



Help Desk and

Product Support

A Force for Good



Systems Completion through Commissioning & Start-Up



Zenator

Technical
Consultancy and
On Site Support

MasterClass Training in Systems Completion and Commissioning & Start-Up with API RP I FSC



A Force for Good

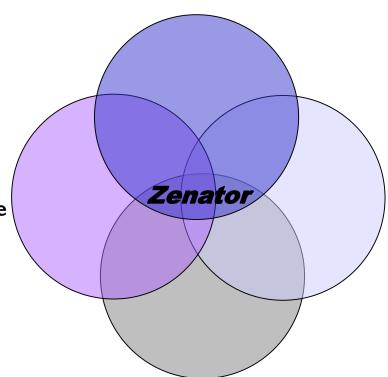


Systems Completion through Commissioning & Start-Up

Systems Completion & CSU for Commissioning Manager

In accordance with API RP I FSC

Excellent Corporate Governance



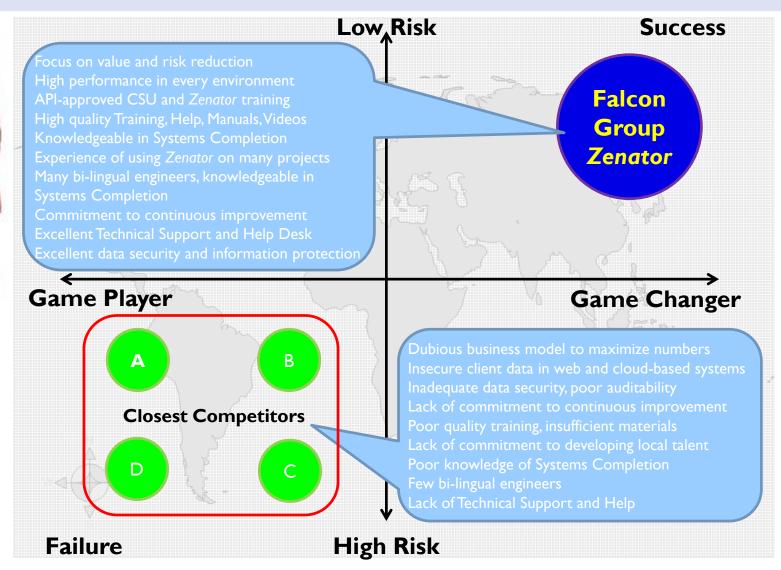
Feeding Operations
At System
Handovers

Mechanical Completions Turnovers from Construction Manager



We are a Game Changer



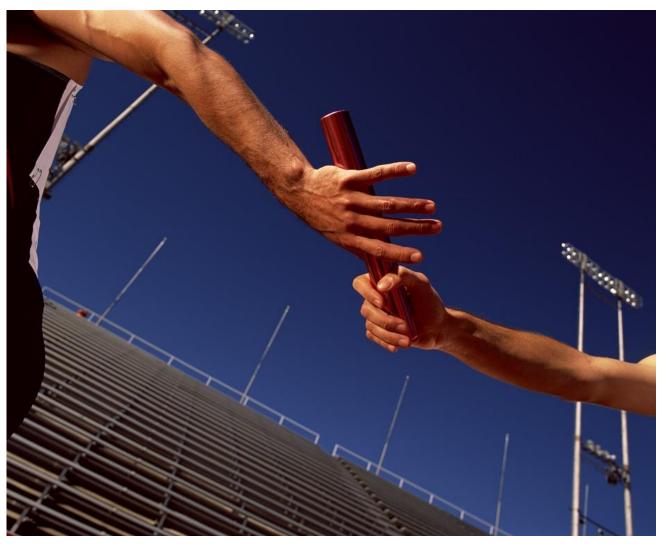




Systems Completion Execution Process Zenator in a Photo



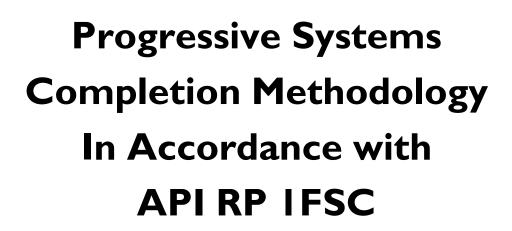






Zenator Systems Methodology









Frequently, Operators and Contractors implement tools like Zenator too late

Usually, this is during Phase 4 — Execute

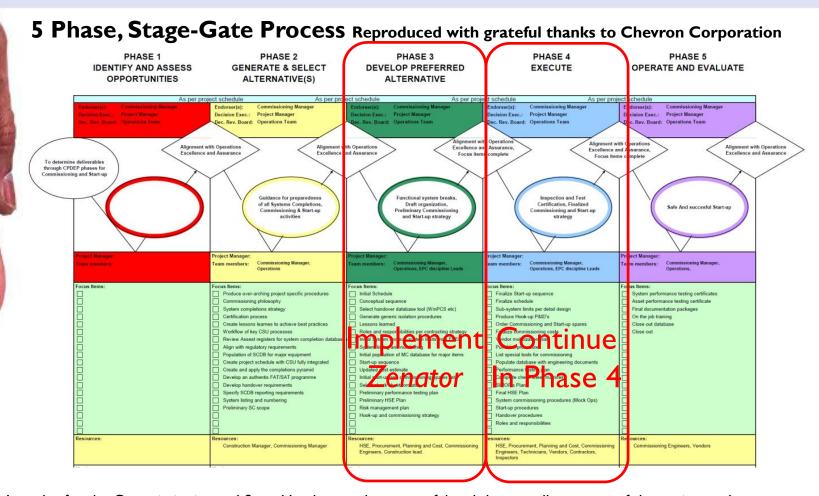
Or sometimes at the start of Phase 4

We propose there is greater Value than Cost in early implementation of Zenator, during Phase 3 — Develop Preferred Alternative







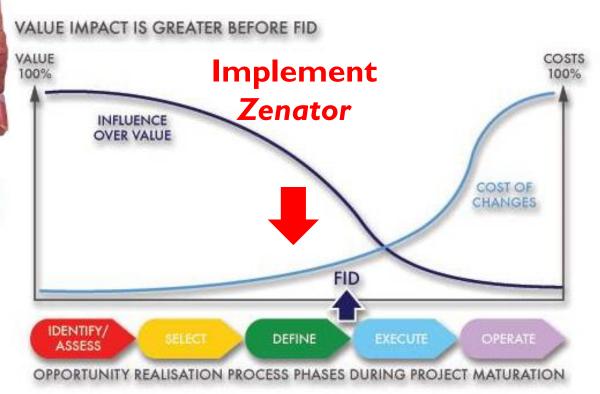


In order for the Commissioning and Start-Up phase to be successful and the overall outcome of the project to be seen as successful, much of our effort will focus in the earlier stages of the project life cycle, in Phases 2 & 3.





Influence Curve over Project Life Cycle Reproduced with grateful thanks to Shell Oil



Notice in the diagram the 5 Stage Gate phases in a project there are two curves overlaid;

- I. The **Influence Curve** which declines from Phase I
- 2. The **Cost Change Curve**, increasing from Phase I

The two curves are anecdotal, not scientific, but they are true, proven by experience.

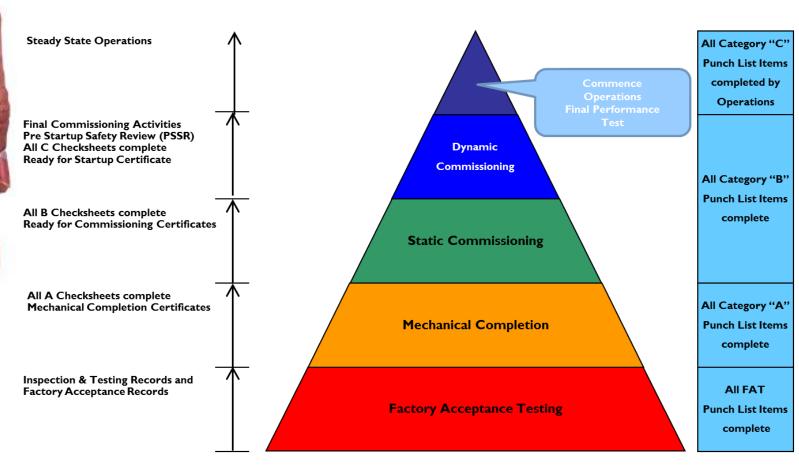
Notice that near the end of Phase 3, a final investment decision (FID) is taken.

If positive, the project will move into the next Phase, Execute.

See also the statement that value impact is greater before FID.







Completions Pyramid © 2005
With reference to API RP IFSC Figure I





FEED, Detailed Engineering and Procurement

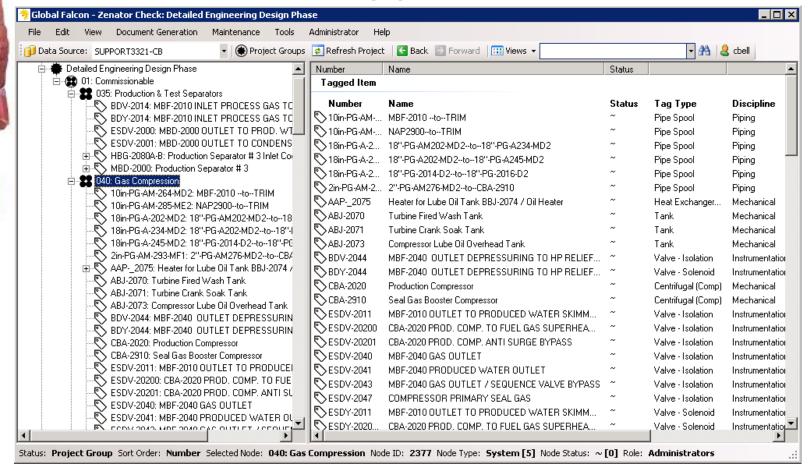
During this phase Zenator will allow detailed tracking of:

- Major Items of Equipment and Long Lead Time Equipment systemized to at least a System level.
- Key procurement information including Purchase Order Numbers and Manufacturers / Vendors.
- Complex relationships between items of equipment such as a Skid for a Compressor and all the individual components that make up the compressor.
- Factory Acceptance Tests, Inspection Release Notices and finally Material Receiving Inspections all be tracked through Vendor Inspection Test Records or VITRs.
- Carry over Punch List Items.
- Preservations or PITRs via a Tag Type Matrix.





