potential of predictive maintenance and IoT-scenarios for your business

WINDOW!!

AIRCONDITION!!!

Fascade!!

LIFT!!

LIGHTS!!

Charline Luebkemann

Stefan Lehmann

Detlef Aden

Why should maintenance processes be integrated into business processes?

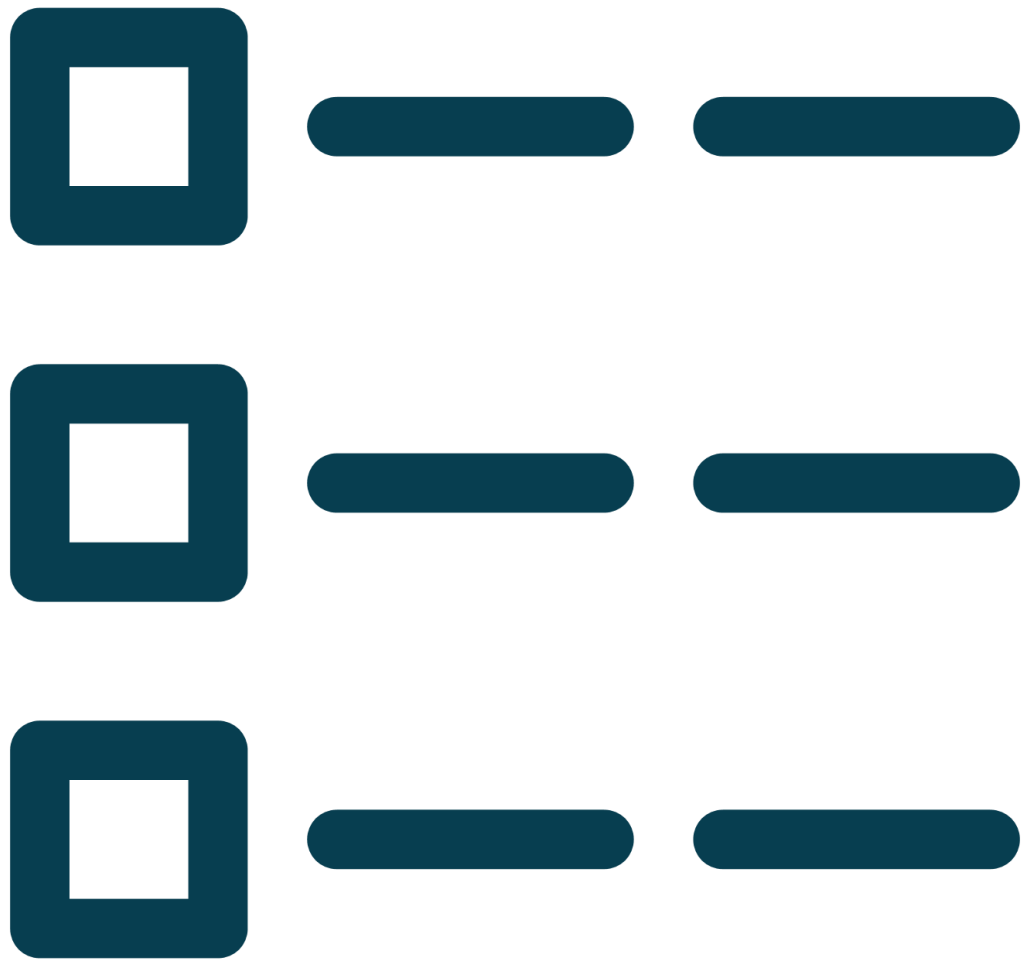
The future begins today. The requirements and possibilities (condition-oriented maintenance, what about predictive maintenance? What is there what's coming?

EAM4CLOUD

Features and functions of Release 1709

Can you **answer** me ....

Ask us your **questions**!!



Agenda

- Introduction – Detlef Aden
- Why should maintenance processes be integrated into business processes – Detlef Aden
- The future begins today. The requirements and possibilities (condition-oriented maintenance, what about predictive maintenance? What is there what's coming? –Detlef Aden
- Features of the eam4cloud "What?s new?" - Stefan Lehmann
- Questions & Answers

all4cloud – the 100% cloud company

VIERNHEIM

2015 founded

>190 happy companies

60+ customer projects

30+ employees are there for you

8 years experience w/ SAP Cloud

8 renowned awards

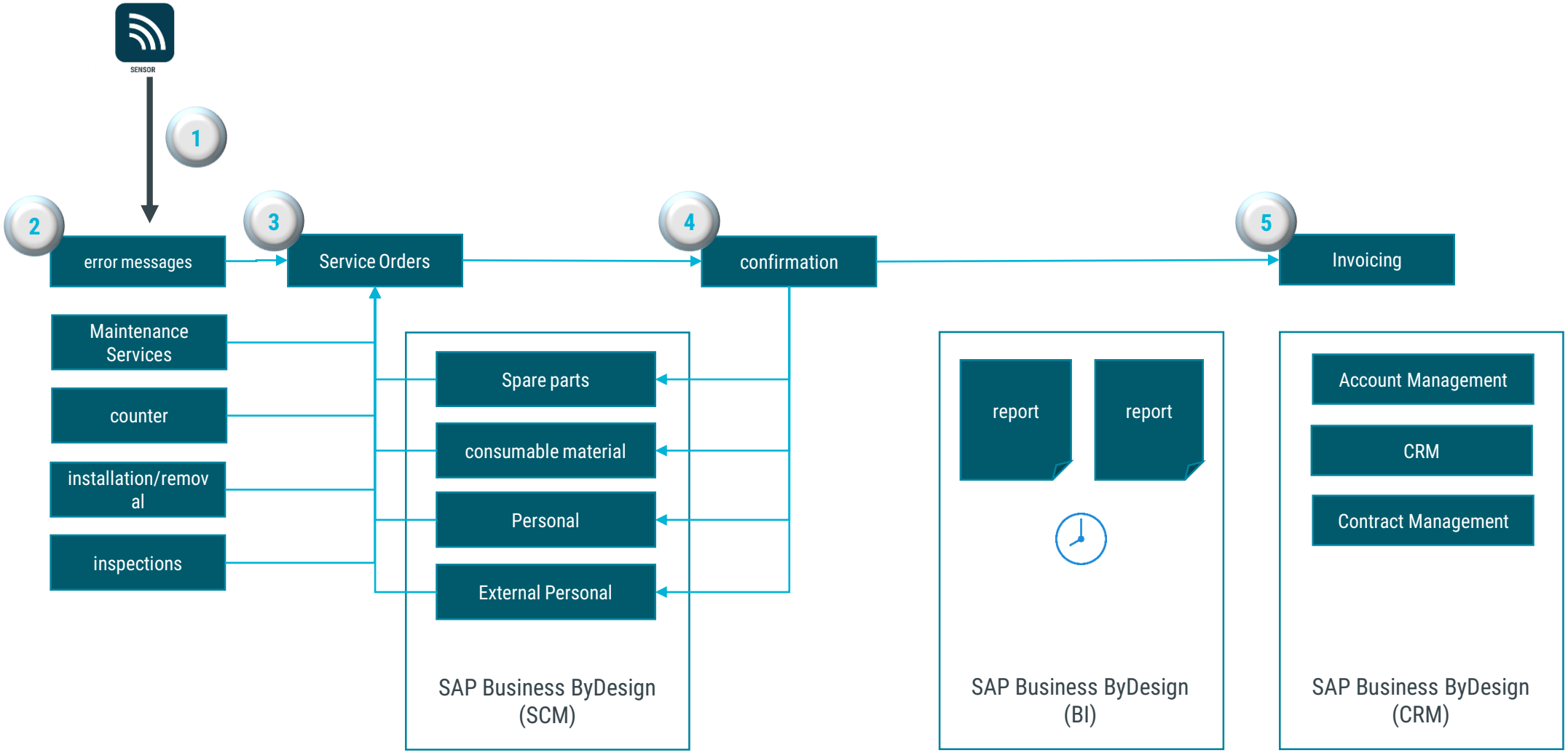
SAP Gold Partner

SAP® Recognized Expertise
in SAP Business ByDesign®

SAP MEE PARTNER EXCELLENCE AWARD 2017

Why should maintenance processes be integrated into business processes?

Art: facade element
manufactur: priedschüfeld
modell: SGT-200
installation date: 10.11.2016
Warranty: 09.11.2019
operating hours:
Serial #: SN3457SGT34578



The future begins today. The requirements and possibilities (condition-oriented maintenance, what about predictive maintenance? What is there what's coming?

DEVELOPMENT PHASES FROM INDUSTRY 1.0 TO INDUSTRY 4.0

ALL4CLOUD

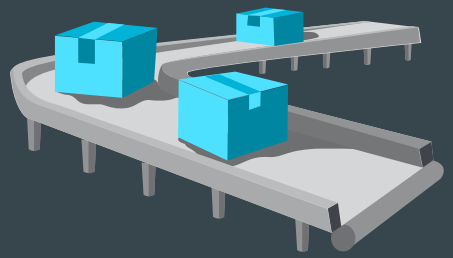
Reactive Maintenance

1

First Industrial Revolution: steam power makes mechanical production possible
(Late 18th century)

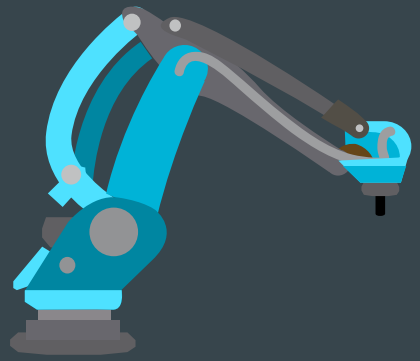
Preventive Maintenance

Second Industrial Revolution: electric energy makes mass production possible
(Beginning of the 20th century)



2

Condition based Maintenance

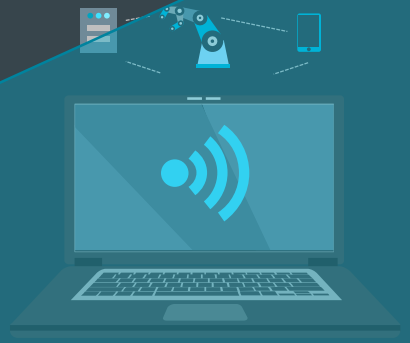


3

Third Industrial Revolution: IT and computer technology allow for more manufacturing automation
(Beginning of the 1970s)

Predictive Maintenance

Fourth Industrial Revolution: Internet of Things makes networked manufacturing possible
(Since the 21st century)



4

added value of Industry 4.0

WINDOW!!
AIR CONDITION!!!
ELEVATOR!!
LIGHTS!!
TAJ

AUTOMATED MAINTENANCE & SERVICE PROCESSES

ALL4CLOUD

SENSOR

LIGHT

TEMPERATURE

PRESSURE

DIRT

....

IoT Cockpit

If light < 15 lux

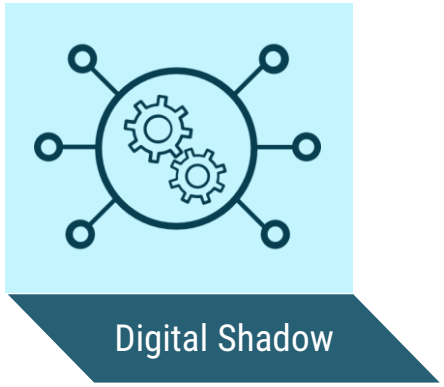
SERVICE-REQUEST

Powered by:

SAP Cloud Platform

EAM4CLOUD — Maintenance- & Servicemanagement

TECHNICAL ASSET



Digital Shadow

SAP Business ByDesign — Enterprise Resource Planning (ERP)

STATUS INFORMATION

RULES

ACTION

EAM4CLOUD

Features and functions of Release 1709

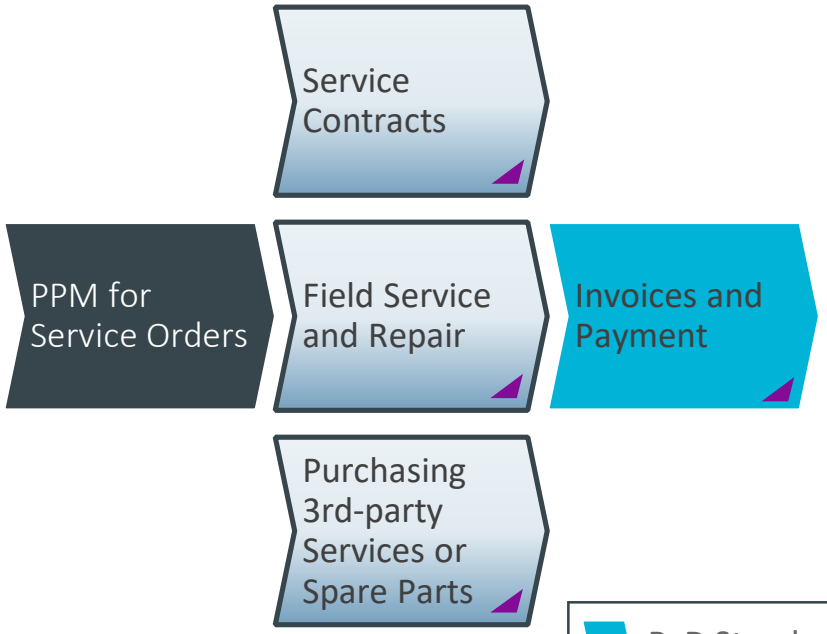
Modern Enterprise Asset Management from the Cloud

