



# Compliance & Transparency – Petroleum

## CTP 3.0

### Documentation Reference Manual

## Notes

---

The latest version of this documentation can be found in the QuantityWare [Knowledge Base](#). All documentation is kept current for the combinations of latest BCS release with the latest supported SAP Oil, Gas, & Energy release. For all currently supported combinations see [Note #000086 "Support and Release \(Lifecycle\) details"](#) page 2, "Release Lifecycle".

Your release level can be determined via:

"/o/QTYW/COCKPIT" -> "Cockpit" -> "Support Package Level"

## Version History

---

Version	Date	Description
00	2017-03-31	Initial Release
01	2017-11-11	S/4HANA 1709 validity added
02	2019-02-17	S/4HANA 1809 validity added
03	2021-09-23	S/4HANA 2020 / 2020_EX validity confirmed - modern QW document style applied - 30A CSP02 / 30B CSP01 changes
04	2023-11-01	30A CSP03 / 30B CSP02 changes

## Contents

---

<b>1. Introduction .....</b>	<b>5</b>
<b>2. Documentation Overview .....</b>	<b>6</b>
<b>3. CTP - Petroleum Measurement Cockpit.....</b>	<b>10</b>
3.1. Introduction .....	10
3.2. Structure of the Petroleum Measurement Cockpit (PMC) .....	11
3.3. PMC Methodology .....	23
3.4. PMC Tab Strip Details.....	23
3.5. PMC Online Documentation.....	40
3.6. Summary.....	40
<b>4. CTP - Test Scenarios.....</b>	<b>41</b>
4.1. Introduction .....	41
4.2. Test Scenario – Delivery with BC Set.....	42
4.3. Test Scenario – Definition .....	43
4.4. Access to the Test Scenario Tool.....	44
4.5. Test Scenario Tool Activities .....	44
4.6. Summary.....	54
<b>5. CTP – Configuration Template .....</b>	<b>55</b>
5.1. Introduction .....	55
5.2. Unit of Measure Definitions .....	56
5.3. Conversion Group Configuration.....	57
5.4. QuantityWare IMG Access .....	59
<b>6. CTP - SAP QCI Enhancements of Legacy Configurations.....</b>	<b>62</b>
6.1. Introduction .....	62
6.2. Parameter Range Check Settings.....	62

6.3.	Conversion Group Documentation.....	65
6.4.	Quantity Value Synchronization.....	67
6.5.	Summary.....	67
<b>7.</b>	<b>CTP - Customizing Transactions.....</b>	<b>68</b>
7.1.	Introduction .....	68
7.2.	QuantityWare Customizing Transactions.....	68
7.3.	Summary.....	70
<b>8.</b>	<b>CTP - Web Services .....</b>	<b>71</b>
8.1.	Introduction .....	71
8.2.	Installation Components .....	72
8.3.	Web Services - Interface Documentation .....	73
8.4.	Summary.....	75
<b>9.</b>	<b>CTP - Petroleum Measurement Cockpit - Security.....</b>	<b>76</b>
<b>10.</b>	<b>CTP - Protection of Intellectual Property.....</b>	<b>78</b>
<b>11.</b>	<b>Abbreviations .....</b>	<b>79</b>
<b>12.</b>	<b>CTP - Documentation Rules.....</b>	<b>82</b>

## 1. Introduction

---

CTP (Compliance & Transparency – Petroleum) is delivered within the Bulk Calculations Solution (BCS) and activated for the mandatory installation test with a license key. For CTP this document provides:

- An overview of all documentation delivered for CTP
- Links to related documents
- Detailed documentation for specific areas

Read this document and - depending on your project roles - the related documents carefully before you install QuantityWare CTP 3.0 or start your CTP 3.0 implementation project.

## 2. Documentation Overview

---

The following CTP documents are either published as a chapter of this document, or available as a separate document in the [Knowledge Base](#).

### **BCS Technical Installation Manual:**

Audience: SAP basis experts performing the installation

Content: Describes the technical requirements and procedures to be followed during the technical installation of the BCS.

Publication: Separate Document in the [Knowledge Base](#).

### **CTP - Project Assessment and Implementation Guidelines (PAIG):**

Audience: Project team lead responsible for CTP implementation & project members

Content: Describes a high-level project methodology which enables the successful design and configuration of quantity conversion solutions that run in an SAP Oil, Gas, & Energy ERP system, based upon business requirements.

Publication: Separate Document in the [Knowledge Base](#).

### **CTP - Petroleum Measurement Cockpit (PMC):**

Audience: CTP implementation project team-lead and project members, as well as petroleum measurement specialists wishing to use the PMC.

Content: Describes the PMCs methodology, structure and content.

Publication: This document

**CTP - Test Scenarios:**

Audience: CTP implementation project team-lead and project members, as well as petroleum measurement specialists wishing to use the PMC.

Content: Describes the theory behind and the definition of, quantity conversion automated test scenarios.

Publication: This document

**CTP - Configuration Template:**

Audience: CTP project implementation members.

Content: Explains how to access and analyze the configuration data via the PMC.

Publication: This document

**CTP - Supported Standards Manual:**

Audience: Project members implementing CTP and petroleum measurement specialists.

Content: Lists all measurement standards that are implemented with CTP and provides detailed technical implementation information.

Publication: Separate Document in the [Knowledge Base](#).

**CTP - SAP QCI Enhancements of Legacy Configurations:**

Audience: Project members implementing CTP

Content: Describes the functional possibilities provided by QuantityWare for the SAP QCI, in detail.

Publication: This document

**CTP - Customizing:**

Audience: Project members implementing CTP

Content: Describes CTP customizing options which can be accessed from the PMC.

Publication: This document

#### **CTP - Web Services:**

Audience: Project members implementing CTP.

Content: Describes how to access CTP quantity conversion web services.

Publication: This document

#### **CTP – Petroleum Measurement Cockpit - Security:**

Audience: Project members implementing CTP

Content: Lists the QuantityWare single & composite roles delivered with BCS which can be assigned to GMC users.

Publication: This document

#### **CTP - Protection of Intellectual Property:**

Audience: Project members implementing CTP

Content: Describes the QuantityWare Intellectual Property security measures.

Publication: This document





In addition to the above listed documents, QuantityWare publishes BCP/CTP notes which are also an integral part of the BCG documentation, all available in the [Knowledge Base](#).

All code corrections published via note are included in the immediately following CSP.

For an overview of note validity, see section 6 of [Note 000067](#) – “Additional Installation Information”.

The associated files must be downloaded from the [QuantityWare Service Portal](#)

Finally, Consulting and Working Papers are published frequently, which are all as well available in the [Knowledge Base](#).

## 3. CTP - Petroleum Measurement Cockpit

---

### 3.1. Introduction

---

The **software package** CTP is one important part of the overall QuantityWare solution for the oil industries. The complete solution consists of:

- QuantityWare Software Package
- QuantityWare Training Services
- QuantityWare Support Services

The Petroleum Measurement Cockpit (PMC) is the single access point for measurement specialists and certified BCP consultants to the QuantityWare CTP solution. Here you design, monitor, maintain and enhance complex, measurement standard based quantity conversion implementations that run within the SAP Oil, Gas, & Energy ERP system. The Petroleum Measurement Cockpit (PMC) provides an easy-to-use user interface (UI), which is structured in a way such that measurement experts and technical consultants can organize their work efficiently.



After you log on to your SAP ERP system, enter transaction code `/n/PTYW/COCKPIT` to launch the Petroleum Measurement Cockpit (PMC)

Make sure that the required authorization profiles / composite roles are assigned to your user

The technical installation team must enter the temporary CTP license via the PMC too.

## 3.2. Structure of the Petroleum Measurement Cockpit (PMC)

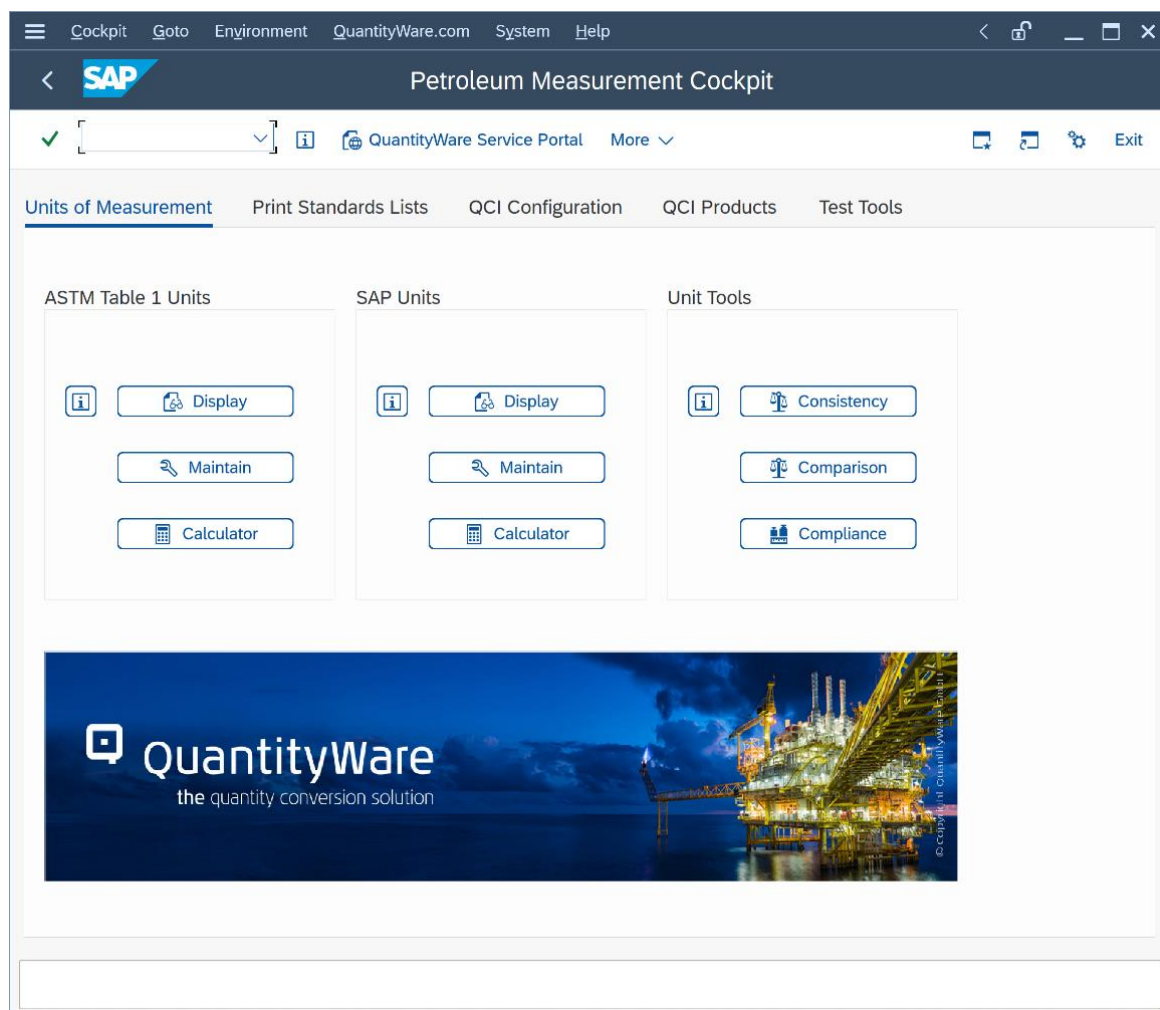
The PMC is structured with Tabs and Menus.

### 3.2.1. PMC Overview - Tabs

The Petroleum Measurement Cockpit provides five tab pages:

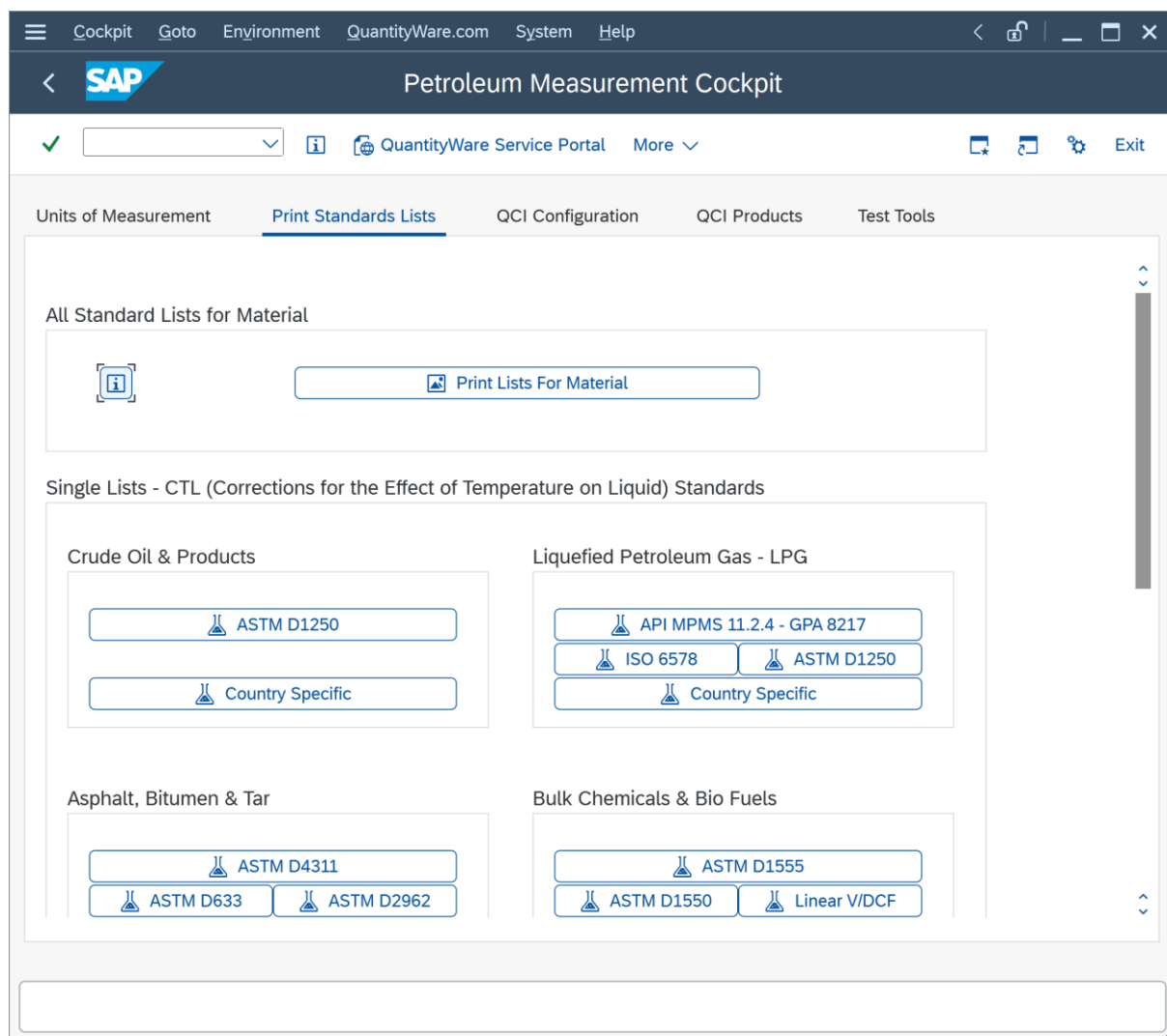
#### 3.2.1.1. Units of Measurement

Here you define, create, change, display and monitor Unit of Measurement (UoM) settings. Detailed documentation for the UoM concepts (SAP standard and ASTM Table 1 concept) is available. You also define the UoM compliance settings and prepare the UoM Compliance Analysis in this tab page.



In your productive clients, you may disable access to configuration settings via customizing settings. Specifically, you may disable the Maintenance Access in this tab page (in addition to the general locking via SAP standard settings of customizing transactions), as well as direct customizing and technical tool access via the menu paths “Goto” and “Environment”.

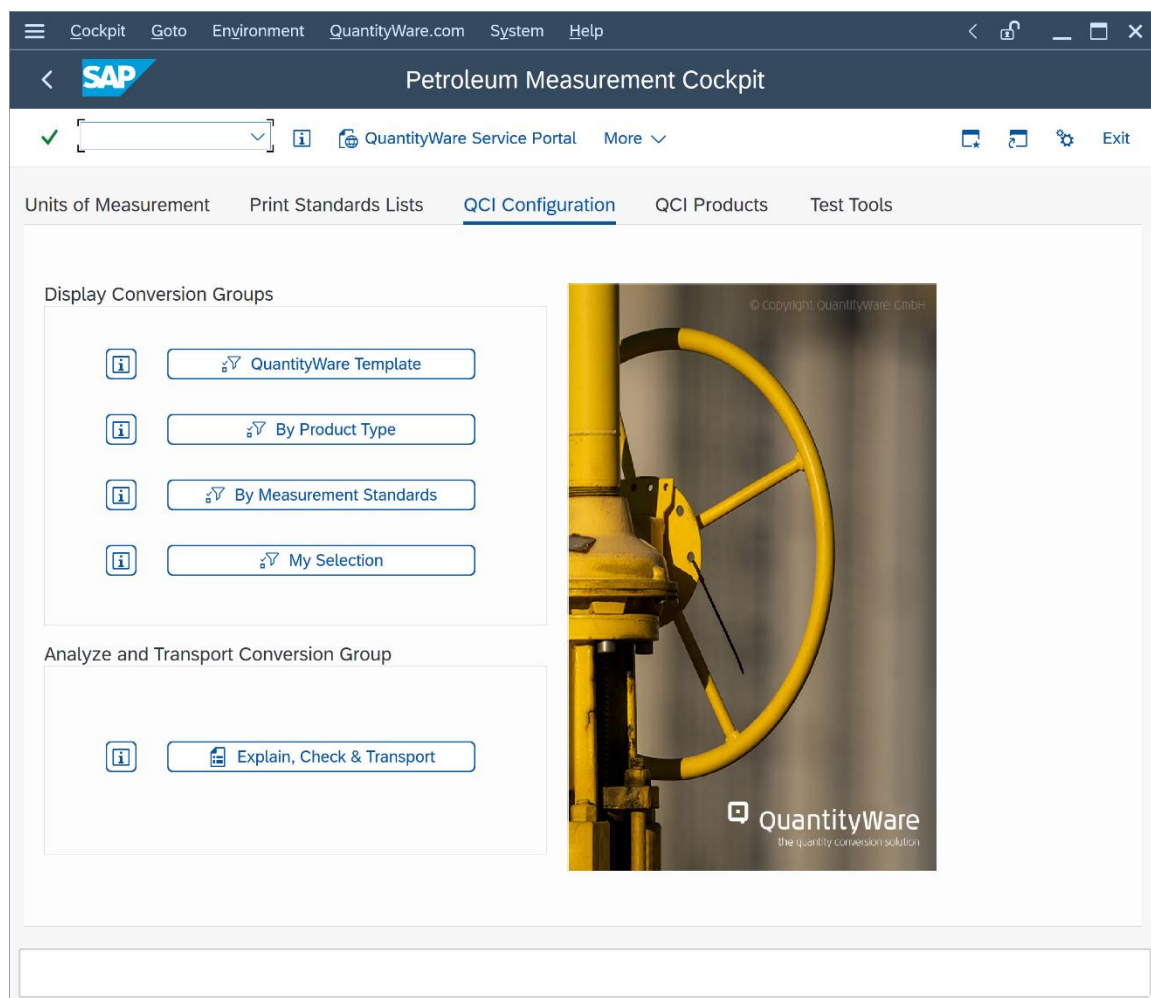
### 3.2.1.2. Print Standards List



Here you display and print lists of volume correction factors (CTL & CPL) as well as density **in air** (weight) and density **in vacuum** (mass) values of all measurement standards that are implemented by QuantityWare. Business practice typically requires printed versions of correction factors for inspectors and surveyors during custody transfer of bulk petroleum quantities. Although modern standard implementations are no-longer based on tables, such lists still need to be available as documentation for the quantity calculation procedure and for the support of custody transfer procedures.