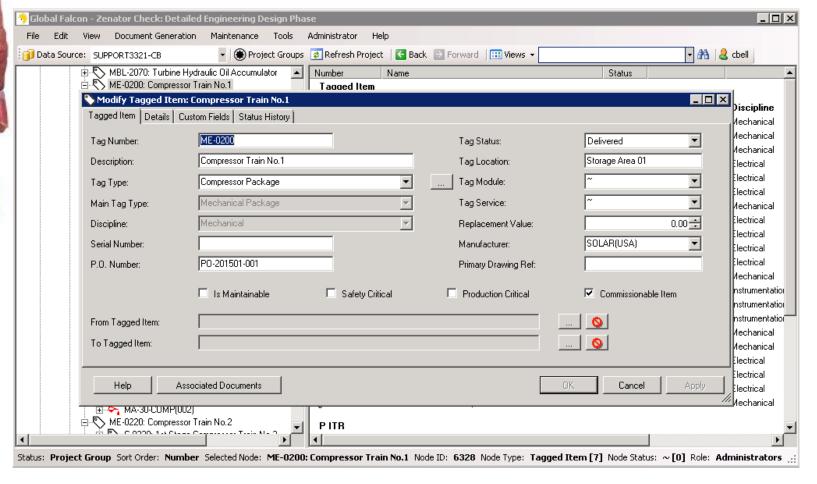
Systemized major Items of Equipment and Long Lead Time Equipment







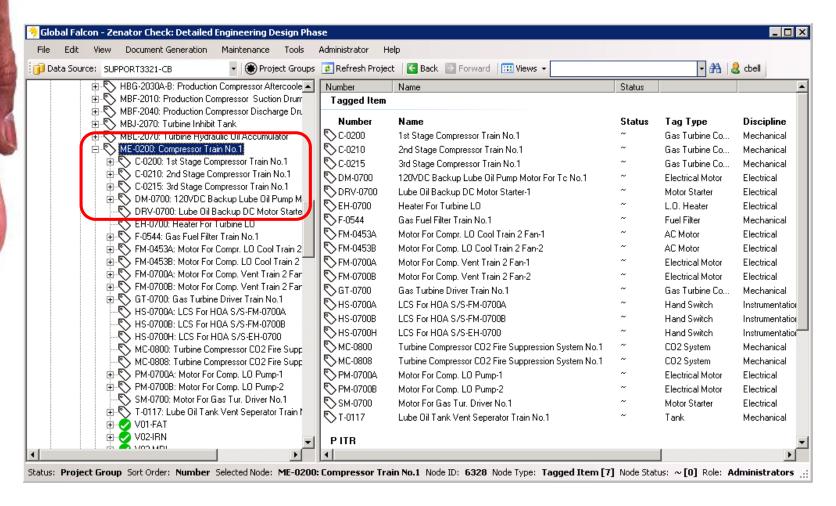
Key procurement information including Purchase Order Numbers and Manufacturers / Vendors