Maintenance Object

Equipment

Manufacturer Type

Service Provider Scenario



Modern Enterprise Asset Management from the Cloud

Inhouse Maintenance Scenario

Maintenance Object

Equipment

Manufacturer Type

PPM for Service Orders

Field Service and Repair

Purchasing 3rd-party Services or Spare Parts

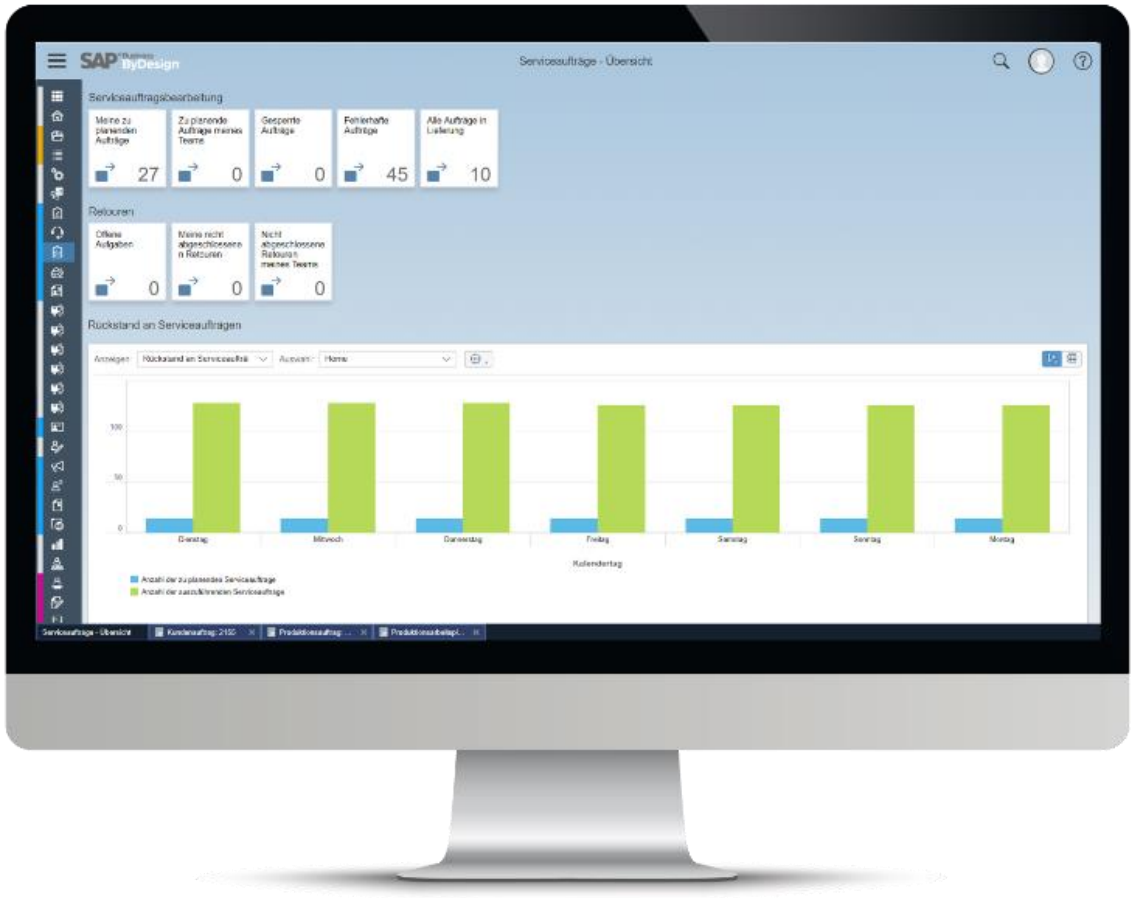
- ByD Standard
- eam4cloud solution
- eam4cloud Extension of ByD STD
- Relevant to financials

Modern Enterprise Asset Management from the Cloud

EAM4CLOUD

Release 1709 – enhancements

- HTML 5 Readiness
- Preventive Measures
- Service Task Planning
- Service Order Automization by Runs
- New technical attributes