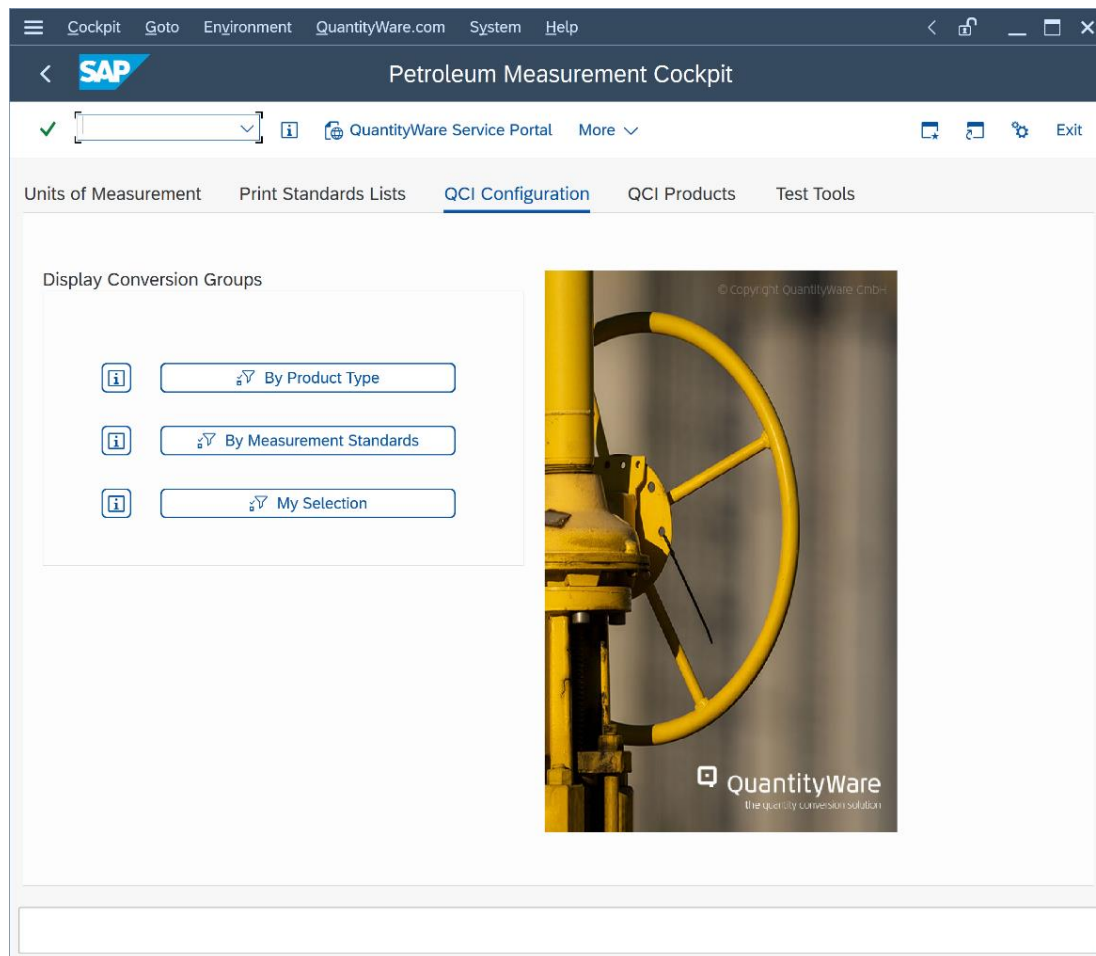
### 3.2.1.3. QCI Configuration (Template Client)

Here you inspect the conversion groups from the QuantityWare template which are required for the installation test (client 045). You may also print a detailed configuration statement for each conversion group (e.g. for audit purposes) and perform automated conversion group configuration checks. You display a list of all UoM definitions that are required for a conversion group and also create a customizing transport request to include all UoM definitions for your conversion group; you may also create a customizing transport request that contains all required configuration for a conversion group.



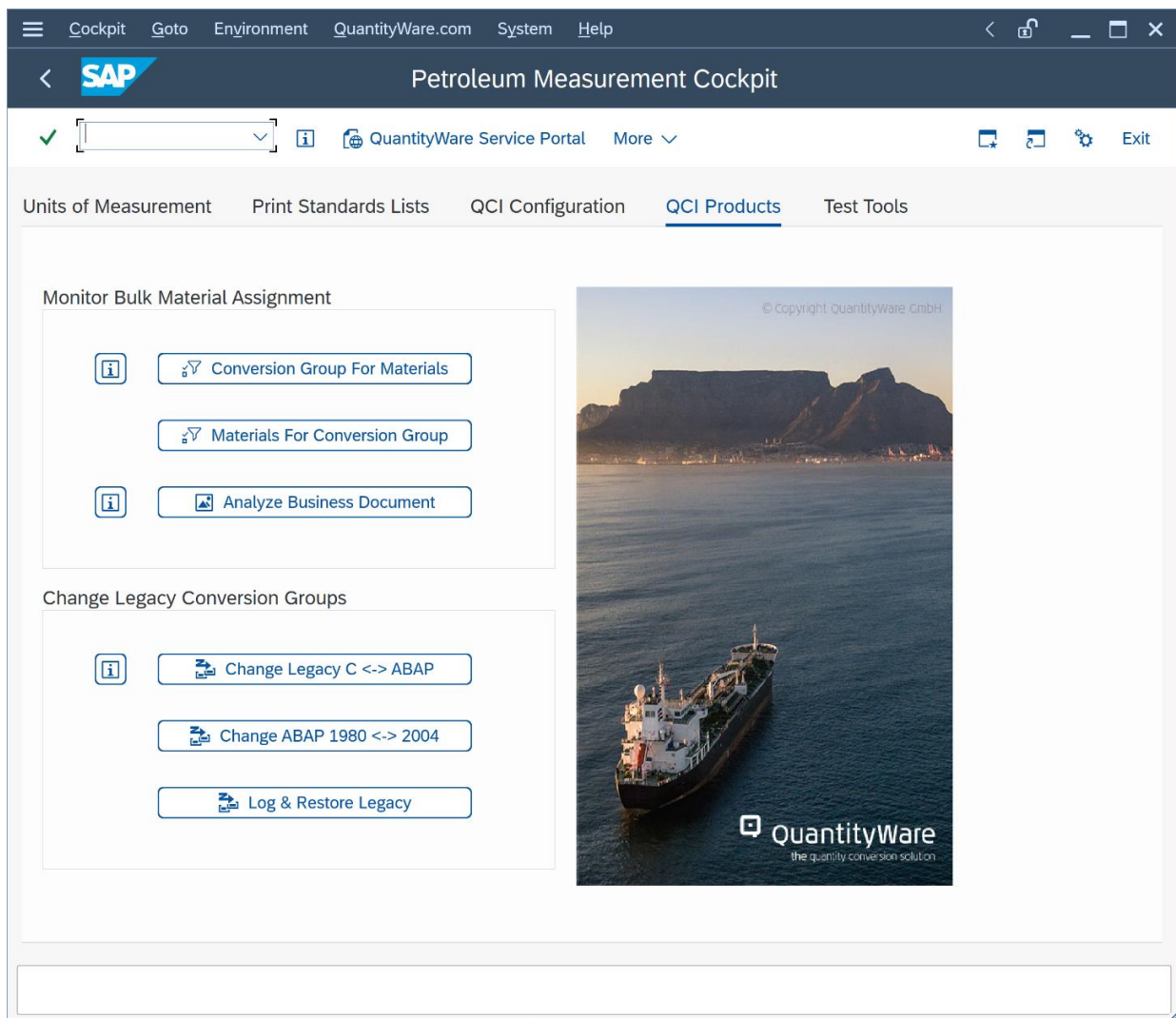
### 3.2.1.4. QCI Configuration

In clients where the QuantityWare template BC set “/QTYW/BCP\_30A/B” is not activated, the template selection push button is not available. The “Explain, Check and Transport” push button may be also configured to be invisible.



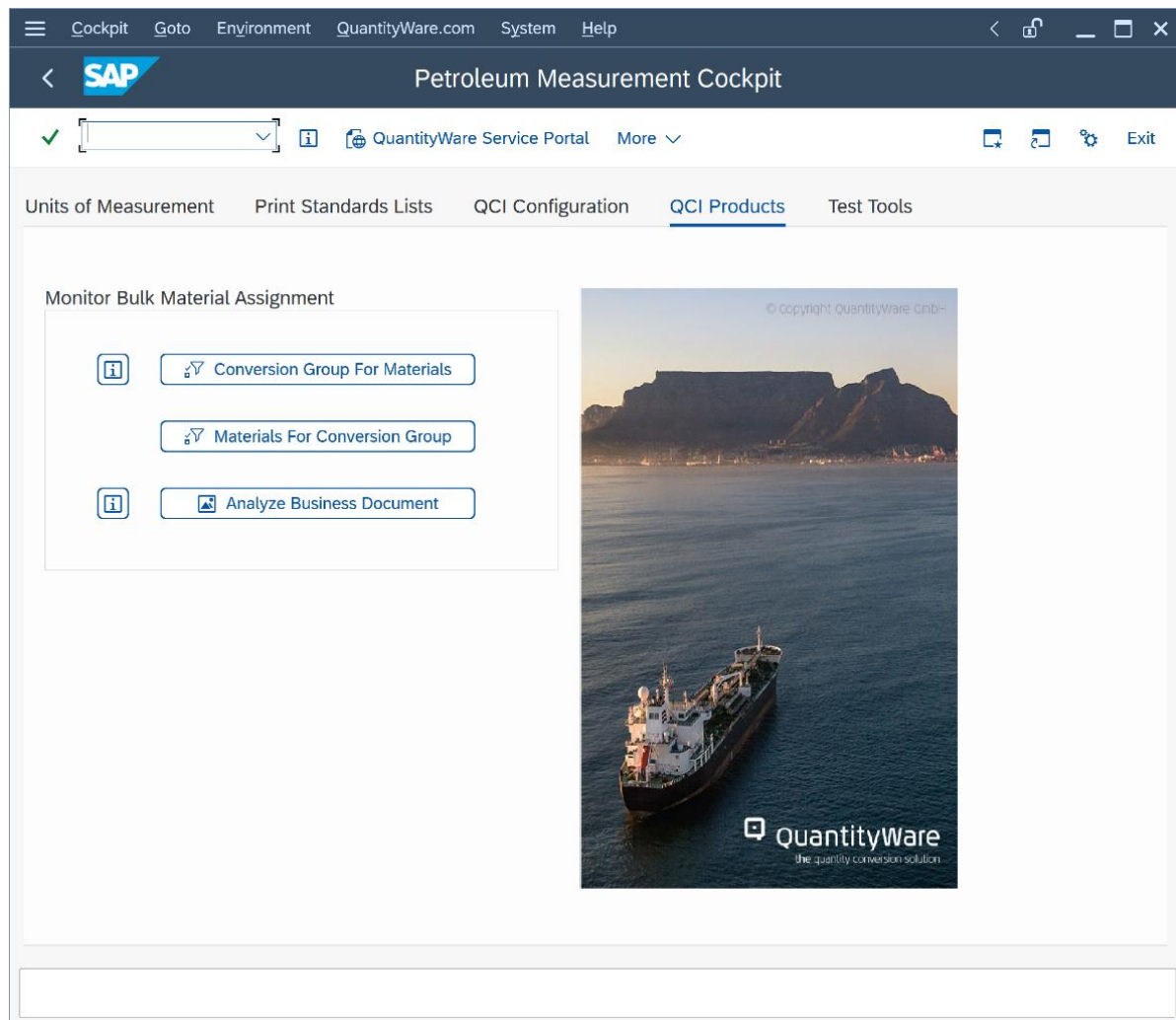
### 3.2.1.5. QCI Products (Template Client)

Here you display and monitor the assignment of conversion groups to products/materials in your system. You may also analyze business documents (material documents, physical inventory documents and deliveries) with respect to the additional quantity conversion values. You may also convert legacy conversion group configurations to QuantityWare settings with a few clicks if you decide to upgrade your CTP license to a BCP license.



### 3.2.1.6. QCI Products

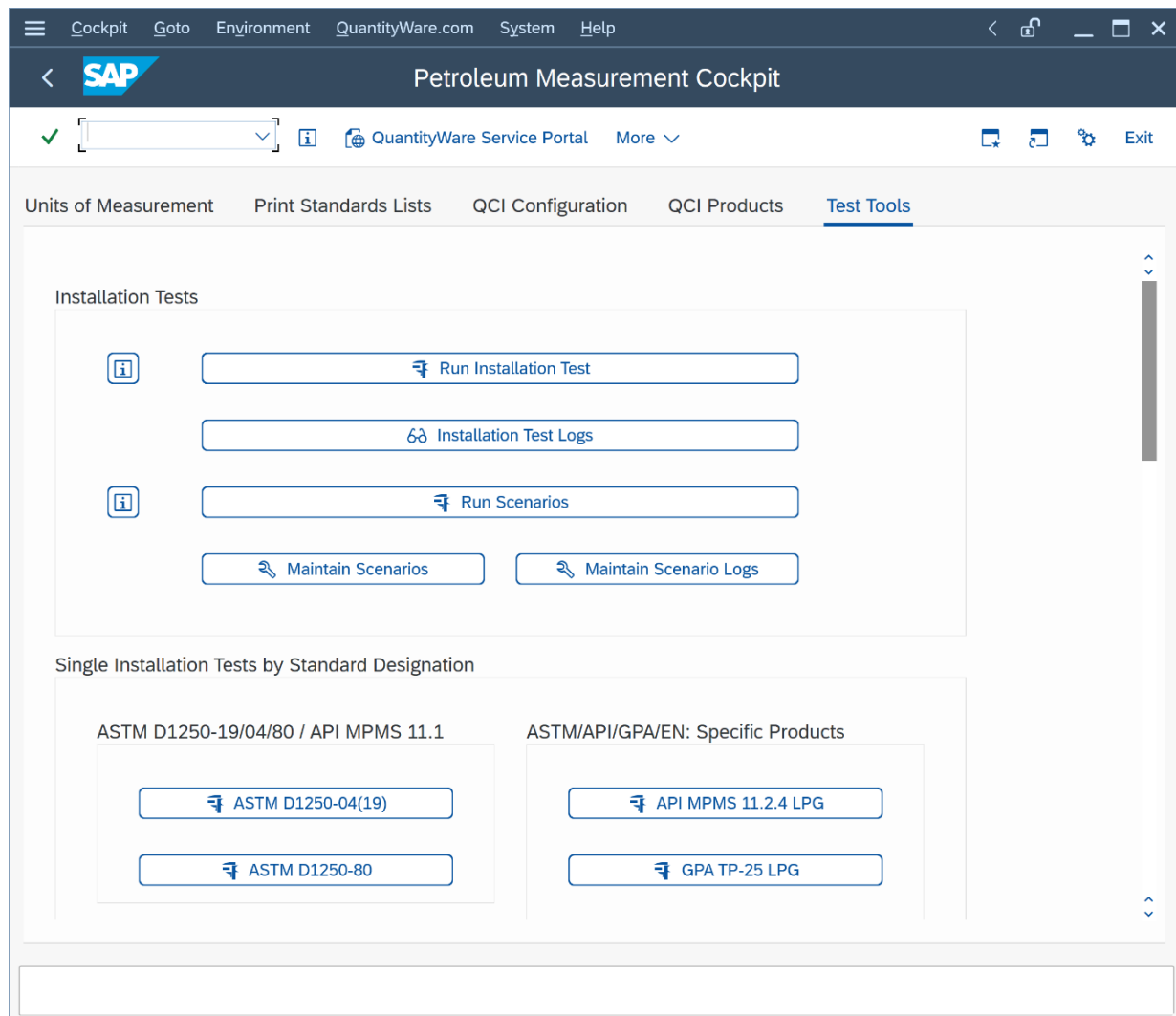
Via customizing configuration, you may disable the legacy conversion tool access (e.g.in productive clients). This way, no accidental conversion of your proven legacy conversion groups is triggered if a user ID carries the authorization to do so.





