warning column
      - Disabled the Comment field
      - Implemented a filter mechanism for clearing history while maintaining the overall job history in the database.
      - Displayed the Date/Time for when the job was run
  - Shop Floor Viewer
    - Process Tree
      - Skipped Activities will not show the default time (1/1/1900 00:00) if the skip is open/active.
    - eKitting
      - Updated the Print Service to print supermarket pick list when the cart is closed.
      - Enabled configurable template selection to adjust pick sheet format
      - Code maintenance of logging infrastructure and removal of outdated PFEP service references.
      - Added preference to allow for scanning location or part numbers, controlled by the Android mobile application.
    - Angular Conversions
      - Etching Administration
      - Operator Station Mapping
      - Model Station Mapping
      - Printer Management
      - Application Settings
      - Print Sequence
    - Activity Page
      - Image full screen button moved to overlay on the image.
      - Added code to prevent numeric values from changing via the mouse scroll wheel or arrow keys in the consumption quantity, torque, and dimension value fields.
      - Adjusted color-coding logic in the part grid to color the entire row for torqued parts.
    - Modified the Custom Data Report page to return results on tables which do not include Unit Serial Number field. The ModifiedOn or CreatedOn dates will be used, inclusive of end dates. If a table is selected which does not have dates and a date-based search is used then all results will be returned.
- Bug Fixes
  - Component Library
    - Fixed a bug in the BOM Control>BOM Properties form which allowed for properties of checked in child records to be edited.

- Fixed a minor bug in the Component Search Control causing the tool tip to display the default name of the control.
  - Fixed a bug in the Where Used control which caused the time stamp, instead of the date only, to be displayed.
- Image Editor
  - Fixed a bug in the Image Editor administrator functions related to savings new custom shapes/icons. The system will now point to the path via the Template Manager>Images.
  - Fixed a bug which allowed the user to edit checked in images.
- Mass Update
  - Fixed a critical bug in the Item update logic which causes the item to not go through the check out then check in workflow. This incorrectly bypassed check out/in logic.
  - Fixed a bug in the Run Tab>Queue Job which showed a message with an incorrect job status.
- Line Balancing
  - Fixed a bug in the Resource violation screens causing the first resource to not display the description.
- PFEP
  - Fixed a bug in the View Kitting Quantity which caused the part plan to be automatically checked out.
- Shop Floor Viewer
  - Fixed a bug causing as-built torque data to not be pulled into the page when the consumption row quantity is an integer greater than 1
  - Fixed an error causing single error lines to not work properly.

### 11.23.0.0

Released December 18, 2020

- Enhancements
  - Consumption Workbench
    - Added multi level BOM comparison capability with a selectable number of BOM levels. This allows a user to select a top level (e.g. a model) and include all assemblies / components within. Previously the Consumption Workbench required that the user input each assembly individually.
  - Component Library
    - Added capability to receive Item 'Engineering Status' values based on an enumeration (PreReleased, Released, WIP, Obsolete, etc.). Previously Engineering Status values were controlled by the Proplanner ECO stage.
      - Engineering Status can be set via Excel-based Data Import module or via integration with PLM/PDM system. Items created manually within Assembly Planner will automatically be set to Released.
  - Custom Field Editors
    - Added support for using specialized data input controls for custom fields.
    - Initially added to support the BOM 'Models' custom field
      - Models field can now be populated via a grid input and the Auto Build routine.
    - Controlled via the Template Manager>Configuration Files>CustomEditors.json file.
  - Data Export
    - Updated the PPR Export to include additional validations and highlighting for the user inputs.
  - Line Balancing
    - Updated the Yamazumi chart to show the time and count of the number of selected tiles
    - Added the Resource description to the Monumental Resource violation screen

- Ergonomics – EM MURI
    - Updated the default EM MURI posture images
  - Shop Floor Viewer
    - Angular Conversions
      - Admin Application Settings
      - Print Sequence Page
      - Unit Time Summary Report
      - Operator Log Report
      - Kitting Skipped Parts Report
      - Kitting Part Status Report
      - Archive Reports
    - Removed the Login.aspx page from the SSO version
    - Added a pause picking feature to the SFV based picklist
    - Added protection to the work instruction video endpoint in SSO
    - Updated image retrieval process for cloud deployments to improve performance
    - Added Area and Defect Description columns to the Process Tree-Roadblock grid
    - Made the following changes to enforce browser cache refreshing rules
      - Web.config
        - We have added the following outbound rules to the IIS rewrite module to prevent caching of all static files like \*.html and \*.json files. A similar rule was there previously and we have enhanced it.
        - We have explicitly mentioned for the index.html file to be NOT cached with the section below:
      - Index.html
        - In the index.html launch / startup page we have added tags for cache control and expiration.
    - Added the application version number to the login screen.
- Bug Fixes
  - Sequence Mass Update
    - Fixed an error where a corresponding Line Balance Scenario was missing the Metrics Data reference file causing a null reference exception with the Refresh Study function is called.
  - Ergonomics – EM MURI
    - Fixed an error in the Add to Group dialog which caused label text to be hidden and an incorrect icon to be displayed
    - Fixed an error with generating the EM MURI Report from the Line Balancing module stating that the Routing Does Not Belong to Table Task
    - Fixed an error in the Activity EM MURI report where the Group label failed to display the text and instead showed [Parameters.Group]
  - Component Library
    - Fixed an error in the Item Where Used control causing role privileges to not be obeyed
  - Shop Floor Viewer
    - Fixed a bug in the SSO version which caused the logout to redirect to the Auth Service login page
    - Fixed a critical bug causing Operation Sign Off Comments to not be saved in the database.