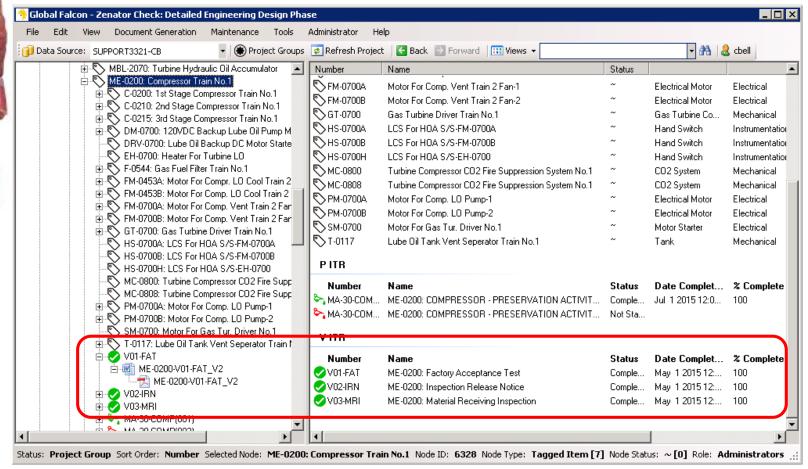


Complex Parent and Child Tag Relationships



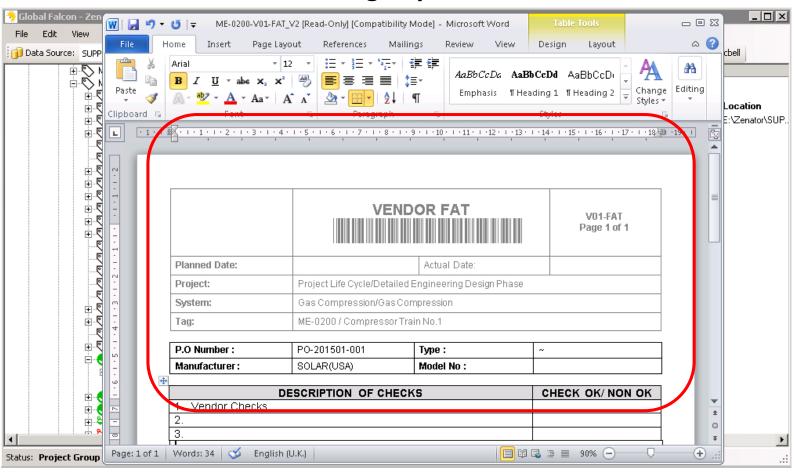






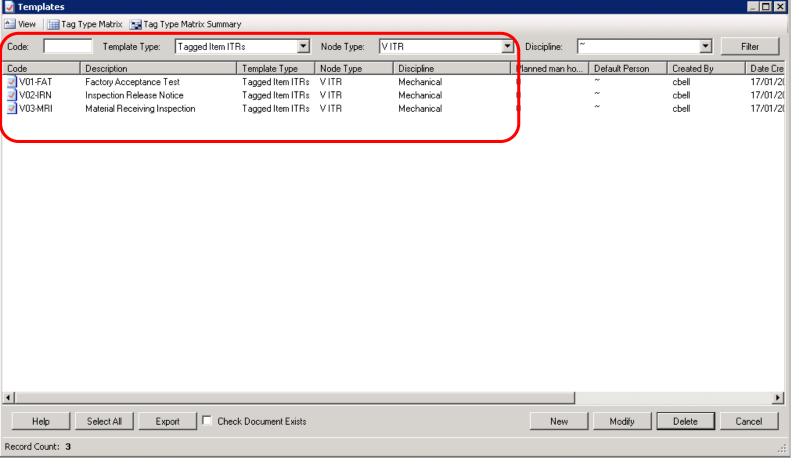






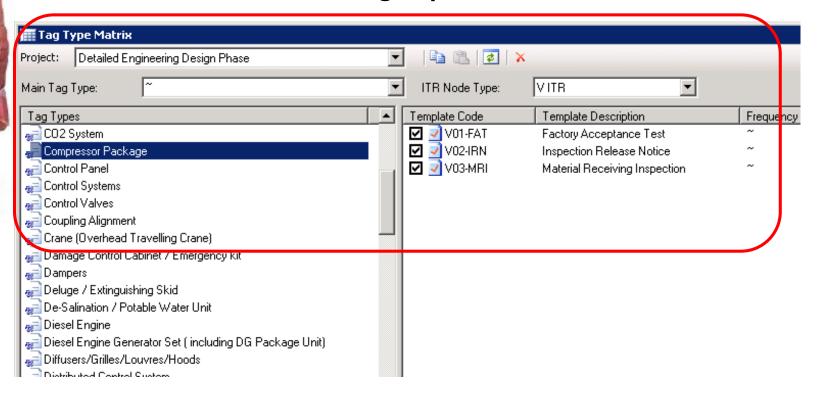






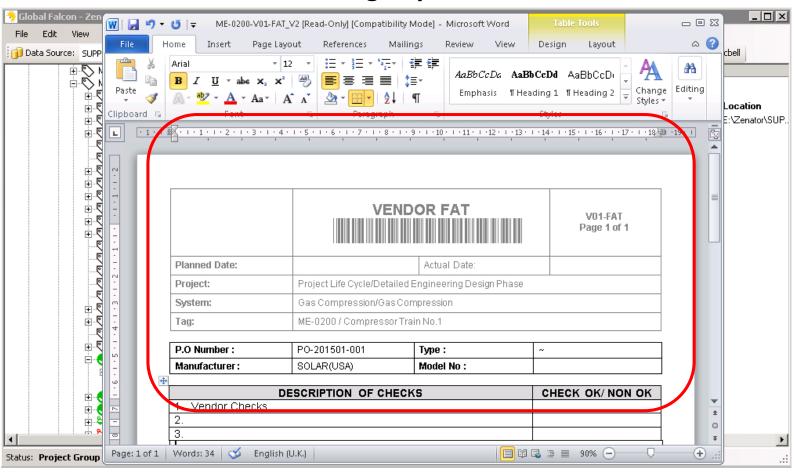








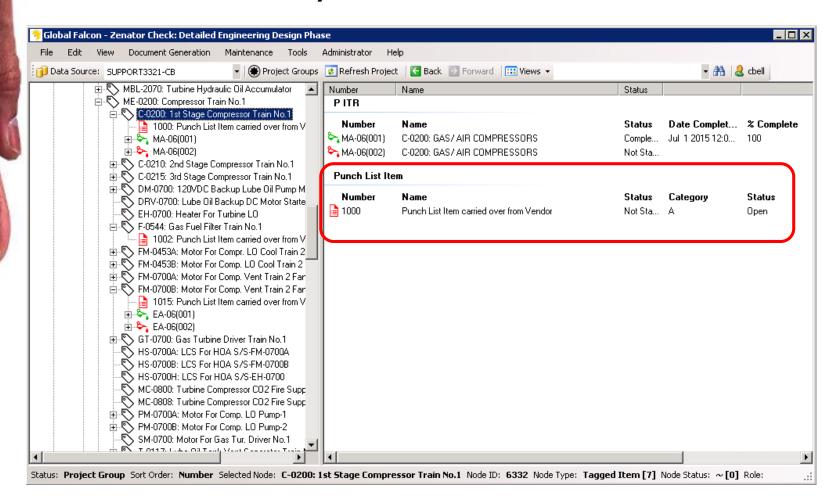








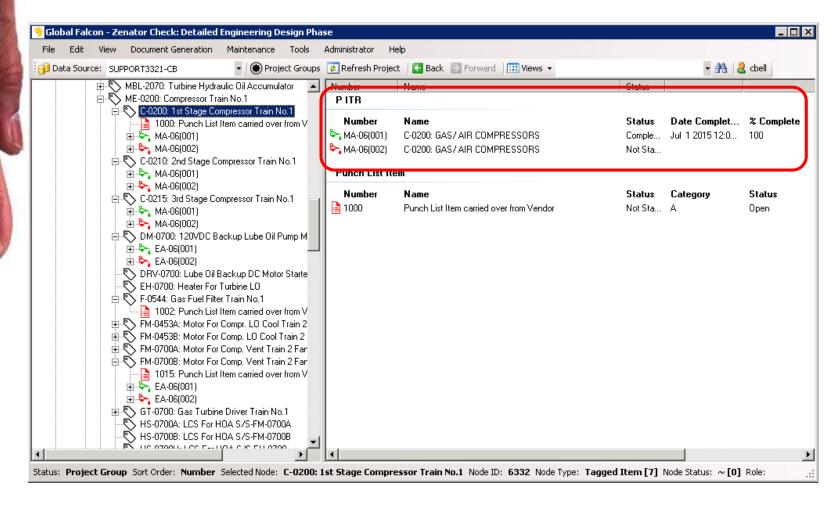
Carry over Punch List Items







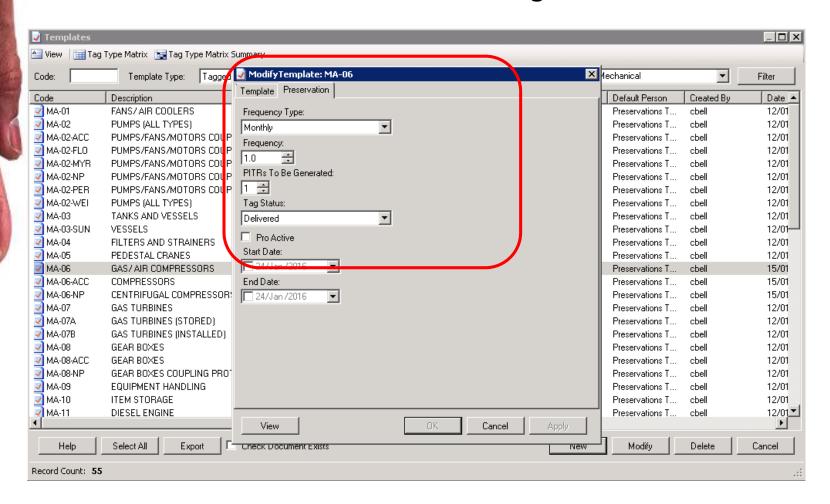
Detailed Preservations Tracking via PITRs







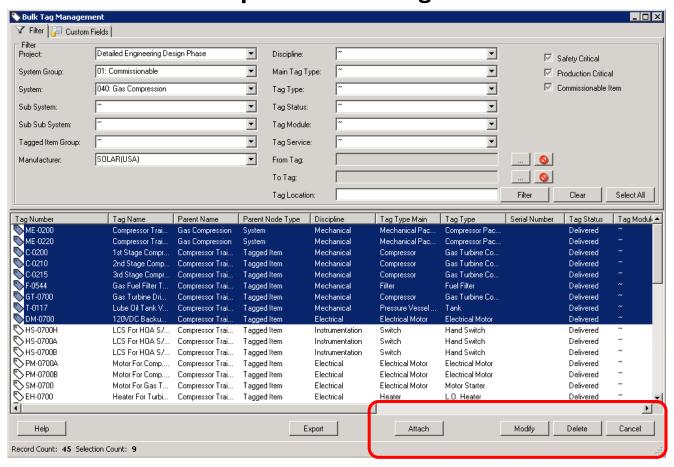
Detailed Preservations Tracking via PITRs







Detailed Preservations Tracking via PITRs Bulk Updates to the Tag Status









- Through this phase of the project further Tag imports will be processed as the Detailed Engineering continues to evolve, systemising the equipment data into Sub Systems and adding additional equipment such as piping lists, instrument lists and cable schedules.
- Follow up Tag imports will keep Zenator synchronised with the engineering design process and will continue to assist with the procurement tracking, Factory Acceptance Tests, Inspection Release Notices and arrival of equipment on site with Material Receiving Inspections.
- Carry over Punch List Items will continue to be captured.
- Equipment Preservation work will be scheduled.





Construction Phase

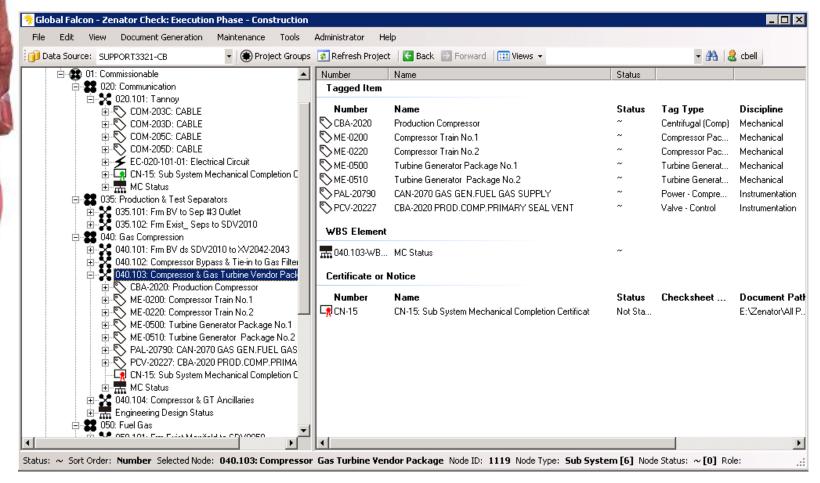
During this phase Zenator will allow detailed tracking of:

- Continued Design Phase tracking (VITRs, PITRs, Punch Lists).
- Equipment now systemised to the Sub System or Sub Sub System level.
- The verification of Mechanical Completion using A Checksheets or AITRs for the inspection and testing of workmanship and materials to prove and validate the correct execution of fabrication and installation work.
- Specialized nodes Piping Test Packs and Electrical Circuits for the tracking of these specific inspections.
- System / Sub System Walkdowns to capture Punch List Items.
- Key Milestones such as Mechanical Completion (MC).
- Project specific certification process.





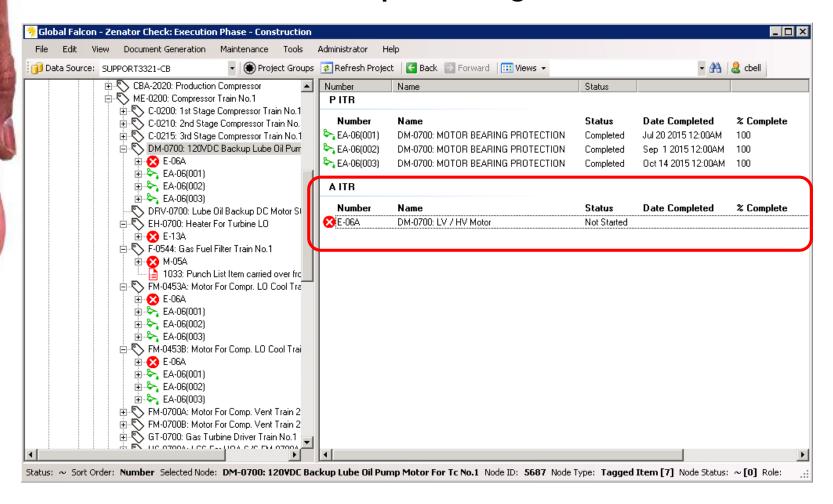
Equipment now systemized to the Sub System or Sub Sub System level







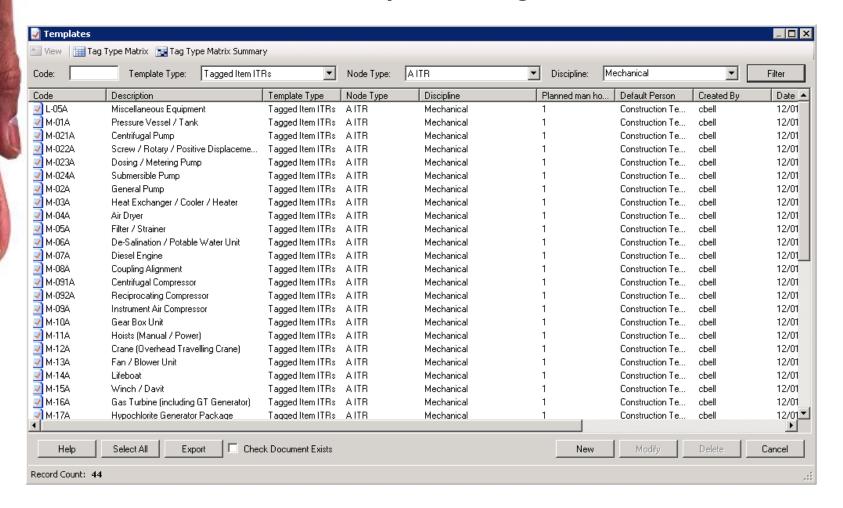
Verification of Mechanical Completion using A Checksheets or AITRs







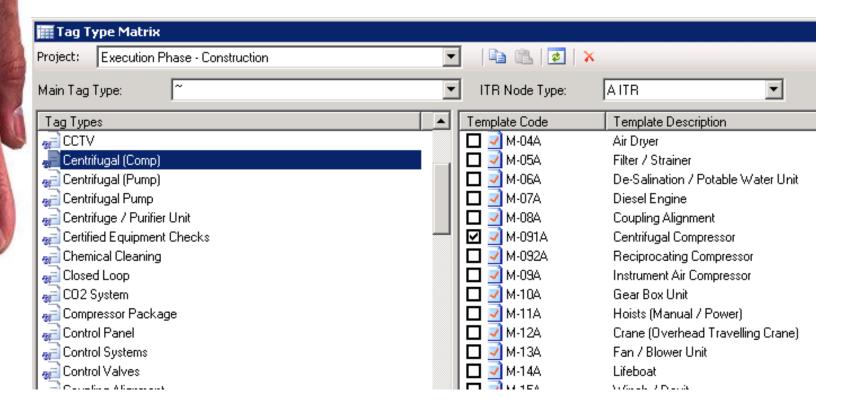
Verification of Mechanical Completion using A Checksheets or AITRs







