



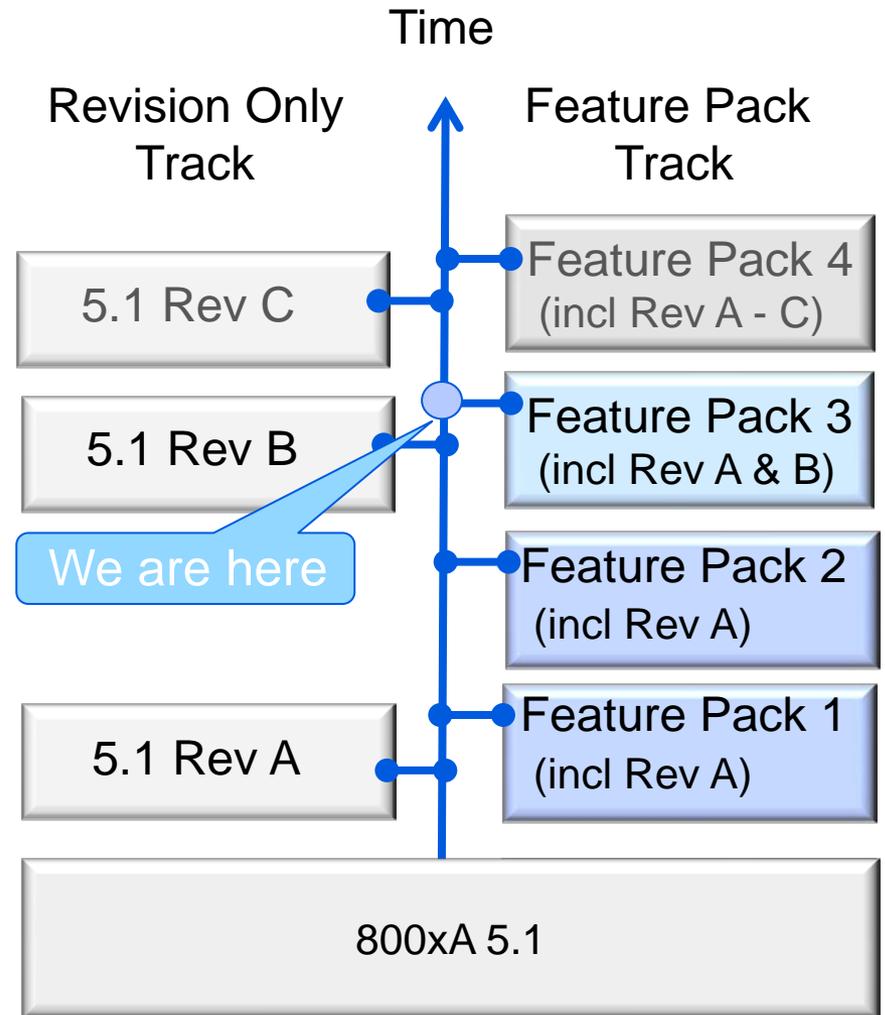
Roy Tanner - Extended Automation Product Group, Sept 2012

# System 800xA Feature Pack 3 Update

# The concept of Feature Packs

## More value to Sentinel subscribers

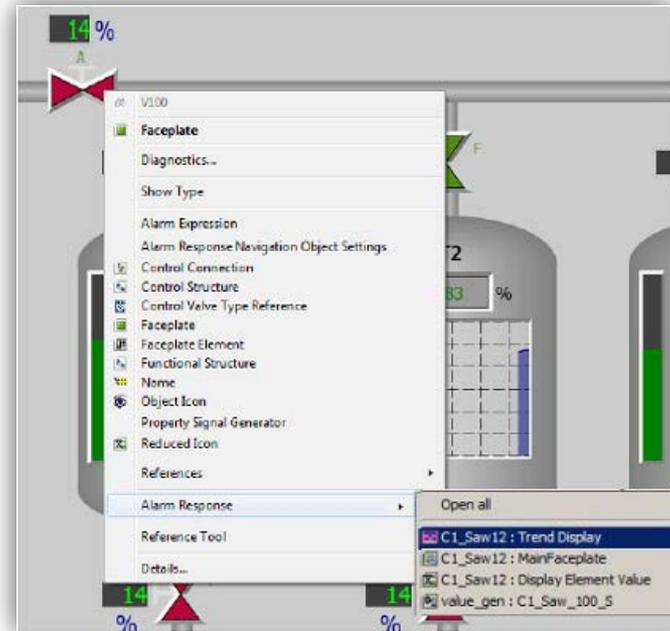
- Release of new features and functions between system version releases
  - To be used as “add-ons” to an already available system version
  - Allows a more agile response to market requirements without revising or releasing a system version
  - Feature Packs include previously released Feature Packs and all available Revisions
  - All features will be put into the next version.



# System 800xA 5.1 Rev A – Feature Pack 1

- Alarm Response
- Alarm Grouping\*
- Tab Navigation
- Simplified Batch and Parameter Management (Batch Spreadsheet Scheduler)
- SFC Viewer Improvements
- Multi-System Integration support for Point of Control, FF, and IEC 61850
- CMMS Integration support for Maximo version 7 and SAP ECC6

\*Part of 800xA's Alarm Management Option



**Alarm Response -**  
Giving operators a “head start” regardless of their experience level!

# System 800xA 5.1 - Feature Pack 2

## Foundation Fieldbus Improvements

- Live list improvements
  - Real device type is shown instead of ABB version
  - Device that is Backup LAS is indicated
- Improved system diagnostics through LD800HSE



Live List		Diagnostics							
Icons	PD Tag	Live List Status	LAS Status	Download Action	Device Manufactur	Device Type	Device Address	PD Tag Dr	De
	LD_200				ABB	LD800HSE	172.16.108.168	LD 200	2 (
	FF_H1_LI_001		LAS (running)			H1 Link	4096 (1000hex)	Link 1	
	TIT030		BLAS		ABB	TF02 TEMPER/	20 (14hex)		1 (
	FIT030				ABB	TZID POSITIO	35 (23hex)		1 (
	FIT070				Softing AG	FBK Rock	36 (24hex)		3 (
	TIT010	configured			Endress+Hauser	TMT125	31 (1Fhex)		1 (
	TIT090	not available			ABB	TZID POSITIO	32 (20hex)		1 (
	VEGA_VEGA	active			VEGA Grieshaber	VEGABAR	44 (2Chex)		1 (