**11.22.0.0**

**Released November 25, 2020**

- Enhancements
  - Component Library
    - Update BOM Where Used control to view all item and BOM fields with customize view capability
  - Resource Library
    - Added refresh to the screen when the user enters the module to prevent stale data from being seen
  - Work Steps
    - Increased the maximum length of the Work Step Description database field to 4000 characters. Note that the allowable field length is controlled by an environment level preference.
  - Shop Floor Viewer
    - Archive Unit BOM and Kit Cart reports converted to support SSO
    - Implemented a public API to retrieve the activity work instruction page by passing URL parameters
- Bug Fixes
  - Checked Out Entities
    - Fixed an error in the Checked Out Entities form (seen when closing the application) where the main application window was not refreshed if the entities in the screen were checked in then the user selected Cancel in the Checked Out Entities form
  - Mass Update
    - Added Status column to the jobs grid on the Run tab
  - Time Study Module
    - Fixed an error in the calculation of MODAPTS simple VA/NVA/SVA times where the element level frequency was not considered if the frequency was less than one
    - Fixed an error in the Time Study Apply form preventing the user from applying more than 500 rows/activities
  - Component Library
    - Fixed an error in the Component Search Control causing Boolean fields to display as true/false text instead of check boxes
  - PFEP
    - Fixed an error in the PFEP Kitted Parts Report causing a failure if using unit serial number filtering
  - Shop Floor Viewer
    - Fixed a bug in the Kanban Dashboards causing the Replenishment Systems lists to not populate

### 11.21.0.0

#### Released November 13, 2020

- Enhancements
  - Activity-Media
    - Upgraded Image Editor control to match Virtual Build Module.
    - Added film strip/gallery control for viewing images associated to activity
    - Moved images and videos to separate tabs
  - Updated Video Encoding and Video Streaming services to use newer .NET versions
  - Added support for Shop Floor Viewer users to be converted to AuthService users to support SSO migrations
- Bug Fixes
  - Fixed an error causing datetime custom fields to be converted to local time after passing through WCF service layer. This impacted certain screens and reports when the end user's computer used a different time zone than the application server.

- Thin Client Admin - Work Instructions
  - Fixed an error when generating work instructions from the Thin Client Admin screen which caused the Option Filter to be ignored
- Time Study Module
  - Fixed an error when applying a time study with Observed Time and Single Activity selected causing the video information for the observation to not be applied.
- Video Encoding Service
  - Fixed an error in the video encoding service causing iPhone videos shot in portrait mode to not be converted properly

## 11.20.0.0

### Released November 10, 2020

- Enhancements
  - Components
    - Improved performance of BOM and Item Where Used calls by removing repeated calls for item custom fields. Notable improvements in performance of Consumption Workbench.
    - Added ability to control eBOM/mBOM Comparison Flags via Tools > Preferences, including enable/disable, colors, and priority/evaluation sequence.
    - Added ability to enable/disable certain Item and BOM system preferences via Tools>Preferences.
  - Order Data Management
    - Added 'Inventory Impact' Excel based report to Order Data Management.
  - MCO Module
    - An alert message showing the Item / BOM records impacted by a change to the MCO 'Effective Date' for an implemented MCO has been added. When the users change the MCO effective date today, the system looks at all BOM records where the old date exists and updates them with the new effective date.
    - Date Change: List of items that will be updated with the date change. Displays the parent-child record that will be implemented.
    - Date Change due to Revision upgrade: The MCO process also locates old revisions of the item, times out old and times in new. The date change impacts such rev changes also, these might be under parents that aren't in the ECO.
  - Deviation Module
    - Items associated with a Deviation have been added as an entity type within Assembly Planner. Deviation-Items are now searchable via Advanced Search.
  - Model / Option Library
    - Added custom field support to the Option Group and Model-Option Mapping entities
  - Line Balancing Module
    - Added the description of the resource to the Resource Violation screen
  - Scheduler
    - Removed cross database call for constraint validation calls to support deployments on Azure. Option Group data is not pulled from the thin client database. Plants using Scheduler will now need to execute "Publish Model and Option Properties to Shop Floor Viewer" from the Actions menu in the publishing module. Otherwise, if they are regularly publishing work instructions, this will be called automatically.
  - Role Functions
    - Added wait cursor logic to the user interface when saving in the Role screens.
  - Thin Client Admin - Work Instructions
    - Added logic to handle cases where a printed work instruction report is being run from the Thin Client Admin screen and routing/item custom fields are referenced by the report. Default field



values will now be used as there is not a corresponding set of fields in the published work instruction revision.