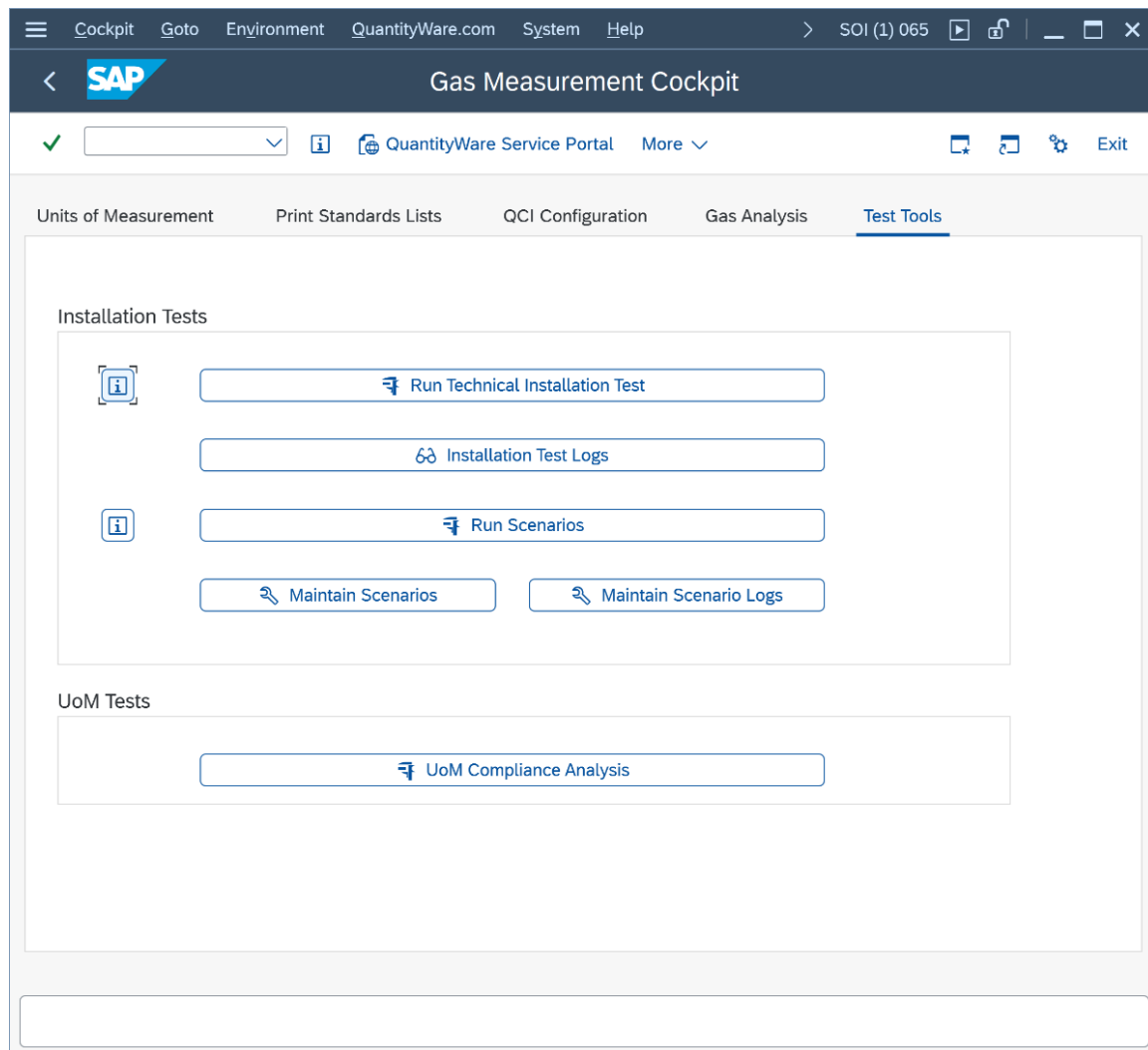
### 3.2.1.7. Test Tools (Template Client)

In template client 045 you execute the QuantityWare installation test (which includes QuantityWare Test Scenarios) to ensure the correctness of the quantity conversion implementations in your system (only possible within four week license validity).



### 3.2.1.8. Test Tools

In all other relevant clients, where the QuantityWare BC set is not activated, you execute your own UoM Compliance Analysis test via this tab page, as well as your own test scenarios, which you define during the CTP implementation project.



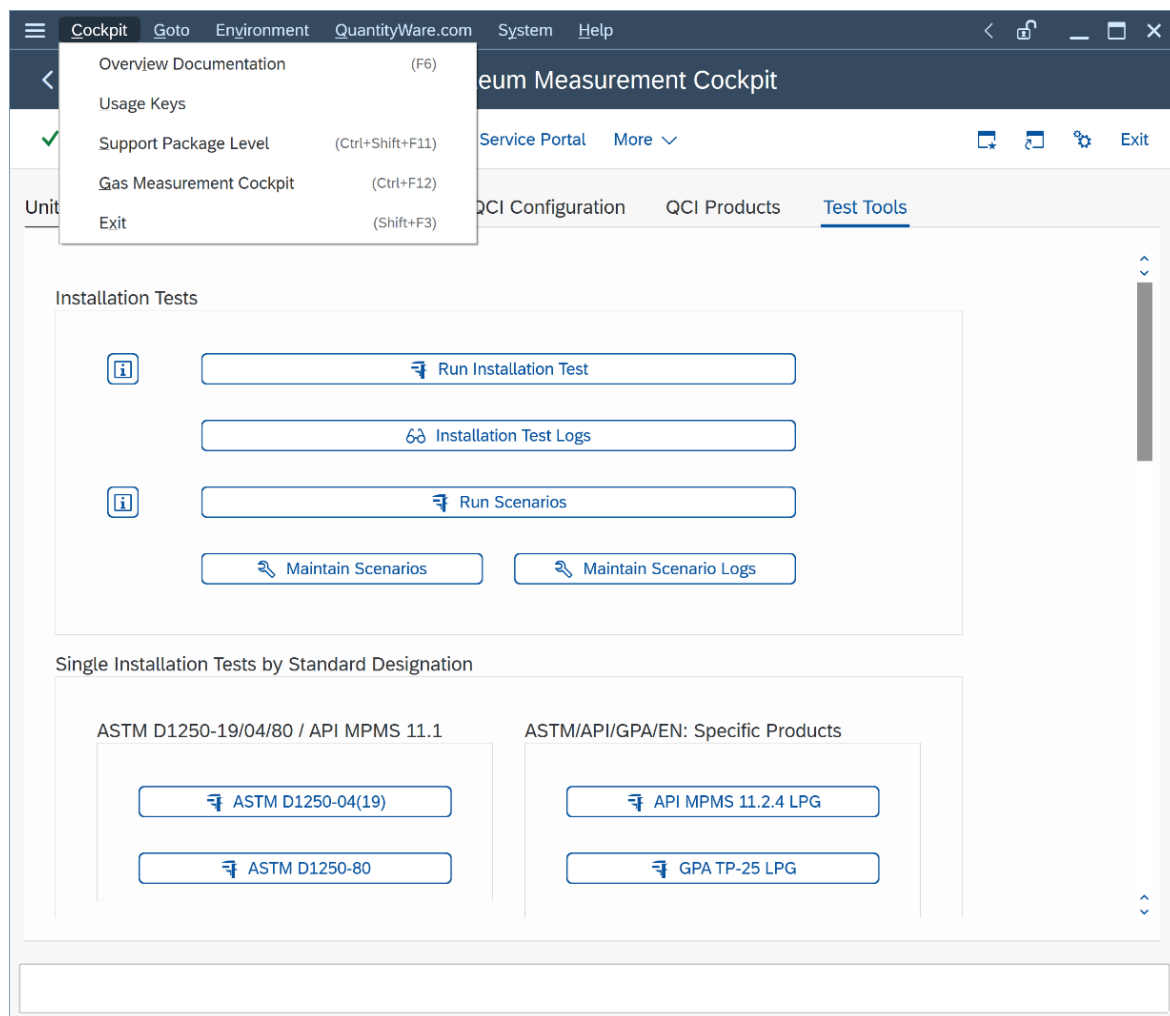
Upon leaving the PMC transaction, the tab page that is active will be the one you see when you next use the PMC.

### 3.2.2. PMC Overview – Menus

From the PMC menu, you have access via the following menu points to relevant transactions and information resources:

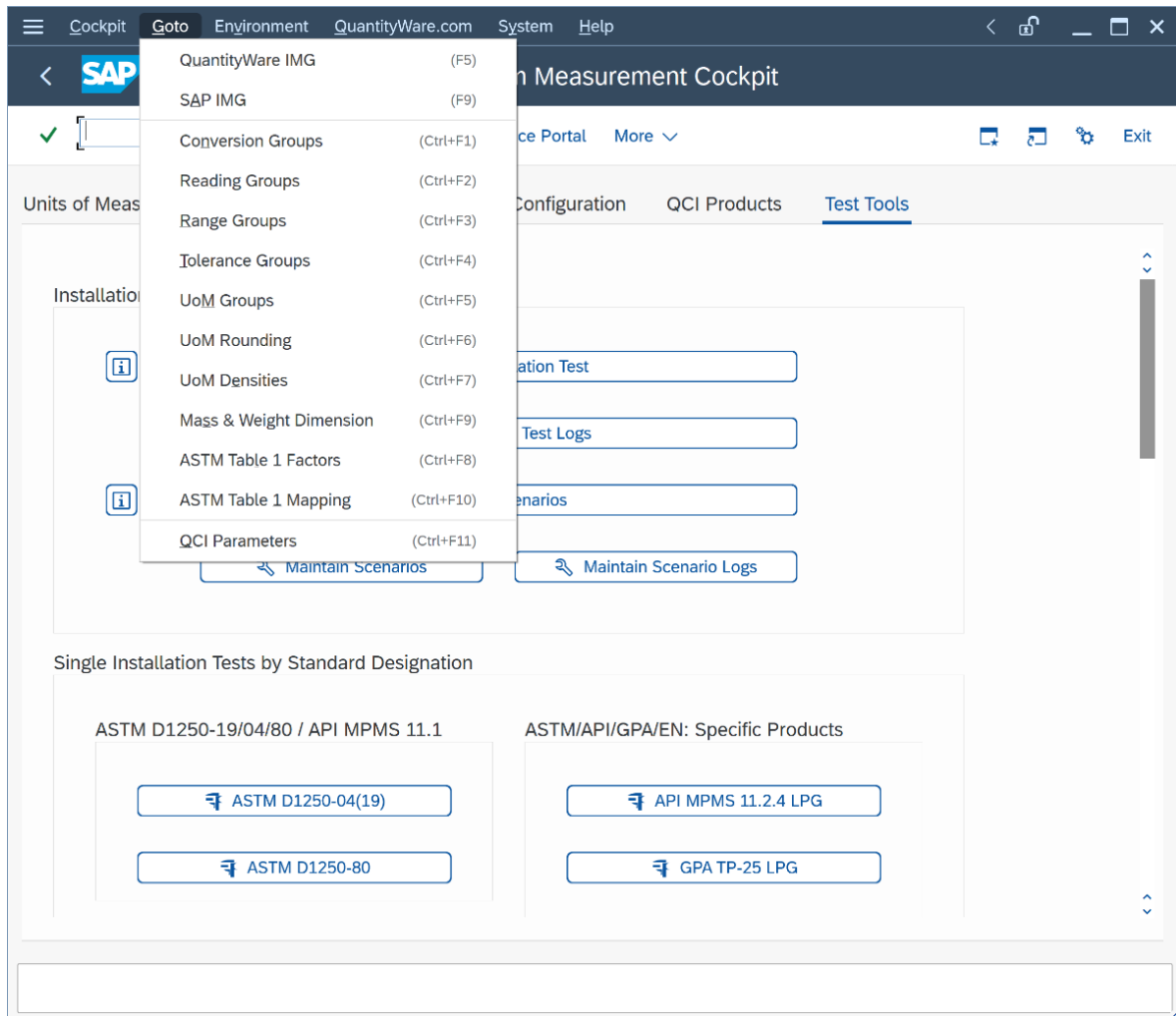
#### 3.2.2.1. Cockpit

Enter or check your QuantityWare temporary CTP license, read the detailed online documentation, determine the QuantityWare support package status or navigate to the Gas Measurement Cockpit:



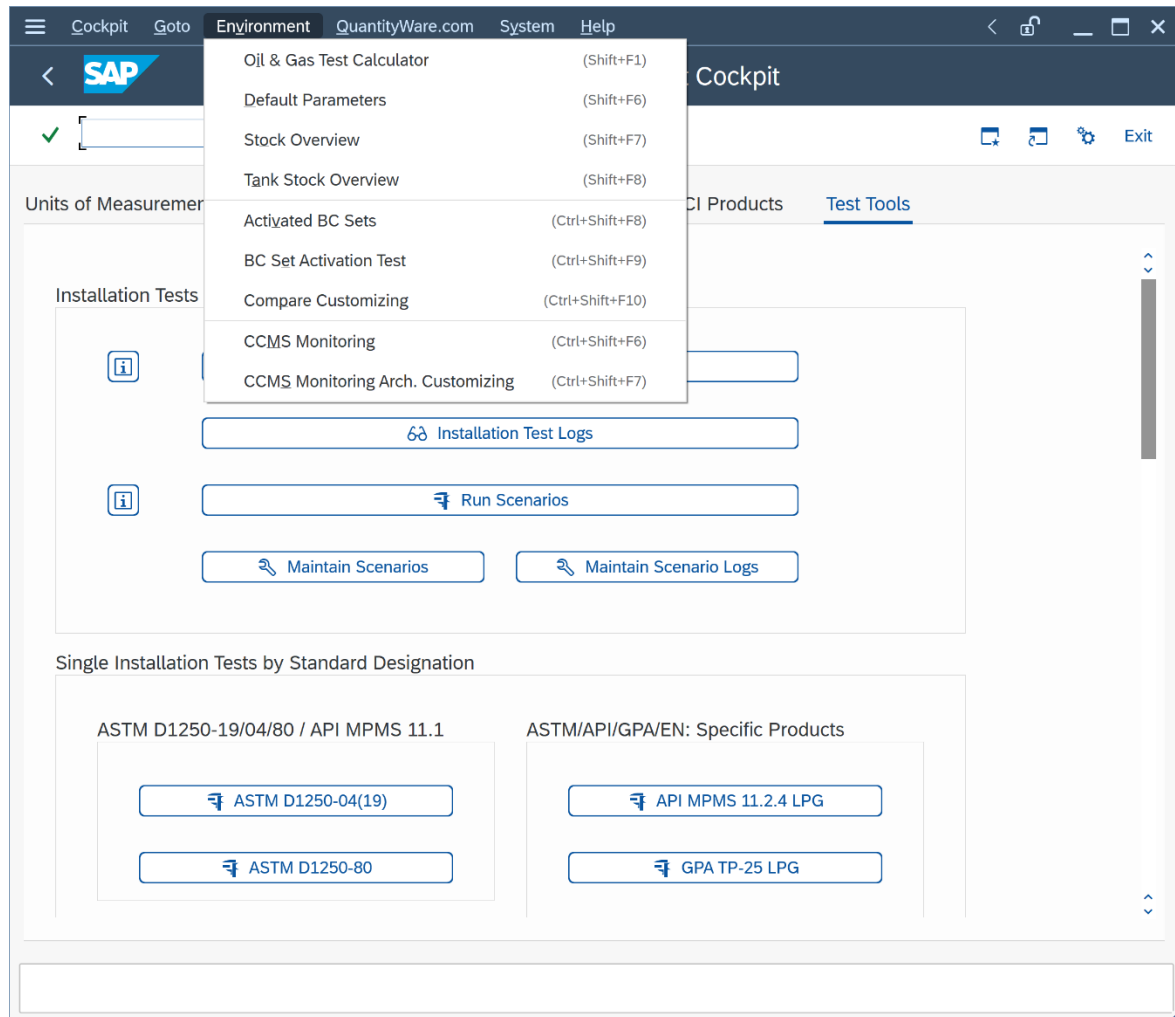
### 3.2.2.2. Goto

Navigate to all QuantityWare and SAP customizing transactions and create or change data if the client settings allow this. Fast access to most important customizing transactions is also available (which may be disabled in productive clients, as noted in section 3.2.1.1):



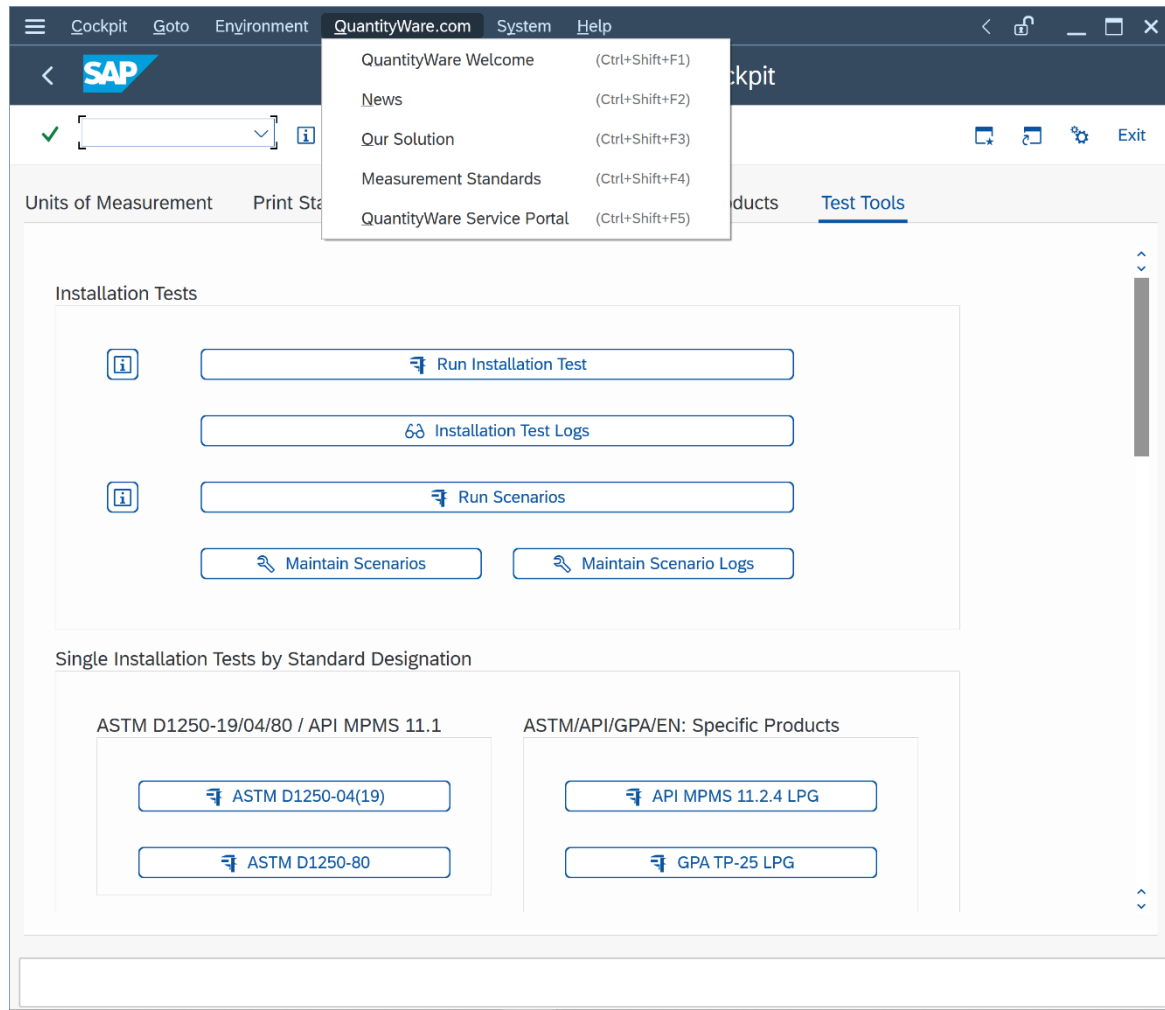
### 3.2.2.3. Environment

Navigate to related applications like the Oil & Gas Test Calculator, QCI default transaction, material stock overview or the SAP tank management transaction; display BC set data and compare and control UoM compliance & reference data settings.