LD\_200 (ABB LD800HSE) Device Assignment Mode: Online Device Type Reader standby Address Assignment standby PPAService

# System 800xA 5.1 - Feature Pack 3 Value Proposition



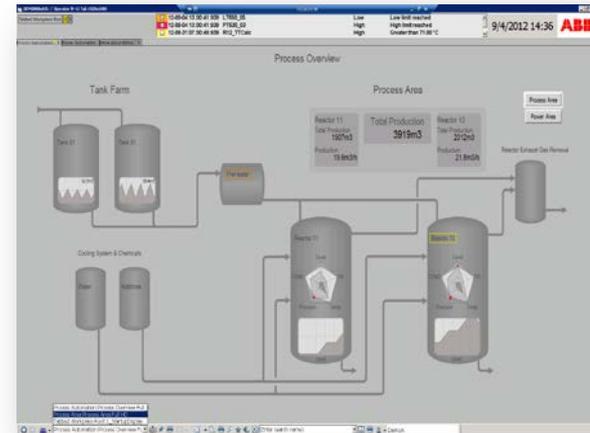
- **Reduces unplanned shutdowns** through improved navigation and situation awareness
- **Streamlines batch operations** through simpler scheduling and improved monitoring
- **Increases asset utilization** through an improved enterprise asset management architecture
- **Improves engineering efficiency** through a more automated workflow

800xA's latest release, 5.1 Feature pack 3, improves productivity and profitability by increasing operator effectiveness, asset utilization and engineering efficiency.

# 800xA 5.1 Feature Pack 3 Operator Workplace Improvements



- Feature pack 3 includes improved ways to make operators more aware of the current situation and then help navigate to where they can take action.
  - Alarm Indications in Tabs
  - One line tool bar for improved workplace arrangements
  - Harmonized icons and selectable icon size
  - Aspect Link with “previous display” indication
  - Hot Key support for history list