- Shop Floor Viewer
  - Code Maintenance
    - Moved email server settings to app config file from database preferences
    - Added role privileges for the default system role 'Operator' to handle sign on / off changes
    - Code cleanup and standardization of PlantCode and PlantID usage
    - Added logic to the sign on process to prevent a blank screen from being displayed to the user. The blank screen was the Change History screen, which was always shown and could appear to be stalling if the server was responding slowly.
    - Added logic to the sign on process to first check if activities are available for sign on. Previously, the operation sign on was completed then a check for activities was made.
    - Changed error handling in 'File Exception Dialog' to prevent debug error messages from being logged to the browser console
  - Option Code Selection via Sign On
    - Added new feature which allows shop floor operators to set option codes against the order during the station sign on process. Requires the system settings for 'generate unit serial numbers' to be enabled plus the project specific scripts.
  - Activity Work Instruction Page
    - Added logic to the activity work instruction page to allow for 'basic' parts to be hidden via the PartConsPartGridShowBasicParts attribute in the layout settings file. This impacts SFV configurations with part tracking enabled. 'Complex' parts are those with additional data collection, such as part ID, serial numbers, etc.
  - Process Tree
    - Improved performance of the Process Tree loading times by removing the consumption and resource records from the dataset as only operation and activity data is needed
    - Removed redundant sub-labels within the tabbed controls
    - Components Table
      - Removed alternate row highlighting
      - Renamed Quantity column to Consumed Quantity
      - Added Required Quantity column
      - Added row highlighting if the Consumed Quantity and Required Quantity values do not match to show missing parts
    - Added ability to configure the display order of the Process Tree tabs via new Process-Tree-Settings.json file. Components table default filters can be configured to no filter, Consumed Quantity = 0, or IsSerialized=True (Show all parts, show missing parts, show serialized parts)
- Released PFEP Android Mobile application for general builds. Replacement for PFEP Windows Mobile application.
- Removed numerous cross database calls from authoring and shop floor applications to support Azure deployments

#### - Bug Fixes

- Process Publishing
  - Fixed an error in the logic used for caching the list of model IDs causing an issue when updating the model list after previously loading the Process Publishing screen. Model list is now refreshed for each publishing job.
- PFEP Workbench
  - Fixed an error in the PFEP Workbench comparison logic related to the option and part plan effective from dates causing duplicate part plan records to be added. Logic now uses effective dates from each entity.
- Deviation Module

- Fixed an error in the Deviation Module resulting in duplicate items records to appear after manually adding an item, deleting the same, then adding again. The previously deleted item incorrectly appears again.
  - Fixed an error in the Header tab of the Deviation Module after using Customize View then opening the Add/Edit Deviation form
  - Fixed an error in the Deviation Summary Report causing status information to be duplicated when generating the report multiple times within a reporting session
- Ergonomics
  - Fixed an error causing the MURI Change Report to not generate when run from a routing
- System Configuration
  - Fixed a serious error which impacted environments with multiple accounts (e.g. multi authoring databases associated with a single Assembly Planner ClickOnce). The bug was related to the caching of account specific settings when changing accounts (e.g. login to plant A, restart Windows, login to plant B).
- Scenario/Study File Managers
  - Fixed an error in the folder managers (Line Balancing, Time Studies, etc.) causing sub folders to not appear when a user deletes or moves a file while another user is adjusting the folder structure
- MCO
  - Fixed an error causing Item-Checklist to not show the 'Description' of the list value when the list has 'Show Description' enabled
  - Fixed an error causing the ECO Status Report to show incorrect results when selecting multiple users
- Component Library
  - Fixed a 'Given Key Not Present in Dictionary' error in BOM controls when performing a full refresh of the tree when resource entities are in the BOM.
- Sequence Planner Module
  - Fixed an error in the Sequence chart causing the takt time line to not appear if the calculated order-station time is too low.
- Routing-View/Edit Model-Option Data
  - Fixed an error causing incorrect Operation Effectivity dates to be displayed
- Time Study Module
  - Fixed an error causing time study rows to not be added in all cases that observed time data is being saved against an activity.
- Activity-Work steps
  - Fixed an error in the activity work step screen causing an unhandled exception after inserting a row and pressing save
- Fixed an error causing non-English language characters (Tamil, Hindi, etc.) to not paste properly in certain grids
- Shop Floor Viewer
  - Kitting Dashboards
    - Fixed an error which caused the row highlighting to be disabled
  - Fixed an error causing handled validations to return 'OK' text instead of intended text. Error caused by http\2 protocol not being properly used in application.

### 11.19.0.0

Released October 7, 2020

- Enhancements

- Mass Update Module
  - Modified to support encrypted connections (HTTPS / TLS1.2)
  - Updates now use job queuing mechanism to execute as an offline process
  - Improved messaging to user when attempting to update local activity attributes on global processes.
- Added 'Takt Time' as a standard field in the Plant Editor > Assembly Lines list
- Added Activity Frequency attribute to the Process Details Report. Frequency is now considered when calculating process times.
- Removed alternate row color coding from Time Study grids. The background color of the cell now indicates if the cell is editable or not.
- Line Balancing now handles unclassified time (e.g. VA/NVA) as NVA time always. Previously, unclassified time was being evenly distributed based on the percentages vs classified time.
- Shop Floor Viewer
  - Added new role privilege to navigate to the Process Tree after activity Sign Off
  - Added heartbeat from client browser to app server to ensure the IIS app pool would not go to sleep
  - Migrated PFEP eKitting and eKanban to webapi to support Android mobile app
- Bug Fixes
  - Folder Management (Line Balance Scenarios, Time Estimation Files, Sequence Planner Scenarios)
    - Fixed error when renaming a newly created folder within a folder and then swapping the names of the parent and child folders
    - Fixed error causing certain folders to be unable to be deleted
    - Fixed error when creating a new sub folder then moving it into the main folder failed
  - Line Balancing
    - Fixed error when using inter-operator precedence and auto balance algorithms. Idle time and VA/NVA/SVA was not calculating properly. Also removed check looking for the max cycle time and code causing the algorithm to fail to identify a feasible balance in certain situations.