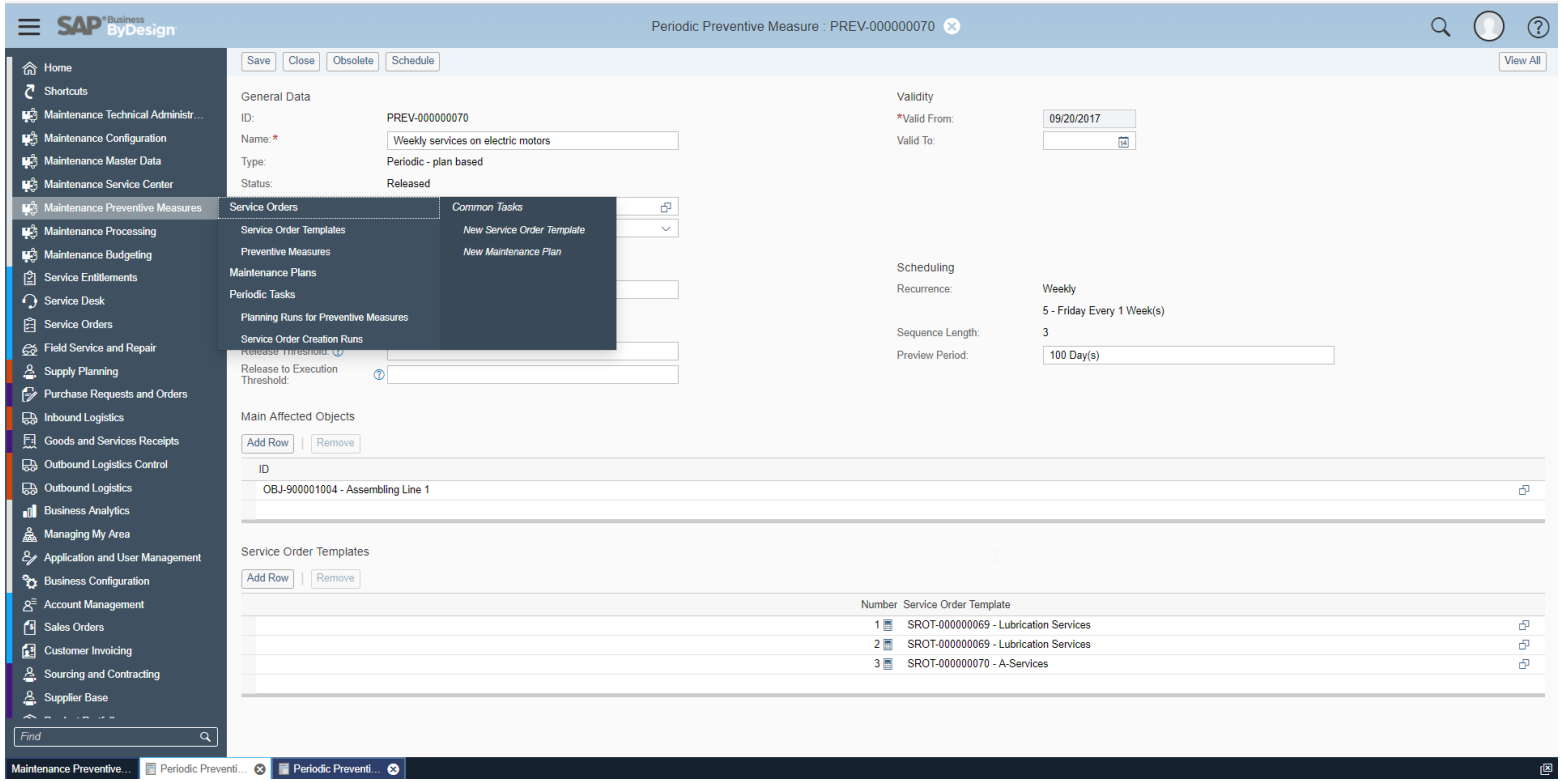


Release 1709 – Enhancements

EAM4CLOUD

HTML 5 Readiness

- All WoC views of the eam4cloud are usable under HTML5

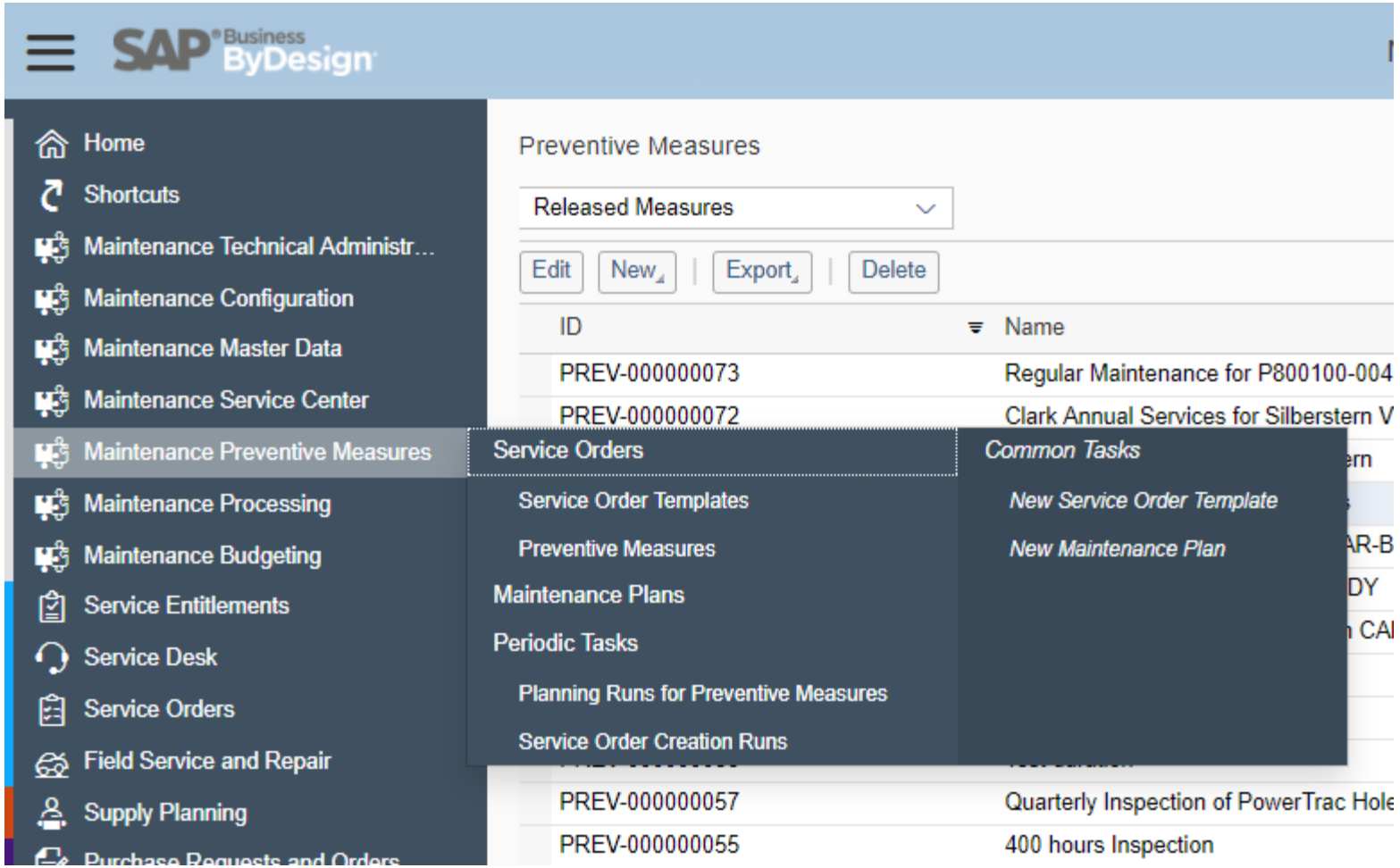


Release 1709 – Enhancements

EAM4CLOUD

Preventive Measures

- Relevant WoC and View's

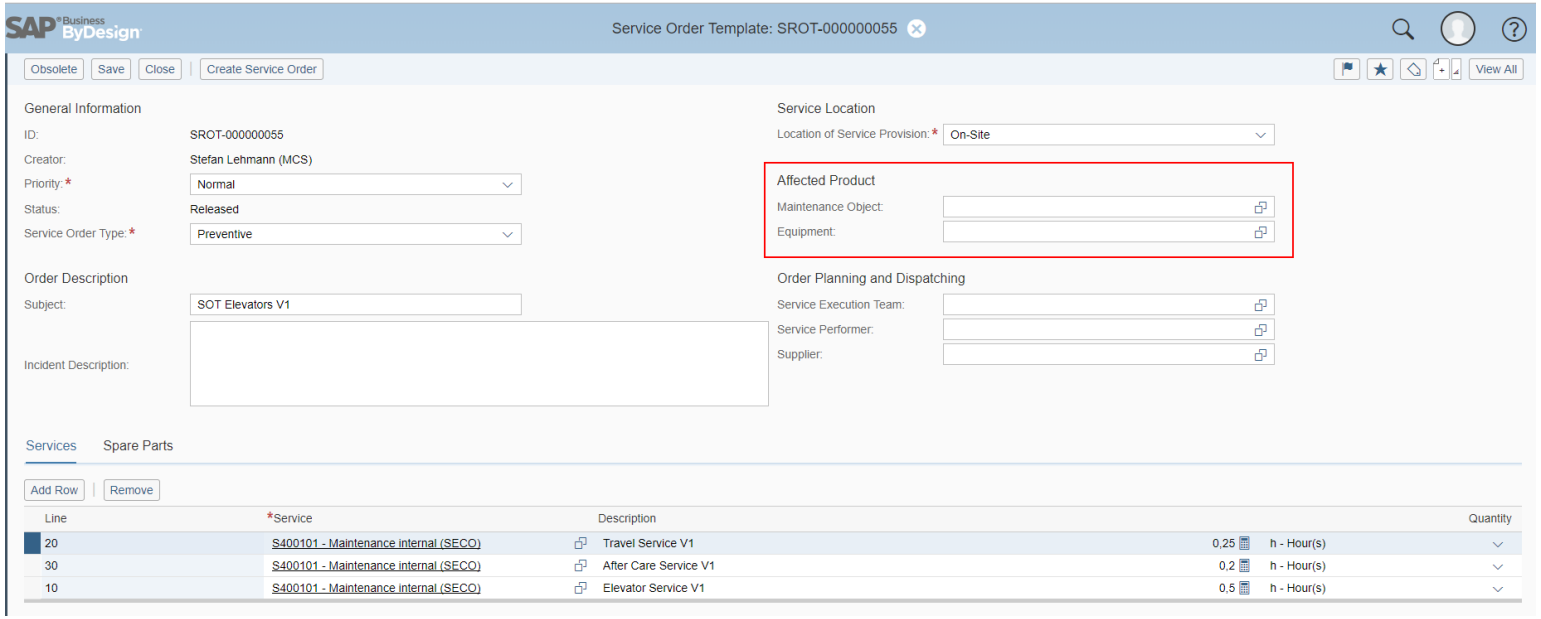


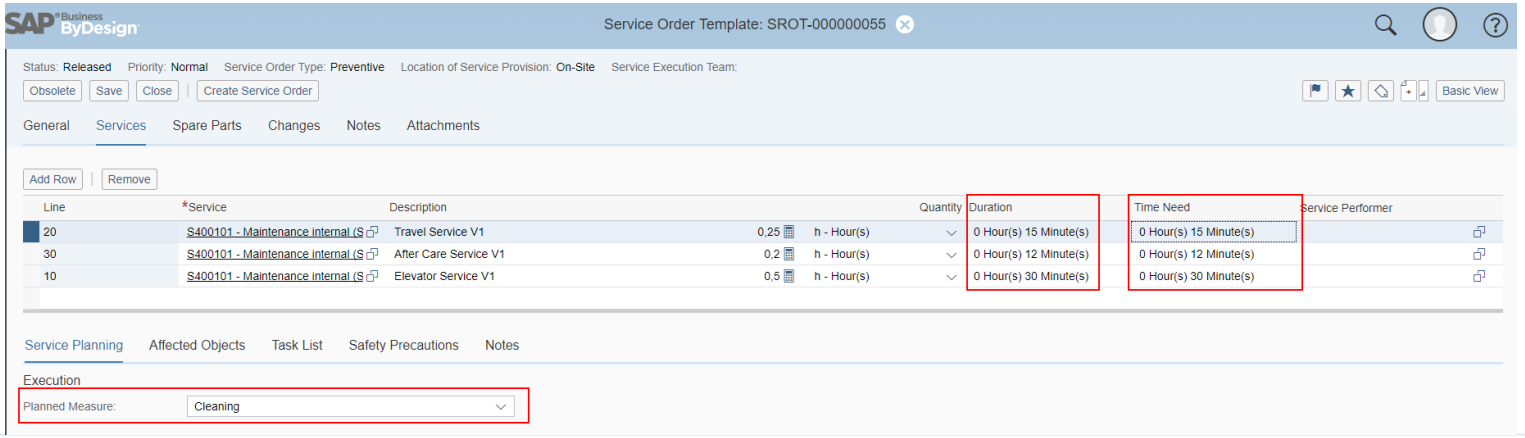
Release 1709 – Enhancements

EAM4CLOUD

Service Order Template

- If Maintenance Object is assignment is mandatory is controlled by scoping question
- More Planning fields
  - Duration
  - Time Need
  - Planned Measure



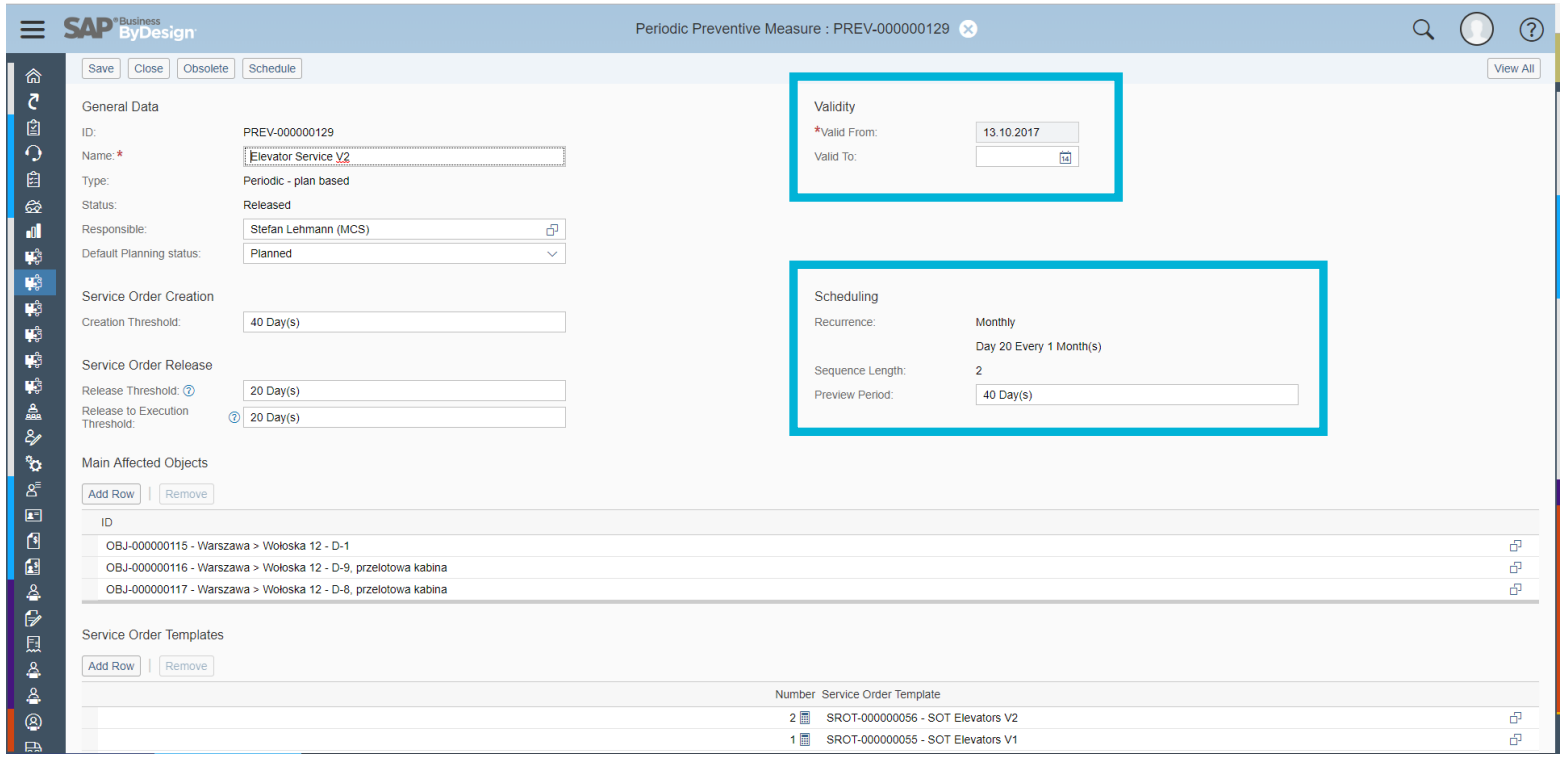


Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- Validity Period controls when the PPM is going to be picked-up by “Planning Runs for Preventive Measures”
- Periodic Scheduling (daily, weekly, monthly, yearly)
- Generates “Service Tasks” representing the dates for a specific service



Save | Close | Obsolete | Schedule | View All

General Data

ID: PREV-000000129
Name: * Elevator Service V2
Type: Periodic - plan based
Status: Released
Responsible: Stefan Lehmann (MCS)
Default Planning status: Planned

Validity

*Valid From: 13.10.2017
Valid To:

Service Order Creation

Creation Threshold: 40 Day(s)

Service Order Release

Release Threshold: 20 Day(s)
Release to Execution Threshold: 20 Day(s)

Scheduling

Recurrence: Monthly
Day 20 Every 1 Month(s)
Sequence Length: 2
Preview Period: 40 Day(s)

Main Affected Objects

Add Row | Remove

ID
OBJ-000000115 - Warszawa > Wołoska 12 - D-1
OBJ-000000116 - Warszawa > Wołoska 12 - D-9, przelotowa kabina
OBJ-000000117 - Warszawa > Wołoska 12 - D-8, przelotowa kabina

Service Order Templates

Add Row | Remove

Number	Service Order Template
2	SROT-000000056 - SOT Elevators V2
1	SROT-000000055 - SOT Elevators V1

Periodic Service is executed per each Maintenance Object

SOTs of different Numbers will result in individual service orders. Same number will combine SOT-items in one common service Order

Service Tasks

PREV-000000129 | Group By: None | Search

Edit | Export

ID	Preventive Measure ID	Preventive Measure	Maintenance Object ID	Maintenance Object	Task Description	Requested Date/Time	Planned Date/Time	Duration	Service Order ID	Service Order Item ID
6540	PREV-000000129	Elevator Service V2	OBJ-000000115	Warszawa > Wołoska 12 - D-1	Travel Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	35 Minute(s)	9211	10
6541	PREV-000000129	Elevator Service V2	OBJ-000000115	Warszawa > Wołoska 12 - D-1	After Care Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	0 Hour(s) 12 Min...	9211	20
6542	PREV-000000129	Elevator Service V2	OBJ-000000115	Warszawa > Wołoska 12 - D-1	Elevator Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	70 Minute(s)	9211	30
6546	PREV-000000129	Elevator Service V2	OBJ-000000117	Warszawa > Wołoska 12 - D-8, pr...	Travel Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	0 Hour(s) 15 Min...	9213	10
6547	PREV-000000129	Elevator Service V2	OBJ-000000117	Warszawa > Wołoska 12 - D-8, pr...	After Care Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	20 Minute(s)	9213	20
6548	PREV-000000129	Elevator Service V2	OBJ-000000117	Warszawa > Wołoska 12 - D-8, pr...	Elevator Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	0 Hour(s) 30 Min...	9213	30
6543	PREV-000000129	Elevator Service V2	OBJ-000000116	Warszawa > Wołoska 12 - D-9, pr...	Travel Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	0 Hour(s) 15 Min...	9212	10
6544	PREV-000000129	Elevator Service V2	OBJ-000000116	Warszawa > Wołoska 12 - D-9, pr...	After Care Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	0 Hour(s) 12 Min...	9212	20
6545	PREV-000000129	Elevator Service V2	OBJ-000000116	Warszawa > Wołoska 12 - D-9, pr...	Elevator Service V1	20.10.2017 00:00 CET	20.10.2017 00:00 CET	0 Hour(s) 30 Min...	9212	30
6569	PREV-000000129	Elevator Service V2	OBJ-000000116	Warszawa > Wołoska 12 - D-9, pr...	Travel Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 15 Min...	9219	10
6570	PREV-000000129	Elevator Service V2	OBJ-000000116	Warszawa > Wołoska 12 - D-9, pr...	After Care Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 12 Min...	9219	20
6571	PREV-000000129	Elevator Service V2	OBJ-000000116	Warszawa > Wołoska 12 - D-9, pr...	Elevator Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 30 Min...	9219	30
6572	PREV-000000129	Elevator Service V2	OBJ-000000117	Warszawa > Wołoska 12 - D-8, pr...	Travel Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 15 Min...	9218	10
6573	PREV-000000129	Elevator Service V2	OBJ-000000117	Warszawa > Wołoska 12 - D-8, pr...	After Care Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 12 Min...	9218	20
6574	PREV-000000129	Elevator Service V2	OBJ-000000117	Warszawa > Wołoska 12 - D-8, pr...	Elevator Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 30 Min...	9218	30
6566	PREV-000000129	Elevator Service V2	OBJ-000000115	Warszawa > Wołoska 12 - D-1	Travel Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 15 Min...	9217	10
6567	PREV-000000129	Elevator Service V2	OBJ-000000115	Warszawa > Wołoska 12 - D-1	After Care Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 12 Min...	9217	20
6568	PREV-000000129	Elevator Service V2	OBJ-000000115	Warszawa > Wołoska 12 - D-1	Elevator Service V2	20.11.2017 00:00 CET	20.11.2017 00:00 CET	0 Hour(s) 30 Min...	9217	30