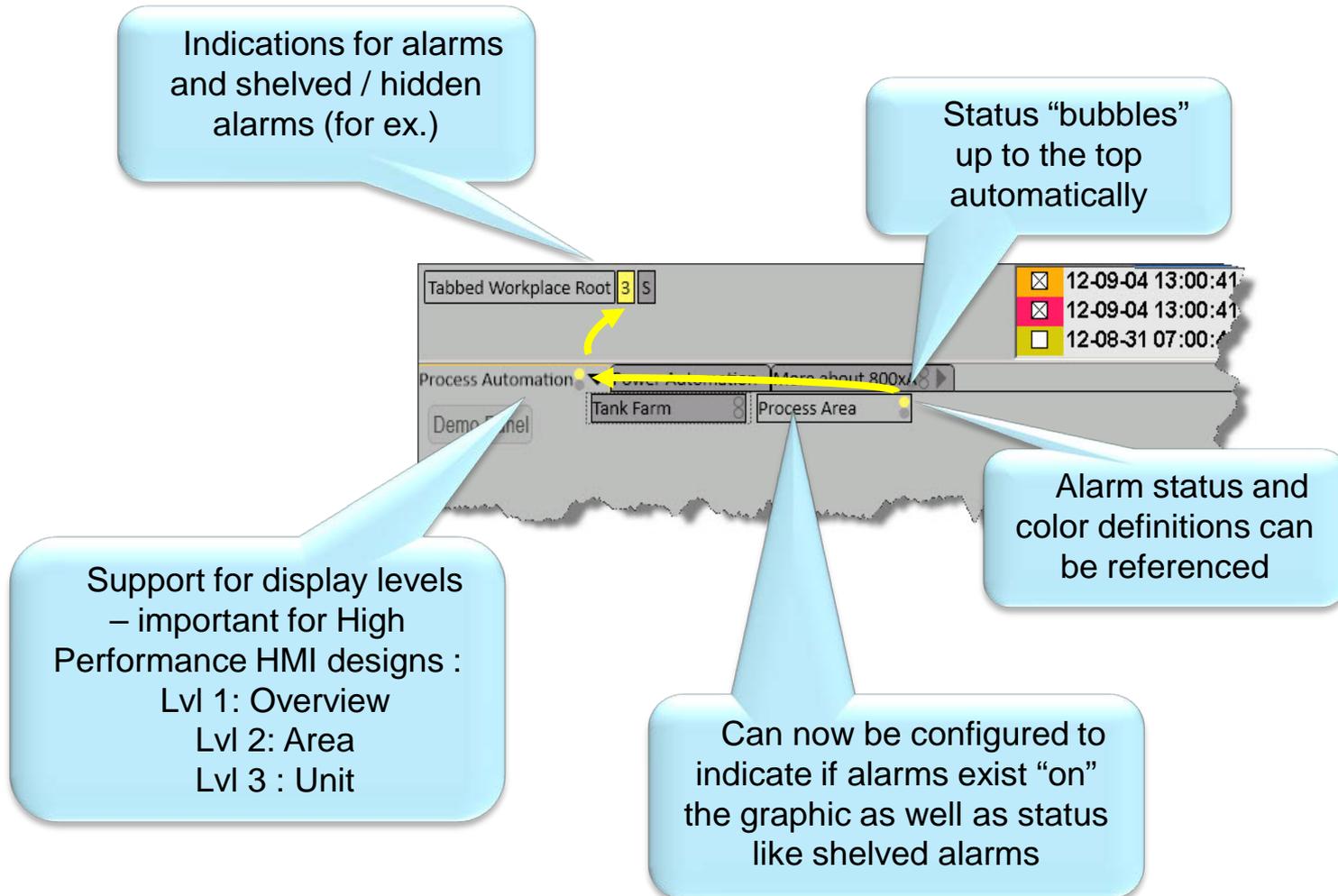


Reduced unplanned shutdowns through improved navigation and situation awareness



# Feature Pack 3 - Operator Workplace Improvements

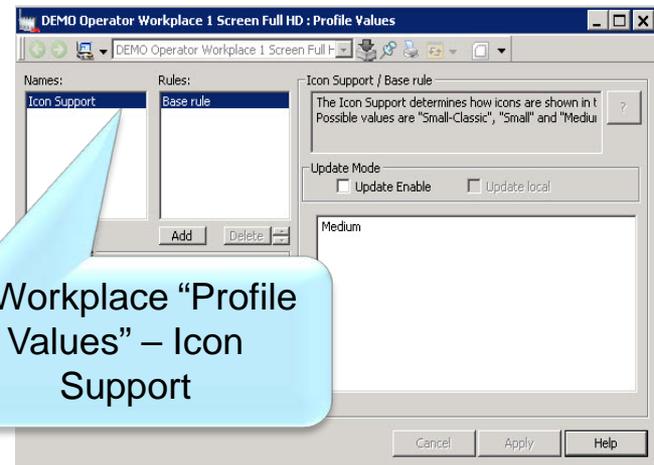
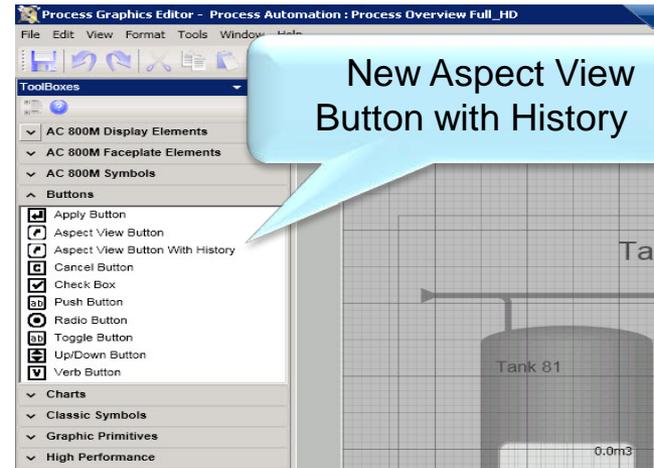
## Tab Navigation – Improved Situation Awareness



# Feature Pack 3 - Operator Workplace Improvements

## Navigation Improvements

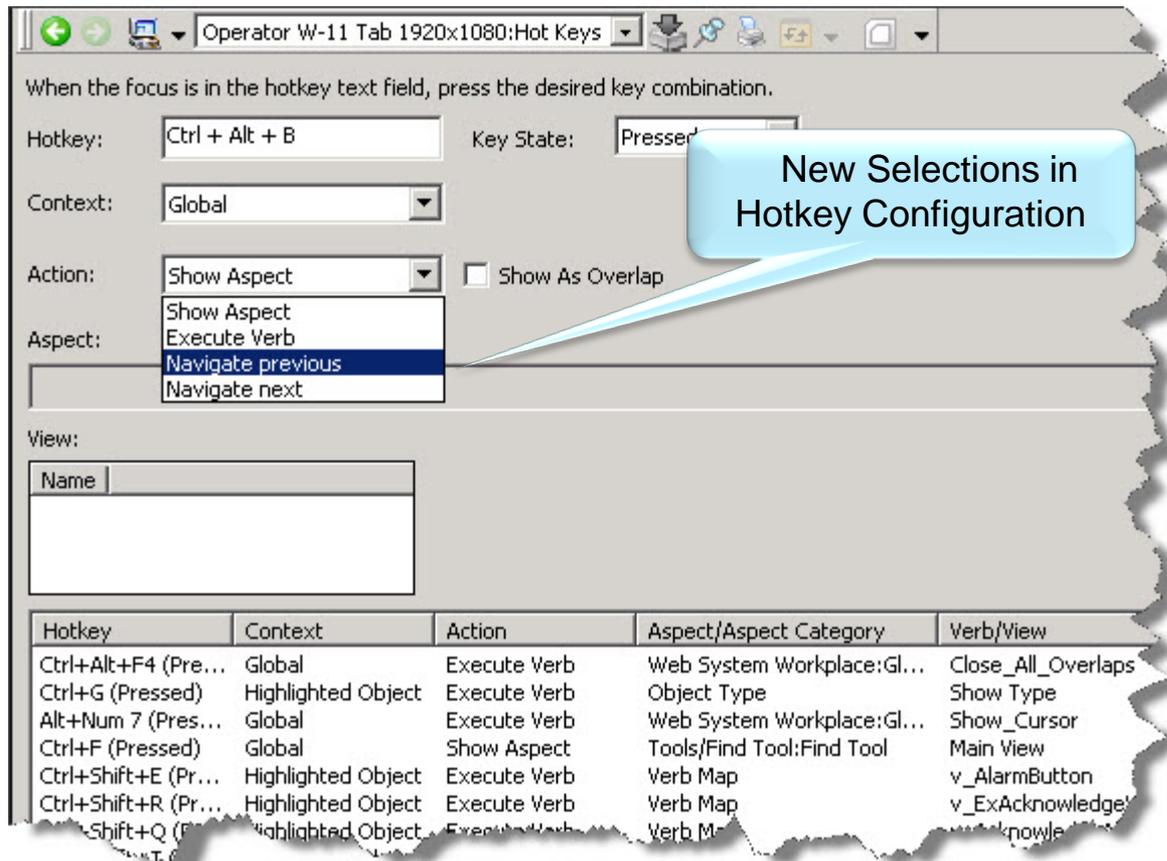
- Aspect Link with indication that it's target is the last display that was accessed.
  - No extra configuration required
  - New highlight properties available
- New harmonized icons available at small (16) and medium sizes (24)
  - Small-Classic
  - Small
  - Medium



# Feature Pack 3 - Operator Workplace Improvements

## Navigation Improvements

- Hotkey Navigation to Previous and Next Displays



When the focus is in the hotkey text field, press the desired key combination.