## 11.18.0.0

Released September 4, 2020

- Enhancements
  - Pivot Grid Export Module
    - Added role privileges for module visibility and creating/editing/removing public exports.
    - Removed distinct clause to allow for duplicate records to be returned. This enables the pivot grid dataset to hold many rows with common values.
  - Released new mBOM Export tool which uses configurable Excel templates to control the fields to be exported. All item and BOM standard and custom fields are available.
  - Released Assembly Labor Time Report
  - Updated the Option Rule interpreter code to handle future c# release support of the 'not' keyword
  - Shop Floor Viewer
    - Added Hot Call functionality to activity work instruction page footer. Applies to sites with Factboard enabled and Blueprints disabled
    - Converted PFEP Print Service endpoint in SFV website to work with SSO deployments. Will require tokenAPI endpoint.
- Bug Fixes

- Fixed error in Line Balancing which caused the scenario-specific time units to not update after changing in the Edit Task Details screen
- Added error handling code to BOM Change Module for situation where an item is referenced in the Parent Items With BOM Differences table but the same does not exist in the main item master library
- Fixed an error in the BOM Change Module causing the View MCOs button to fail due to incorrect variable declaration
- Fixed an error when saving image files where image orientation data was being improperly set. Also changed the image saving logic to only save the temporary file versus the source file if a change was made.
- Fixed an error in the Activity – Resource tab causing an incomplete list of right-click menu options to appear to if the activity was not checked out to the current user
- Fixed an error in Activity – History records causing the ‘Reason For Change’ field to not save.
- Fixed an error in the Thin Client Admin – Change Request screen allowing the ‘Add’ button to be enabled when no Change Request was selected
- Fixed an error in Pivot Grid Export Module causing Public exports to not share properly
- Fixed an error in Sequence Planner Mass Update Tool related to the retrieval of work schedule rows and offsets resulting in an unhandled error
- Fixed an error in process publishing resulting in workstep times not always being converted to seconds
- Corrected an issue in the MDD Module while resulted in the time stamp data displaying in date fields after using the Export to Excel function

### 11.17.0.0

Released August 12, 2020

#### - Enhancements

- For work instructions revisions published with effectivity for a specific or range of production orders (unit serial numbers), users can now search for the applicable revisions for of an order via the Thin Client Admin screen
- Observed and Calculated Time Study rows can be mapped to Workstep Numbers, allowing for the aggregation of multiple rows to set the Workstep Time property. The Time Standard Rank will be observed as the Workstep may only have a single time.
- Process History Records are now added to Routings and affected Operations when a Line Balance Scenario is applied to provide better traceability.
- Modified Consumption Workbench Comparison Results screen to allow read-only view of BOM fields which are not used for the comparison (BOM to Consumption) and do not exist in the Consumption fields.
- Modified the Line Balancing – Model Family Summary By Station report to eliminate the double page break after each station, which was originally included to prevent printers with ‘print double sided’ from ever showing two stations on the same physical piece of paper.
- Modified the User Management screens to support single sign on (SSO)
- Shop Floor Viewer
  - Hot Issues modifications for plants using Factboard
    - Added role privilege for closing hot issues
    - Added Severity selection (Normal, Warning, Critical)
    - Added selection for notifications via Email, Factboard, or both
  - Improved performance of Sign On/Off
    - Added role privilege for Require Pin Code Entry for Operation Sign Off. Pin code entry is used to authenticate currently signed on user prior to closing operation.

#### - Bug Fixes

- Fixed error causing an unhandled exception in the Component Library when selecting an Item if the user does not have the role privilege for viewing the BOM tab.
- Fixed error in PFEP Part Plans module causing an Invalid Column error when an item or location field is added to the view after the initial search, the same field is used to sort the results, then another search is performed
- Fixed error in PFEP Part Plans where the Part Plan Modified On value does not update after editing the Kitting Quantity screen
- Fixed error in the Calculated Time-Time Data grid causing the row height to grow incorrectly if the Routing or OpSeqNo field is reduced to zero pixels.
- Fixed error in Calculated Time-Time data grid causing the Routing ID and OpSeqNo of newly created then applied activities (without grouping on apply) to not refresh the Routing ID and OpSeqNo values after attempting to Import the same activities
- Fixed error in Line Balancing Station list which caused the creation order of the station to be used instead of the Order attribute from the Plant Module-Stations tab.

### 11.16.0.0

**Released July 17, 2020**

- Enhancements
  - Line Balancing – Precedence Cluster data storage performance enhancements
  - Improved performance in Component Library – BOM control refresh by sending data requests as a single group vs individual requests per item
  - Reduced nuisance requests for the user to update their Customize View settings from the Template Manager.
  - Shop Floor Viewer
    - Archiving Project released which includes new locking of the unit specific BOM and kitting pick lists to the associated archival tables. Export logic enabled for migrating data to CosmosDB.
- Bug Fixes
  - Fixed error when cloning routings, introduced in v11.15, causing issues with alert for routing ID already existing and allowing the changing of routing types
  - Fixed error in BOM control when performing a right click on a grandchild item
  - Fixed error in Item and MCO Advanced Search controls where the Fetch BOM Records and Filter By My Roles caused an error when performing multiple consecutive searches
  - Removed Customize View capability from the entire Time Estimation module and Activity-Calculated Time controls. This feature was inadvertently enabled and caused incorrect data to display in certain limited cases, such as the Op Seq No field appearing blank even though values were present.