### 3.2.2.4. QuantityWare.com

Navigate to selected QuantityWare web site pages and the QuantityWare Service Portal:



### 3.3. PMC Methodology

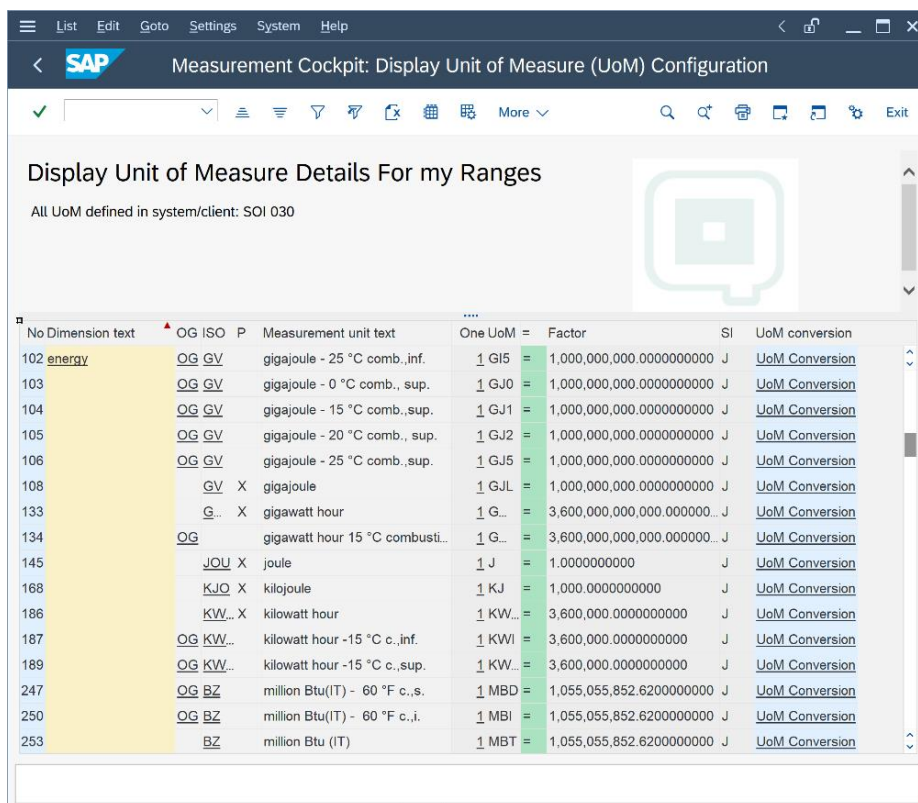
The five tab strips are organized so that they group complex implementation project sub tasks into “task packages” and organize regular monitoring and error analysis tasks in a structured way. The QuantityWare Project Assessment and Implementation Guidelines (PAIG) methodology provides the underlying design logic for the PMC. For more details, read the separate PAIG documentation for CTP.

### 3.4. PMC Tab Strip Details

#### 3.4.1. Units of Measurement

Correct UoM definitions and intra-conversion factors are the basis of all quantity conversions.

You need to ensure that all UoM are correctly defined. For example, you need to decide whether ASTM Table 1 factors or conversion factors from other standards are to be utilized. You also need to define whether stock quantities for a specific UoM are kept within your system. Unit conversion calculators are available for testing the unit of measure settings in your system. Lists of UoM with all details are available:



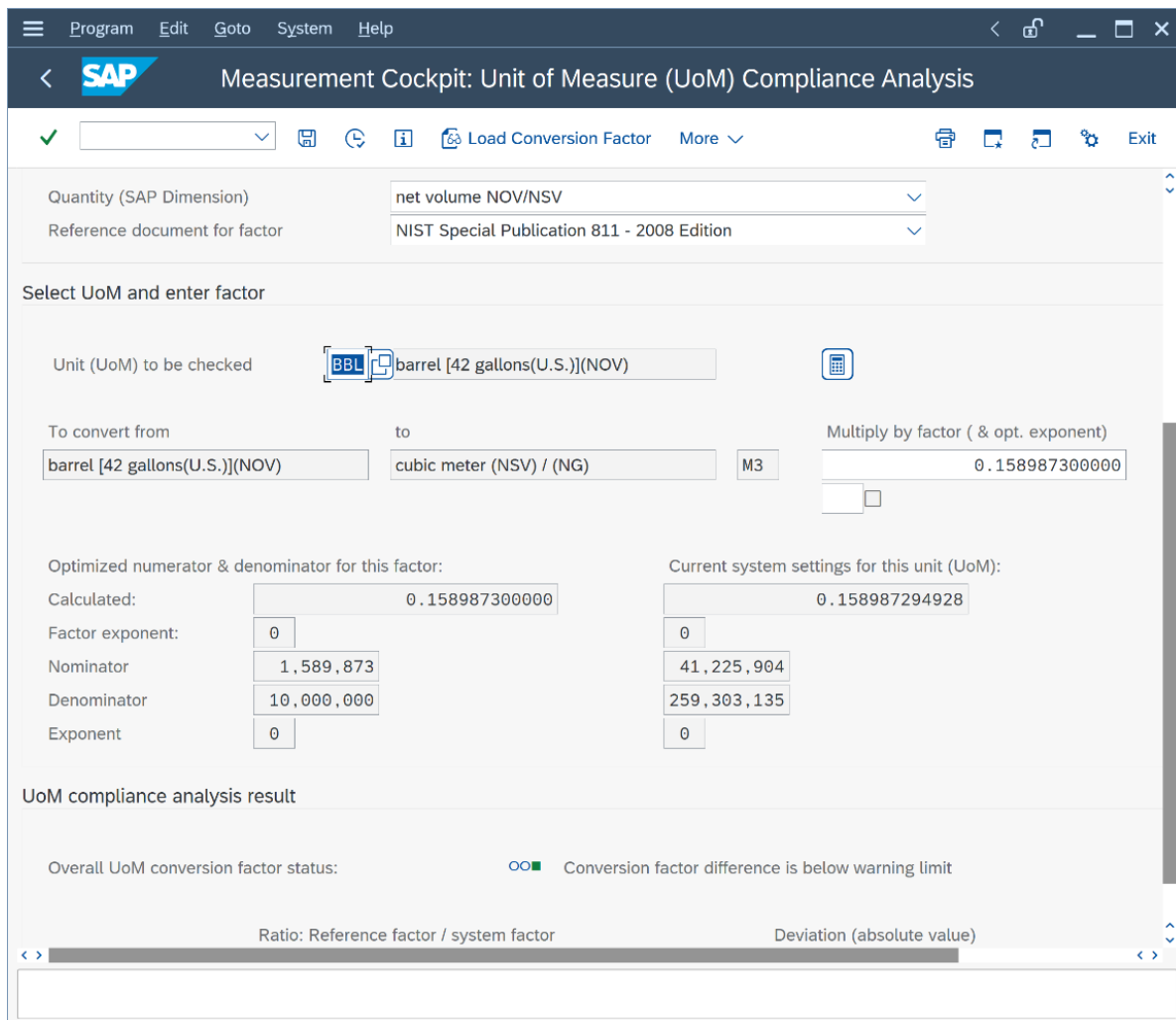
Display Unit of Measure Details For my Ranges

All UoM defined in system/client: SOI 030

No	Dimension text	OG	ISO	P	Measurement unit text	One UoM =	Factor	SI	UoM conversion
102	energy	OG	GV		gigajoule - 25 °C comb., inf.	1 GJ5	= 1,000,000,000.0000000000	J	<a href="#">UoM Conversion</a>
103		OG	GV		gigajoule - 0 °C comb., sup.	1 GJ0	= 1,000,000,000.0000000000	J	<a href="#">UoM Conversion</a>
104		OG	GV		gigajoule - 15 °C comb., sup.	1 GJ1	= 1,000,000,000.0000000000	J	<a href="#">UoM Conversion</a>
105		OG	GV		gigajoule - 20 °C comb., sup.	1 GJ2	= 1,000,000,000.0000000000	J	<a href="#">UoM Conversion</a>
106		OG	GV		gigajoule - 25 °C comb., sup.	1 GJ5	= 1,000,000,000.0000000000	J	<a href="#">UoM Conversion</a>
108		GV	X		gigajoule	1 GJL	= 1,000,000,000.0000000000	J	<a href="#">UoM Conversion</a>
133		G...	X		gigawatt hour	1 G...	= 3,600,000,000.0000000000	J	<a href="#">UoM Conversion</a>
134		OG	GV		gigawatt hour 15 °C combusti...	1 G...	= 3,600,000,000.0000000000	J	<a href="#">UoM Conversion</a>
145		JOJ	X		joule	1 J	= 1.0000000000	J	<a href="#">UoM Conversion</a>
168		KJO	X		kilojoule	1 KJ	= 1,000.0000000000	J	<a href="#">UoM Conversion</a>
186		KW...	X		kilowatt hour	1 KW...	= 3,600,000.0000000000	J	<a href="#">UoM Conversion</a>
187		OG	KW...		kilowatt hour -15 °C c., inf.	1 KWI	= 3,600,000.0000000000	J	<a href="#">UoM Conversion</a>
189		OG	KW...		kilowatt hour -15 °C c., sup.	1 KW...	= 3,600,000.0000000000	J	<a href="#">UoM Conversion</a>
247		OG	BZ		million Btu(IT) - 60 °F c., s.	1 MBD	= 1,055,055,852.6200000000	J	<a href="#">UoM Conversion</a>
250		OG	BZ		million Btu(IT) - 60 °F c., i.	1 MBI	= 1,055,055,852.6200000000	J	<a href="#">UoM Conversion</a>
253		BZ			million Btu (IT)	1 MBT	= 1,055,055,852.6200000000	J	<a href="#">UoM Conversion</a>

QuantityWare also provides a sophisticated UoM comparison tool which allows you to compare UoM definitions that are delivered in BC sets with UoM definitions in your system clients.

The UoM Compliance Analysis is also available in this tab page:



The screenshot shows the SAP Measurement Cockpit: Unit of Measure (UoM) Compliance Analysis interface. The interface is divided into several sections:

- Header:** SAP logo and title "Measurement Cockpit: Unit of Measure (UoM) Compliance Analysis".
- Navigation:** Menu bar with options: Program, Edit, Goto, System, Help. Action buttons: Load Conversion Factor, More, Exit.
- Input Fields:**
  - Quantity (SAP Dimension): net volume NOV/NSV
  - Reference document for factor: NIST Special Publication 811 - 2008 Edition
- Select UoM and enter factor:**
  - Unit (UoM) to be checked: barrel [42 gallons(U.S.))(NOV)
  - To convert from: barrel [42 gallons(U.S.))(NOV)
  - to: cubic meter (NSV) / (NG)
  - Multiply by factor ( & opt. exponent): 0.158987300000
- Optimized numerator & denominator for this factor:**
  - Calculated: 0.158987300000
  - Factor exponent: 0
  - Nominator: 1,589,873
  - Denominator: 10,000,000
  - Exponent: 0
- Current system settings for this unit (UoM):**
  - 0.158987294928
  - 0
  - 41,225,904
  - 259,303,135
  - 0
- UoM compliance analysis result:**
  - Overall UoM conversion factor status: Conversion factor difference is below warning limit
  - Ratio: Reference factor / system factor
  - Deviation (absolute value)





### 3.4.2. Print Standards List

---

When either adding a new product line or changing conversions for existing products, the “second task package” is the definition of the correct measurement standard, or several standards, as well as specific rules which may apply for different countries/business contracts. You need to compare legacy system results with available standards - a process which is usually considerably easier when ranges of complex correction factors can be printed. During general operations, you may also need to explain your conversion results to an independent inspector and thus need to print the relevant data. Basically, for your quantity conversion configuration, four different types of standards are relevant, defining:

- The detailed calculation model
- Correction factors due to pressure and temperature on Liquids (CTPL)
- Conversion factors between mass and weight
- Conversion factors between UoM of one dimension

For CTL, CPL and mass/weight conversion standards, lists can be printed here.

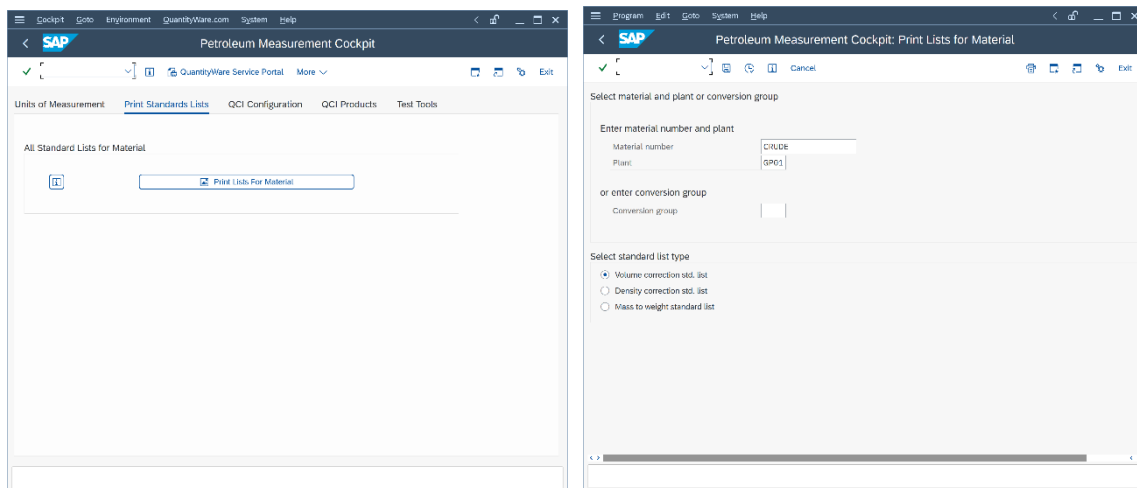
For UoM conversion factors, use the list options within tab strip “Units of Measurement”.

You may select to print a standard list for your specific temperature and density range into a local PDF file as well.

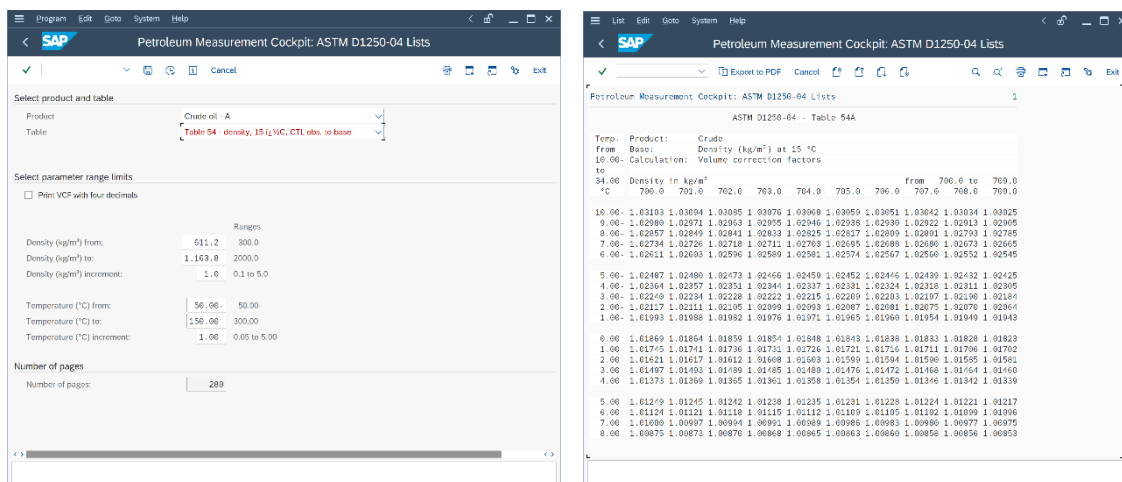
You may also determine the relevant standard for a given material and plant configuration in your productive client once the assignment and documentation of your conversion groups is completed.