Hotkey:  Key State:

Context:

Action:   Show As Overlap

Aspect:

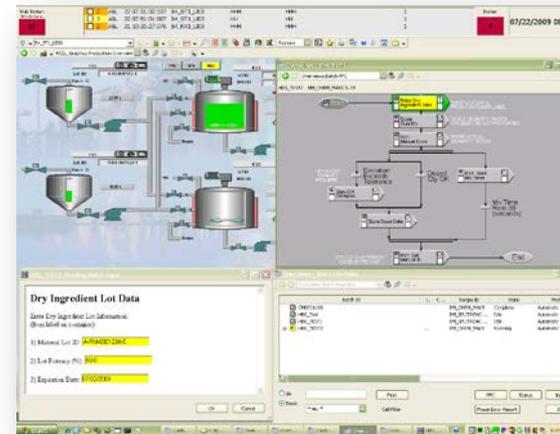
View:

Hotkey	Context	Action	Aspect/Aspect Category	Verb/View
Ctrl+Alt+F4 (Pre...	Global	Execute Verb	Web System Workplace:Gl...	Close_All_Overlaps
Ctrl+G (Pressed)	Highlighted Object	Execute Verb	Object Type	Show Type
Alt+Num 7 (Pres...	Global	Execute Verb	Web System Workplace:Gl...	Show_Cursor
Ctrl+F (Pressed)	Global	Show Aspect	Tools/Find Tool:Find Tool	Main View
Ctrl+Shift+E (Pr...	Highlighted Object	Execute Verb	Verb Map	v_AlarmButton
Ctrl+Shift+R (Pr...	Highlighted Object	Execute Verb	Verb Map	v_ExAcknowledge
Shift+Q (Pr...	Highlighted Object	Execute Verb	Verb M...	knowle...

# 800xA 5.1 Feature Pack 3 Batch Management Improvements



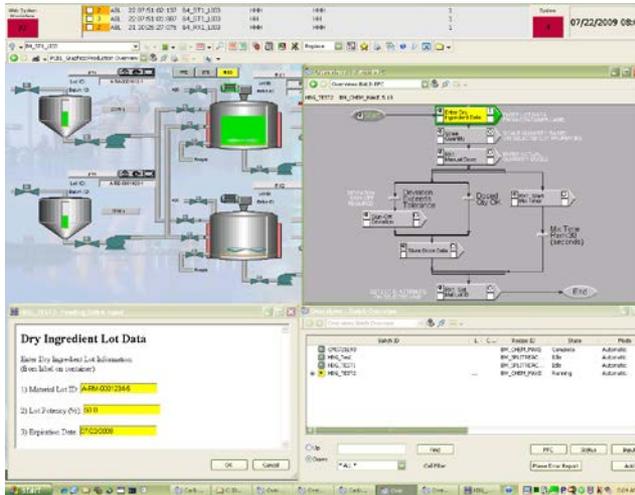
- Feature Pack 3 takes scheduling batches to a new level of **simplicity** by adding ways to schedule and monitor batches that better matches today's operational workflows.
  - Ability to have the Batch Scheduler Spreadsheet on non-800xA nodes
  - Enhanced security on the Batch Scheduler Spreadsheet Parameters
  - New Batch Scheduler Graphic Aspect for simplified scheduling
  - Accessibility to batch status parameters for improved visibility



Improving productivity  
through streamlining  
batch operations

# What is 800xA Batch Management?

## Comprehensive batch automation solution



800xA has the most integrated and full featured batch offering on the market

- Configuring recipes and procedures
- Configuring batch equipment
- Scheduling, monitoring and controlling batches and campaigns
- Automatic arbitration of resources between batches at runtime
- Organization of batch historical information – Production Data Logs

# Batch Production Scheduling in 800xA (pre-5.1)

- Schedule control recipes based on master recipes
- Supports multiple execution of batches within a campaign
- Select equipment at schedule time or dynamically at run-time
- View batch status, parameters, history options and messages
- Easily navigate procedure hierarchy of all active batches

Batch ID	Lot ID	Campaign ID	Recipe ID	Priority	State	Mode	Scheduled Status	Batch Cell
Dr_Stock_201002200626			T1_Stock_20	8	Complete	Automatic	Complete	Default Cell
HLG_2_0m_1			tblDefPart	8	Complete	Automatic	Complete	Default Cell
Product0001	Lot_A		T1_MashRun...	8	Aborted	Automatic	Terminated	Default Cell
Product0002	Lot_B		T1_Stock_20	8	Running	Automatic	Partial Equipm...	Default Cell
Mash_3h					Running	Automatic		
Dough_3h					Running	Automatic		
Gran Addition					Running	Automatic		
Gran Addition 1					Running	Automatic		
Gran Addition 2					Running	Automatic		
Prepares Fermenter					Running	Automatic		
Wash For Source Line					Running	Automatic		
PreventMash					Running	Automatic		
Wash For Source Line					Running	Automatic		
Product_300	Lot_1A		T1_Stock_20	8	Running	Automatic	Partial Equipm...	Default Cell

Procedure: BM\_Reactor\_UP

Batch ID: Manual B1202N31  
Auto Generate Campaign

Lot ID: MLN1231x001

Campaign ID: CN2004M12

Comment: Mfrg to Stock

Scheduled Status: Scheduled

Start Time: [ ]

Estimated Time: [ ]

Priority: 8

Mode: Automatic

Batch Cell: Default Cell

Duplicate Parameters Apply

Procedure: BM\_Reactor\_UP

Batch ID: Manual B1202N31  
Auto Generate Campaign

Date/Time Entry: 12/31/2004 10:39:22 AM

December 2004

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

Today: 12/2/2004

Get Current Time OK Cancel

Duplicate Parameters Apply



# Feature Pack 3 – Batch Management Improvements

## Simple and Secure Batch Operations

- Spreadsheet Scheduler on Non-800xA nodes
  - Easy to install
  - Connects to 800xA via web services
  - New license available “Spreadsheet Scheduling for Desktops”
- Enhanced Security options for the Excel Spreadsheet Scheduler
  - Configurable security levels for users that require stricter control of their formulation parameters.