In October V1 services are executable (template sequence number "1") an in November V2 service are executable

Three services according to the three items within the service order template

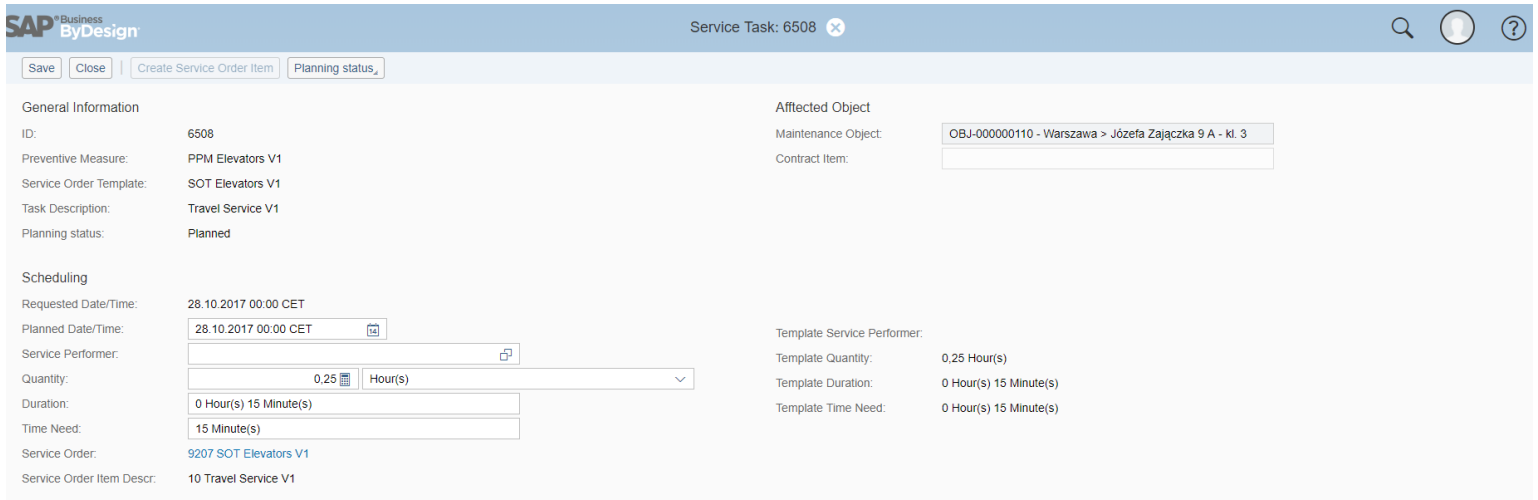
Three service orders in October according to the three main Maintenance Objects

Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- Service Tasks are made for planning purposes
- Generate **Service Tasks** for the **far future**
- Generate **service orders** out of service tasks only for the **near future**

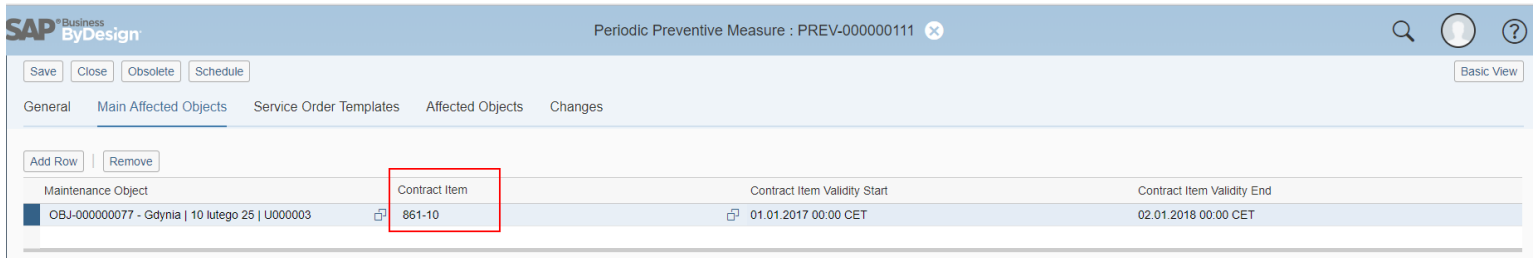


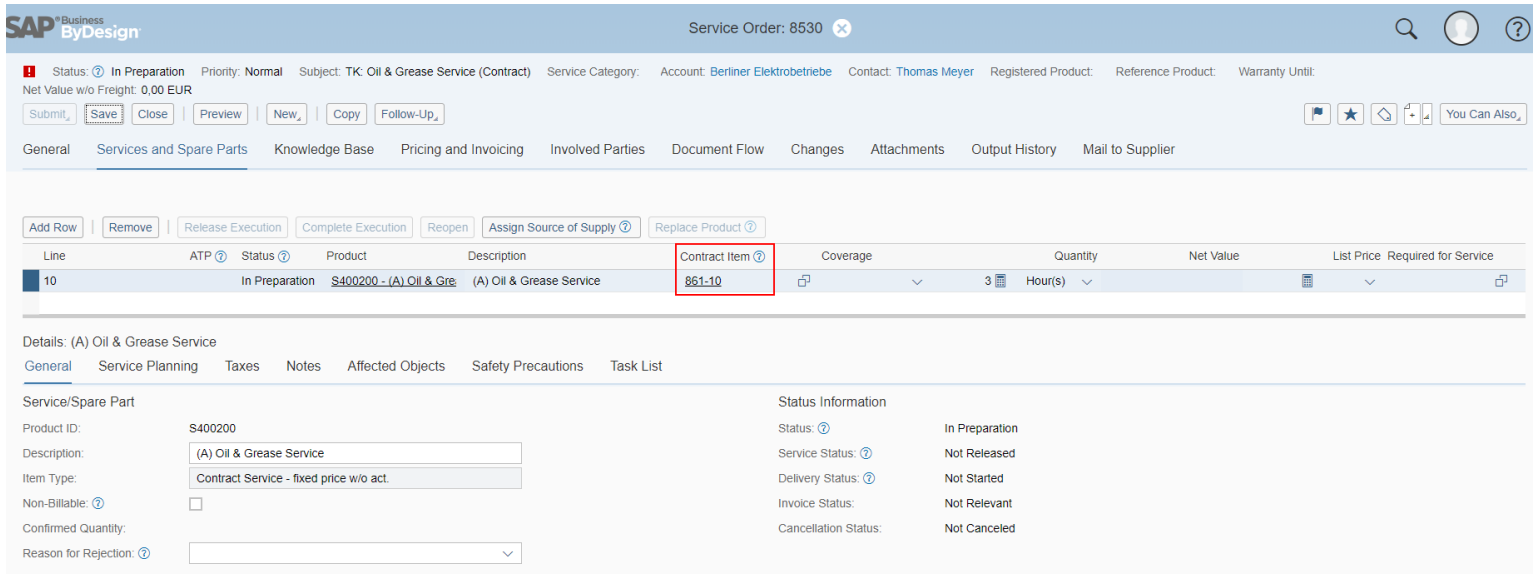
Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- The Maintenance Object assignment controls how many service orders are generated in the end
- For each Maintenance Object of the PPM it is possible to **assign a contract position**
- When the system generates a service order it tries to set this contract position to each service order item
  - Will work if contract item is valid for the planned date of the service position and if service is covered by contract item
  - If not applicable the contract item is not set



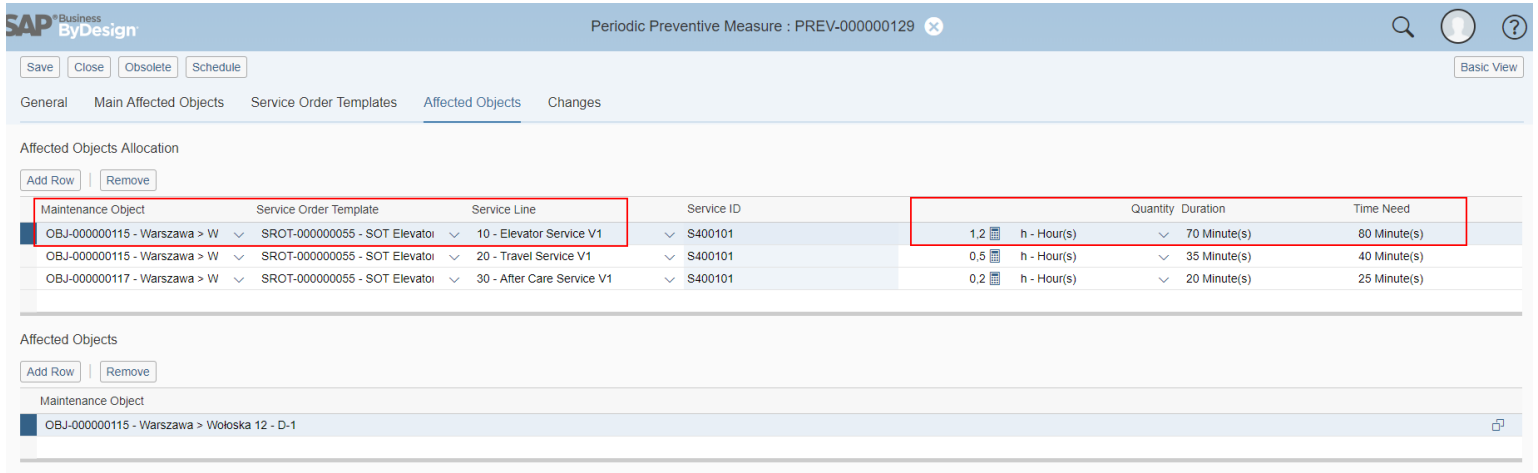


Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- It is possible to overrule planned service durations by the PPM
- Combination of template service and Maintenance Object could determine other work durations