Example:

You wish to determine the relevant volume correction factor standard for your material CRUDE at plant GP01 and print a list of volume correction factors for that material. From tab strip “Print Standards Lists” you select push button “Print Lists For Material”:



After you select “F8” (Execute) the system navigates to the correct standard, in this case ASTM D1250-04, Table 54A:

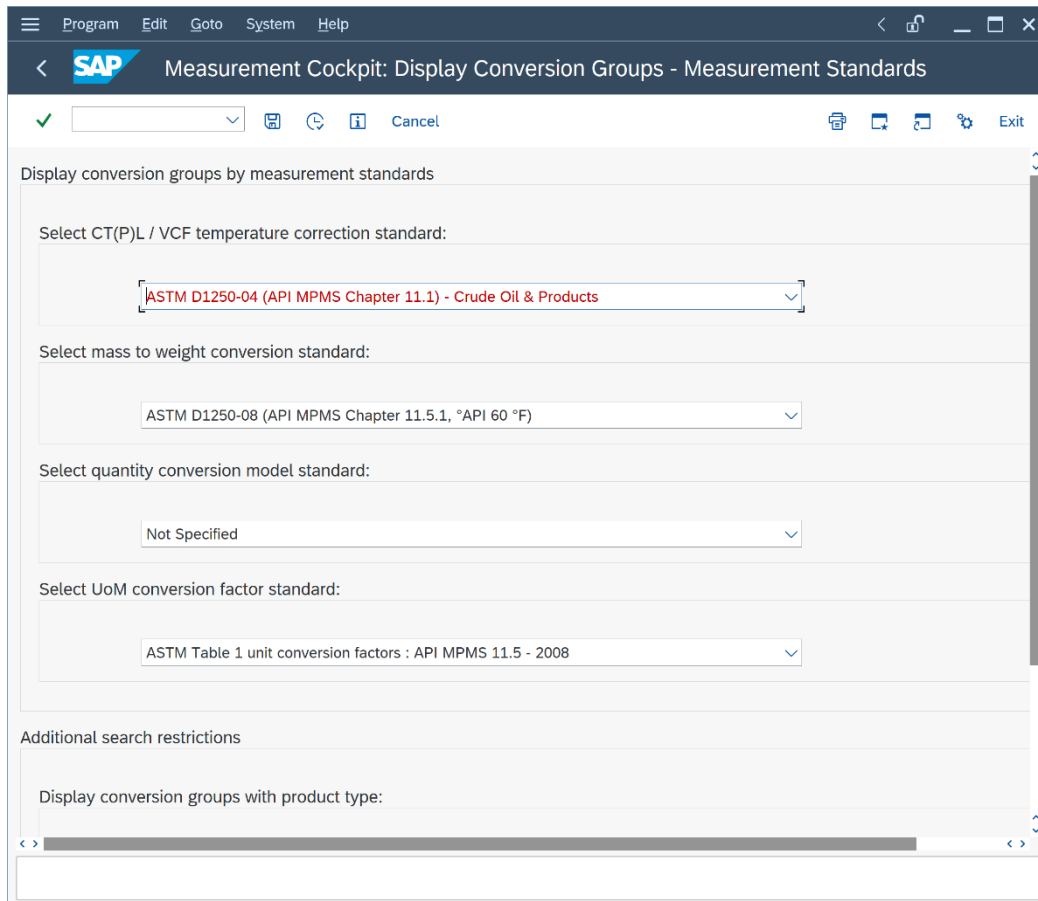


After execution of your selection, a list of all volume correction factors (CTL) is calculated and printed.

### 3.4.3. QCI Configuration

The third and most complex task package is to analyze which conversion group is assigned to your materials at which plant. Here you have several selection choices to select and analyze conversion groups.

Example: You require a list of all product conversion groups which are configured to use ASTM D1250-04 temperature corrections; you select “By Measurement Standards” and select the CTL standard as well as the product type “Oil products”:

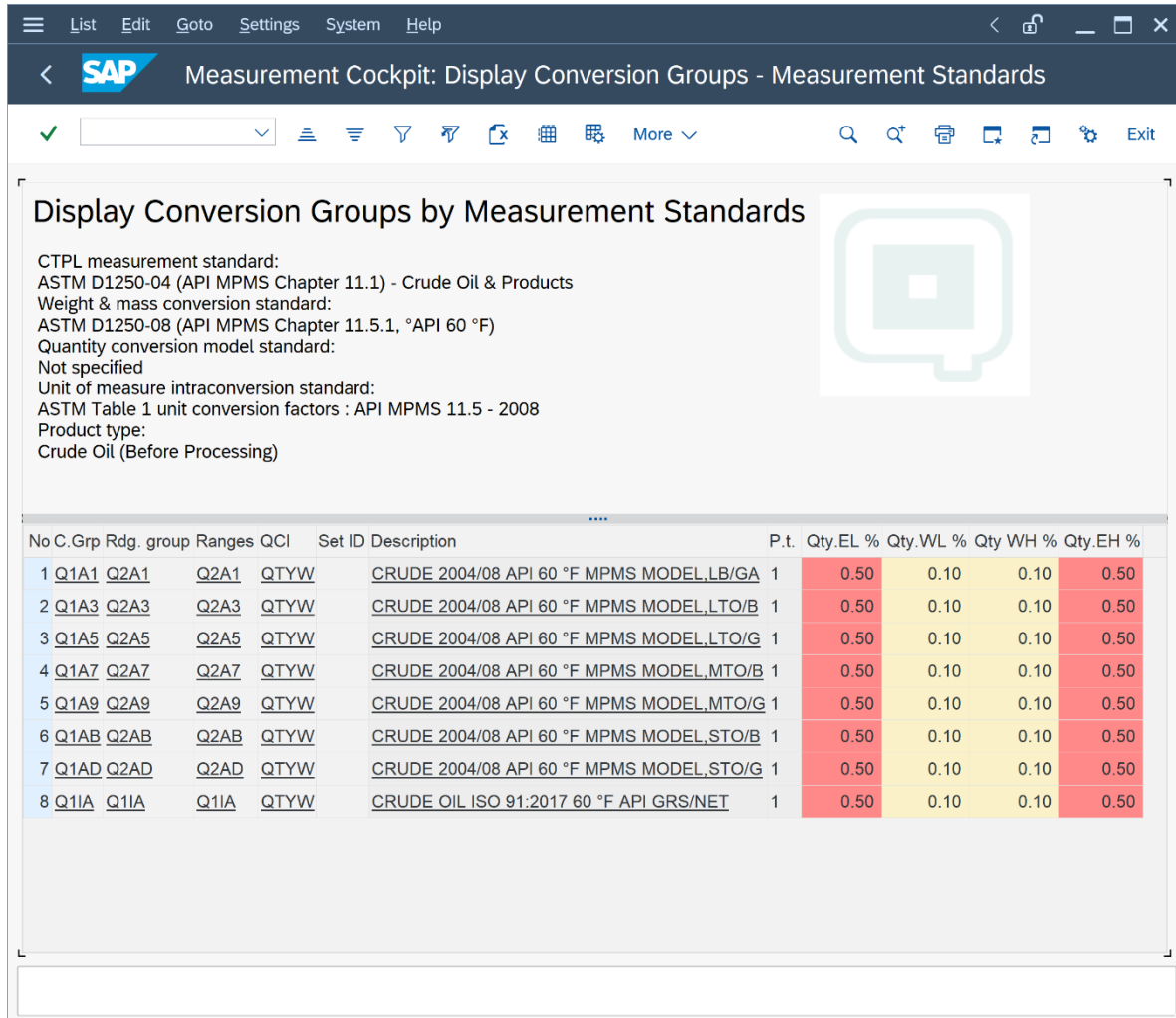


The screenshot shows the SAP Measurement Cockpit: Display Conversion Groups - Measurement Standards dialog box. The dialog has a menu bar (Program, Edit, Goto, System, Help) and a toolbar with icons for back, forward, search, and exit. The main content area is titled "Display conversion groups by measurement standards" and contains four selection fields:

- Select CT(P)L / VCF temperature correction standard: **ASTM D1250-04 (API MPMS Chapter 11.1) - Crude Oil & Products**
- Select mass to weight conversion standard: **ASTM D1250-08 (API MPMS Chapter 11.5.1, °API 60 °F)**
- Select quantity conversion model standard: **Not Specified**
- Select UoM conversion factor standard: **ASTM Table 1 unit conversion factors : API MPMS 11.5 - 2008**

Below these fields is a section titled "Additional search restrictions" with a label "Display conversion groups with product type:" and a text input field.

After executing the report with your selection, you obtain a comprehensive overview list, with additional navigation details:



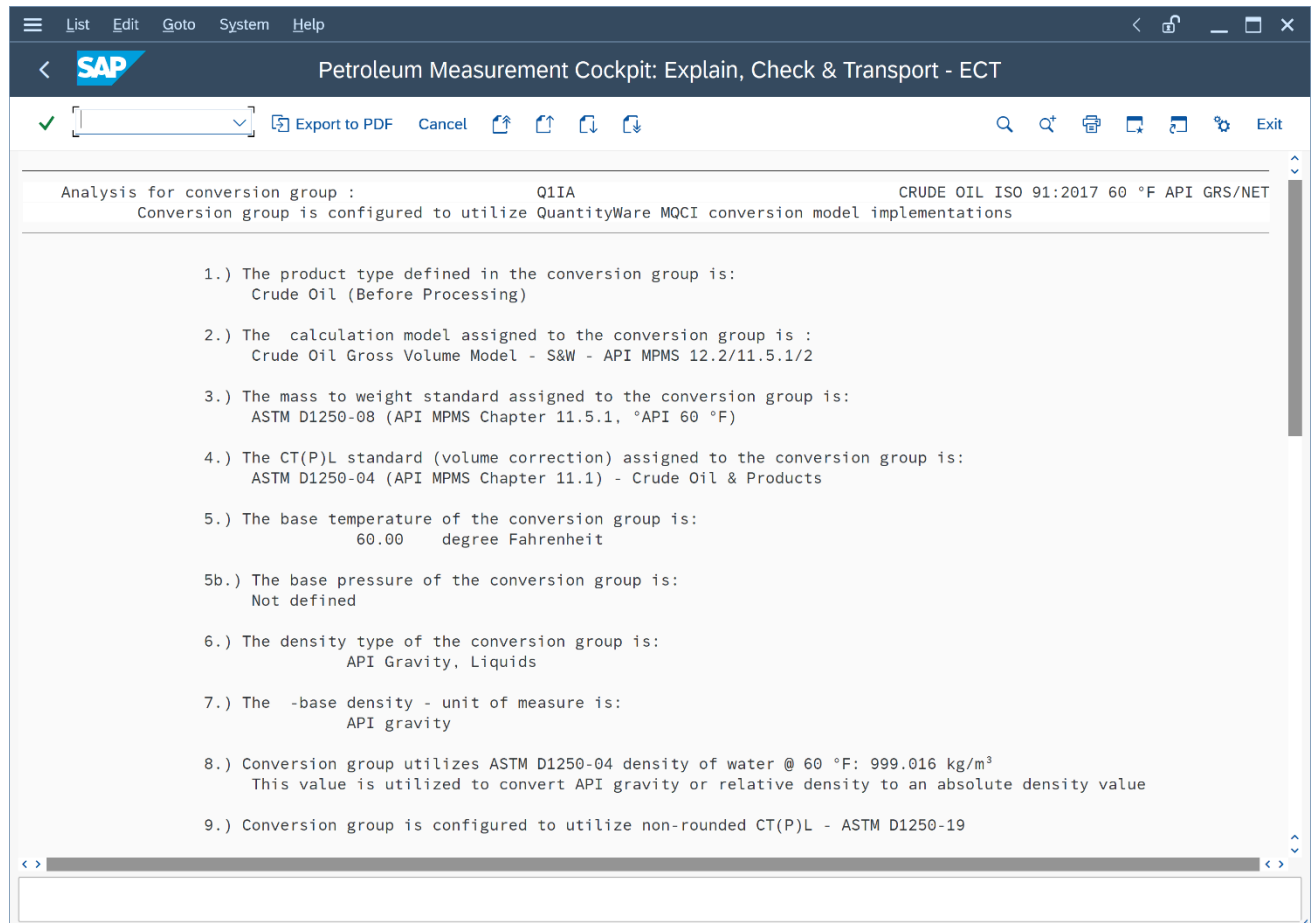
**Display Conversion Groups by Measurement Standards**

CTPL measurement standard:  
 ASTM D1250-04 (API MPMS Chapter 11.1) - Crude Oil & Products  
 Weight & mass conversion standard:  
 ASTM D1250-08 (API MPMS Chapter 11.5.1, °API 60 °F)  
 Quantity conversion model standard:  
 Not specified  
 Unit of measure intraconversion standard:  
 ASTM Table 1 unit conversion factors : API MPMS 11.5 - 2008  
 Product type:  
 Crude Oil (Before Processing)

No	C.Grp	Rdg. group	Ranges	QCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	Q1A1	Q2A1	Q2A1	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, LB/GA	1	0.50	0.10	0.10	0.50
2	Q1A3	Q2A3	Q2A3	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, LTO/B	1	0.50	0.10	0.10	0.50
3	Q1A5	Q2A5	Q2A5	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, LTO/G	1	0.50	0.10	0.10	0.50
4	Q1A7	Q2A7	Q2A7	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, MTO/B	1	0.50	0.10	0.10	0.50
5	Q1A9	Q2A9	Q2A9	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, MTO/G	1	0.50	0.10	0.10	0.50
6	Q1AB	Q2AB	Q2AB	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, STO/B	1	0.50	0.10	0.10	0.50
7	Q1AD	Q2AD	Q2AD	QTYW		CRUDE 2004/08 API 60 °F MPMS MODEL, STO/G	1	0.50	0.10	0.10	0.50
8	Q1IA	Q1IA	Q1IA	QTYW		CRUDE OIL ISO 91:2017 60 °F API GRS/NET	1	0.50	0.10	0.10	0.50

From this list, you display detailed customizing settings that are relevant for each conversion group by simply clicking individual overview fields.

If you click the “Description” text of a conversion group, a detailed configuration statement is printed, which can for example be utilized for audit purposes:



### 3.4.4. QCI Products

An inspector report questions whether the transferred quantity values for your product CRUDE are correct. You determine the conversion groups at all plants and confirm the base conditions and measurement standard settings for the material; such a task is easily performed via the central material assignment list – Conversion Group For Materials - which you generated here with one click:

List


Edit

Goto




Settings

System

Help


< 


Measurement Cockpit: Display Conversion Group for Materials


> SOI (1) 065   


✓


Refresh list





















Information

Cancel













Search






























Exit

Display Conversion Group for Materials



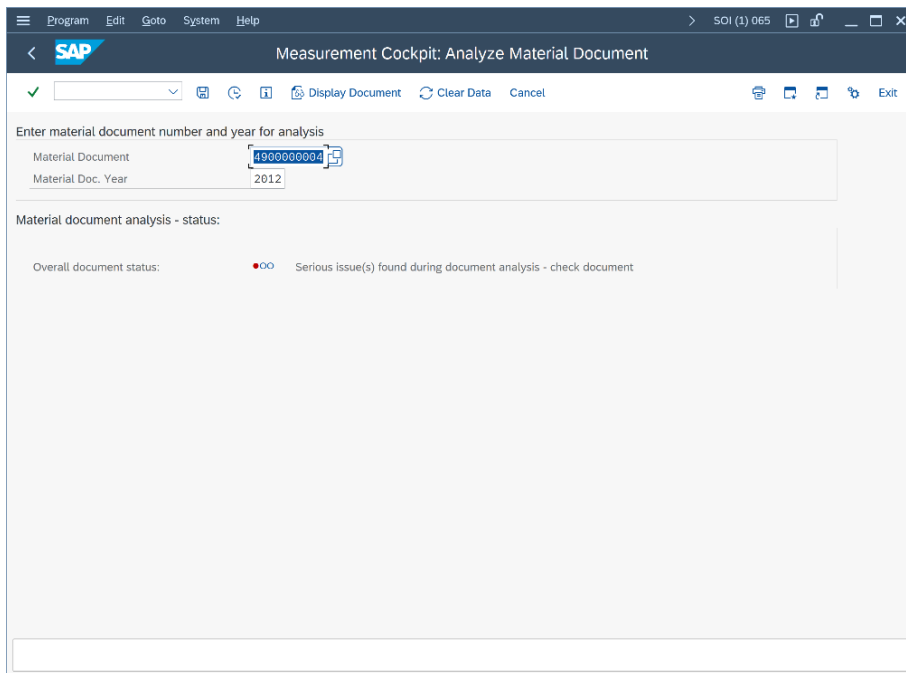
Matnr. fr.: CRUDE Matnr. to: CRUDE  
Plant fr.: AP01 Plant to: GP01  
Material type:  
Material w/o. deletion flag:  
Display missing conversion groups:

No Material	Material Description	Plant	Plant name	BUn	UoMG	C,Grp	Conv.stat.	Description of conversion group	No. of Scenarios	Run scen.	Log status	Analyze logs	No. ...	Analyze scenarios
1 CRUDE	CTP CRUDE OIL	GP01	Plant GP01	L15	QTY	15DA		API 4 15 °C CRUDE OIL IN DENSITY	4				4	
2 CRUDE	CTP CRUDE OIL	FP01	Plant FP01	L15	QTY	20DA		API 4 20 °C CRUDE OIL IN DENSITY	4				4	
3 CRUDE	CTP CRUDE OIL	AP01	Plant AP01	L15	QTY	60GA		API 4 60 °F CRUDE OIL IN API GRAVITY	4				4	
4 CRUDE	CTP CRUDE OIL	AP02	Plant AP02	L15	QTY	60RA		API 4 60 °F CRUDE OIL IN RELAT. DEN.	4				4	

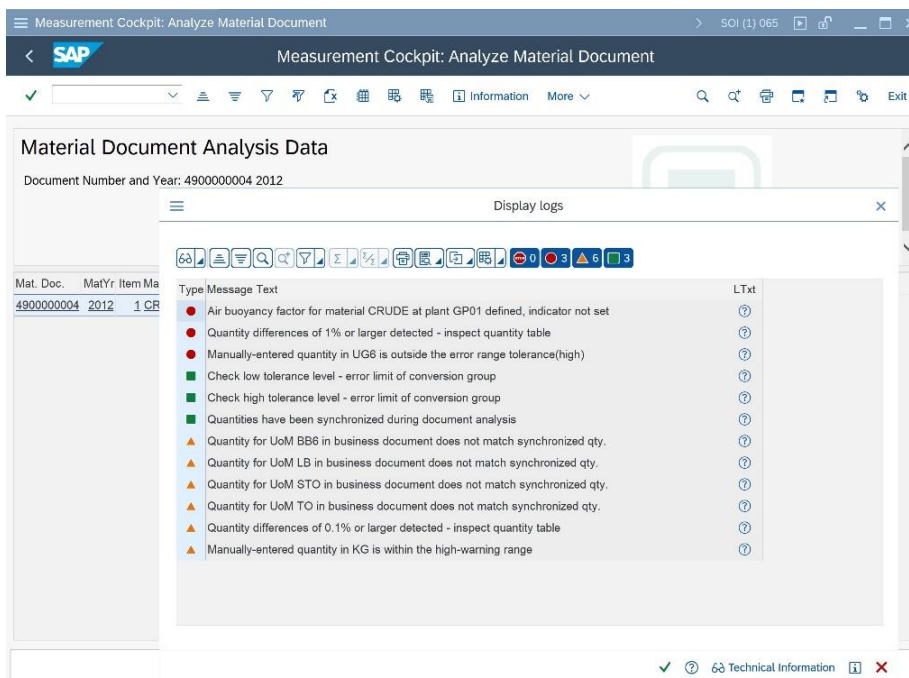
In this list, you monitor that test scenarios are available and executed with status “o.k.” for all materials, as well as the conversion group check status. You also ensure that snapshots are available for all test scenarios, which you may utilize to analyze your configuration, if a scenario reports an error.

You also analyze your business documents in this Tab.