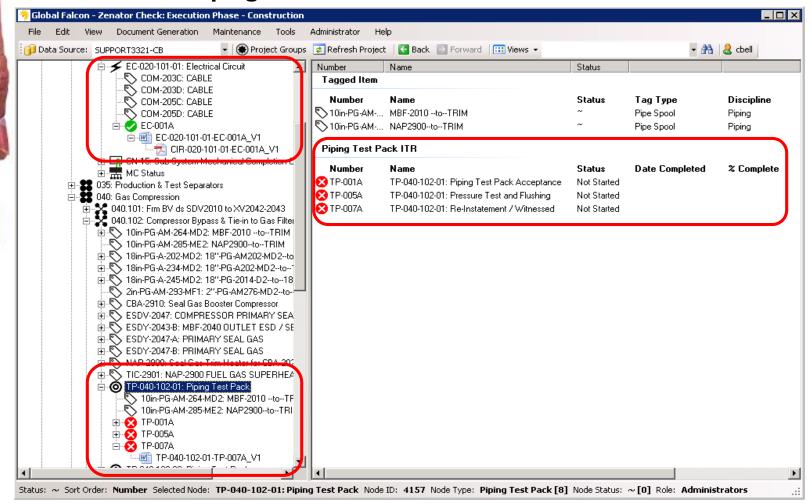
Verification of Mechanical Completion using A Checksheets or AITRs







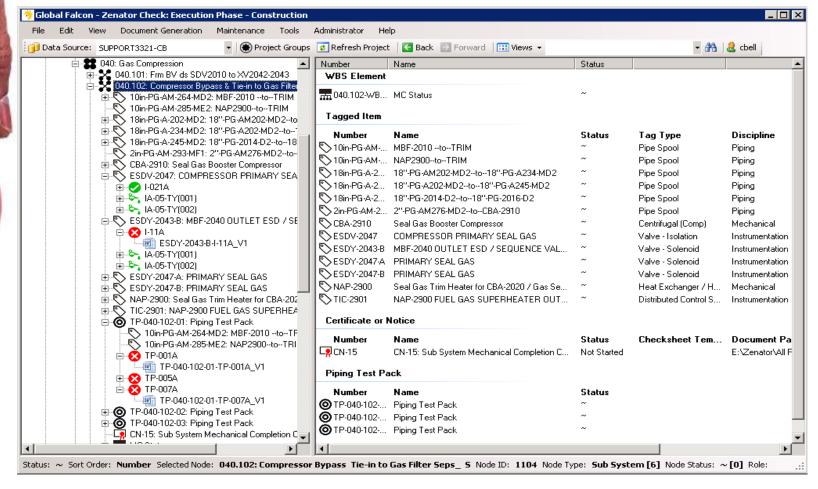
Piping Test Packs and Electrical Circuits







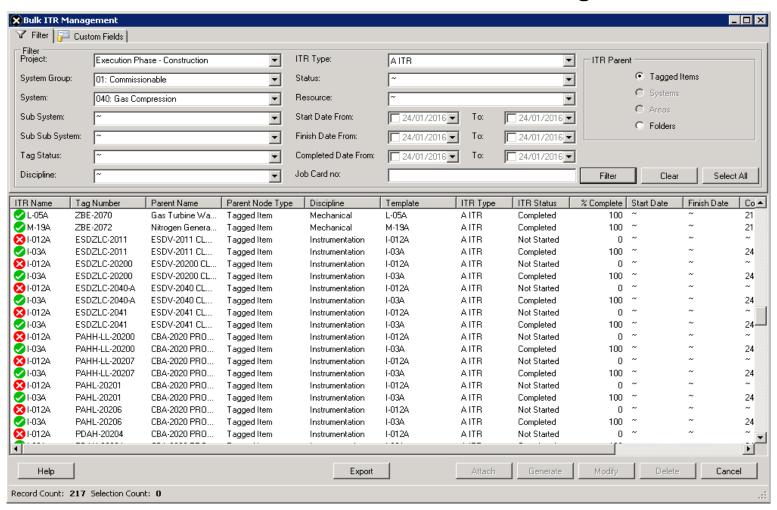
A Checksheets or AITRs Processing







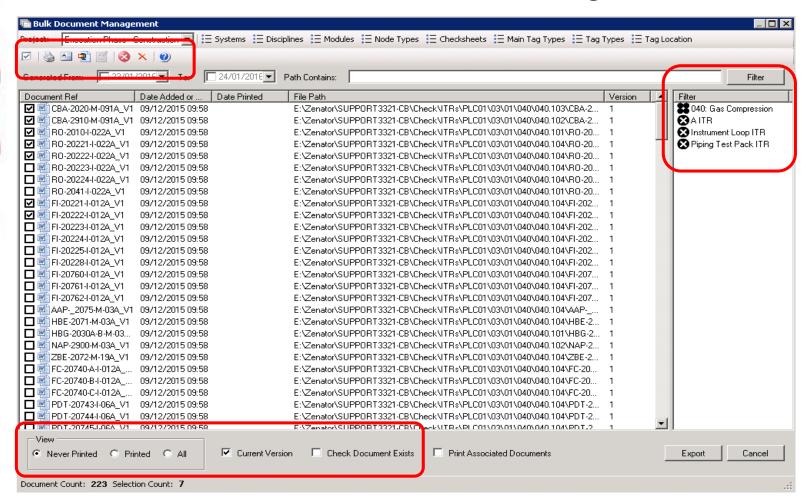
A Checksheets or AITRs Processing







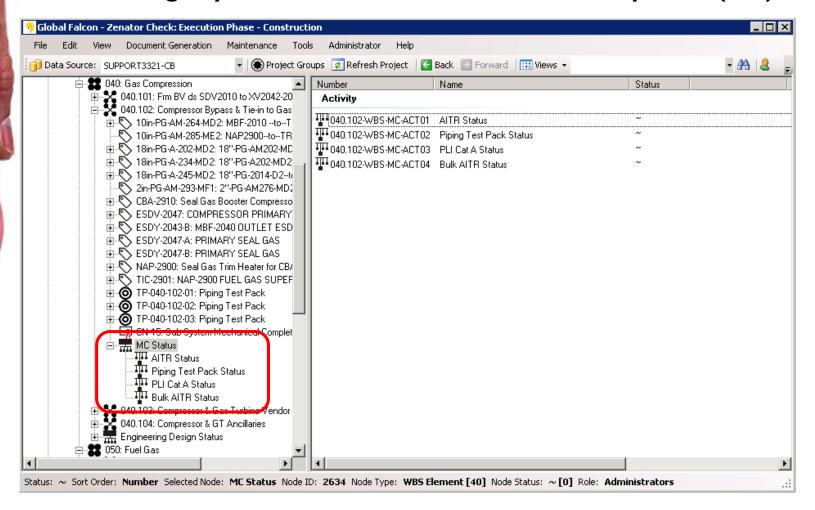
A Checksheets or AITRs Processing







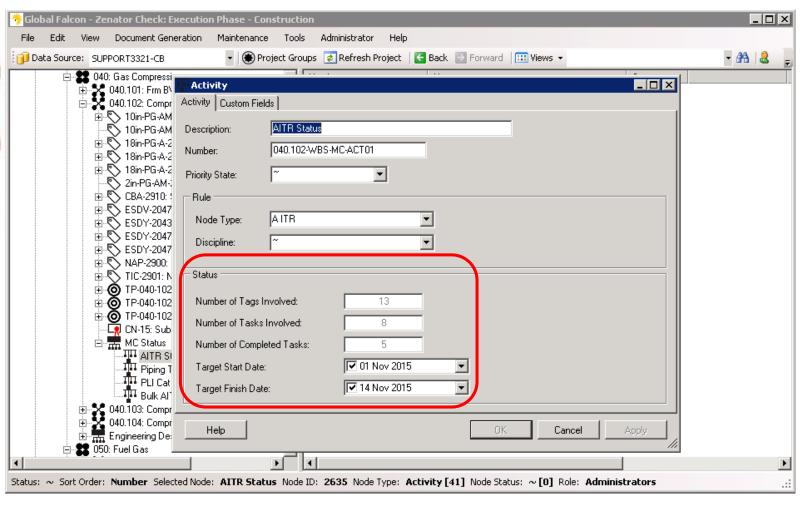
Monitoring Key Milestones such as Mechanical Completion (MC)







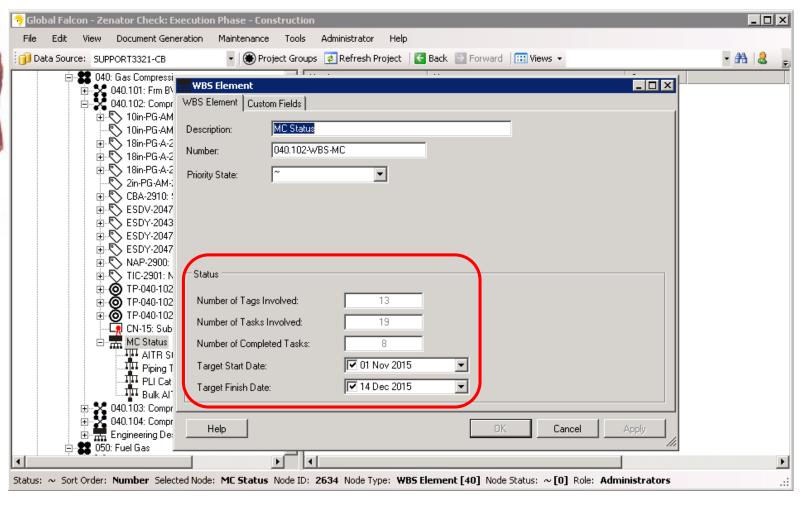
Monitoring Key Milestones such as Mechanical Completion (MC)





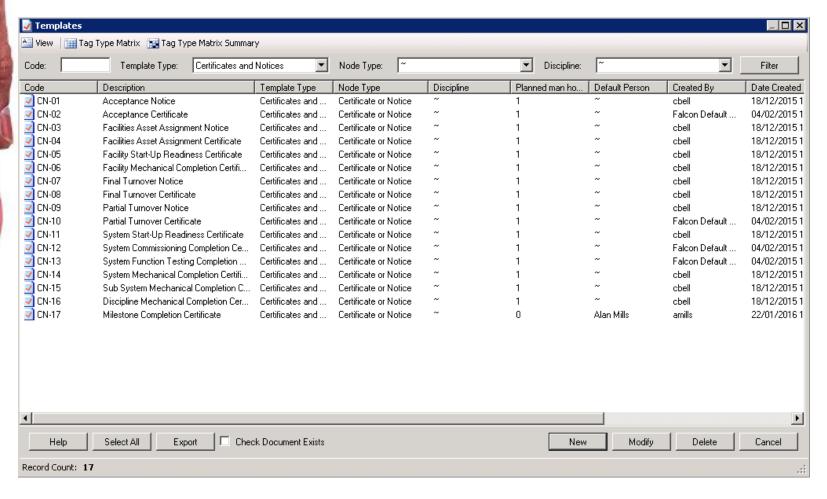


Monitoring Key Milestones such as Mechanical Completion (MC)