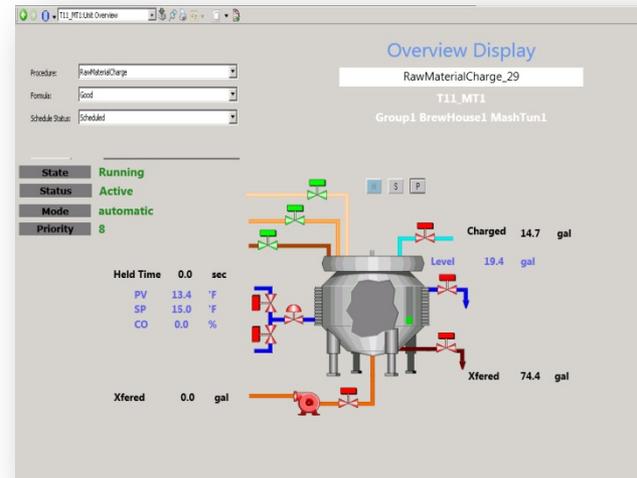
Article number	Title	Description
3BSE070685R1	Simple Batch Parameter Management - Spreadsheet Scheduling interface desktop version	Batch spreadsheet recipe scheduling tool for desk top PC interface to Batch Management. Supports Excel 2007 and 2010. XP or Win 7. Requires Feature Pack 3
3BSE061261R1	Batch Schedule Interface	This feature provides external interface to Batch Management via the Web Service scheduling commands. Included in this feature is the Spreadsheet Scheduling interface desktop version, unlimited license. No need to order Simple Batch Parameter Management if you have this feature.

	Allow override of procedure parameters	Allow override of formula parameters	GrainQuantity1	GrainQuantity2	MashWaterQuantity	SpargeWaterQuantity
Access Level			Supervisor Level 1	Operator Level 3		
Stout			45	10	13.75	8.75
PaleAle	Yes		50	5	12.75	8.75
BelgianDubble	Yes	No	55	10	16.25	6.25
Pilsner	No	No	50	1	12.75	9.75
Oktoberfest	No	Yes	35	25	15	7.5
Access Level			Supervisor Level 1	Operator Level 3		
Stout			45	10		
PaleAle	Yes	Yes	50	5		

# Feature Pack 3 – Batch Management Improvements

## Batch Scheduler Graphic Element / Status

- Batch Scheduler Graphic Aspect
  - Even simpler Batch Scheduling
  - Configurable to show only what operators need to schedule a batch
  - Ability to access Formulas from Batch Spreadsheet Scheduler
- Additional Batch Status properties exposed to for improved visibility
  - Batch Status
  - Batch Priority
  - Batch Mode



# Batch Scheduler Aspect and Status Properties

The screenshot displays the 'T11\_MTI: Unit Overview' window. At the top, the 'Overview Display' shows the current batch name 'RawMaterialCharge\_29'. Below this, three dropdown menus are set to 'RawMaterialCharge', 'Good', and 'Scheduled'. A callout bubble points to these menus with the text 'Batch Scheduler Graphic Aspect'. On the left, a status panel shows: State: Running, Status: Active, Mode: automatic, and Priority: 8. A second callout bubble points to this panel with the text 'Batch Status, Priority and Mode'. The central part of the interface features a 3D model of a tank with various pipes, valves, and a pump. To the right of the tank, several data points are listed: 'Charged 14.7 gal', 'Level 19.4 gal', and 'Xfered 74.4 gal'. Below the tank, a table shows process variables: 'Held T 0.0 sec', 'PV 13.4 °F', 'SP 5.0 °F', and 'CO 0 %'. At the top right of the tank area, there are three buttons labeled 'M', 'S', and 'P'.

# Configuration of Batch Scheduler Aspect

## As easy as 1, 2, 3

**1** Add the Batch Scheduler Aspect

Aspects of 'A1_UM_MashTunT1'	Modified	Modified by
MainFaceplateAlt	3/7/2012 3:51:17...	800xAService
MainFaceplate	3/7/2012 2:47:18...	800xAService
Attributes	2/24/2010 5:51:2...	800xAService
Attributes	1/31/2008 2:53:5...	{39A6FA16-7269...
MainFaceplate	11/30/2007 12:1...	Batch Advanced
Control Properties	5/3/2006 6:03:29...	{52CF30...
Control Module Types Reference	5/12/2005 3:01:3...	{6BE5928B-CB3...
Control Module	2/24/2010 6:02:1...	Service
Control Builder Name	5/13/2005 12:1...	{6BE5928B-CB3...-932AF77...
Control Alarm Event	5/12/2005 3:01:3...	{6BE5928B-CB39-4BEC-AE3E-932AF77...
Batch Unit Name Synchronization	5/12/2005 3:01:3...	{6BE5928B-CB39-4BEC-AE3E-932AF77...
Batch Unit Control Module Type	5/12/2005 3:01:3...	{6BE5928B-CB39-4BEC-AE3E-932AF77...
Batch Scheduler Aspect	4/3/2012 5:08:27...	800xAService
Batch Equipment	3/14/2011 7:47:4...	Batch Advanced Templates
Aspect Category Definition	5/12/2005 3:01:3...	{6BE5928B-CB39-4BEC-AE3E-932AF77...

**2** Reference the Spreadsheet Scheduler (if using formulations)

Title: Schedule Batch

Formulation Aspect: [Functional Structure]

Procedures:

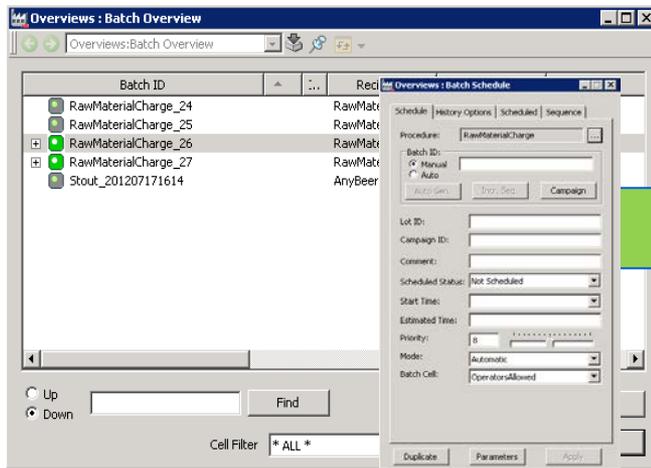
Name	Visible	Editable	Order	Default
Procedures:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Batch ID:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2	
Formula:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	
Lot ID:	<input type="checkbox"/>	<input type="checkbox"/>		
Campaign ID:	<input type="checkbox"/>	<input type="checkbox"/>		
Comment:	<input type="checkbox"/>	<input type="checkbox"/>		
Schedule Status:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4	Not Scheduled
Start Time:	<input type="checkbox"/>	<input type="checkbox"/>		
Priority:	<input type="checkbox"/>	<input type="checkbox"/>		
Mode:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	Automated
Batch Cell:	<input type="checkbox"/>	<input type="checkbox"/>		