Example: Your sales manager reports that a customer has issued a complaint which he traced back to a material document. You select the “Analyze Business Document” push button, enter the material document number and year and then simply press the “Return” key. The overall analysis result is immediately displayed:



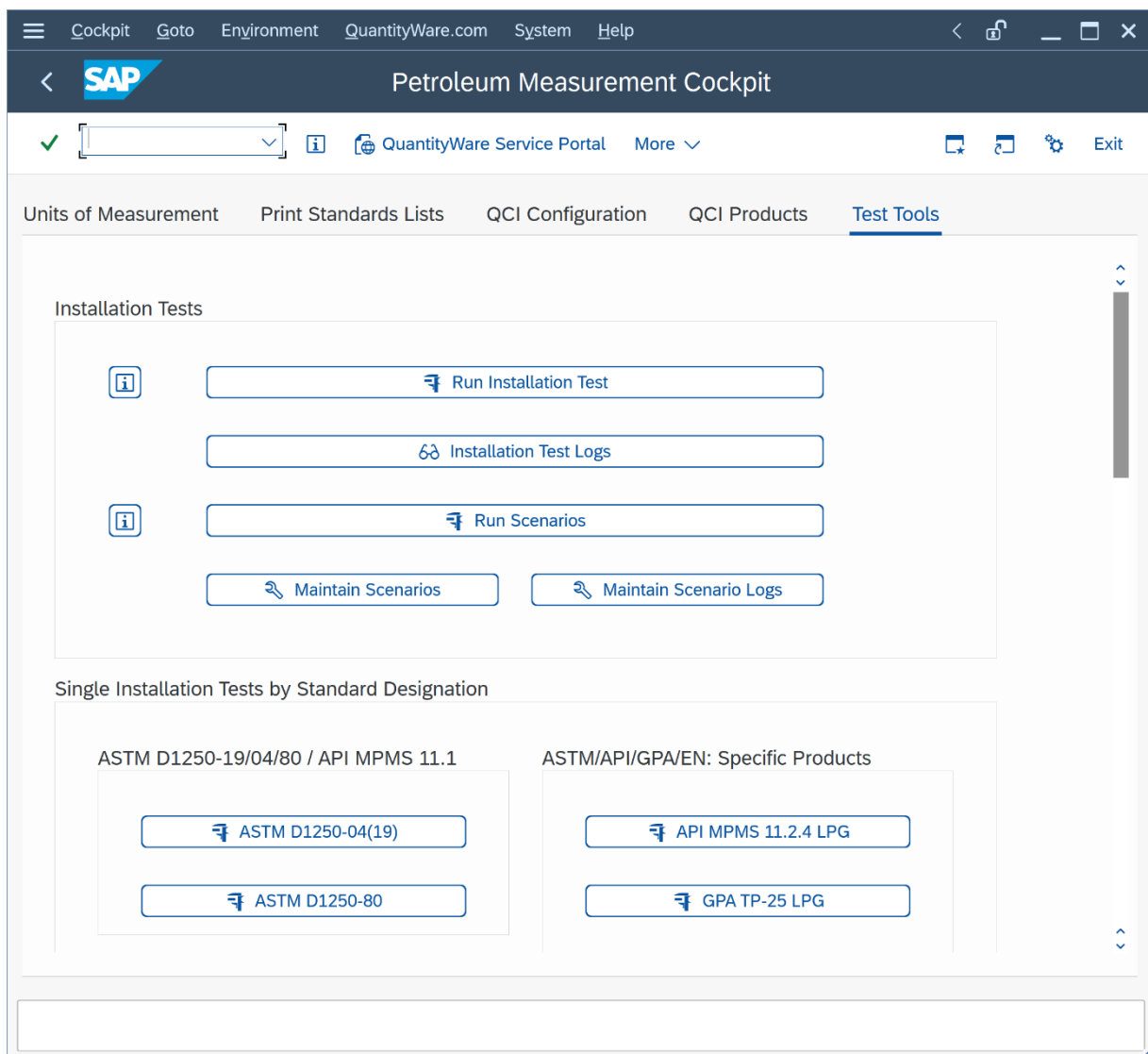
If issues are found, you select “Execute” (F8) and the detailed analysis list is displayed:





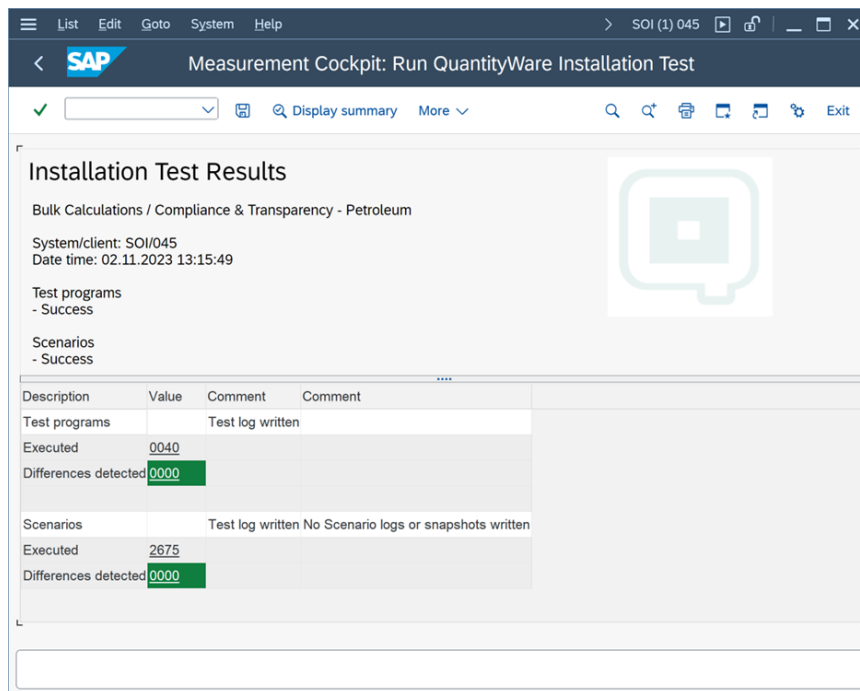
### 3.4.5. Test Tools

All UoM and quantity conversion settings need rigorous testing and quality control. The QuantityWare installation test must be executed from here. You also configure and run your own test scenarios with full logging and execution control to ensure full compliance for your implementation. Via this tab strip you access all QuantityWare test tools that are delivered with CTP:

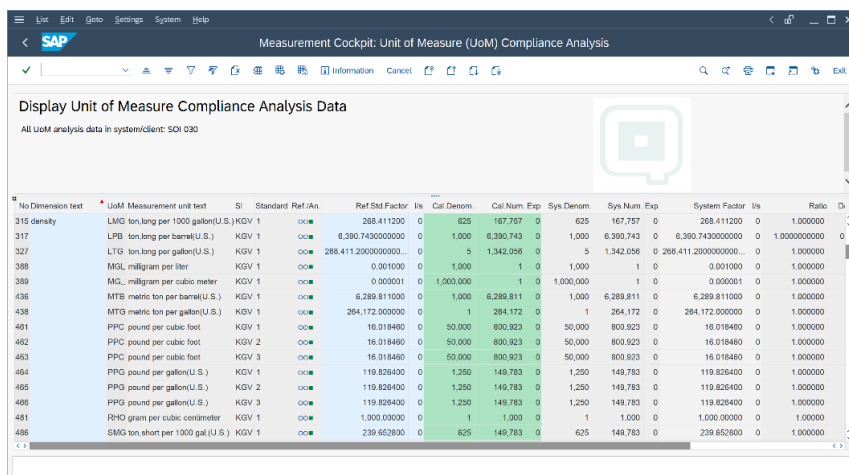


From this tab, you either:

- In client 045, run the QuantityWare installation test with one click and obtain the test result within seconds:



- In your other clients: Utilize the QuantityWare Test Scenario Tool (Run Scenarios, Maintain Scenarios, Maintain Scenario Logs) to define your own test scenarios based on your requirements and run the technical installation test
- Run the UoM compliance analysis in any client



No Dimension test	UoM Measurement unit test	SI	Standard	Ref./An.	Ref Std Factor	Uo	Cal Denom	Cal Num	Exp	Sys Denom	Sys Num	Exp	System Factor	Uo	Ratio	D
315 density	LMG ton, long per 1000 gallon(U.S.) KGV 1	kg/m³	268.411200	0	625	167.757	0	625	167.757	0	268.411200	0	1.000000	0	1.000000	0
317	LPG ton, long per barrel(U.S.) KGV 1	kg/m³	6.390.7430000000	0	1.000	6.390.743	0	1.000	6.390.743	0	6.390.7430000000	0	1.0000000000	0	1.0000000000	0
327	LTG ton, long per gallon(U.S.) KGV 1	kg/m³	268.411.2000000000	0	5	1.342.096	0	5	1.342.096	0	268.411.2000000000	0	1.0000000000	0	1.0000000000	0
388	MGL milligram per liter KGV 1	kg/m³	0.001000	0	1.000	1	0	1.000	1	0	0.001000	0	1.000000	0	1.000000	0
389	MGL milligram per cubic meter KGV 1	kg/m³	0.000001	0	1.000.000	1	0	1.000.000	1	0	0.000001	0	1.000000	0	1.000000	0
436	MTB metric ton per barrel(U.S.) KGV 1	kg/m³	6.289.811000	0	1.000	6.289.811	0	1.000	6.289.811	0	6.289.811000	0	1.000000	0	1.000000	0
438	MTG metric ton per gallon(U.S.) KGV 1	kg/m³	264.172.000000	0	1	264.172	0	1	264.172	0	264.172.000000	0	1.000000	0	1.000000	0
481	PPG pound per cubic foot KGV 1	kg/m³	16.019460	0	50.000	800.923	0	50.000	800.923	0	16.019460	0	1.000000	0	1.000000	0
482	PPG pound per cubic foot KGV 2	kg/m³	16.019460	0	50.000	800.923	0	50.000	800.923	0	16.019460	0	1.000000	0	1.000000	0
483	PPG pound per cubic foot KGV 3	kg/m³	16.019460	0	50.000	800.923	0	50.000	800.923	0	16.019460	0	1.000000	0	1.000000	0
484	PPG pound per gallon(U.S.) KGV 1	kg/m³	119.826400	0	1.250	149.783	0	1.250	149.783	0	119.826400	0	1.000000	0	1.000000	0
485	PPG pound per gallon(U.S.) KGV 2	kg/m³	119.826400	0	1.250	149.783	0	1.250	149.783	0	119.826400	0	1.000000	0	1.000000	0
486	PPG pound per gallon(U.S.) KGV 3	kg/m³	119.826400	0	1.250	149.783	0	1.250	149.783	0	119.826400	0	1.000000	0	1.000000	0
481	RHG gram per cubic centimeter KGV 1	kg/m³	1.000.00000	0	1	1.000	0	1	1.000	0	1.000.000000	0	1.000000	0	1.000000	0
486	SMG ton short per 1000 gal(U.S.) KGV 1	kg/m³	239.652800	0	625	149.783	0	625	149.783	0	239.652800	0	1.000000	0	1.000000	0

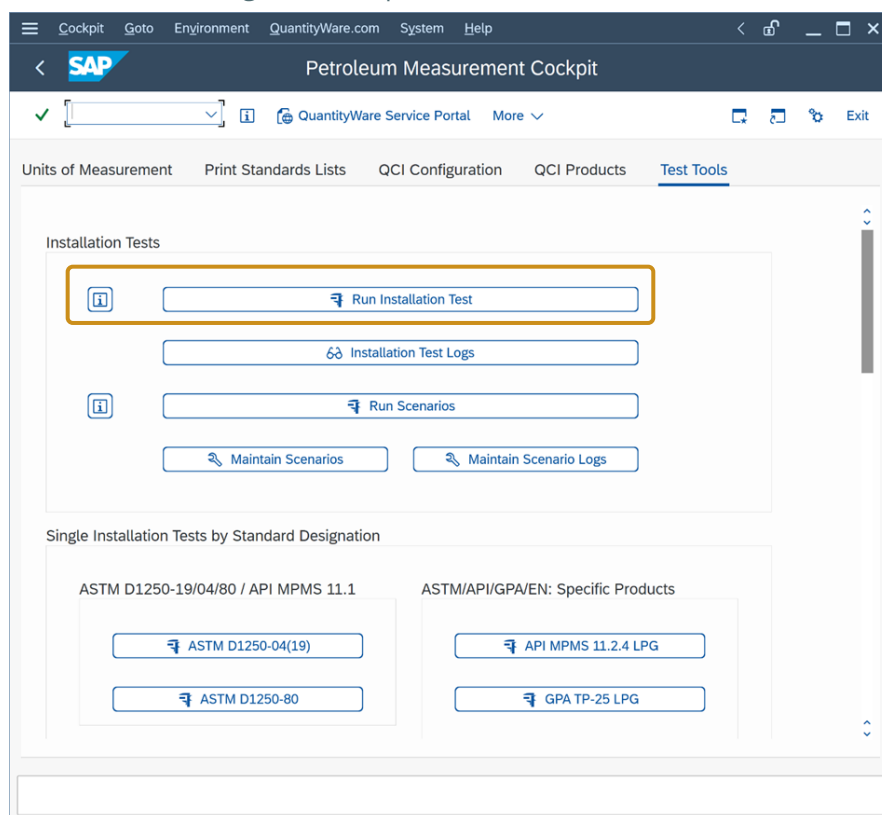
The UoM compliance analysis in client 045 is executed automatically once you execute the installation test and the result of the analysis is stored in your database. QuantityWare delivers validated UoM conversion factors which are utilized for the analysis and which you may also copy for your own analysis e.g. in your productive system and client.

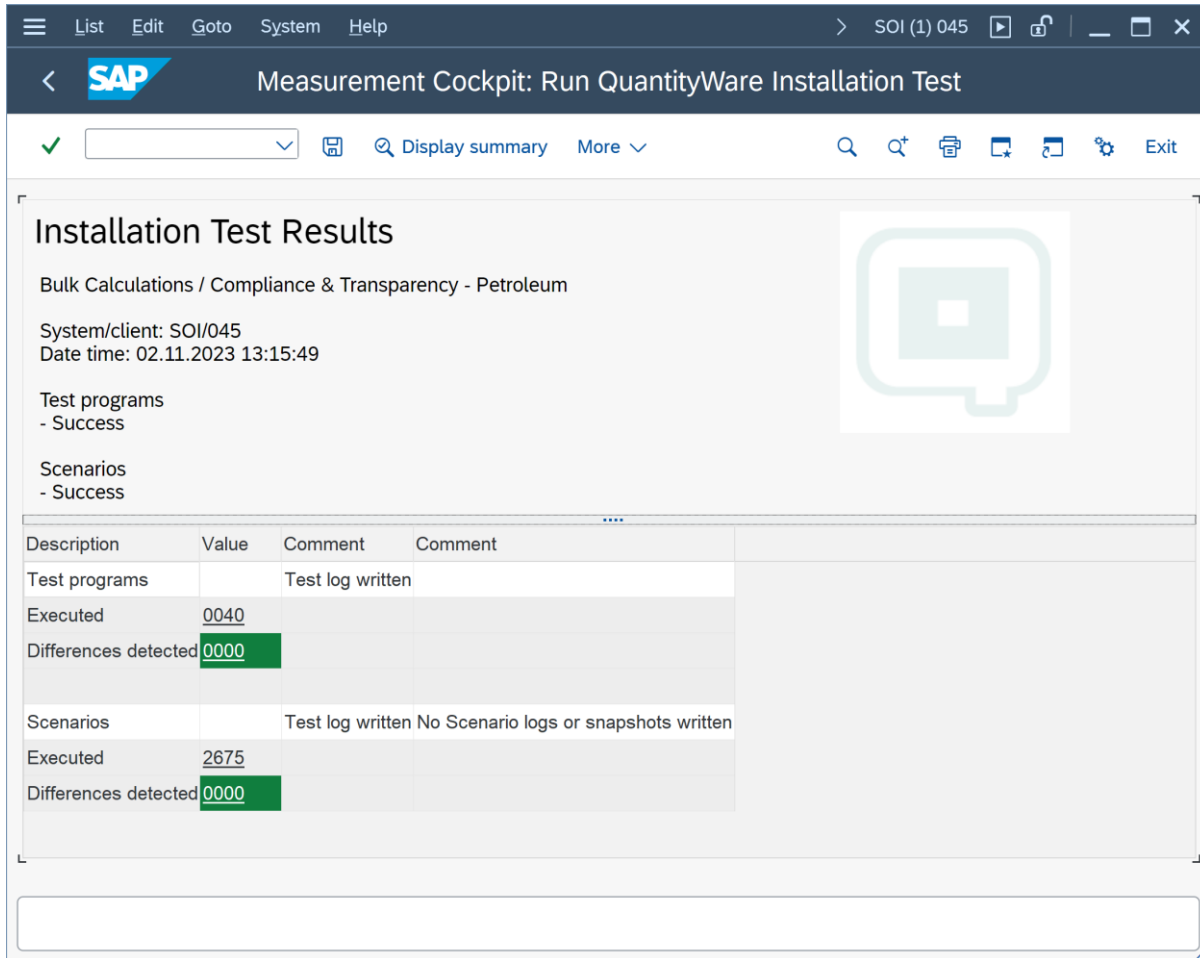
### 3.4.5.1. CTP Installation Test

The CTP Installation Test must be executed in one dedicated system per system landscape and client 045 (recommended client number if available).

The CTP Installation Test is identical with the BCP Installation Test. Thus, the CTP Installation Test requires that the BCP BC set is activated in that client. The BCP BC Set contains a rich configuration template (only client dependent data) on which the installation test performs massive tests in conjunction with the ABAP repository installation.