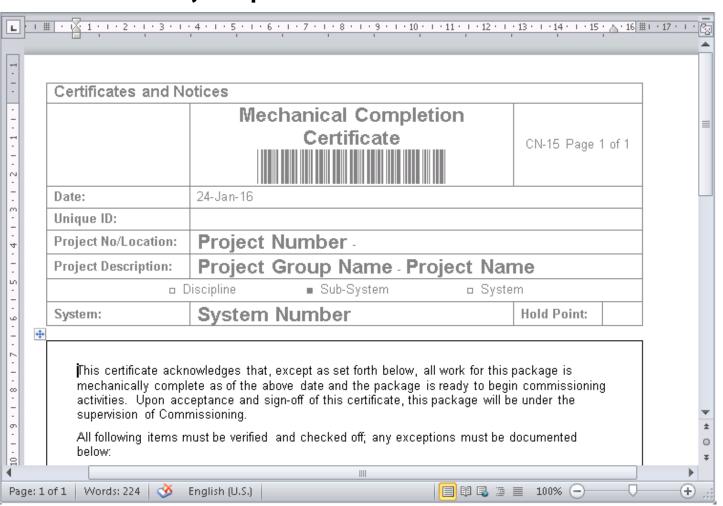






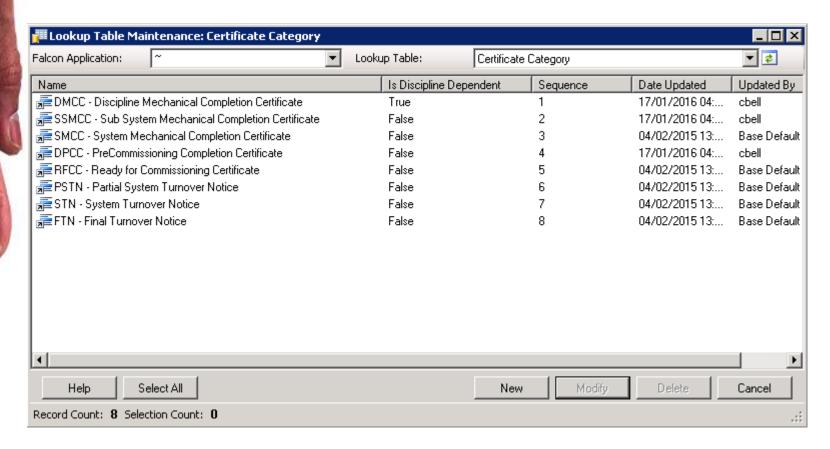






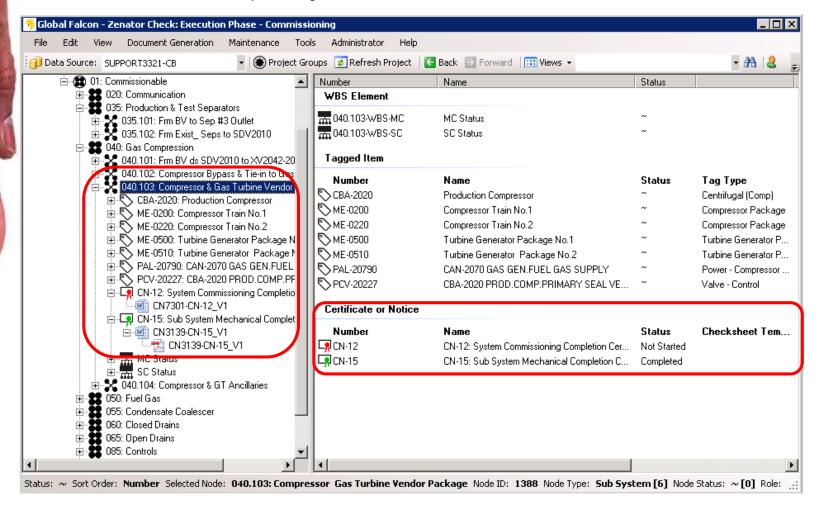






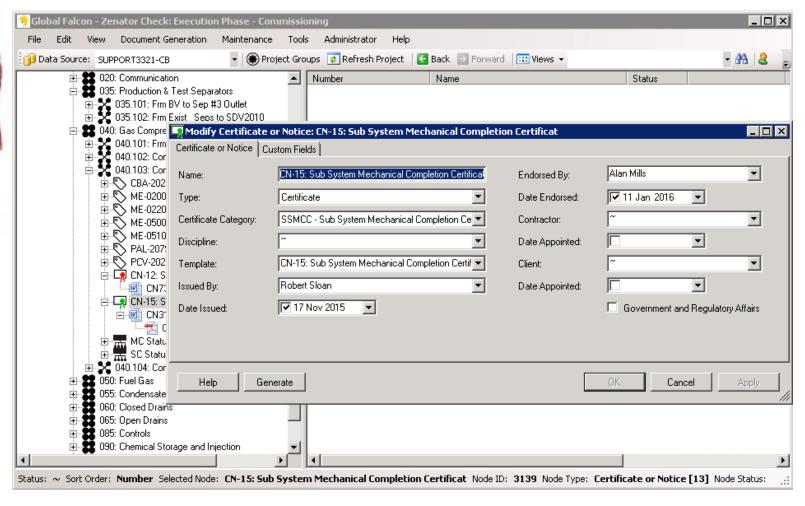
















Other Tracking and Data Manipulation

- Other manipulation of data such as splitting out or merging Systems, Sub Systems or Sub Sub Systems can be achieved through cut / paste or drag & drop for small numbers of records or via a Tag Export to Excel and reimport using the Tag Import in Zenator Launch.
- Zenator can also monitor a number of other aspects of the Systems Commissioning process including:
 - MOCs via Zenator's Change Management Node.
 - Site Queries via Zenator's Change Management Node.
 - Inhibits and Isolations.





Construction Phase Summary

- Through this phase of the project further Tag imports will be processed as the Detailed Engineering process reaches it completion.
- Procurement tracking via Factory Acceptance Tests, Inspection Release
 Notices and arrival of equipment on site with Material Receiving Inspections should also conclude.
- Equipment Preservation work will continue to be scheduled and carried out through the Tag life cycle for statuses such as "Delivered" and "Installed".
- Punch List Items will continue to be captured including key Walkdown
 Milestones as Systems / Sub Systems approach Mechanical Completion.
- Detailed A Checksheet assignment via the Tag Type Matrix and progress tracking will continue for each System / Sub System as they approach Mechanical Completion.
- Certificate & Notice assignment and tracking to Sub Systems and Systems as they approach Mechanical Completion.







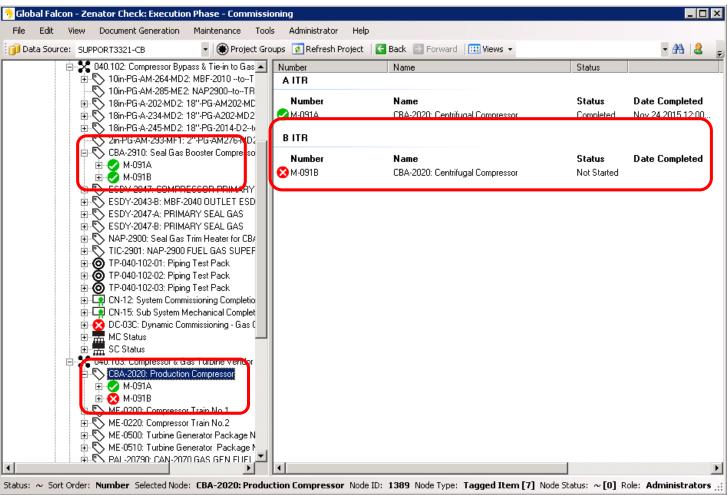
During this phase Zenator will allow detailed tracking of:

- Continued Construction Phase tracking (AITRs, PITRs, Punch Lists).
- Pre-commissioning (Static Commissioning) and Commissioning (Dynamic Commissioning).
- Static Commissioning activities through B Checksheets or BITRs.
- Dynamic Commissioning activities through C Checksheets or CITRs.
- Walkdown Capture for the Recording and Clearing of Punch List Items.





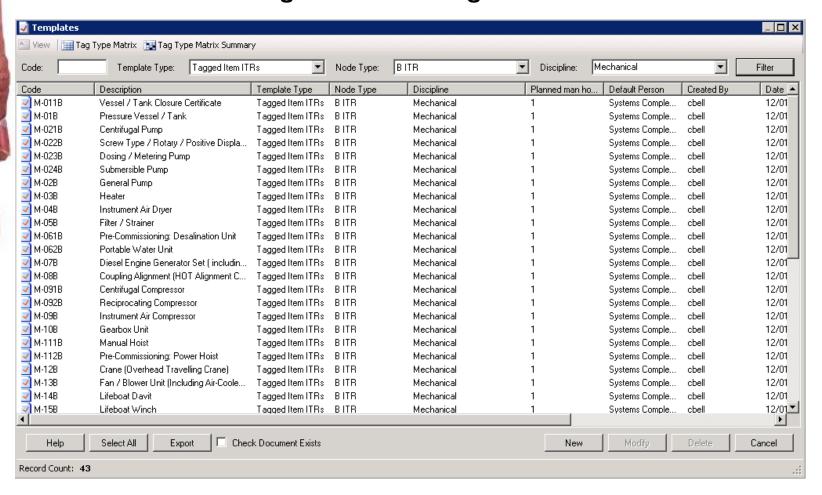
Static Commissioning activities through B Checksheets or BITRs