**3** Select the fields that are required for the operators to schedule batches

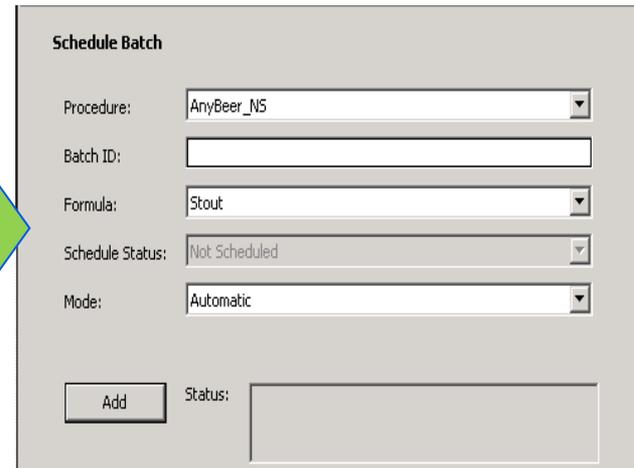
# Feature Pack 3 – Batch Management Improvements

## Simple and Secure Batch Operations

From this



To this



Simpler means...

Reduced training

+ Reduced risk of making mistakes

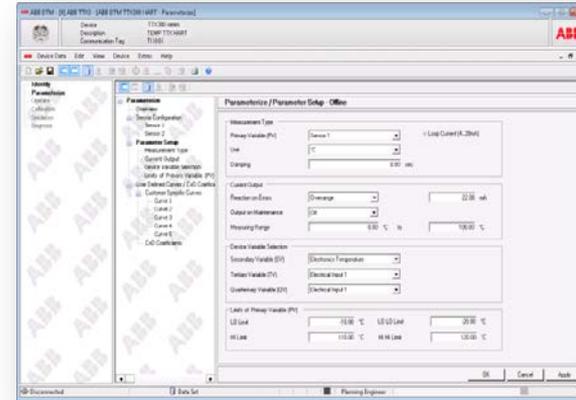
+ Reduced number of scrapped batches

**= increased productivity !**

# 800xA 5.1 Feature Pack 3 Device and Asset Management Improvements



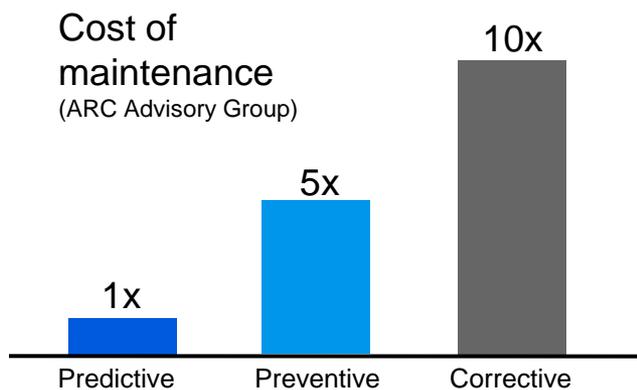
- Feature Pack 3 increases asset utilization by supporting the latest protocols for smart device communications and consolidated asset management for multi-site systems
  - HART 7 support in Generic Device Type Managers (DTMs)
  - HART Device Management support with AC 870P
  - Multi-System Integration support for Asset Optimization



Increasing asset utilization through predictive maintenance

# Reliability Centered Maintenance

## 800xA Asset Optimization

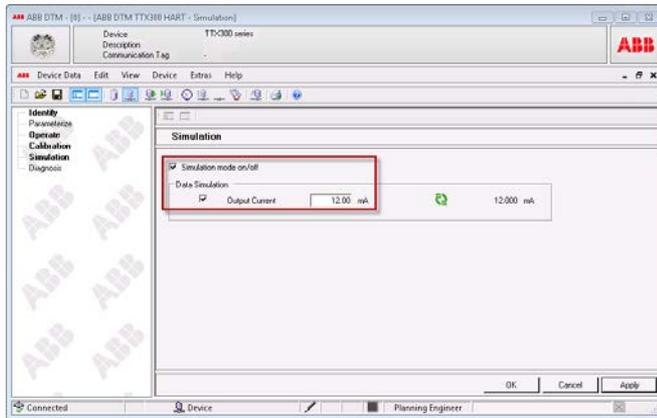


- Maintenance is the single largest controllable cost in a plant
- Moving towards predictive maintenance makes a major contribution to asset utilization and lifecycle savings.
- 800xA has the capability to support effective maintenance strategies

Corrective maintenance can cost up to 10x more than predictive!

# Integrated Device Management

## Fast signal check-out saves commissioning time



The screenshot shows the Hardware - DemoController\_2.0.11.101 A015 HW A015 window. It displays a table with columns for Channel, Channel Value, Forced, Variable Value, and Variable. A red box highlights the row for channel IWO.11.101.5, which has a Channel Value of 50.0 and a Variable Value of 50.0. The Variable column for this row is labeled 'DemoHW\_2.HWDemo\_FD.All\_IO'.