The CTP Installation Test is executed from the Petroleum Measurement Cockpit (PMC), tab strip “Test Tools” with one single click on push button “Run Installation Test”:





**Installation Test Results**

Bulk Calculations / Compliance & Transparency - Petroleum

System/client: SOI/045  
Date time: 02.11.2023 13:15:49

Test programs  
- Success

Scenarios  
- Success

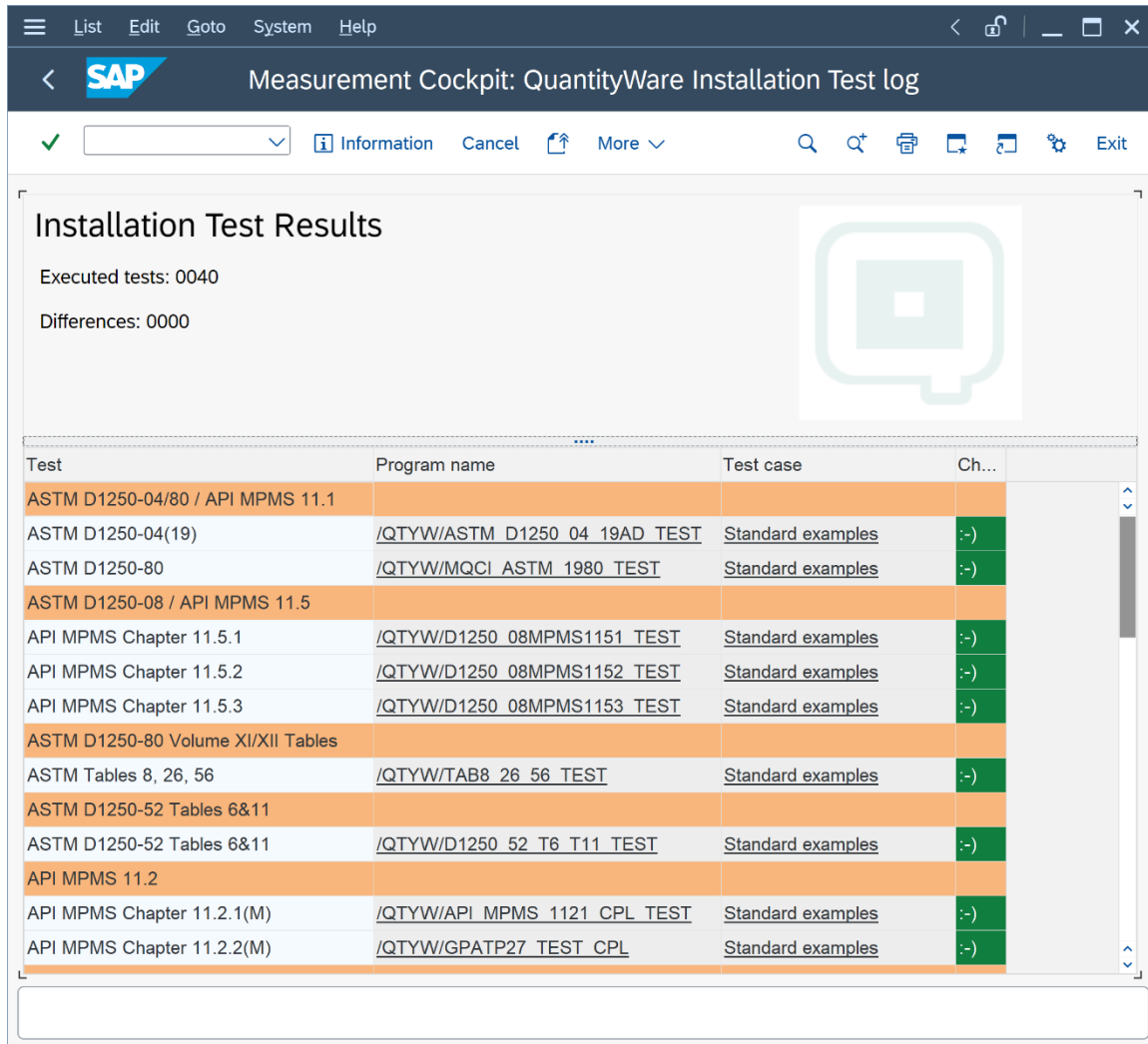
Description	Value	Comment	Comment
Test programs		Test log written	
Executed	0040		
Differences detected	0000		
Scenarios		Test log written	No Scenario logs or snapshots written
Executed	2675		
Differences detected	0000		

Two types of tests are executed during the installation test:

- **40** Test Programs
- **2 675** Test Scenarios

These results are also written to the installation test log database for later reference. Note that, depending on the presence of customer specific solutions, the number of test programs may be above 40.

You navigate to the test details (either from this result list or the log database result list) by simply clicking a result line. If you select the test programs, a comprehensive list with all executed test programs and the relevant test cases is displayed:



**Installation Test Results**

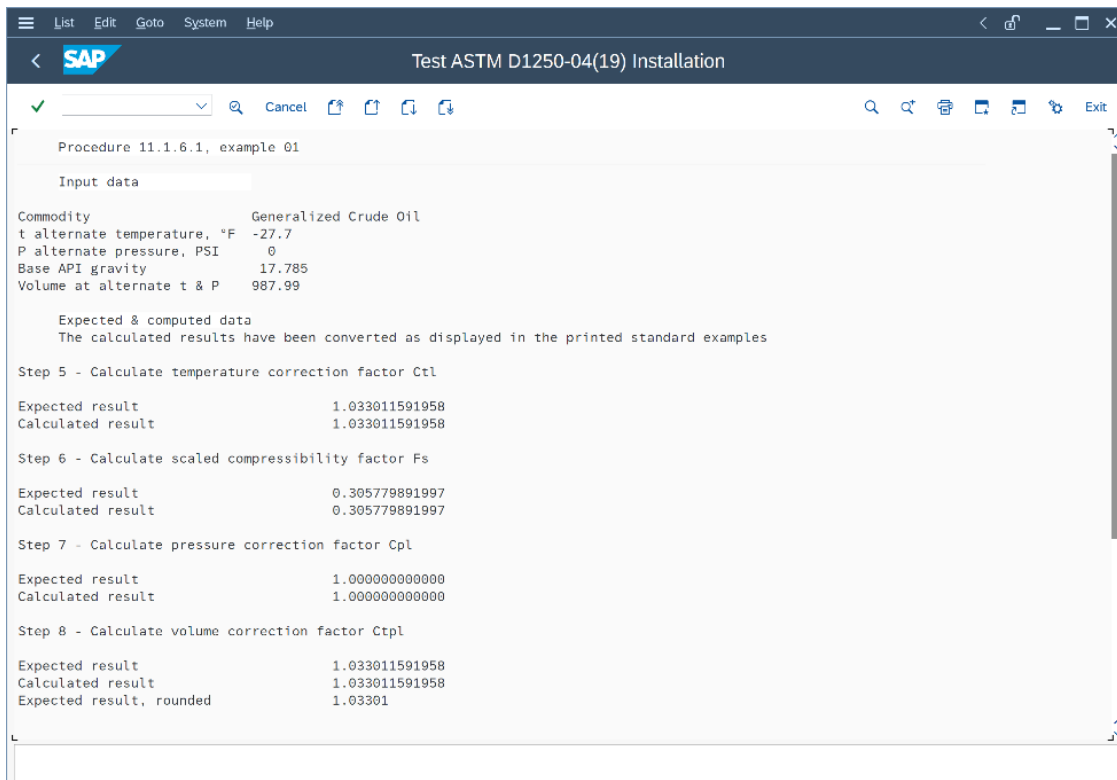
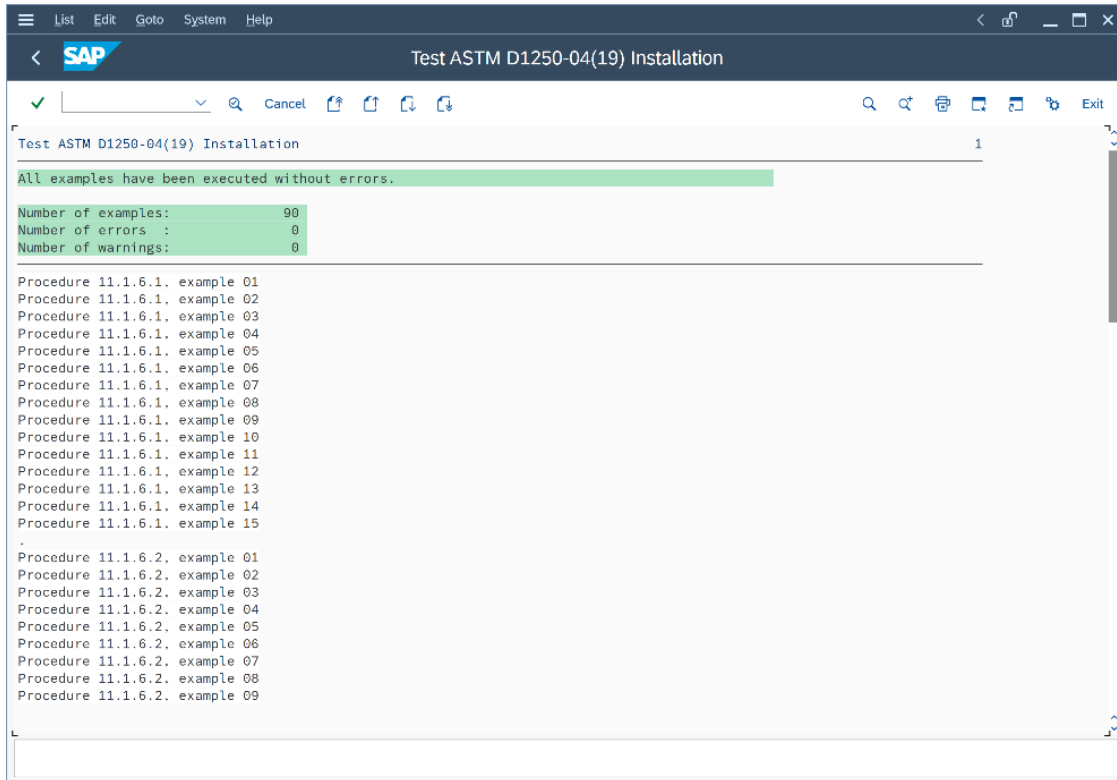
Executed tests: 0040  
Differences: 0000

Test	Program name	Test case	Ch...
ASTM D1250-04/80 / API MPMS 11.1			
ASTM D1250-04(19)	/QTYW/ASTM D1250 04 19AD TEST	Standard examples	:-)
ASTM D1250-80	/QTYW/MQCI ASTM 1980 TEST	Standard examples	:-)
ASTM D1250-08 / API MPMS 11.5			
API MPMS Chapter 11.5.1	/QTYW/D1250 08MPMS1151 TEST	Standard examples	:-)
API MPMS Chapter 11.5.2	/QTYW/D1250 08MPMS1152 TEST	Standard examples	:-)
API MPMS Chapter 11.5.3	/QTYW/D1250 08MPMS1153 TEST	Standard examples	:-)
ASTM D1250-80 Volume XI/XII Tables			
ASTM Tables 8, 26, 56	/QTYW/TAB8 26 56 TEST	Standard examples	:-)
ASTM D1250-52 Tables 6&11			
ASTM D1250-52 Tables 6&11	/QTYW/D1250 52 T6 T11 TEST	Standard examples	:-)
API MPMS 11.2			
API MPMS Chapter 11.2.1(M)	/QTYW/API MPMS 1121 CPL TEST	Standard examples	:-)
API MPMS Chapter 11.2.2(M)	/QTYW/GPATP27 TEST CPL	Standard examples	:-)

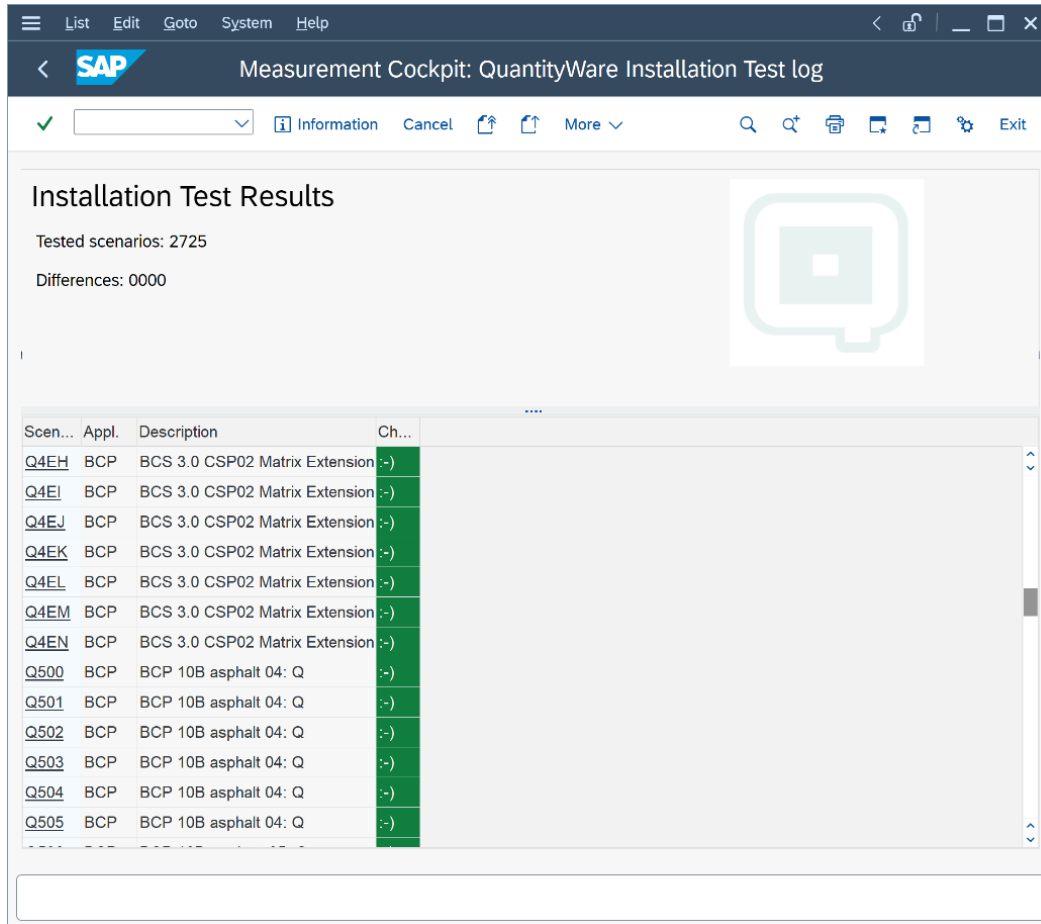
The Test Programs typically contain one test case. Test case “Standard examples” ensures that all measurement standard examples (expected results) for CTLP and mass/weight conversion standards that are defined in a measurement standard are exactly reproduced.

You navigate to all test details from this overview list.

Test case: "Standard examples":



If you select the test scenarios, a comprehensive list with all executed 2 700+ test scenarios is displayed:



Scen...	Appl.	Description	Ch...
Q4EH	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q4EI	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q4EJ	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q4EK	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q4EL	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q4EM	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q4EN	BCP	BCS 3.0 CSP02 Matrix Extension	-)
Q500	BCP	BCP 10B asphalt 04: Q	-)
Q501	BCP	BCP 10B asphalt 04: Q	-)
Q502	BCP	BCP 10B asphalt 04: Q	-)
Q503	BCP	BCP 10B asphalt 04: Q	-)
Q504	BCP	BCP 10B asphalt 04: Q	-)
Q505	BCP	BCP 10B asphalt 04: Q	-)

By clicking on a scenario ID (first column, above), you display all test scenario details.



QuantityWare recommends that you develop your own customer specific CTP test scenarios (Maintain Scenarios) that contain your manually calculated results (cross checked by at least two experts) and check the system calculation against these results, such that your customer specific quantity conversion configuration can always be validated in your clients with one click. This way, a high degree of automation is ensured, as well as system compatibility with your measurement standards during productive usage.

The QuantityWare Test Scenario Tool does not require any programming skills; you simply define your expected results for a chosen conversion group and the defined input parameters.

### 3.5. PMC Online Documentation

---

Detailed online documentation is available within the PMC for all relevant tools and configuration transactions.

### 3.6. Summary

---

The PMC provides an easy-to-use, structured, single point of access to all parties responsible for the configuration, control and development of quantity conversion policy and implementation. The PMCs functionality brings transparency and enables the definition and realization of GRC-promoting procedures for the “bottom-line” of an energy companies’ business – bulk product movements.



## 4. CTP - Test Scenarios

---

### 4.1. Introduction

---

An important aspect in the definition and configuration of complex quantity conversion calculations is to ensure that the calculation results are reproducible, stable and based on e.g., contractual agreements between business partners, measurement standards and governmental requirements.

After installing CTP in your system, you must test this basic configuration implementation delivered with the BC set in client 045 (recommended client) where you have activated the relevant QuantityWare BC set. You run the CTP Installation Test from the PMC Test Tool tab with one click. The PMC is part of CTP and provides the central user interface for Petroleum Measurement Experts and Consultants to CTP.

After defining your relevant conversion groups that you wish to analyze and renovate you need to cross check the calculation results with an independent calculation procedure. Ultimately, this must be a semi-manual process (typically using a spreadsheet and a pocket calculator, or results from a legacy system).

QuantityWare delivers a test scenario tool which you utilize to define your own test scenarios for your configuration settings (e.g., conversion group and related settings) in your system. This test scenario tool can be accessed via the PMC as well. This chapter describes how to use the test tool.

Typically, in your QA system you define test scenarios based on your company specific conversion group configurations which can then be run at any time in the system. After definition and testing, you simply transport the test scenarios from your QA system to all relevant systems in your landscape including your production system. A log can be written to the database for each test scenario run, providing a protocol of the test results for later auditing. You may also save a snapshot of each test scenario during a scenario run to the database. Such a snapshot can be written to the database if a scenario runs without error. The snapshot contains all relevant configuration data (customizing settings) and the test scenario data. If a scenario runs into an error, you simply compare the snapshot data with the then current system data to determine if a change of the scenario or the related configuration has caused the error.

For one scenario, you may create exactly one snapshot. Once you have created your own test scenarios, you should run these tests and write the results including a snapshot to the log tables at least after:

- You install a new CTP support package (CSP) or note
- You install an SAP Oil, Gas, & Energy ERP related note or package

Tests can also be scheduled regularly or executed irregularly to ensure that configuration is consistent.

## 4.2. Test Scenario – Delivery with BC Set



With CTP, QuantityWare delivers **2 725** test scenarios as part of the BC set template, which you access in your CTP template client 045 where the BC set has been activated

These test scenarios are delivered for two reasons:

1. To provide an additional high precision test matrix which extends the standard QuantityWare CTP installation test. All scenarios are designed to run without errors within the QuantityWare CTP client 045, where the BC set has been activated
2. Provide realistic examples for consultants implementing CTP to ease definition of customer specific test scenarios for renovated legacy SAP QCI conversion groups

### 4.3. Test Scenario – Definition

---

A QuantityWare test scenario is an automated, conversion group based calculation, where the calculation parameters (Scenario ID, conversion group with reading group and unit of measure (UoM) group) and the expected calculation results (quantity values and parameters) are defined in the system.