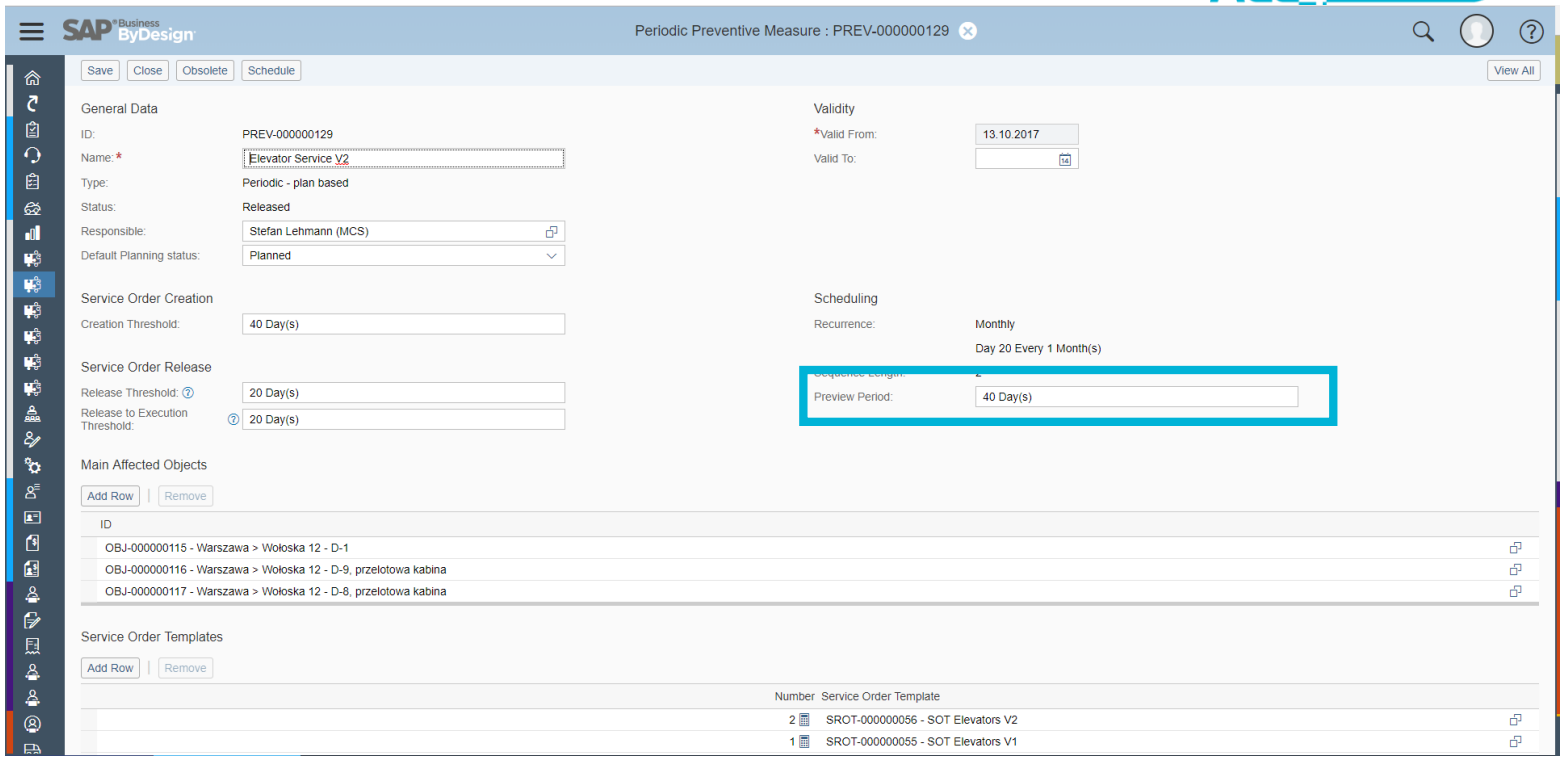


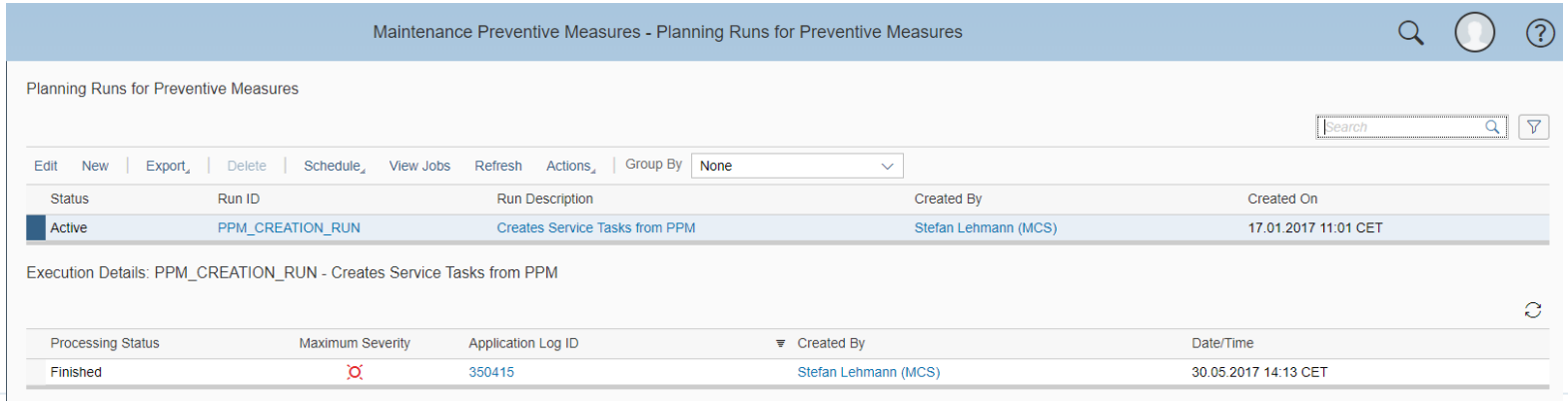
Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- "Preview Period" controls how long the **Planning Runs for Preventive Measures** looks in the future for generating Service Tasks
- Planning Runs for Preventive Measures is not configurable. It always picks-up ALL released Preventive Measures, checks the preview period and the amount of existing tasks. If necessary the run creates or deletes tasks.
- By shrinking the preview period and schedule it is possible to delete Service Tasks (but not if there are released Service Orders assigned to the task)



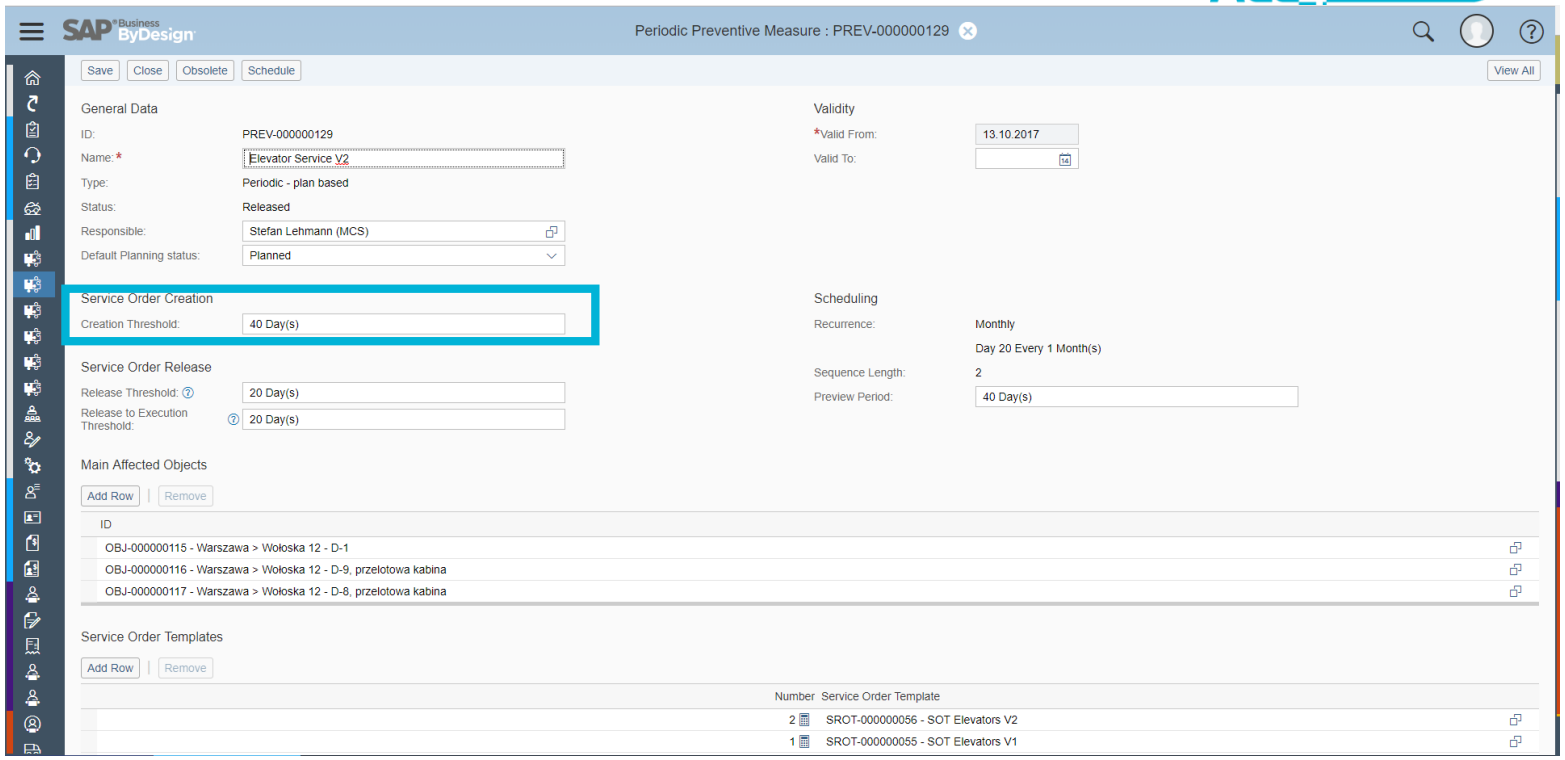


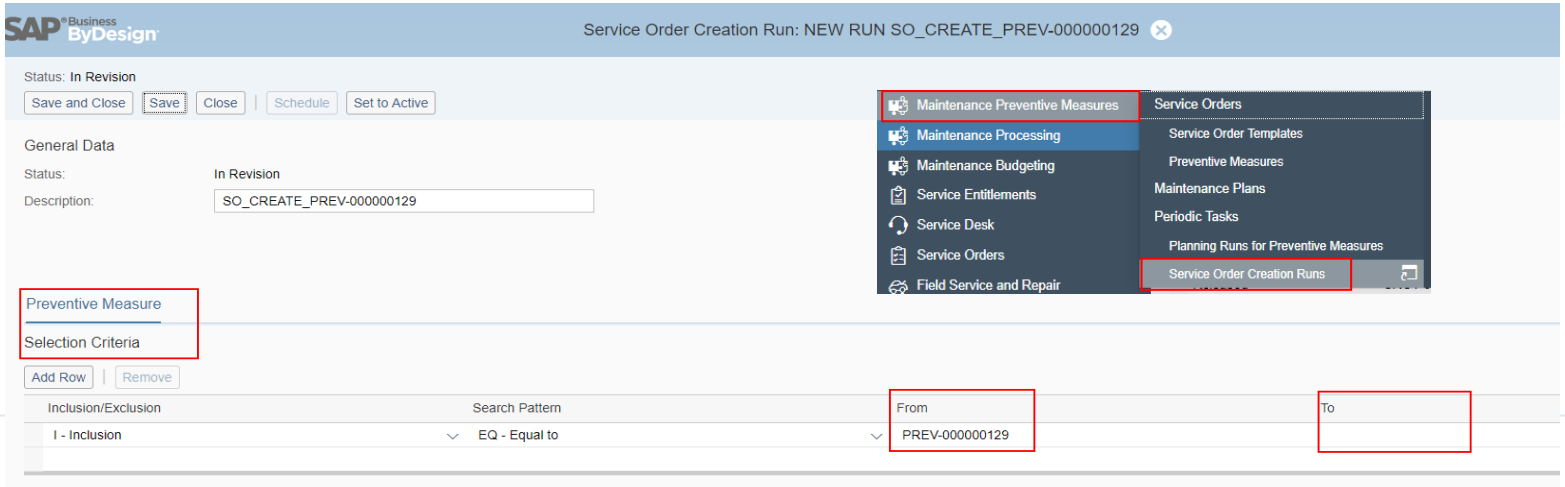
Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- "Creation Threshold " controls how long the **Service Order Creation Run** looks in the future for generating Service Orders out of Service Tasks
- Service Order Creation Run for Preventive Measures is configurable. It is possible to have multiple runs for dedicated ranges of PPM-IDs
- Provides better control over specific PPMs, e.g. temporarily switch-off one PPM run
- Parallel Jobs possible => Better performance