### 11.15.0.0

**Released June 22, 2020**

- Enhancements
  - Line Balancing – Precedence Cluster data integrated into database instead of storing in xml files.
  - Added capability to select a folder when creating a new Line Balance Scenario via the wizard or cloning
  - Line Balancing – Yamazumi Chart task resequencing logic was adjusted to place the activities at the beginning or end of the station (station-operator) task list based on the tasks moving upstream or downstream In cases where the logic cannot be followed it will default to the prior logic, which placed the moved activities at the end of the station.

- Modified the Import Data > Process Structure Activity Import to always force PlantID, RoutingType, RoutingID, OperationSeqNo, OperationEffectiveFromDate, OperationEffectiveToDate, and ActivitySeqNo to be present.
- Improved validation messages in Import Data > Process Resource Mapping to better clarify improper key fields
- Added custom field support to the Plant Editor – Assembly Lines entity
- Renamed new pivot style reporting and export module ‘Pivot Grid Export’.
- Modified the save prompts for the Pivot Grid Export to standardize based on application norms and reduce likelihood of losing changes
- Shop Floor Viewer
  - Modified Sign Off Manager-Clear Station Sign Off to always clear roadblock data
  - Converted the following to Angular
    - Reports-Kit Cart, Custom Data, Part List Log, Sign Off, Part Query,
    - Administration-Hot Issues, Active Model Management, Email List Management, Transaction Stack Manager
  - Added Role-Line mapping to control which user roles can sign on to specific lines
  - Added privacy policy link
  - Testing and Quality Activities
    - Added role privileges for Sign Off Testing Activity and Sign Off Quality Activity
    - Check at sign on if Activity.IsTestingActivity Boolean=true and Activity.IsQualityActivity Workstep.Key='Quality'
    - If the current signed on user has the necessary privileges then no additional inputs are required. If the user does not have the necessary privileges then a dialog is displayed for entry of a user name and pin code. The SFV will validate if the input user has the necessary privileges.
  - Line, station, and operator is now cached in browser storage for SSO builds
  - Modified drop down list in Test Failure-Failure Code to use simple lookup control, which supports intellisense

- Bug Fixes

- Fixed error in Precedence Cluster causing changes in the Graph view to not save when switching tabs
- Fixed error Line Balancing Precedence Violation calculation causing violations to not be captured. Error occurred when changing task sequence within a station not causing the precedence information to update.
- Fixed error in the Line Balancing – Operator Time Summary Report which showed the operator count as 0 and did not properly populate the time data.
- Fixed error in the Line Balancing main task list which did not show an updated operator count after using Actions > Remove Empty Operators
- Fixed error in MTM-UAS block/group codes which caused the first line from the block to be ignored
- Fixed error in Component Library – Where Used search causing the control to fail when navigating to the process via the Where Used search then navigating back to the Where Used search

**11.14.0.0**

**Not Released**

**11.13.0.0**

**Released May 19, 2020**

- Enhancements
  - Added application version number and configurable background fill color to lower border of the application window
  - Added Line Code field to Order Data Management grid to show which orders can be edited or not based on the presence of a line code value. Impacts configurations with Scheduler module only.
- Bug Fixes
  - Fixed critical bug introduced in v11.10 within the Line Balancing module which prevented creation of production order-based scenarios.
  - Fixed error in MCO module when creating new or saving MCOs. Error caused by mismatch in localization settings across different application components.
  - Fixed error in Order Data Management which prevented VIN numbers in certain configurations from appearing
  - Fixed error in certain Line Balance reports which displayed the index value instead of the Model ID or Alias

### 11.12.0.0

**Released May 11, 2020**

- Enhancements
  - Added Virtual Build module to Process Library
  - Line Balancing – Renamed Yamazumi chart types from Line View to Station View
  - Added web service to support communication with external SSIS calls
  - Added Single Sign On capability to certain Assembly Planner environments
- Bug Fixes
  - Fixed bug in PFEP screens where drop down list values did not refresh automatically when loading the screen
  - Fixed bug in PFEP to mBOM and Consumption workbenches causing no results to show when performing a where used search.

### 11.11.0.0

**Not Released**

### 11.10.0.0

**Released May 3, 2020**

- Enhancements
  - Work Step Number Synchronization
    - For Activity Consumption and Resource records referencing a work step via the Work Step Number field, changing the Work Step Number on the Work Step will cause the associated Consumption and Resource records to update.
      - If a referenced Work Step is deleted, the Consumption and Resource records will return to the default value (-1.00)
      - If multiple Work Steps have the same Work Step Number value, changing one of the Work Step Numbers will not impact the Consumption and Resource records
      - If an Activity is reused, all Consumption records (local properties) across all instances of the Activity will be updated

