



Endress+Hauser

Global SAP end-to-end testing based on ALM/Quality Center and UFT One increases IT quality and customer satisfaction.

Who is Endress+Hauser?

Endress+Hauser is a global leader in measurement instrumentation, services, and solutions for industrial process engineering. With annual net sales of €2.6 billion, over 14,400 employees provide process improvements to optimize economic efficiency and safety, while minimizing environmental impact.

Create a Central Testing Framework with ALM/Quality Center

Endress+Hauser InfoServe, located in Germany, is the internal IT provider to the organization. The

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Head of Quality Management
Endress+Hauser InfoServe

company's mission is to drive sustainable progress with a combination of business know-how and technology competence. This means a modern IT infrastructure, with availability, flexibility, and security at its core. Isabelle Farina, Head of Quality Management at Endress+Hauser InfoServe, explains further: “We are responsible for some 200 applications around the organization, from HR and travel and expense management in the Cloud to in-house developed Web applications, and a full suite of SAP ERP modules hosted in the central computer center of Endress+Hauser on premises. Before ALM/Quality Center adoption in 2008, our applications were mainly tested manually with results logged in spreadsheets. There was no clear way for us to track any defects that might be revealed through our testing efforts. We also have many global locations, and we realized it would be helpful to standardize our testing processes and create transparency for consistent testing of IT applications.”

Following comprehensive analysis and assessments and an internal recommendation for Micro Focus, the team decided on ALM/Quality Center. ALM/Quality Center is designed to centrally track and consolidate testing efforts, creating end-to-end testing transparency through automated workflows. Leveraging ALM/Quality Center, the quality management team created a central testing framework and provided the tools, processes, methods, and training to the various testing

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People for Process Automation

At a Glance

- **Industry**
Engineering
- **Location**
Switzerland
- **Challenge**
Standardize application testing and defect management, while increasing test automation for global consistency
- **Products and Services**
Micro Focus ALM/Quality Center
Micro Focus UFT One
- **Success Highlights**
 - + Full integration with SAP ChaRM drives 55 monthly change requests
 - + End-to-end SAP environment testing with 250 business components
 - + Improved application quality with streamlined defect management
 - + Global test consistency and increased test automation

teams. Structured IT testing could be established and required more resources. A dedicated test lab based in India was founded in 2018. It is responsible for regression testing and functional testing of new capabilities. After this initial testing effort, the business testers take over. They represent different divisions and have a core business competency that they apply their testing to.

“Leveraging ALM/Quality Center’s business process testing, we were able to map our test cases in detail,” comments Isabelle. “We established comprehensive traceability with a consistent and standard testing effort across the globe. Any defects that result from our testing efforts are automatically logged within ALM/Quality Center and routed to the responsible contact. Since we implemented this model our IT application quality has increased as we catch and fix defects earlier in the lifecycle, thanks to the clear link between testing and defect management.”

Increase Test Automation and Efficiency with UFT One AI-Based Testing

Having defined the central testing framework, it was now time to increase test automation. Micro Focus UFT One supports intelligent test automation with embedded Artificial Intelligence (AI) capabilities to accelerate testing. The native integration between ALM/Quality Center and UFT One simplifies and improves test creation, execution, and maintenance. Isabelle appreciates the AI capabilities: “We leverage UFT One’s AI functionality when we test our SAP Fiori applications. The advanced object recognition is great, and this means that the tester does not need deep test automation knowledge, making it easier to assign tests to business users. It is very visual, so for instance if a log-in button says ‘submit’ instead of ‘log-in’, UFT One will still recognize

it as a log-in button and test it as such. This intelligent text-matching and image-based automation makes it much easier to create test scripts and scale up our testing effort.”

ALM/Quality Center and UFT One manage a monthly end-to-end test cycle on the full SAP environment built into the Quality System. With three main SAP systems and four country-specific configurations to test the order process, from creation to production, shipping, delivery, and invoicing to the customer; heaps of documents are created; this represents

a huge testing effort. The business process tests contain 50 automated flows with a total of 250 business components. 80 percent of the test cases were created using Micro Focus Business Process Testing with the BPT Packaged Apps Kit, streamlining fast test creation. ALM/Quality Center also integrates very effectively with SAP ChaRM (Change Request Management), Endress+Hauser’s change management solution. This is used to manage change requests from the entire global SAP implementation.