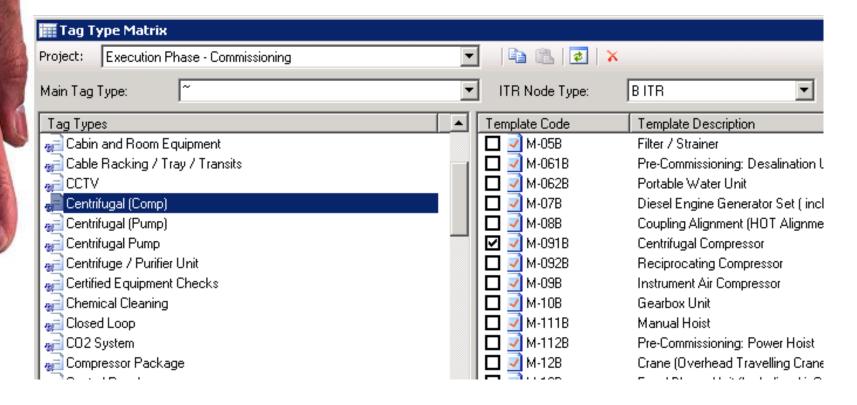
Static Commissioning activities through B Checksheets or BITRs







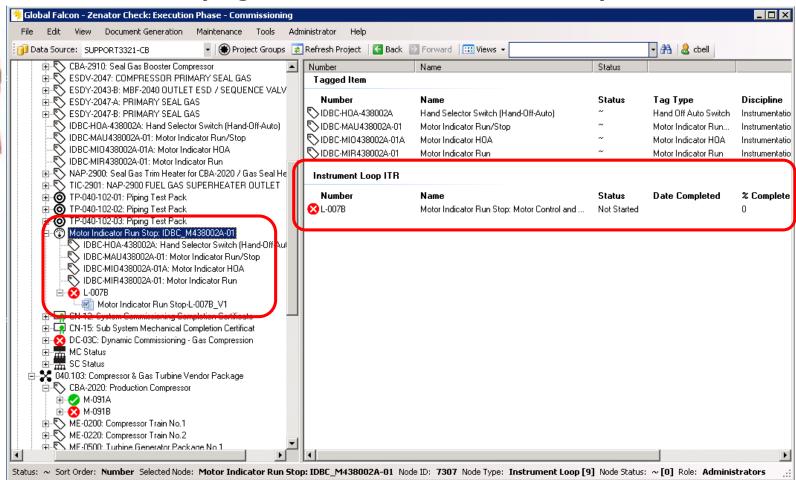
Static Commissioning activities through B Checksheets or BITRs







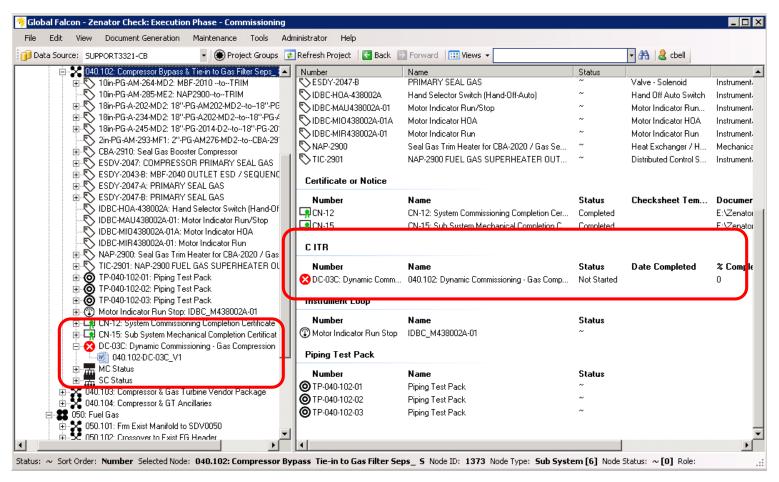
Piping Test Packs and Instrument Loops







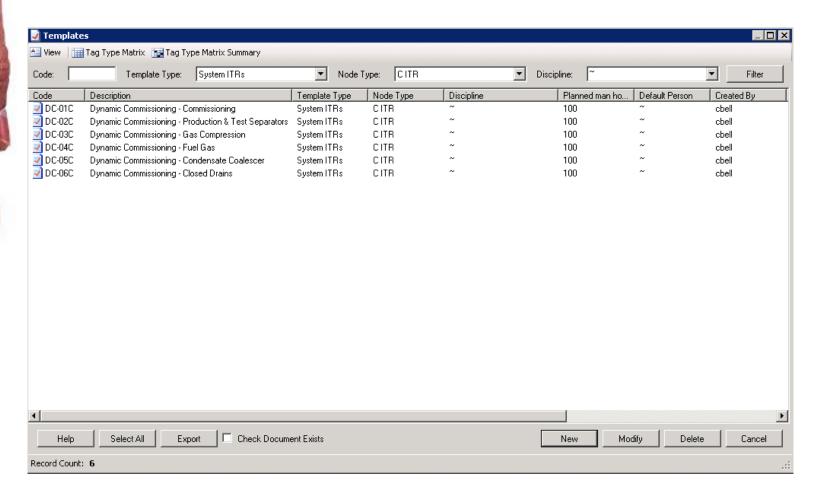
Dynamic Commissioning activities through C Checksheets or CITRs







Dynamic Commissioning activities through B Checksheets or CITRs







BITRs, Test Pack ITR, Loop ITRs and CITRs Processing

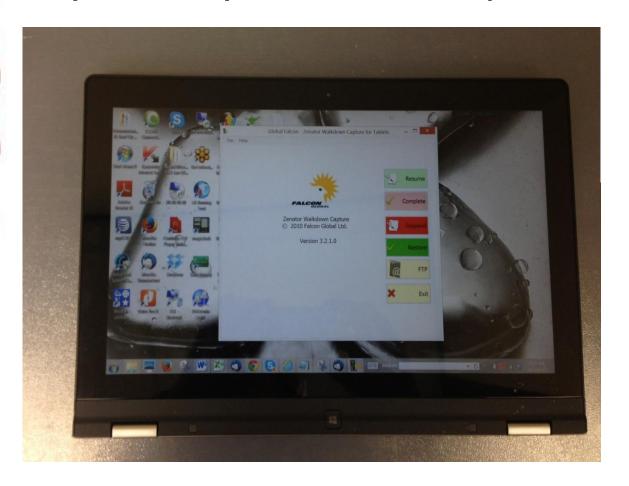
- The resulting documents from these Wizard generation and manual processes can be printed if operating a paper system or can be converted to PDF for electronic completion.
- The final document and any additional information sheets can all be scanned and loaded back into Zenator.
- Zenator will track the status of these ITRs from Not Started, Started to finally Completed.
- For completed ITRs you will be able to view the completed signed off Checksheet and any additional information sheets.
- As previously reviewed the Bulk Management ITR and Bulk Management
 Document screens are there to assist with the management of these ITR
 and Document records.



Zenator Walkdown Capture



System / Sub System Walkdowns to capture Punch List Items



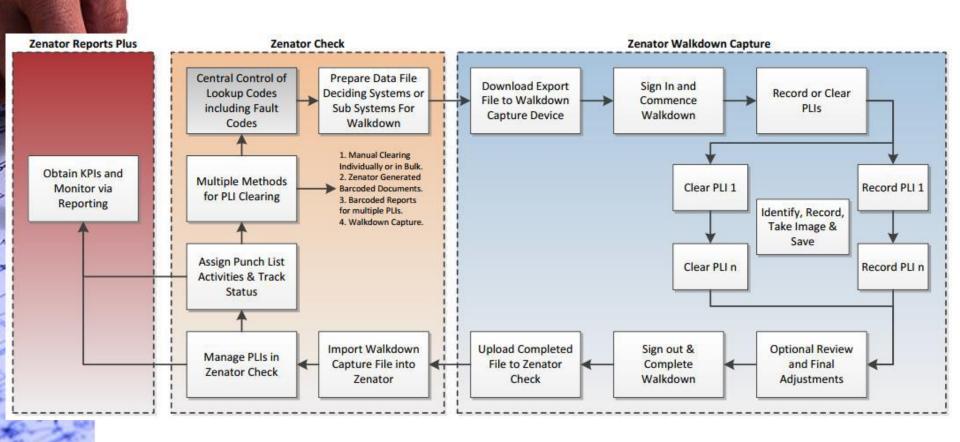
Win 10 OS
Touchscreen
Tablets with
rear-facing
Camera



Zenator Walkdown Capture bringing Technology to Punch Listing









Walkdown Capture

Recording and Clearing PLIs made easy!





Fault Codes

- Helping to standardize Punch Listing
- Improving communication
- Not everyone has English as first language

Tablet App

- Makes Recording and Clearing PLIs so easy
- Touch Screen, Big Buttons, Glove and Fat Finger Friendly
- Sign In / Sign Out security
- Start, Save, Pause, Resume and Complete a Walkdown
- Apply Fault Codes or Add New
- Photos for positive identification
- Seamless upload to Zenator through Check Sync
- Updates New Fault Codes in Zenator



Walkdown Capture Recording and Clearing PLIs made easy!





Punch Listing using WDC during SMCC WD



Walkdown Capture Recording and Clearing PLIs made easy!





Mechanical Completion Walk Down of Earthing Subsystem



Zenator Walkdown Capture



System / Sub System Walkdowns to capture Punch List Items



During Static and
Dynamic
Commissioning
Walkdown Capture
will be used to perform
the official Walkdowns
to both capture and
clear Punch List Items.







- Through this phase all the activities of the Construction Phase will complete Sub Systems.
- These will pass on to Static Commissioning followed by Dynamic Commissioning.
- Certification will track the relevant certificates through each Milestone until Hand Over to Operations is reached.



Zenator Launch



Data Import Tool for all Phases of a Project

- Import options currently available are:
 - Equipment (Tag) Import for new and updates to existing records.
 - Equipment (Tag) Update Import for updates to existing records.
 - Punch List Items Import for new and updates to existing records.
 - Certificate Import for new certificates and updates to existing certificates.
 - Route Import (planning information) for new and updates to existing planning information.
 - Associated Documents Import for associating documents to the project tree and updating existing links.
 - TLCB (Test Pack, Instrument Loop, Electrical Circuit and Bulk) Import for new and updates to existing records.
 - Tag Type Matrix Imports for VITR, AITR, BITR, PITR and EITR.
 - Utility Imports for PLI Fault Code and Project Resources.
- Imports are via Excel and also XML files.