- Enabled editing of non-ERP orders in Order Data Management module when Scheduler module is enabled
- Export Data Module
  - Added ability to create WYSIWYG and 'Data Aware' Excel exports of Pivot Table data
  - Added right-click copy menu and enhanced copy functionality
- Line Balancing Module
  - When creating a new single model scenario, selecting a routing, then changing to a mixed-model scenario, the model list will now refresh automatically
  - When manually setting Model and Model-Option percentages in the Edit Routing and Model data screens, the percentages will no longer be cleared after refreshing
- Time Study Module – MODAPTS
  - Updated standard templates to show trunk movements at M7 instead of M6.
- BOM Changes Module performance enhancements while performing searches and saving data
- Set all MCO properties to show as left aligned in the grid. Previously integer and floats were right aligned.
- Added custom field support to the Activity-Model mapping entity.
- Job Queue framework has been added to the Assembly Planner database, replicating the capability found in the Shop Floor database
- Assembly Planner 'About' screen updated to use https links
- Shop Floor Viewer
  - Created initial SSO build
  - Added handling for activities with greater than 20 work steps with images
  - Added support for custom fields in the Build List page. Includes configurable display names, columns widths with respect to responsive design, maximum number of records to return in the table, and adding/removing fields. Controlled via Build-List-Settings.json.
- Bug Fixes
  - Fixed bug in Import Data module where custom fields with the visibility and 'ignore in import' set to false allowed the user interface grid to show the field.
  - Fixed bug in BOM Changes module causing custom fields to not populate correctly in the user interface
  - Fixed bug in Export Data where search criteria was not being saved properly for new 'Saved' searches
  - Fixed bug in BOM import control where blank/null revisions are not allowed, which caused an incorrect invalid revision message to be displayed
  - Fixed bug causing ECO Change Details, Snapshot, Volume, and Part Impact reports to not display
  - Fixed bug in the Model library causing Model-Option percentages to not save properly if the values are edited then 'Use Percentage' is selected.
  - Fixed bug in Consumption 'Add From BOM' control where the Deselect All incorrectly performs a full selection of all second level (grandchild) parts
  - Fixed bug in Process Routing > Operation module where no operations are selected but the user is able to select Reports > Process Details Report
  - Fixed bug in Line Balancing module where shared operators in the Operator View caused a fatal error after double clicking on an operator in the chart
  - Fixed bug in Line Balancing module Edit Routing and Model details screen where the Include and Exclude all buttons triggered the inverse function
  - Fixed bug in Documents module causing certain image files to not import properly (generic error occurred in GDI+)
  - Fixed bug causing custom fields tied to lists to not save if the list value's character length exceeded the custom field max character length.



- Fixed bug in the Order Data Management module causing editable fields (Line Schedule Date) to not be saved if certain columns were hidden (Line Unit Number).
- Fixed bug causing Routing, Operation, and Activity search panes to either not display the values (PPE) or the values would disappear after selecting the row (Mark For Export)
- Fixed bug in the Activity-Option Mapping screen causing custom field value updates to not save unless you edited a 'standard' field
- Fixed bug in Sequence Planner Module causing any study containing unsaved data prior to closing the module to become corrupted.
- Fixed bugs in Consumption to PFEP Comparison Workbenches causing object reference and invalid cast errors after selecting 'Where Used (All Options)'
- Fixed bug in Line Balancing module causing errors when generating a work instruction report if a new station was inserted into the line balance scenario station list, but not the routing, and was then followed by existing stations in the routing.
- Fixed bug in the Routing > Total Work Content by Line report, for all routings, causing a 'no row at position 0' error.

### 11.9.0.0

#### Not Released

### 11.8.1.0

#### Released April 8, 2020

- Enhancements
  - Added custom field validation support for Shop Floor Viewer reports
- Bug Fixes
  - Fixed bug in certain work instruction report templates causing Left Logo to not load
  - Fixed bug in Consumption Workbench causing 'failed to enable constraints' error when selecting activities

### 11.8.0.0

#### Released March 31, 2020

- Enhancements
  - Initial release of Precedence > Clusters capability
    - Adds ability to include activities into a cluster, enabling precedence to be checked across clusters and, if desired, within clusters. Clusters can also be nested.
  - Routing – Edit Model Option Data screen
    - Removed model specific task times and take rates
    - Added model alias columns header text in Advanced View
    - Allow user to set the column header row height for Advanced View
  - Activity Module – Detailed MUDA for Estimated Time
  - Added error handling when loading corrupt image files into the Image editor
  - Added Templates refreshing loading screen during login
  - Added new preferences for setting the maximum OpSeqNo and ActSeqNo. Added controls to ensure users and the system could not exceed those values, including via automatic resequencing during Line Balancing > Apply Scenario.