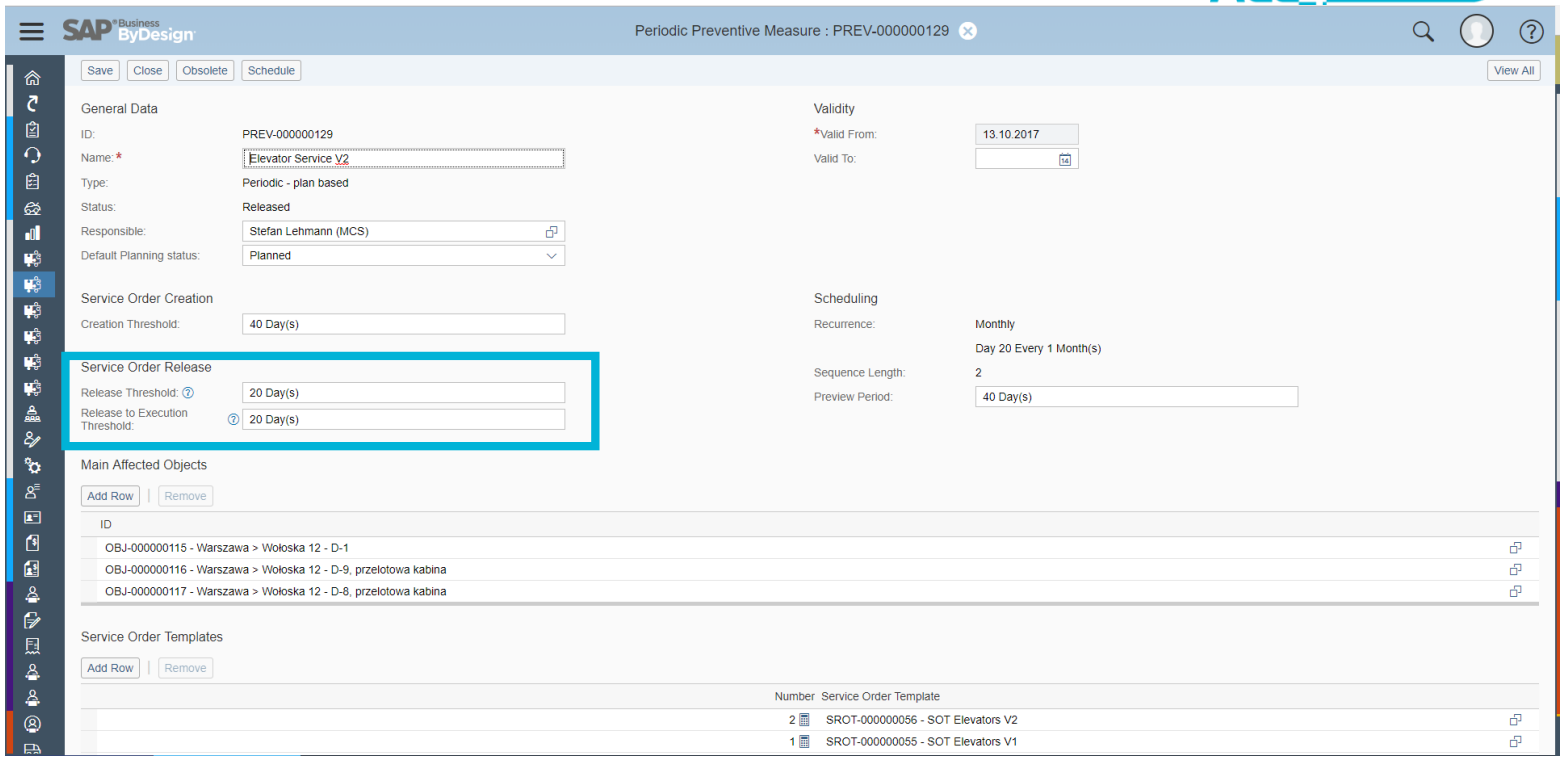


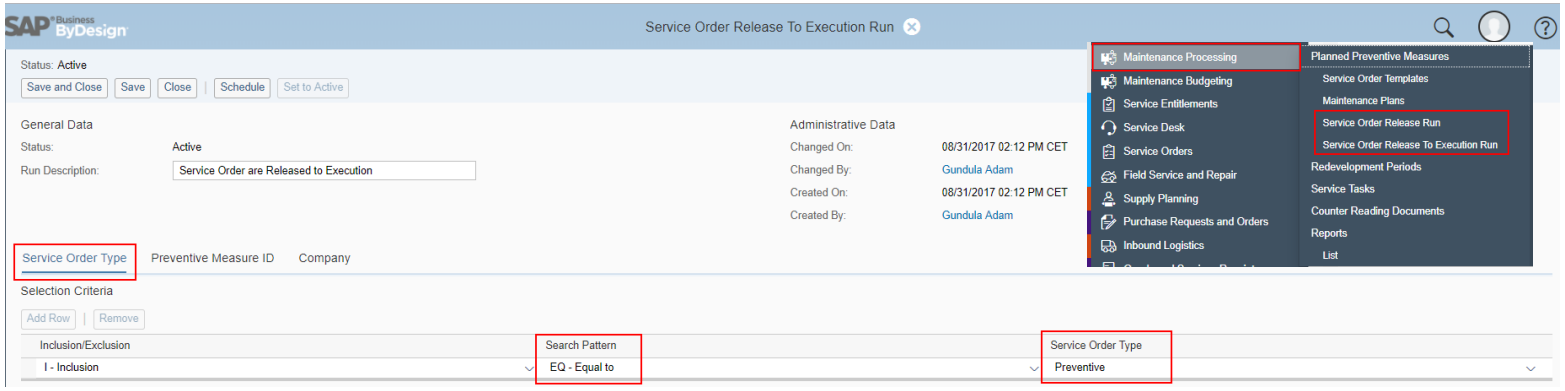
Release 1709 – Enhancements

EAM4CLOUD

(Periodic) Preventive Measures - PPM

- "Release Threshold " controls how long the **Service Order Release Run** or the **Service Order Release to Execution Run** look in the future for releasing Service Orders
- Service Order Release (for Execution) Runs are configurable. It is possible to have multiple runs for dedicated ranges of Types, PPM-IDs or companies
- Provides better control over specific PPMs, e.g. temporarily switch-off one PPM run
- Parallel Jobs possible => Better performance



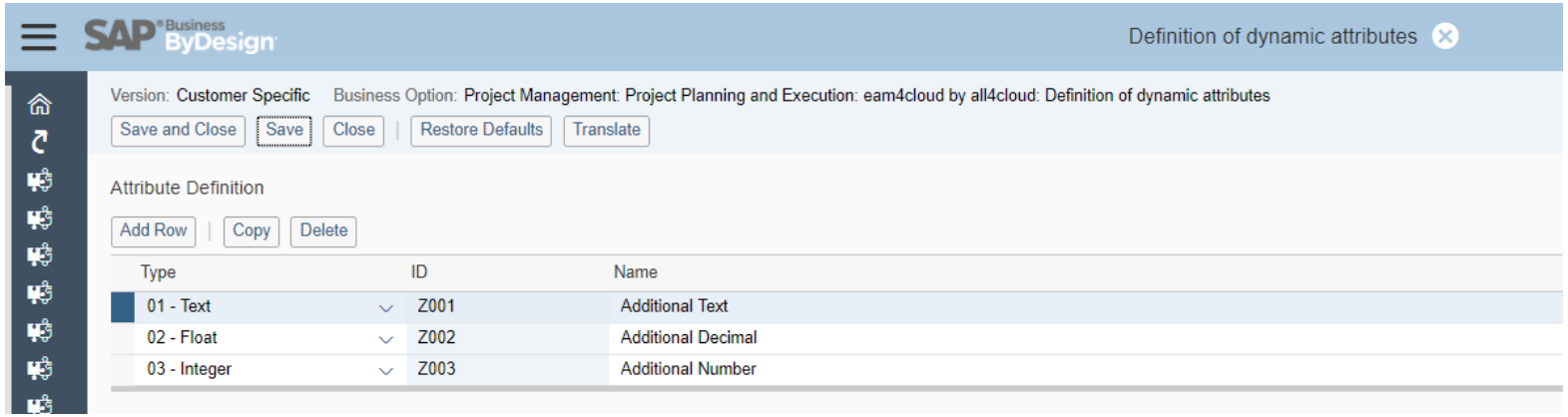


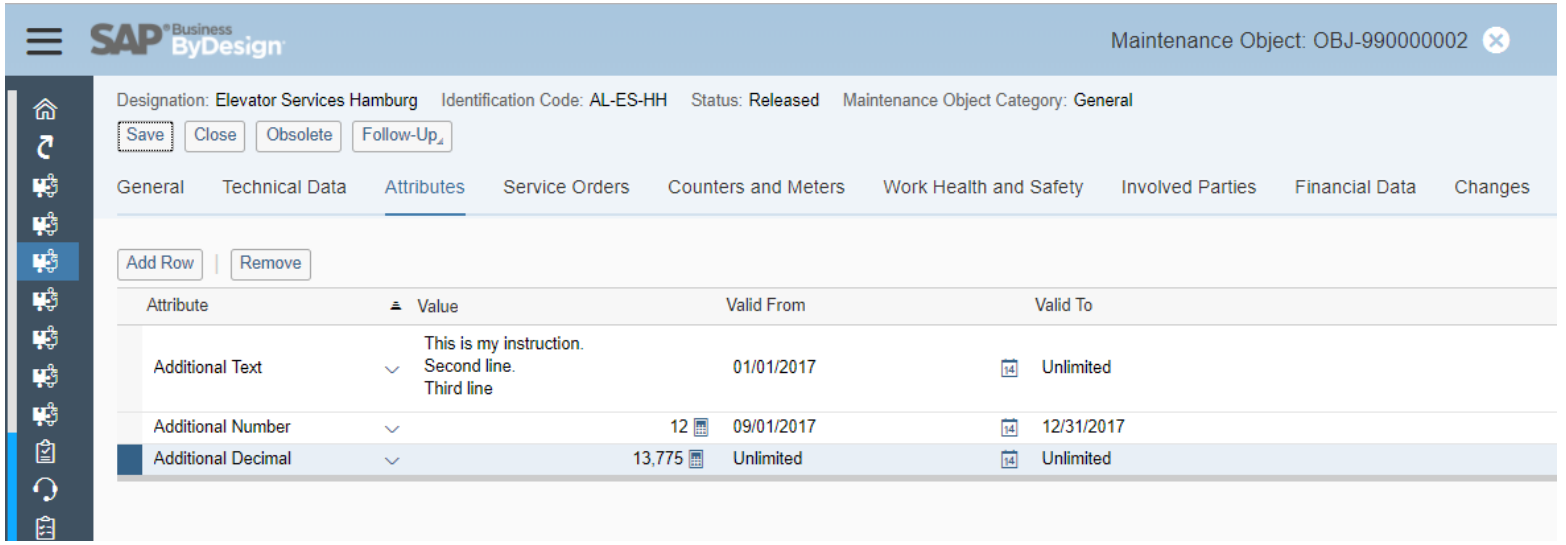
Release 1709 – Enhancements

EAM4CLOUD

Configurable Attributes

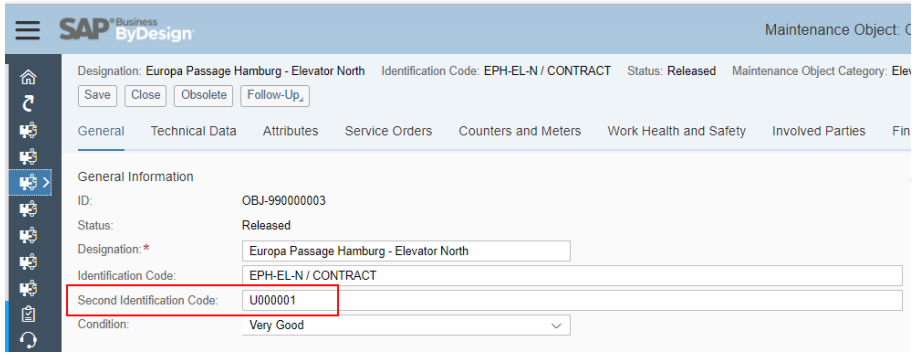
- Additional functionality to add technical attribute to Maintenance Objects
- FT task “Definition of dynamic attributes”
- Attribute value has optional time dependence
- File Upload possible
- Not usable in OWL query





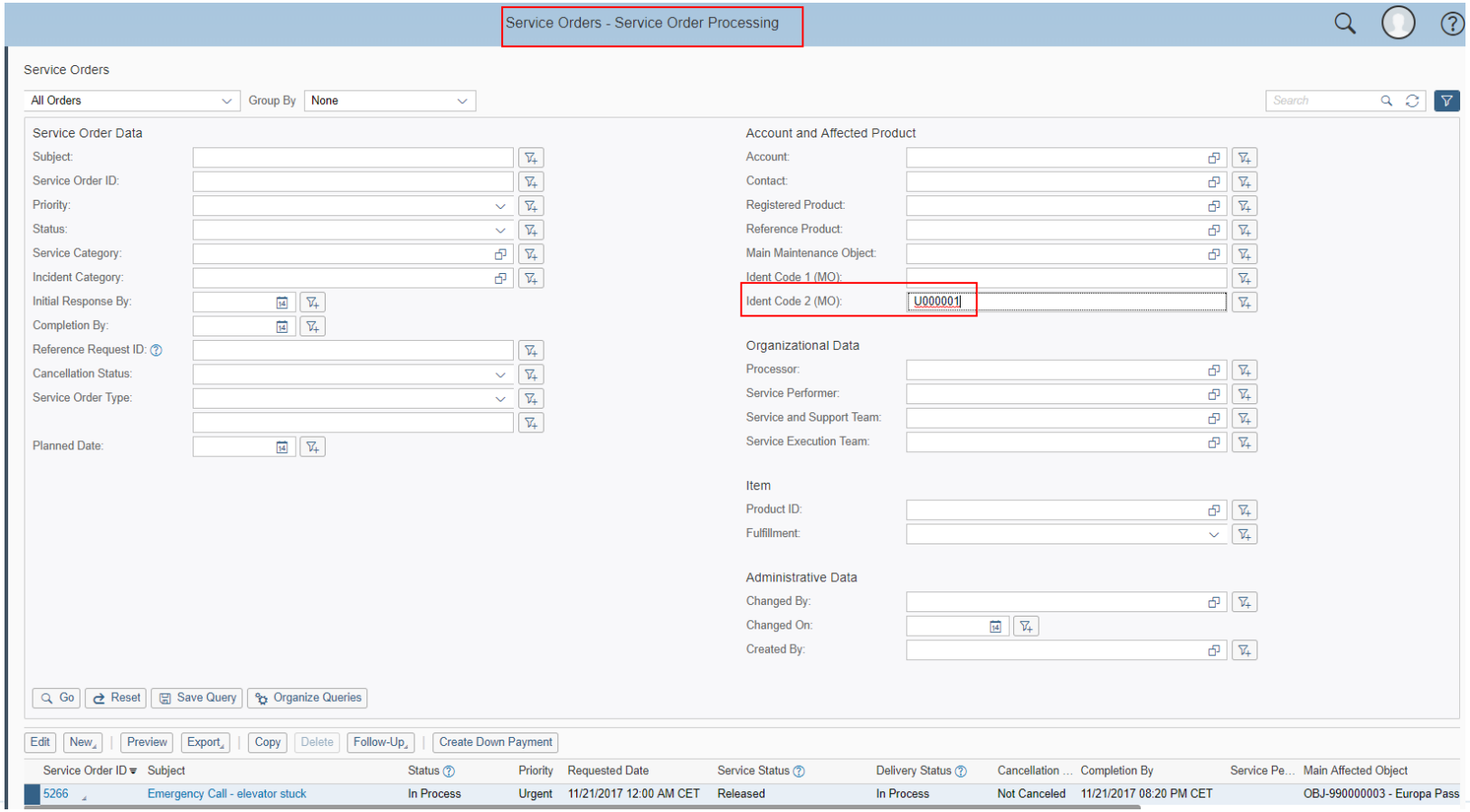
Release 1709 – Enhancements

EAM4CLOUD



Second identification Code

- Identifies Maintenance Objects
- Usable for autocompletion
- Search criterion in service order OWL