Zenator Launch



Data Import Tool for all Phases of a Project

- Strict import user definable rules to reject in valid data.
- Detailed rejection reports available for correction and re-processing.
- Flexible Import Template definition allowing Custom Fields allowing purpose built imports for Mechanical, Electrical, Instruments, etc

Typical Tag Import looks as follows:

	Α	В	С	D	Е	F	G	Н		
1	Tag No	Tag Name	Discipline •	Main ▼	Sub	System Group Name	System Group Number	System Name	Sys Nur	
2	10in-PG-AM-264-MD2	MBF-2010toTRIM	Piping	Piping	Pipe Spool	Commissionable	01	Gas Compression	040	
3	10in-PG-AM-285-ME2	NAP2900toTRIM	Piping	Piping	Pipe Spool	Commissionable	01	Gas Compression	040	
4	18in-PG-A-202-MD2	18"-PG-AM202-MD2to18"-PG-A234-MD2	Piping	Piping	Pipe Spool	Commissionable	01	Gas Compression	040	
5	18in-PG-A-234-MD2	18"-PG-A202-MD2to18"-PG-A245-MD2	Piping	Piping	Pipe Spool	Commissionable	01	Gas Compression	040	
6	18in-PG-A-245-MD2	18"-PG-2014-D2to18"-PG-2016-D2	Piping	Piping	Pipe Spool	Commissionable	01	Gas Compression	040	
7	1in-DC-A-728-ME2	COND PUMP(STUFFING BOX DRAIN)	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
8	1in-DC-A-731-ME2	COND PUMP(STUFFING BOX DRAIN)	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
9	1in-DC-A-734-ME2	COND PUMP(STUFFING BOX DRAIN)	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
10	1in-DC-A-735-ME2	COND PUMP(STUFFING BOX DRAIN)	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
11	1in-DC-AM-730-MA1	SYNTHETIC OIL DRAIN M128to2"-DC-AM724-	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
12	1in-DC-AM-738-MD2	Comp Package(M198/9)to2"-DC-AM724-MA	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
13	2in-DC-A-701-MA1	2"-DC-AM701-MA1to2"-DC-701-A1	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
14	2in-DC-AM-701-MA1	LAN-2400to2"-DC-A701-MA1	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
	2in-DC-AM-720-MA1	LAN-2410to2"-DC-AM701-MA1	Piping	Piping	Pipe Spool	Commissionable	01	Closed Drains	060	
	H T Detailed T T T T T T T T T									
Rea	ady							100% (-)	



Zenator Allocator





- Zenator Allocator is supplied with Zenator Systems and is used to process all completed Zenator generated documents.
- All Zenator generated documents contain a barcode to allow for easy processing of the completed documents whither from the result of scanning physical paper ITRs or the electronically completed ITRs.
- Processing updates the status of the parent record to closed according to user defined settings.
- Document Types include:
 - ITRs (VITRs, AITRs, BITRs, CITRs, EITRs and PITRs)
 - Certificates and Notices
 - Punch List Items
 - Change Management Items
- Multi record reports with barcodes also scanned for PITRs and PLIs.







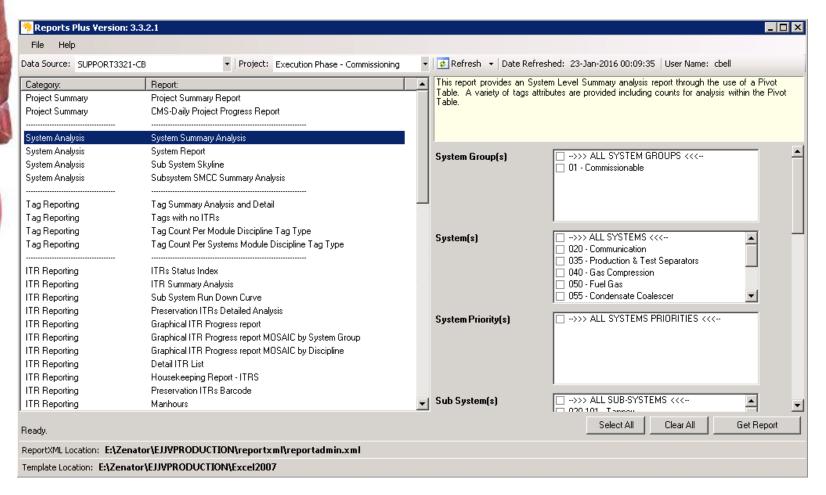
During all phases Reports Plus is available for all Reporting Needs

- Zenator comes with a comprehensive pre-defined set of reports which are available within the Zenator Reports Plus module.
- All reports within Zenator are exported to Microsoft Excel where we utilise
 the advanced reporting features of Excel.
- Reports fall into four different key styles:
 - Detailed list style reports.
 - Excel Pivot Tables.
 - Graphical Reporting.
 - Specialised Reporting.
- Reports are easily Customized.





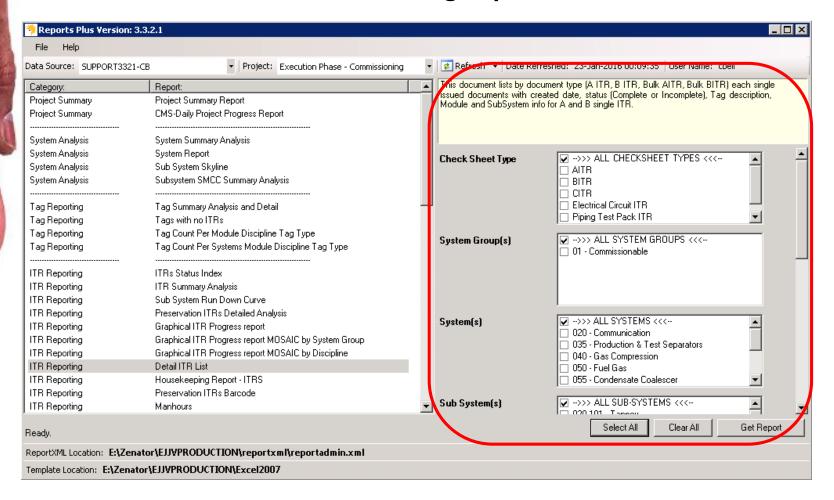
Comprehensive Pre-defined Set of Reports