Channel	Channel Value	Forced	Variable Value	Variable
IWO.11.101.1		<input type="checkbox"/>		
IWO.11.101.2		<input type="checkbox"/>		
IWO.11.101.3		<input type="checkbox"/>		
IWO.11.101.4		<input type="checkbox"/>		
IWO.11.101.5	50.0	<input type="checkbox"/>	50.0	DemoHW_2.HWDemo_FD.All_IO
IWO.11.101.6		<input type="checkbox"/>		
IWO.11.101.7		<input type="checkbox"/>		
IWO.11.101.8		<input type="checkbox"/>		

- All device configuration and diagnosis from the Engineering Workplace
- Device simulation and I/O input verification in the same workplace – Faster loop checks!
- No need to connect locally to devices in the field
- Built in device documentation
- Real-time condition monitoring using asset monitors available already during commissioning

Reduced time to commission =  
Producing sooner!!

# Feature Pack 3 - Device Management Improvements

## Full support for HART7 in basic DTMs

- Basic HART DTM supports HART7 Transmitter/Actuators
  - For wired and wireless devices
  - Backward compatible, same DTM for HART 5,6 and 7
  - Supervision and force of up to 8 HART variables
  - Support for country code, SI unit and clock settings
  - Wireless HART support (identification and statistics)

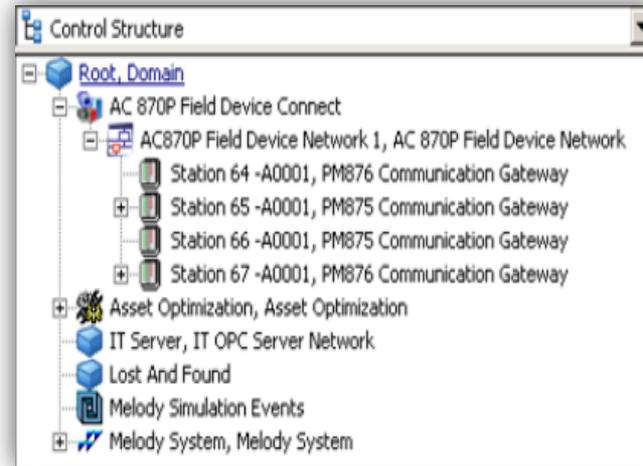


**NOTE:** SV5.0 SP2 RevE and SV5.1 RevB includes significant performance improvements in device communication

# Feature Pack 3 – AC870P Improvements

## HART Device Management with AC 870P

- Integrated HART device management enables:
  - HART device configuration and diagnostics in 800xA workplaces
  - Real-time condition monitoring using asset monitors
- Same functionality as the 800xA Device Management Profibus/HART
- System topology planning is performed in Composer and imported to 800xA



# Feature Pack 3 - Asset Optimization Improvements

## Multi-system Integration Support

- Remote operations can access the same maintenance data as local operations
- Retains a common maintenance workflow throughout multiple sites and systems
- Asset Optimization (AO) servers reside in provider systems and AO aspects can be viewed in subscriber system



# 800xA 5.1 Feature Pack 3 Engineering Improvements



- Feature Pack 3 improves **engineering efficiency** through improved support of fieldbus I/O allocation and automated configuration of sequential logic.
  - Improved IO allocation in Function Designer for IEC61850, Profinet, and Foundation Fieldbus
  - Automated importing of sequential logic from MS Excel to Control Builder and Function Designer

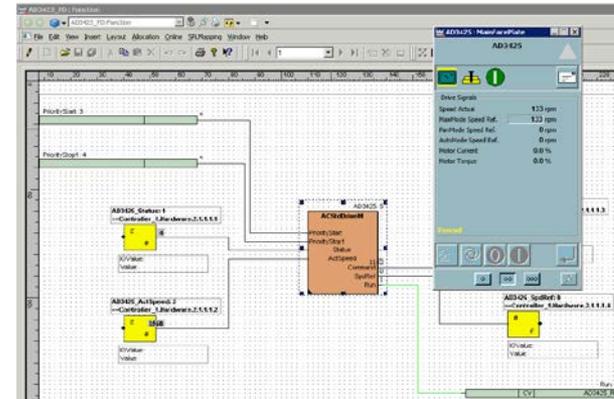
	A	B	C	D	E	F	G
1							
2	<b>Object Path</b>	[DIRECT][Functional Structure]DEMO_SV5_1-FP3/Bulk_SPL_Sec					
3							
4	SPL_START_TAG						
5		Step1 1					
6		Tr1 1					
7		Step2 2	Step3 3	Step4 4	Step5 5	Step6 6	
8		Tr2 2					
9		Step7 7					
10		Tr3 3					
11		Step8 8	Step9 9	Step10 10	Step11 11	Step12 12	Step13 13
12		Tr4 4					