- Added new EAWS Ergonomics standard and Excel exports
- Shop Floor Viewer
  - Improved Process Tree performance by selectively refreshing impacted activities after roadblock updates
  - Added a 'Pending Approval' state to Test Failures
  - Added Torque Tool logic to main activity work instruction page
    - If a resource is mapped to a work step via the work step no attribute of the activity resource tab and
    - The resource has a color defined in the Resource-Color custom field and
    - A component is mapped to the work step via the work step no attribute in the activity consumption tab and
    - The components Activity.Consumption-Torque value is within the range of the Resource.MinTorque and Resource.MaxTorque values and
    - The components Item.IsTorqueRequired is set to true in the activity consumption tab THEN
    - The SFV will show the resource under the work step labeled as Required Torque Tool and
    - The resource will be highlighted with it's defined color and
    - The associated part will be highlighted with the resources defined color in the parts table and
    - The user will be required to type in a torque value in the Torque Status cell that appears next to each Required Torque Tool. This cell will be highlighted in red if no value has been entered or if the entered value does not fall with the Resources' MinTorque and MaxTorque values. If the values does fall into the correct range, then the cell will be highlighted in green.
  - Added part hyperlink functionality via the activity work instruction page.
  - Added Activity-Skip feature. Allows privileged users to skip an activity and document a comment. Skips are closed by performing an activity sign off. Skips are visible via the Process Tree-Skips tab.
  - Added Roadblock Alerts Notification system. Enabled via Customer-Settings.json attribute 'EnableEventNotifications'. Requires the configuration file EventNotifyRulesSet.json.
  - Added role privilege to control if the user can remove components from the unit via the Process Tree Components tab.
  - Added new complex part data inputs of 'Lot ID' and 'Mfg Date'. Controlled via the associated fields in the Activity-Consumption screen.
  - Added ability to set work step test level control for handling in/out of specification results. If the Workstep.RequiredInSpec value is equal to true, then the user will be able to proceed with sign off of the activity. Otherwise a failing result prevents the user from sign off.
  - Added generic Roadblock entity to SFV, which includes a workflow for promotion to review/complete or demotion to cancelled. State changes are controlled per user by role privileges. Mandatory fields to be input by the user when completing different roadblock types are controlled via a json config file.

- Bug Fixes

- Corrected issues where Resequenece Line Unit Numbers was not always called when Machine Serial Number values changes
- Fixed bug where certain Operation data objects were not populated in the Operation List after selecting a routing
- Fixed bug when deleting checked in documents

- Fixed bug in offsets for automatic schedule type (fitting the schedule to the order) in Sequence Planner module

## 11.7.0.0

### Released March 5, 2020

- Enhancements
  - Initial release of new Export Data module
    - Adds Pivot Table generation tool within Assembly Planner
  - Added new reports to Line Balancing Module
    - Operator Balance Summary
    - Operator Summary
    - Operator Task Times
    - Model Family Time Summary by Station
    - Model Family Time Summary
  - Improved paste functionality when interacting with Google Sheets
  - Improved handling of user role privileges in the Plant Module when adding and deleting stations / assembly lines
  - Removed Refresh button from Work Schedule preferences editors
  - Removed PFEP BOM Publishing user interface from Publishing Module
    - All BOM data is to be published via backend jobs
  - Added Ergonomics values to lookup sheets for all standards supporting LergoBALP and OCRA
  - Shop Floor Viewer
    - Added setting to Layout-Settings.json file to control if the activity image or video files names are visible to the user
    - Added Supporting-Documents.json configuration file to control the Supporting Documents link. Supporting Documents button in the footer is enabled if specific in the Layout-Settings.json file.
    - Added support for Blue Prints feature, which provides a link to the URL associated with the item custom field
- Bug Fixes
  - Fixed bug which resulted in Line Balancing Scenario files to fail check-in via the Checked Out Entities screen.
  - Fixed bug in Time Classification Summary report when running for multiple stations.
  - Fixed bug in BOM Changes module if certain fields were hidden via Customize View causing saves to fail
  - Fixed bug in Station Tools report which resulted in station header info dropping when report was exported to Excel.
  - Fixed display bug in Sequence Planner that prevented rows from showing up when workdays spanned past midnight.
  - Fixed bug when user clicks an empty Item ID or MCO ID in the BOM Changes grid
  - Fixed bug in BOM Changes module so that Apply BOM (copy eBOM to mBOM) functions properly if the Item-Revision columns is hidden
  - Fixed object reference error when refreshing Activity Search Control during add existing activities from the Operation Module
  - Fixed bug in the Routing – Edit Model Option screen when Model IDs contained a period
  - Fixed handling of error when saving a file which is already open when the user Exports BOM from the Component Module
  - Fixed bug causing a timeout error when retrieving publishing job status

### 11.6.0.0

#### Released February 11, 2020

- Enhancements
  - Sequence Mass Update Module
    - Allow ability to Publish Partial Days, same as from the Publishing Module
    - Improved error message when orders are not found in the Build List
- Bug Fixes
  - Fixed bug when completing MODAPTS Time Study with Simultaneous motion, simo tasks that are both high conscious control will be included in the total time, and reduce the highest movement to M2
  - Fixed bug in PFEP Part Plan MBOM Workbench that would unintentionally modify the Kitting Quantities of different parts when performing a copy paste within the Option spreadsheet

### 11.5.0.0

#### Released February 5, 2020

- Enhancements
  - Unit Serial Number Start and End fields added to BOM fields for filtering the MBOM
  - Templates refresh automatically during login. Users do not need to manually select 'Refresh Templates'.
    - Added 'Refresh Modified' capability
  - Added capability to deploy 'Custom View' settings to all users.
    - New menu bar tool called 'Custom View Manager' allows privileged users to export their UserSettingsData.xml file
      - This exported file should then be uploaded to the Template Manager>Configuration Files
      - The custom view manager also allows for you to backup and restore old view templates.
    - Added role privileges to control who can customize views
    - Let the user know upon opening the software if a new UserSettingsData.xml file has been uploaded and give them the option to replace their file with the newer file.
  - Enhanced Routing-Item Mapping Control to use grid control for mass copy/paste capability
- Bug Fixes
  - Fixed bug in MCO module where share checklists could appear for lifecycle stages for which that were not applicable