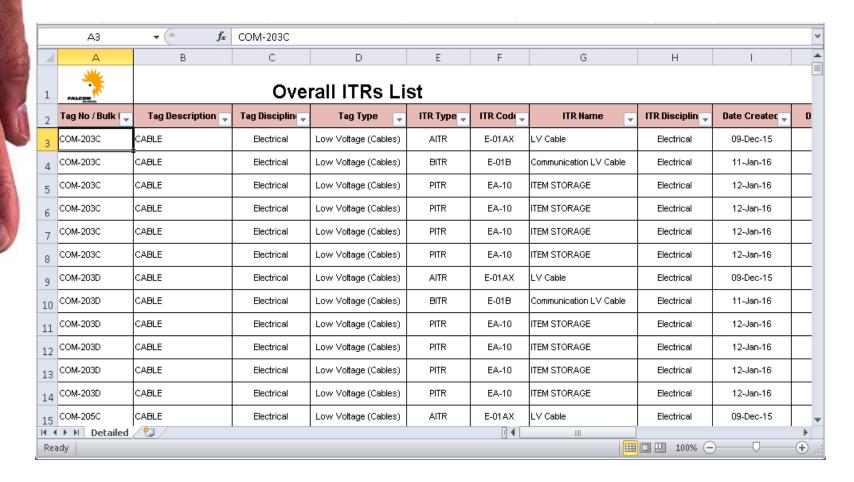
Detailed Listing Reports







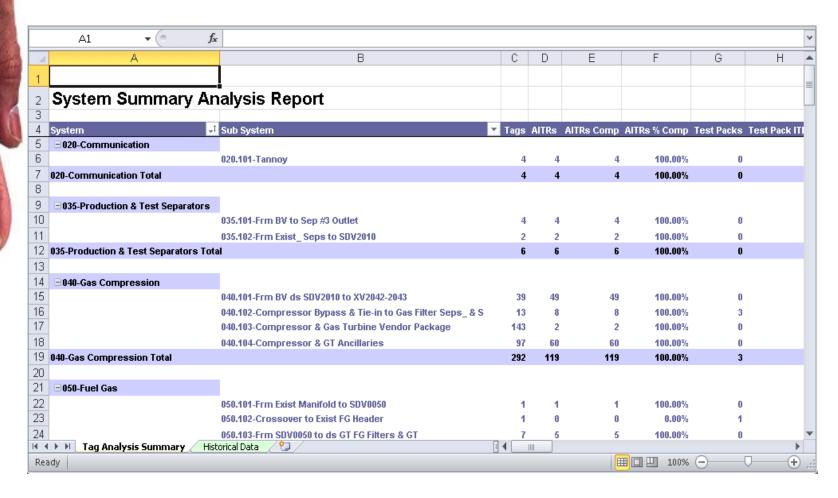
Detailed Listing Reports







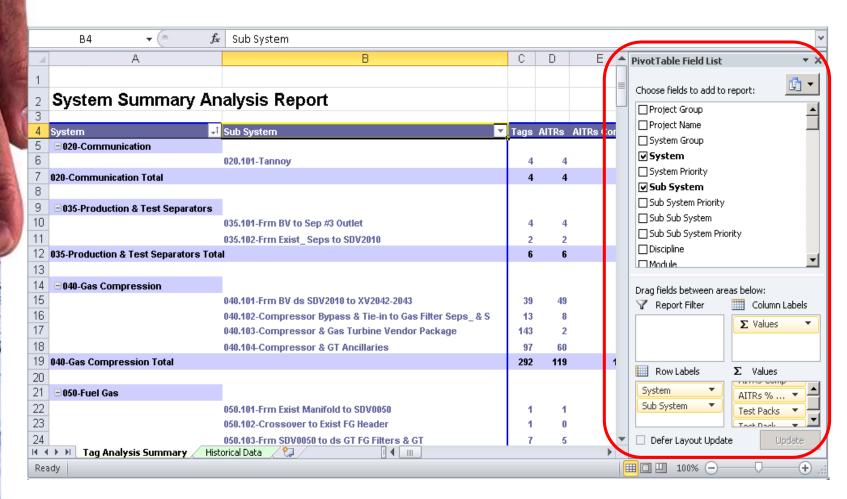
Pivot Table Style Reporting







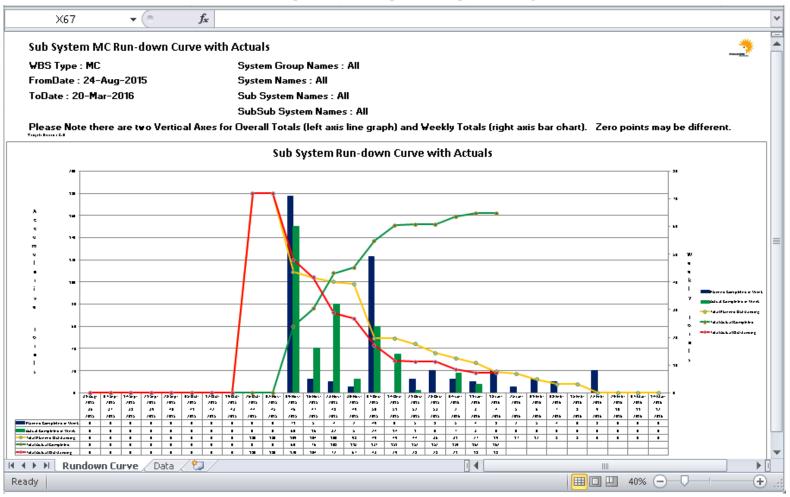
Pivot Table Style Reporting







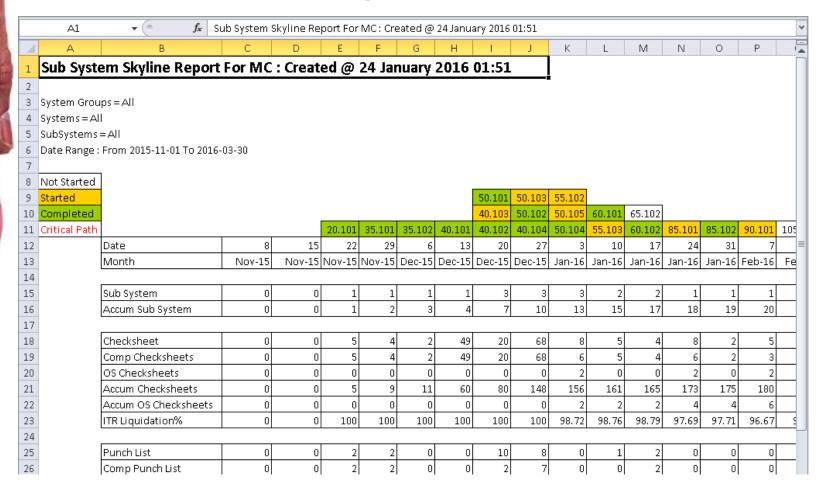
Graphical Style Reporting







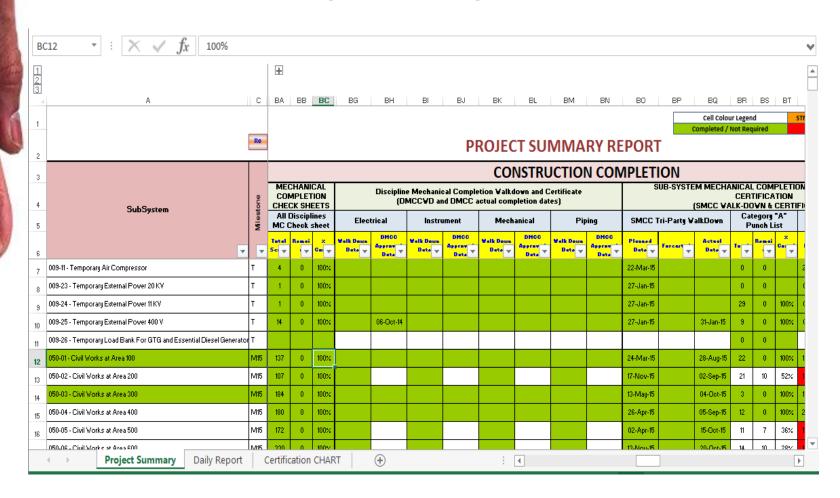






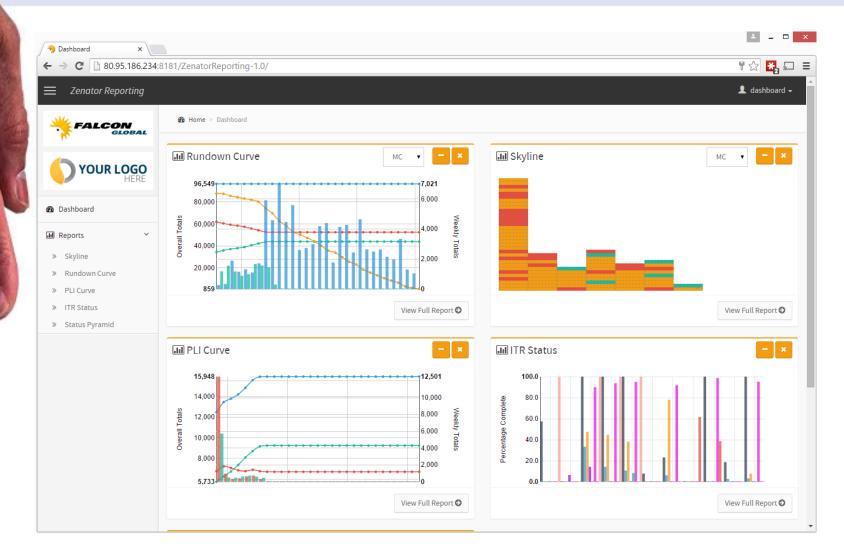


Specialized Reports





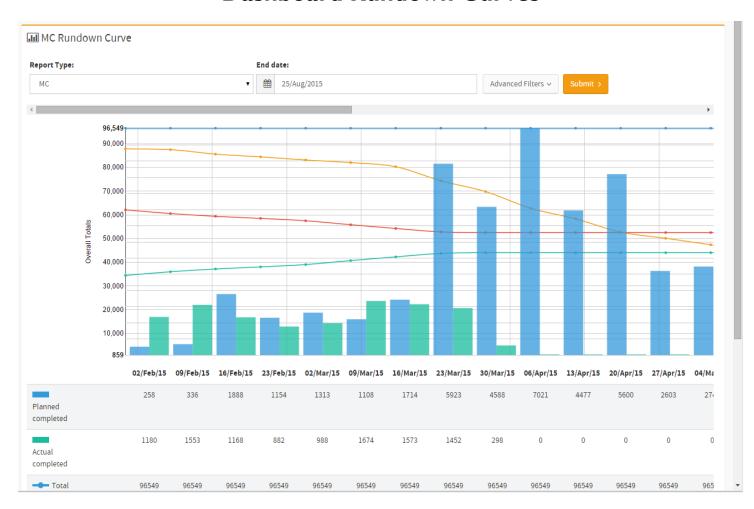
















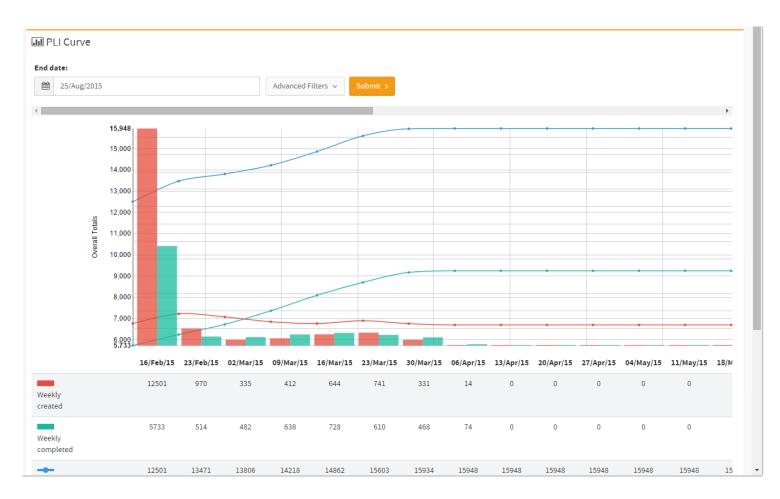








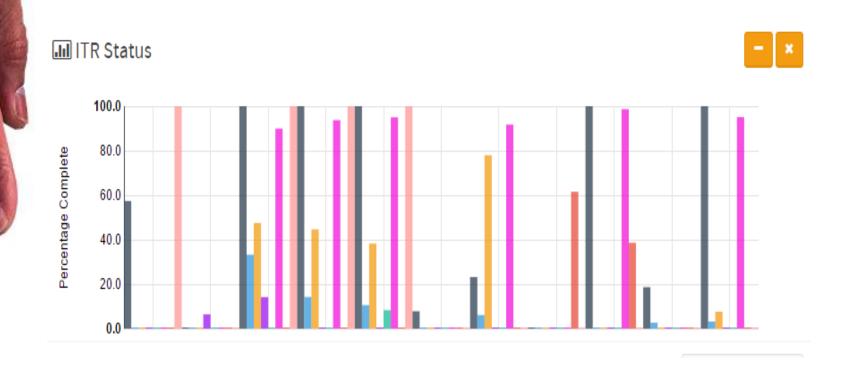
Punch List Progress Report







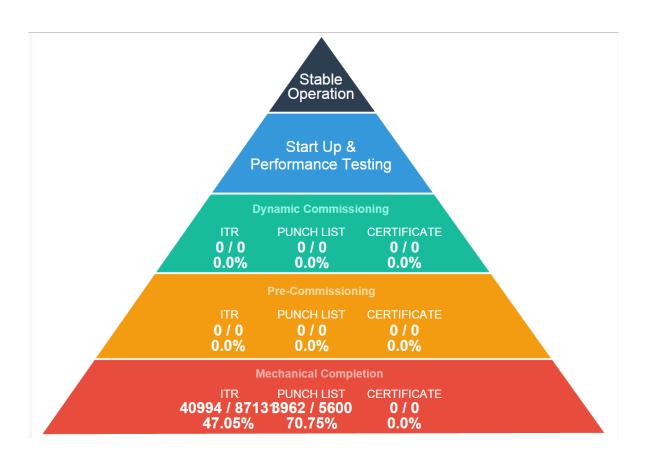
ITR Status by Discipline Report







Status Pyramid Report





Zenator Systems





Asset Integrity Management System

- Check
- Document Generation and Management
- Paper-based / Paper-reducing / Paperless
- Reporting
- Security

Not just software New ways of working



Falcon Group Zenator Systems





On Time and Safely

Global Falcon Americas, Inc.
Houston, Texas
United States of America
Attention: Mr Alan J Mills, President & CEO
E: amills@globalfalcon.net
www.globalfalcon.net

Falcon Global Limited
Norwich
United Kingdom
Attention: Mr Alan J Mills, Managing Director
E: amills@falconglobal.net
www.falconglobal.net



Thank you for taking the time to view our presentation