Improving engineering efficiency through better workflows

# Feature Pack 3 – Engineering Improvements

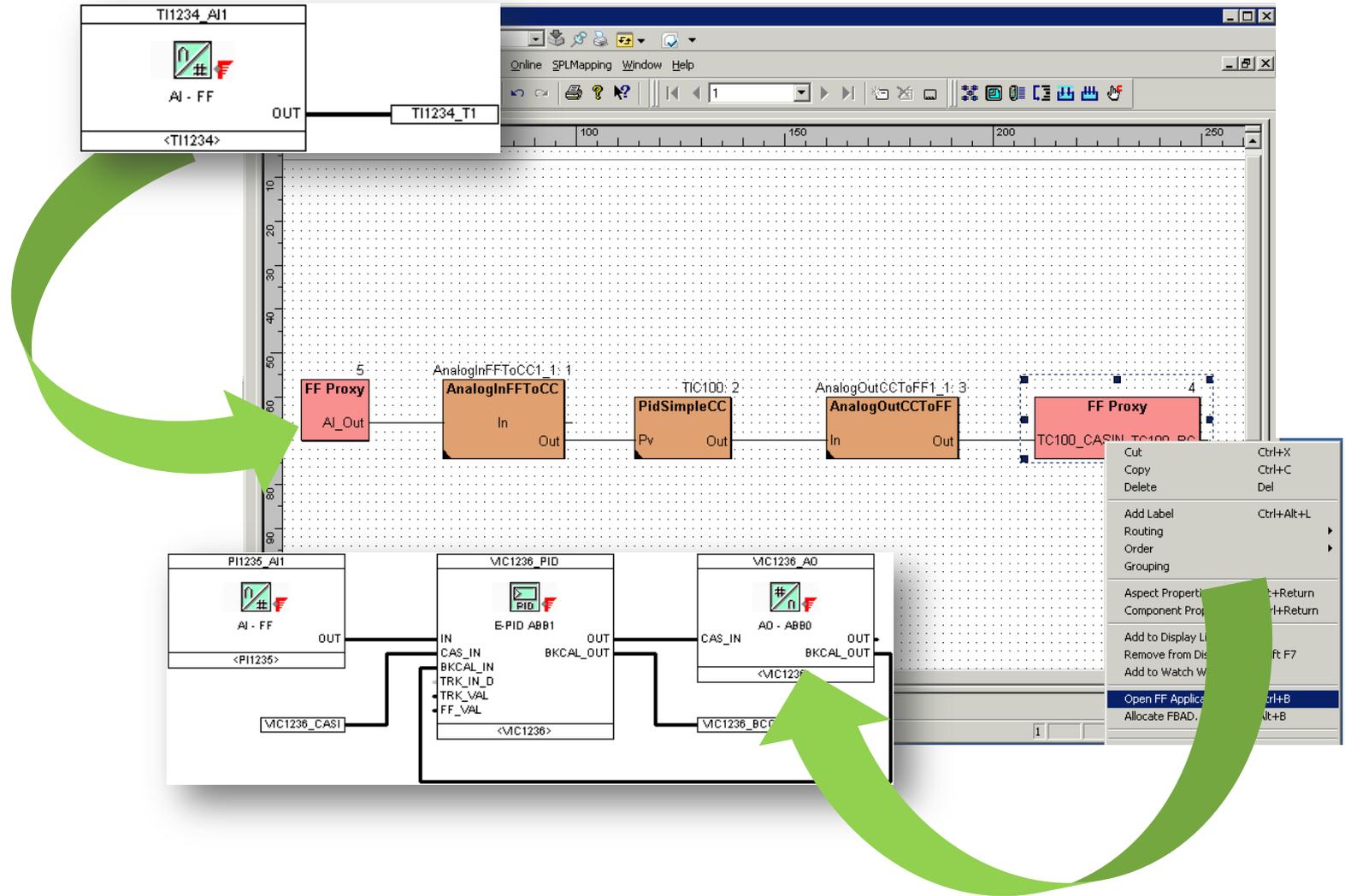
## I/O Allocation for Fieldbus Devices

- Common IO Allocation and representation for IEC61850, Profinet, and Foundation Fieldbus in Function Designer
  - Reduces additional logic needed to bring in signals from Communication Interfaces
  - Each IED/Module shall be treated as I/O Modules with channels
  - Proxy Blocks for Foundation Fieldbus Application Diagrams



Reduced number of steps to allocate I/O when using fieldbus!

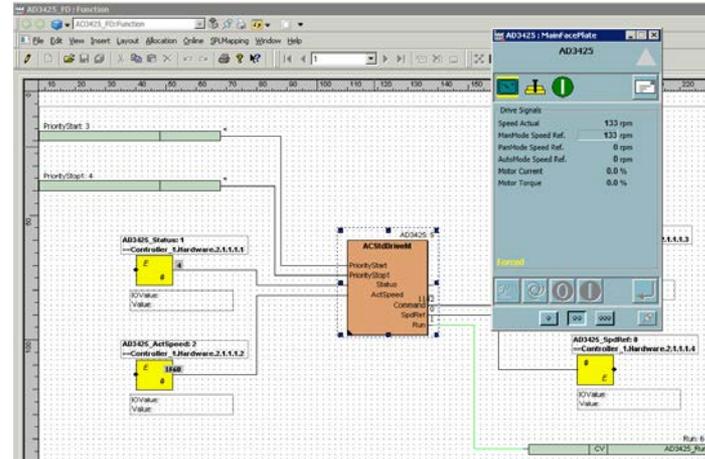
# Foundation Fieldbus Integrated Engineering



# Feature Pack 3 – Engineering Improvements

## Bulk Configuration of Sequential Logic

- Bulk import capability of Control Builder M's Sequential Function Chart (SFC) and Function Designer's Sequential Programming Language (SPL) configurations
  - Uses Bulk Data Manager
  - Improves workflow by directly importing customer logic



**Simpler  
+ Faster  
+ Less mistakes  
= increased efficiency!**

# Feature Pack 3 – Engineering Improvements

## Bulk Configuration of Sequential Logic

**1** Customer/Engineer defines Sequence overview in MS Excel

Object Path	[DIRECT]Functional	MO_SV5_1-FP3/Bulk_SPL_Sec
SPL_START_TAG		
Step1	1	
Tr1	1	
Step2	2	3 4 5 6
Tr2	2	
Step7	7	
Tr3	8	
Step8	8	9 10 11 12 13
Tr4	8	



**2** Define Transition Logic (Function Designer SPL only)

Comp Name	Diagram Variable	Input Diagram Reference	Logic Oper
Tr1			
Tr_Logic	Var1	Var1	
	Var2	Var2	
	Var3	Var3	
	IN_Var1	IN_Var1	AND(bool)

**3** Import into Control Builder SFC or Function Designer's SPL

```

    graph TD
      Step1[Step1 1] -- Tr2 --> Step2[Step2 2]
      Step2 -- Tr3 --> End[...]
  
```

# System 800xA 5.1 - Feature Pack 3 Highlights

- Reduces unplanned shutdowns
  - Alarm summary information in tab navigation
  - New aspect view button with display history indication
  - Display history navigation via hotkeys and selectable icon size
- Streamlines batch operations
  - Batch scheduler spreadsheet available on non-800xA nodes
  - New batch scheduling graphic element
- Increases asset utilization
  - Multi-System Integration support for Asset Optimization
  - Support for latest HART protocol
- Increases engineering efficiency
  - Improved fieldbus support for IO allocation
  - Bulk configuration for SFC and SPL



Feature pack 3 improves productivity and profitability by increasing operator effectiveness, asset utilization and engineering efficiency.

Power and productivity  
for a better world™