### 11.4.0.0

#### Released January 17, 2020

- Enhancements
  - Added Role and Role Privilege classifications (Edit, View, Admin, Personal Data) and roll up by Role and User
  - Validation added to make Line Code distinct
- Bug Fixes
  - Bug fix for Routing Link when navigating from Resource Where Used control
  - Trim all edits in PFMEA Tree View to 64 characters

- Fixed bug that did not allow importing of Work Steps from Import Module
- Fixed bug that would rotate images 90 degrees in the Media tab if imported from a phone
- Fixed bug that would indirectly default the Position Sequence field for PFEP Racks created during a single session while creating additional racks
- Fixed bug causing MUDA video clips from split and converted videos to not play correctly.
- Fixed bug when loading modules for a first time user without a default Plant ID value assigned to their user ID
- Fixed error in certain SOP work instruction reports if the SOPIImageID is greater than 100 characters
- Fixed bug in auto creation of Racks when saving Part Plan records
- Fixed bug in Resource module when selecting a Routing in the Where Used search

### 11.3.0.0

#### Released December 30, 2019

- Enhancements
  - MDD
    - added ability to add rows to the sheet
    - Added Role Privileges for MDD
- Bug Fixes
  - Fixed error when moving activities if there are multiple operations with the same OpSeqNo and Workcenter values
  - Fixed bug that caused incorrect lookup values when pasting MOST Codes
  - Fixed bug in PFEP search when selecting all Racks
  - Fixed incorrect document reference instances that directly access files from the documents folder
  - Fixed object reference error when double clicking from other UIs to navigate into the Operation module

### 11.2.0.0

#### Released December 5, 2019

- Enhancements
  - PFEP Part Plans
    - Make ItemID comparison not case-sensitive
    - Allow part plan to have more than one destination from same origin
    - Do not allow replenishment systems to be orphaned
  - Code change to prevent System Administrator User from being modified by other Users that have the Administrator Role
  - Shop Floor Viewer
    - Sign On Sign Off controller overhaul project released
    - Added new role privileges
      - Allow Operation Sign On Sign Off Out of Sequence – Allows for skipping stations
      - Allow Activity Sign On Sign Off Out of Sequence – Allows for skipping activities within stations
      - Allow Sign Off Check Point Stations (with missing parts, roadblocks) – Added station level attribute to signify check points/end of line and elevated privileges for sign offs and allowing incomplete work to pass
- Bug Fixes

- Fixed bug in Transfer Checked Out Entities when deleting a User that required the full name and user name to match
- Fixed error when copying an operation then editing a child activity
- Fixed bug in Activity List when editing activities from newly moved operations
- Fixed handling of videos so that observation video segments (splits) are handled differently from observation videos

### 11.1.0.0

#### Released October 11, 2019

- Enhancements
  - PFEP Validations added when deleting locations that are mapped to racks
  - Add new field 'IsCheckPoint' to Station entity
    - Checkpoints, and associated shop floor role privileges, allow additional control per station for allowing certain users to sign off, sign off with missing components, or sign off with open issues
  - Added check to ensure Workstep SOP Page value cannot be zero or negative
  - Deprecated all MongoDB references from the software
  - Shop Floor Viewer
    - Added support for displaying carriage return and line feed characters in the workstep description
    - Updated Angular and DevExpress to the latest
- Bug Fixes
  - Fixed bug that showed the incorrect fields in Customize View in the BOM Change Module
  - Fixed bugs in Precedence graph when creating a cycle
  - Fixed errors resulting from PFEP WCF conversion methods to connect to the database
  - Fixes errors in sheet when customizing view in Advanced Tools > Mass Update Model & Options
  - Fixed various PFEP bugs when refreshing lists and pages
  - Fixed bug in PFEP when generating certain reports when only a single part plan row is present in the table
  - Fixed bug in BOM Changes module tied to Customize View control and a null exception error
  - Corrected GetMCOTransaction process to always return the current transaction for an MCO, Lifecycle Stage, and Status
  - Fixed but in Routing>Clone control to ensure that all properties are copied to the new routing

### 11.0.0.0

#### Released September 17, 2019

- Enhancements
  - Updated minimum .NET version to 4.7.2 to support TLS 1.2
  - Converted PFEP module to support https connections
  - Changes to prevent cascading deletes throughout PFEP, error messaging developed to specify to the user where and what entities need to be reviewed
  - Changes to PFEP search controls in Part Plans, added Rack and Containers drop down list
  - New Feature to create Code Block functionality to BMOST and MaxiMOST, group codes in blocks and allow user to enter or select block code to populate multiple codes at a time, allows for nested blocks

- Added Routing Type drop down to Routing Search Control
- Deprecated OptionGroupID from PFEP Item Rack Location Opting Group Mapping
- Shop Floor Viewer
  - Role Functions Redesign project including renaming, adds, removes, and inverting functions.
- Bug Fixes
  - Corrected Tool Tips in Preferences > Line Balancing > Task Configuration
  - Fixed bug that did not allow to change the Station Details in Line Balancing
  - Fixed bug related to not showing child linked data when deleting PFEP locations
  - Fixed bug when setting tree order value for published work step data
  - Fixed bug in Line Balancing xml data sets after using Edit Station Detail from certain existing scenarios