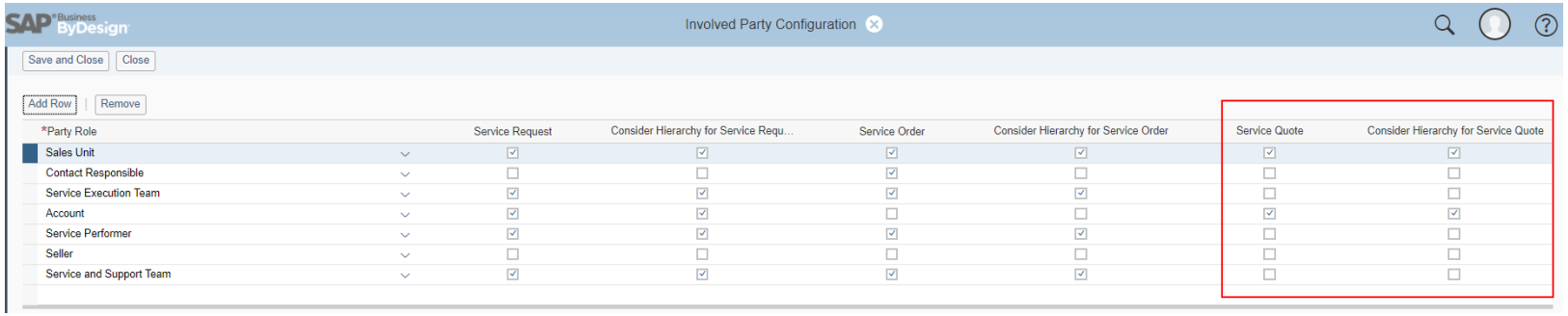


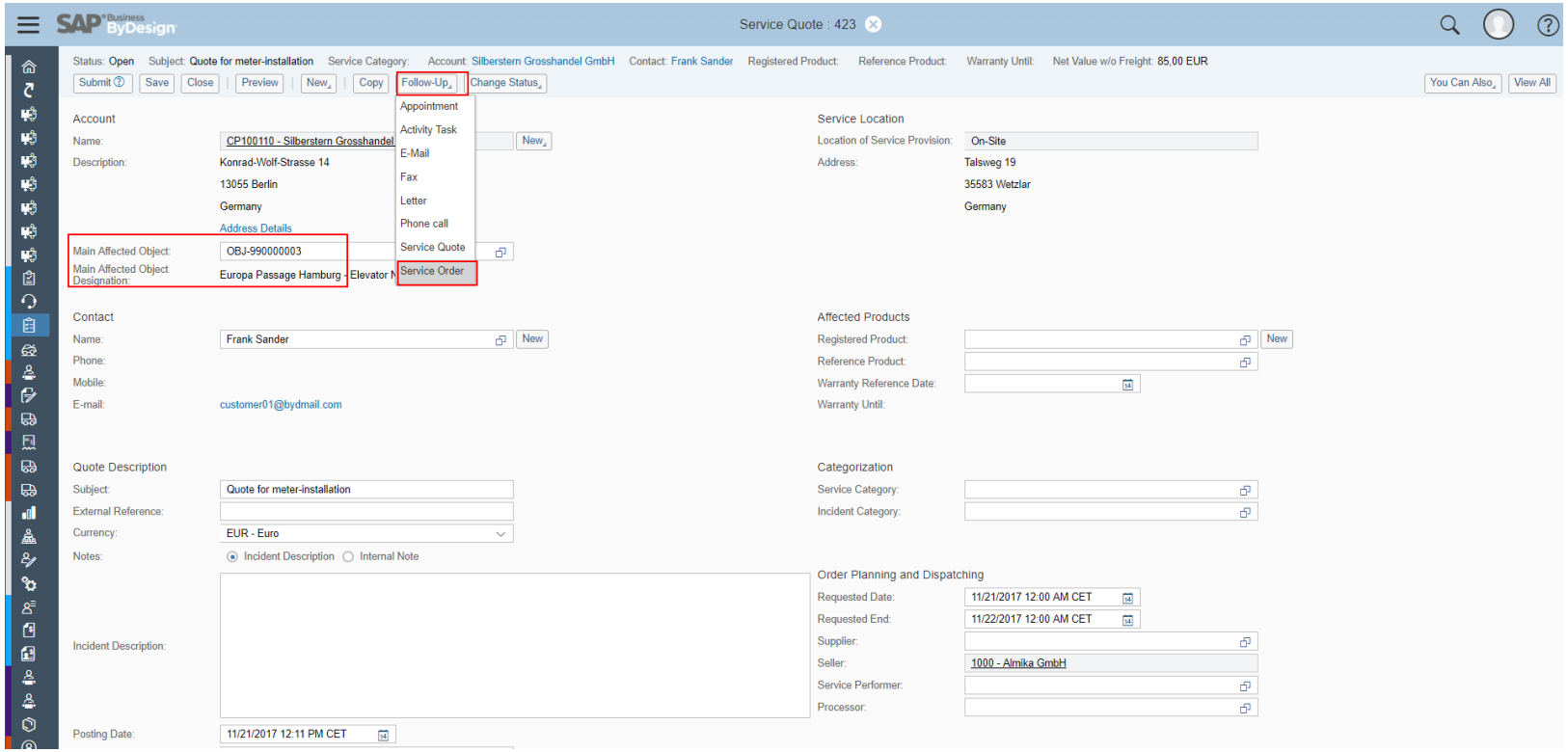
Release 1709 – Enhancements

EAM4CLOUD

Service Quote -> Service Order

- If a Follow-up Service Order is created from the Service Quote the relevant data are copied over, esp the Maintenance Object.
- In case that the Maintenance Object is covered by a contract but the customer of this contract is different from the customer of the Quote, than the customer of the Quote is used for the Service Order.
- Involved party flow applies as well. Configuration possible by “Maintenance Configuration / Involved Party Configuration”



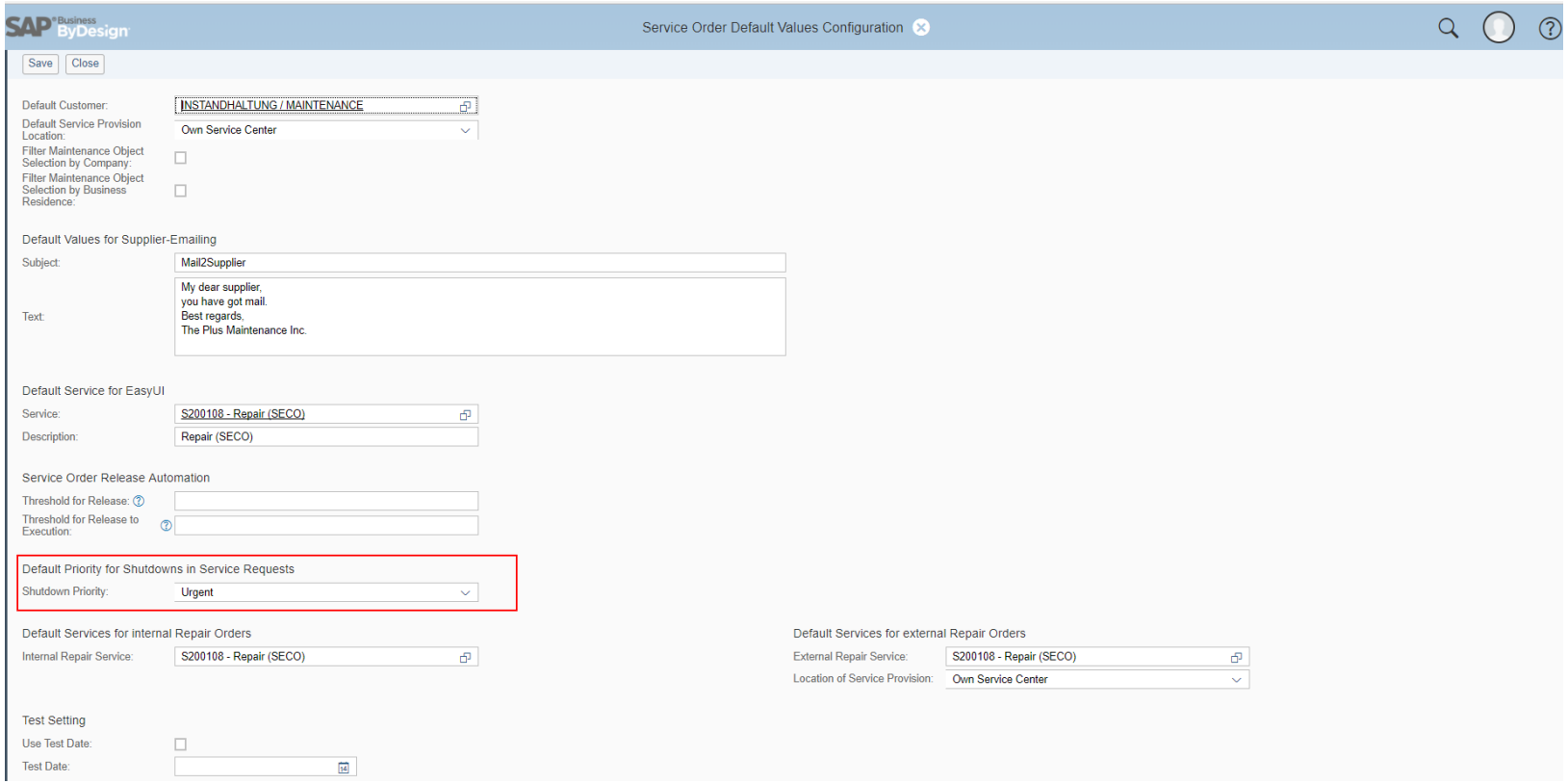


Release 1709 – Enhancements

EAM4CLOUD

Shutdowns

- **Default Priority Configuration**
- Service Request shutdown indicator and date
- Service Confirmation shutdown duration