Name	Status	I/O Parameters	Iterations	Run Condition	On Fail
SAP_Login_to_SAP [1]	Ready	5 In	1 Iterations		Continue
Tools_Generate Timestamp now [1]	Ready	0 In, 1 Out			Continue
Tools_Generate Date today [1]	Ready	1 In, 1 Out	1 Iterations		Continue
VA01 - Create Sales Order [1]	Ready	10 In, 1 Out	1 Iterations		Continue
ZZFL - Display complete log workflow (Purchase Requisition) [1]	Ready	1 In, 2 Out	1 Iterations		Continue
ZMZEIN25 - Automatic creation of purchase order with check existing PO [1]	Ready	1 In, 1 Out	1 Iterations		Continue
ZZFL - Display complete log workflow (Standard Order) [1]	Ready	1 In, 2 Out	1 Iterations		Continue
SAP_Logout_from_SAP [1]	Ready				Continue
Tools_Wait [1]	Ready	1 In	1 Iterations		Continue
SAP_Login_to_SAP [2]	Ready	5 In	1 Iterations		Continue
Tools_Connects Values [1]	Ready	2 In, 1 Out	1 Iterations		Continue
VA03 - Display Sales Order [1]	Ready	1 In, 1 Out	1 Iterations		Continue
ZA08_Schedule_smoothing_check_header_status_oet_MO [2]	Ready	1 In, 2 Out	1 Iterations		Continue
Tools_Wait [16]	Ready	1 In	1 Iterations		Continue
ZA08_Schedule Smoothing_with REL [1]	Ready	4 In, 2 Out	1 Iterations	ZA08 Header Status = C	Continue
CO02_Production_Order_Release_with_Capacity_Check_if_PopUp_appears [1]	Ready	3 In, 1 Out	1 Iterations		Continue
Tools_Wait [2]	Ready	1 In	1 Iterations		Continue
MR31_Goods_Receipt_for_Order_missing_part [2]	Ready	3 In, 1 Out	1 Iterations		Continue
Tools_Wait [8]	Ready	1 In	1 Iterations		Continue
CO03 - Production Order Display [1]	Ready	1 In	1 Iterations		Continue
Tools_Generate Date today [2]	Ready	1 In, 1 Out	1 Iterations		Continue
VL01N - Create outbound delivery with order reference [1]	Ready	3 In, 2 Out	1 Iterations		Continue
VL02N - Change outbound delivery (post goods issue) [1]	Ready	1 In	1 Iterations		Continue
VF01 - Create Billing Document [1]	Ready	1 In, 1 Out	1 Iterations		Continue
VF31 - Output from billing [1]	Ready	4 In	1 Iterations		Continue
SAP_Logout_from_SAP [2]	Ready				Continue
Tools_Wait [9]	Ready	1 In	1 Iterations		Continue
SAP_Login_to_SAP [3]	Ready	5 In	1 Iterations		Continue
Tools_Connects Values [2]	Ready	2 In, 1 Out	1 Iterations		Continue
VA03 - Display Sales Order [2]	Ready	1 In, 1 Out	1 Iterations		Continue
ZA08_Schedule_smoothing_check_header_status_oet_MO [1]	Ready	1 In, 2 Out	1 Iterations		Continue
Tools_Wait [15]	Ready	1 In	1 Iterations		Continue
VA02_Set_REL_Item_Header_oneItem [1]	Ready	1 In	1 Iterations	ZA08 Header Status = C	Continue

Figure 1. Extract of test script

“We now have a consistent and standardized end-to-end testing approach across the globe, we have expanded our test automation, and UFT One’s AI capabilities allow us to delegate testing to colleagues without deep testing knowledge.”

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A local implementation partner, profi.com, worked with Micro Focus and Endress+Hauser to create an API-driven web services integration between the systems. Approximately 55 customization or change requests are submitted each month through ChaRM. These are auto-transferred to ALM/Quality Center which retrieves relevant test details from the ChaRM documents and combines them so that with one button-click in ALM/Quality Center testers can automatically create test sets. These are then executed from ALM/Quality Center, with the results automatically synchronized back into ChaRM. The test set status is automatically updated and once all the tests involved receive a green ‘pass’ status, the change will be moved into the production environment.

The ALM/Quality Center ChaRM integration appeared instrumental during audits and was praised by PWC. It offers the visibility along with the traceability of changes and its associated tests proving test were run.

Test Consistency and Increased Automation

Endress+Hauser is moving towards a single client ERP environment hosting all business entities of the group on base of SAP S/4 HANA. The extensive testing effort associated with this is complex and very detailed; up to 300 steps can be included in a single test configuration and an increase in test automation will help streamline this process.

Isabelle concludes: “The testing framework we have introduced with Micro Focus sets us up well for future projects. We already have seen a tremendous improvement in our team’s customer satisfaction feedback. It is clear to our business partners that we deliver higher quality applications, thanks to ALM/Quality Center and UFT One. We now have a consistent and standard end-to-end testing approach across the globe, we have expanded our test automation, and UFT One’s AI capabilities allow us to delegate testing to colleagues without deep scripting knowledge. Micro Focus understands our requirements and works effectively with our team and profi.com on streamlining our testing processes.”

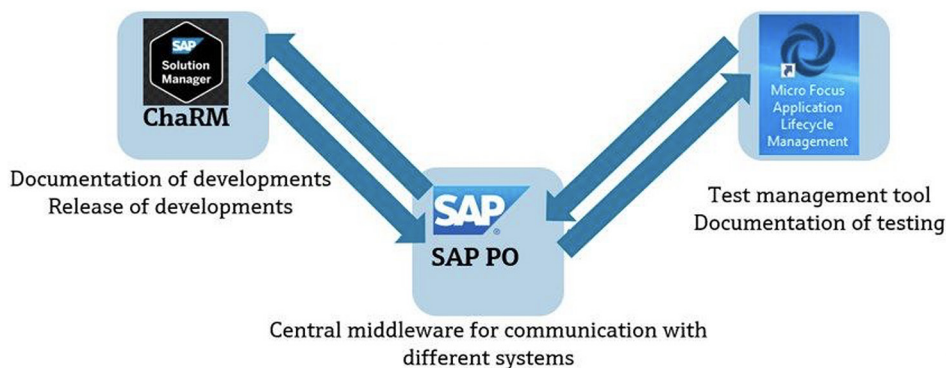


Figure 2. ChaRM and ALM/Quality Center integration

Integrated 3rd party applications

- SAP (Fiori, ChaRM, SuccessFactors, and S/4 HANA)
- Salesforce.com
- Amadeus Cytric

Deployment environment

- Web Services
- ChaRM and ALM/QC integration, SAP gCTS Integration

Development methodology

- Waterfall, agile and hybrid