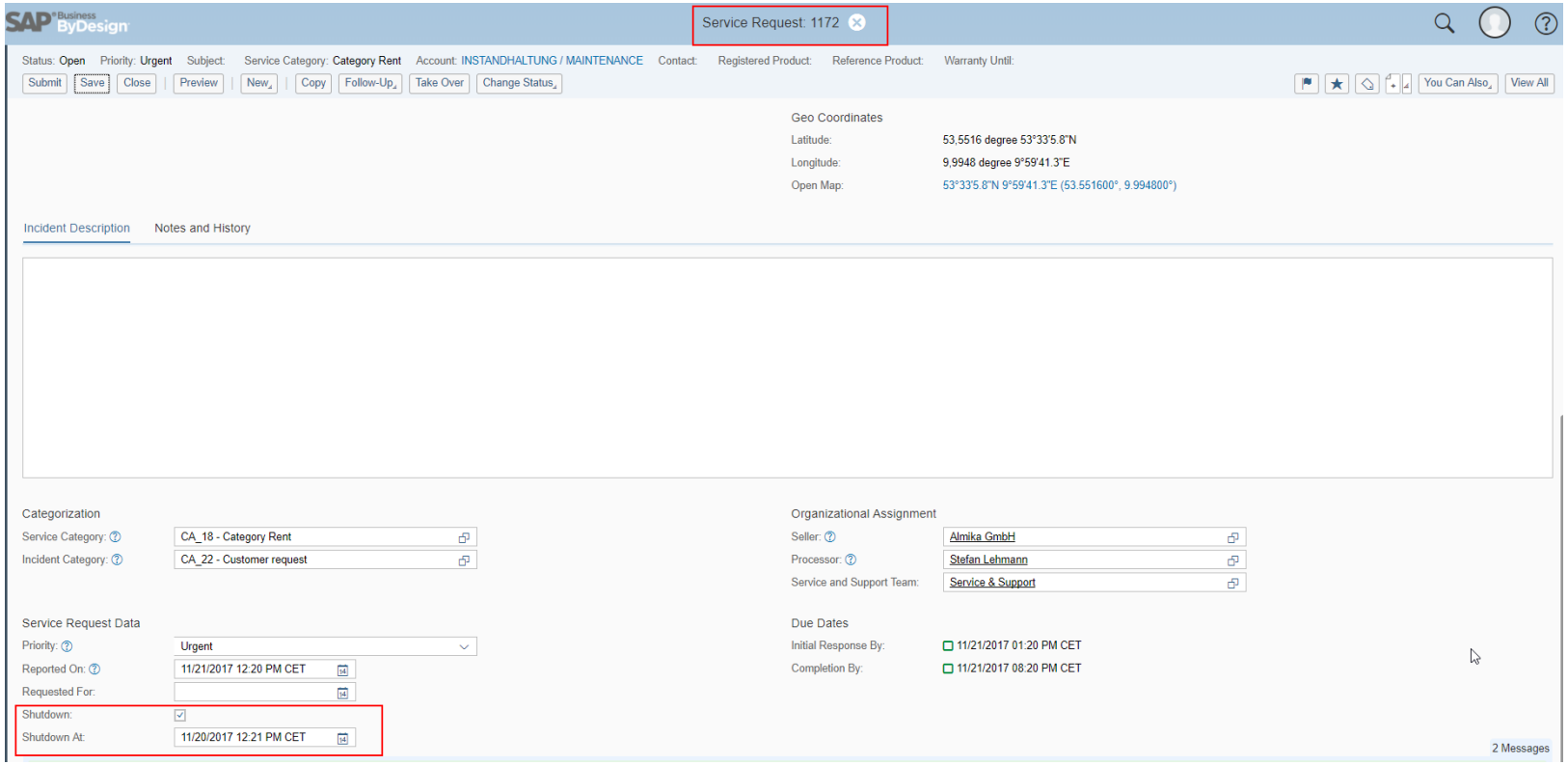


Release 1709 – Enhancements

EAM4CLOUD

Shutdowns

- Default Priority Configuration
- **Service Request shutdown indicator and date**
- Service Confirmation shutdown duration

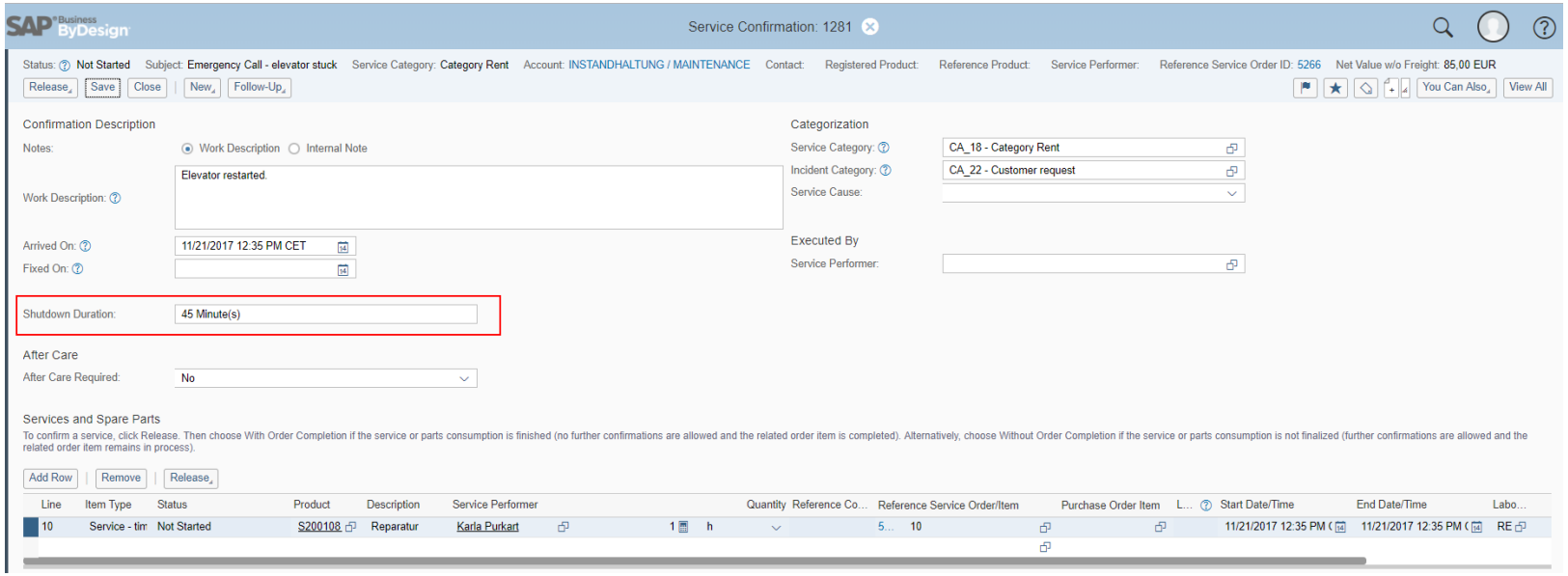


Release 1709 – Enhancements

EAM4CLOUD

Shutdowns

- Default Priority Configuration
- Service Request shutdown indicator
- **Service Confirmatuion shutdown duration**

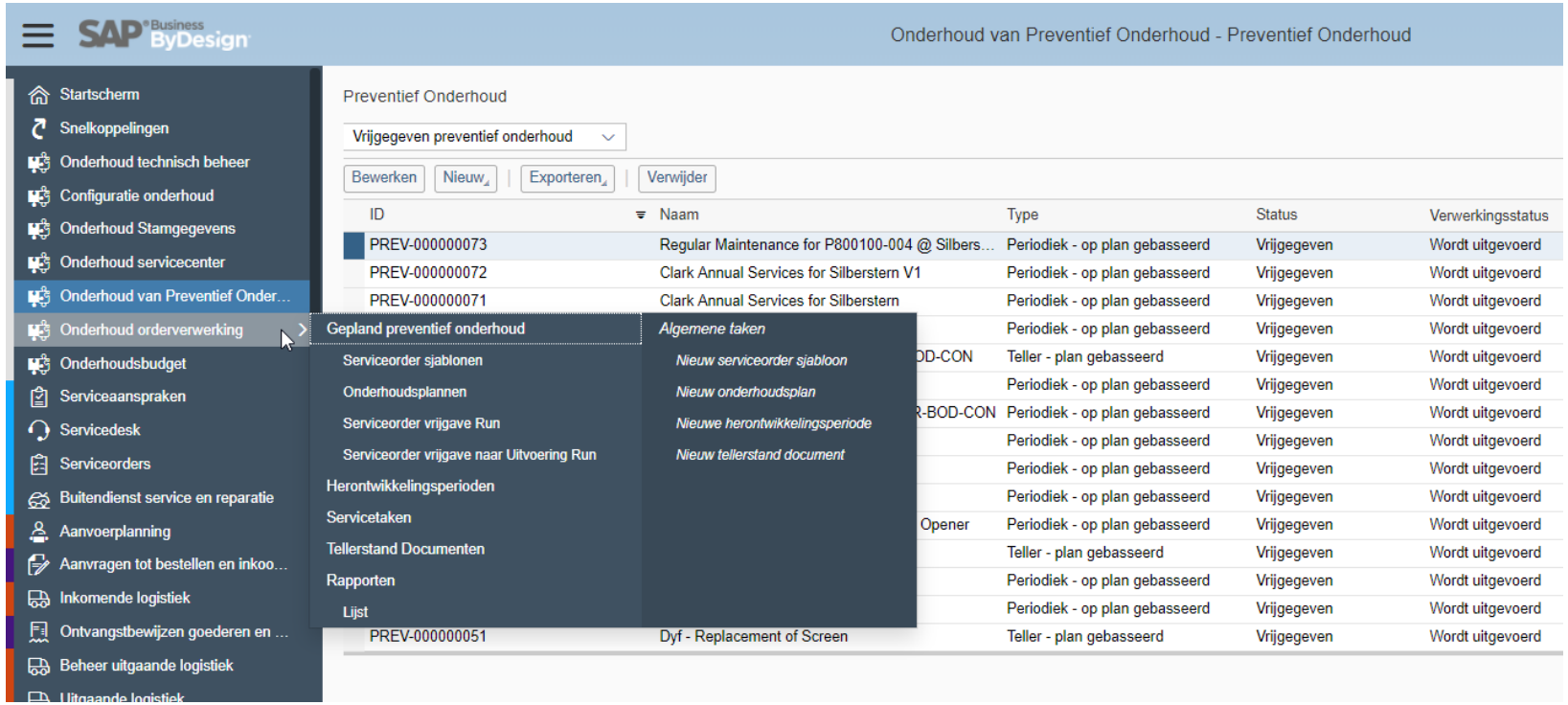


Release 1709 – Enhancements

EAM4CLOUD

Languages

- German
- English
- Dutch
- Polish
- <French> under discussion
- <Chinese> under discussion



How to configure Runs in ByDesign

Important note (ByDesign standard, not eam4cloud specific)

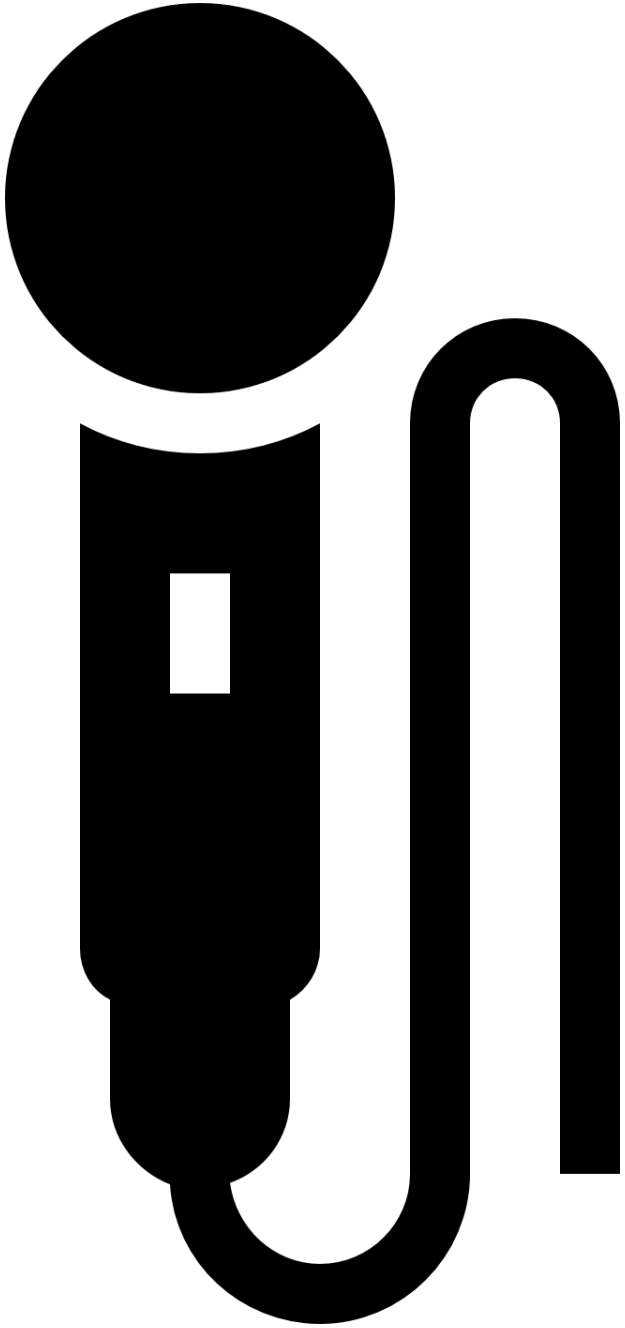
If a user “U1” configures a run that creates business objects the following facts have to be considered

- U1 is stored as the creator of the business objects
- If U1 is blocked or terminated the run will no longer work! I.e. the run is coupled with the validity of the user.

Consequences:

- Runs have to be configured by the customer’s key users and not by implementation partner’s users.
- Be careful when blocking or terminating a user that is used in runs

Can you **answer** me ….



Ask us your
questions!!

Thank you!

Charline Luebkemann

Stefan Lehmann

Detlef Aden

Please contact us

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