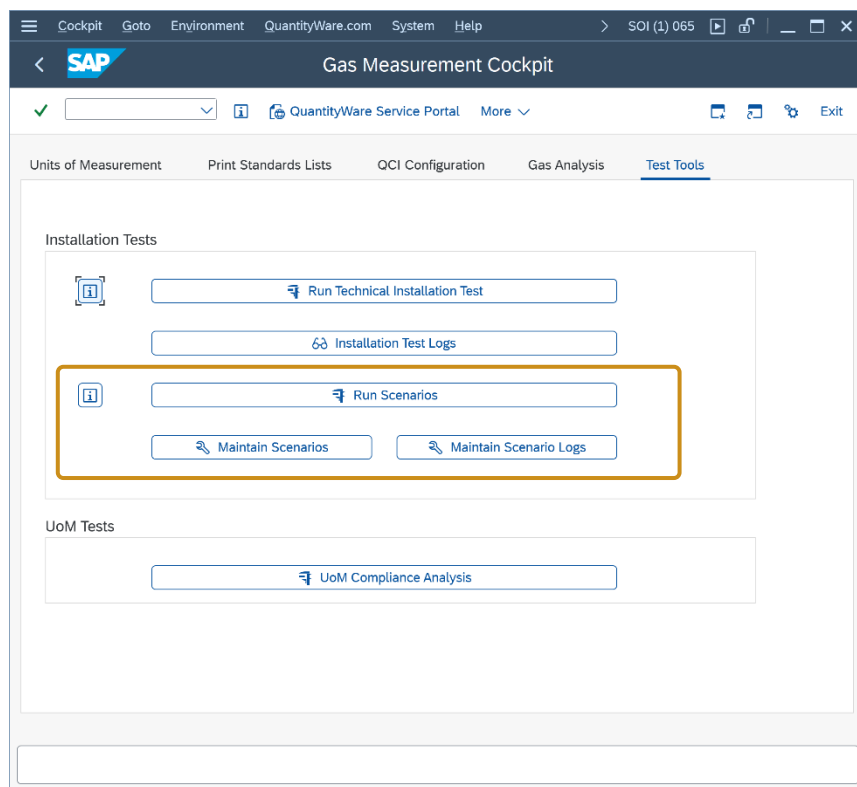
During a test scenario run, which you may start at any point in time, the system calculates the actual results (quantity values and parameters) and compares these actual results with your expected results defined in the test scenario. If all expected and actual results match, the scenario has been executed without error and reports the status “green - o.k.”; otherwise, the differences are reported as “red - not o.k.” and marked as such in the details list which is printed for each scenario.



You also have the option to define a test scenario such that it runs “green – o.k.” **if a pre-defined error message is encountered**. This way, you e.g., automatically test that parameter range limits are correctly defined or that quantity deviations are within the specified limits.

## 4.4. Access to the Test Scenario Tool

The Test Scenario Tool is accessed via the PMC, tab strip “Test Tools”:



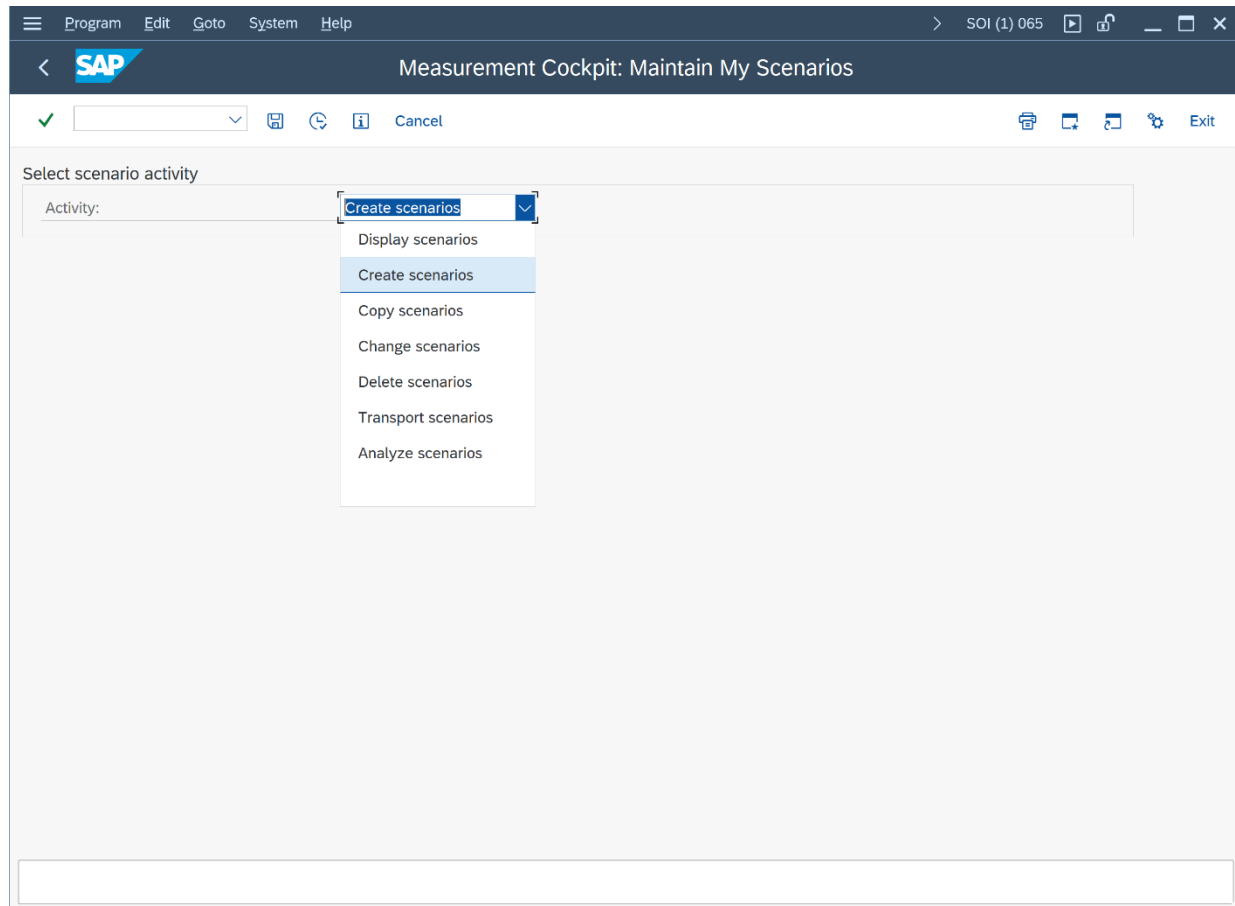
Three push buttons are available. “Run Scenarios”, “Maintain Scenarios” and “Maintain Scenario Logs”.

## 4.5. Test Scenario Tool Activities

All test scenarios can be transported to any required system and client within your system landscape. Test scenario definition typically takes place in your quality assurance system, after all Z\* conversion groups have been configured as required and manual calculations are in accordance with the expected results. Test Scenario execution and log analysis typically takes place in your quality assurance and production system.

### 4.5.1. Maintaining Test Scenarios

If you select the “Maintain Scenarios” push button, you have the following options in the field “Activity”:



#### 4.5.1.1. Display Scenarios

If you select this activity, you select a range of scenarios that will be displayed or display all scenarios for a conversion group.

Measurement Cockpit: Display My Scenarios

### My Test Scenarios

177 Scenarios of BCP Bulk Calculations - Petroleum

Scenario	Appl.	Description	CvG	UoMG	Mod. by	Mod. date	Time	Check err	Area	MsgNo
<a href="#">L001</a>	BCP	15DA Scenario 1	15DA	QTY	SENGM	07.11.2012	13:22:51			
<a href="#">L002</a>	BCP	15DA Scenario 2	15DA	QTY	SENGM	07.11.2012	13:27:00			
<a href="#">L003</a>	BCP	15DA Scenario 3	15DA	QTY	SENGM	07.11.2012	13:30:25			
<a href="#">L004</a>	BCP	15DA Scenario 4	15DA	QTY	SENGM	07.11.2012	13:33:17			
<a href="#">L005</a>	BCP	15DB Scenario 1	15DB	QTY	SENGM	29.06.2022	23:49:12			
<a href="#">L006</a>	BCP	15DB Scenario 2	15DB	QTY	SENGM	07.11.2012	14:02:45			
<a href="#">L007</a>	BCP	15DB Scenario 3	15DB	QTY	SENGM	07.11.2012	14:06:38			
<a href="#">L008</a>	BCP	15DB Scenario 4	15DB	NA1	SENGM	07.11.2012	14:09:00			
<a href="#">L009</a>	BCP	15DC Scenario 1	15DC	EU1	JAGERG	18.12.2019	16:04:59			
<a href="#">L00A</a>	BCP	15DC Scenario 5	15DC	EU1	JAGERG	18.12.2019	16:30:07			
<a href="#">L010</a>	BCP	15DC Scenario 2	15DC	EU1	JAGERG	18.12.2019	16:10:09			
<a href="#">L011</a>	BCP	15DC Scenario 3	15DC	EU1	JAGERG	18.12.2019	16:14:14			
<a href="#">L012</a>	BCP	15DC Scenario 4	15DC	EU1	JAGERG	18.12.2019	16:16:50			
<a href="#">L013</a>	BCP	15DD Scenario 1	15DD	EU1	SENGM	29.06.2022	23:49:51			

You inspect the scenario details by clicking on a single scenario ID or application ID:

Measurement Cockpit: Display My Scenarios

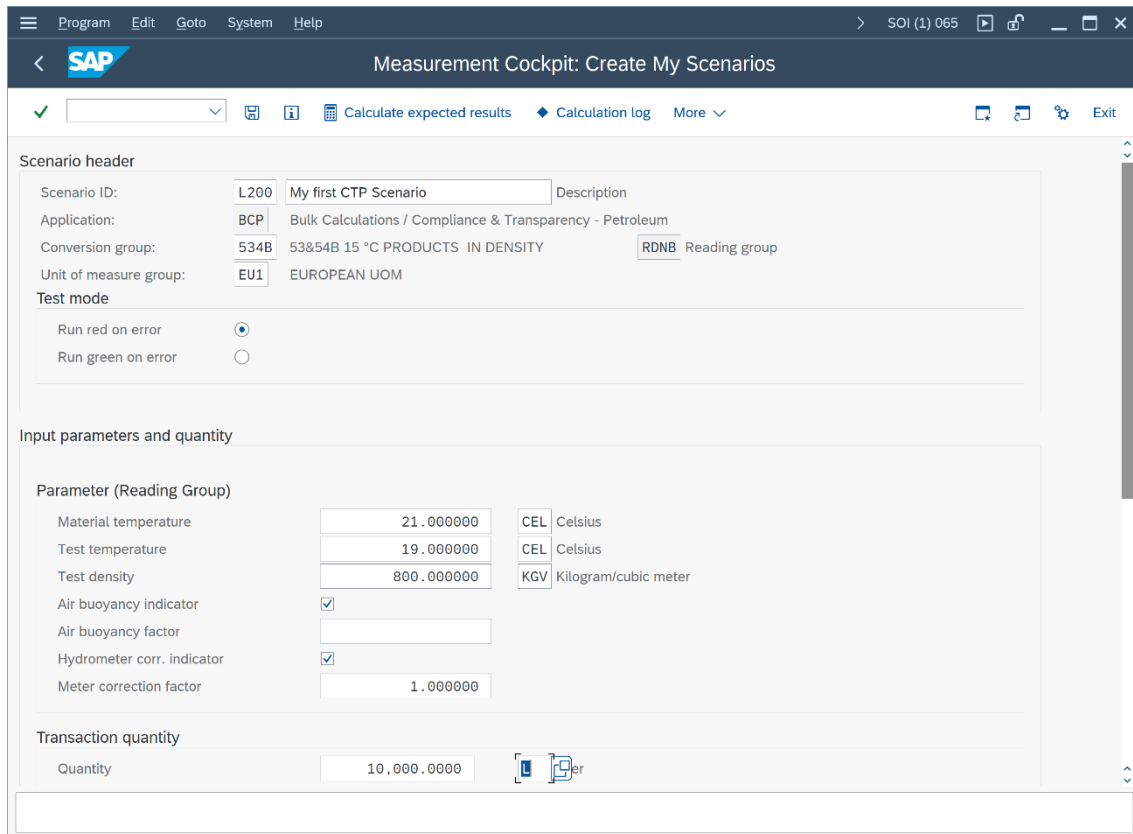
### Test Scenario Detail

Scenario ID: L005 15DB Scenario 1  
 QuantityWare: Bulk Calculations - Petroleum  
 Con.Grp.: 15DB API 4 15 °C PRODUCTS IN DENSITY  
 Read.Grp.: RDNB ABSOLUTE DENSITY, PRODUCT TYPE B  
 UoM Group:QTY QUANTITYWARE 065 TESTS  
 Last changed by/date: SENGM 29.06.2022 23:49:12

Description	Value Unit	Measurement unit text
<b>Input parameters:</b>		
Material temperature	21.000000 CEL	Celsius
Test temperature	19.000000 CEL	Celsius
Test density	800.000000 KGV	Kilogram/cubic meter
Air buoyancy indicator	X	
Air buoyancy factor	1.100000	
Hydrometer corr. indicator	X	
Meter correction factor	1.000000	
<b>Transaction quantity:</b>		
Transaction quantity	100,000.000 M3	Cubic meter
<b>Expected parameters:</b>		
Base density	802.966353 KGV	Kilogram/cubic meter
<b>Expected quantities:</b>		
Mass	79,742,401.357 KG	Kilogram
Mass	175,801,901.952 LB	US pound

#### 4.5.1.2. Create Scenarios

Enter the Scenario ID (four-character field), a description and the conversion group for the test scenario, as well as a unit of measure group that contains the UoM for which the quantity conversion is executed:



**Measurement Cockpit: Create My Scenarios**

Scenario header

Scenario ID: L200 My first CTP Scenario Description

Application: BCP Bulk Calculations / Compliance & Transparency - Petroleum

Conversion group: 534B 53&54B 15 °C PRODUCTS IN DENSITY RDNB Reading group

Unit of measure group: EU1 EUROPEAN UOM

**Test mode**

Run red on error ☒

Run green on error ☐

**Input parameters and quantity**

**Parameter (Reading Group)**

Material temperature	21.000000	CEL	Celsius
Test temperature	19.000000	CEL	Celsius
Test density	800.000000	KGV	Kilogram/cubic meter
Air buoyancy indicator	<input checked="" type="checkbox"/>		
Air buoyancy factor	<input type="text"/>		
Hydrometer corr. indicator	<input checked="" type="checkbox"/>		
Meter correction factor	1.000000		

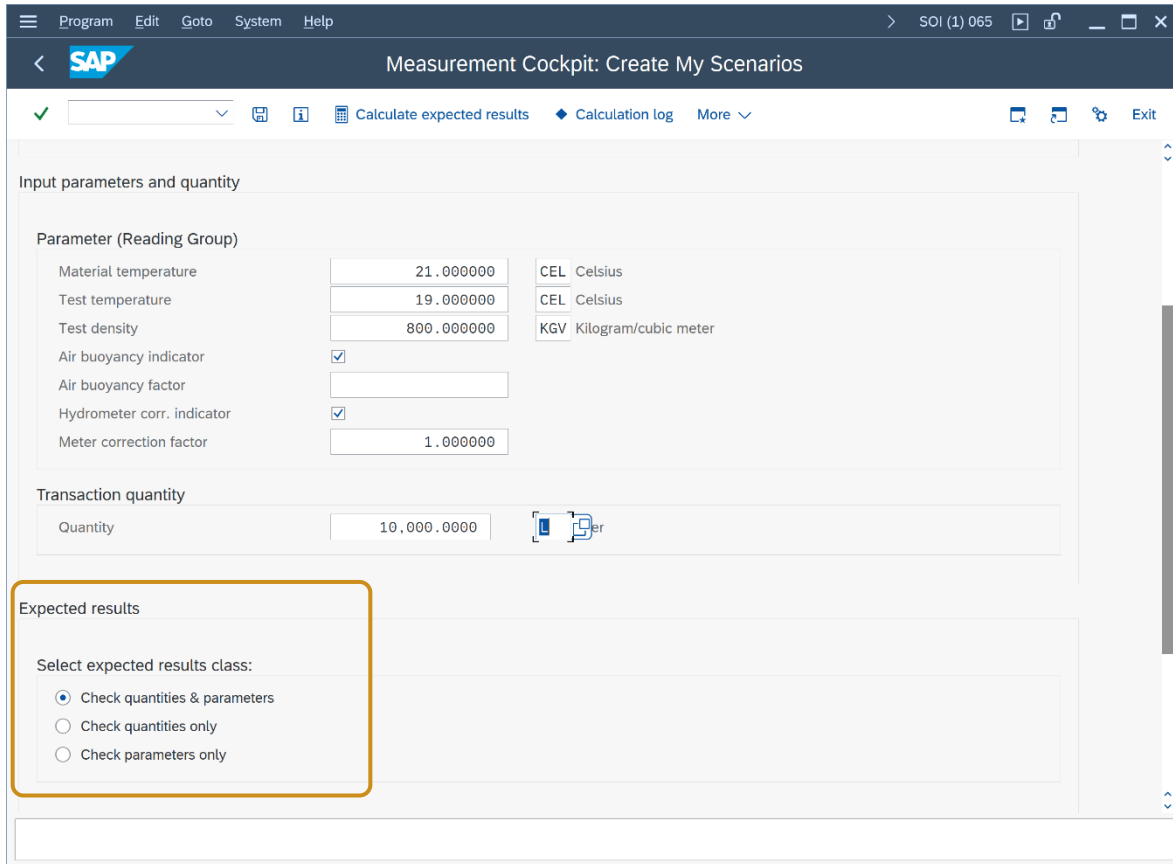
**Transaction quantity**

Quantity 10,000.0000

After you press return the system displays the relevant parameters from the reading group that is linked to the conversion group.

For your scenario, you may select whether you want to compare the results for:

- Parameters and quantities
- Quantities only
- Parameters only



Program Edit Goto System Help > SOI (1) 065

< **SAP** Measurement Cockpit: Create My Scenarios

✓ [dropdown] [icon] [icon] [icon] Calculate expected results Calculation log More

Input parameters and quantity

Parameter (Reading Group)

Material temperature	21.000000	CEL	Celsius
Test temperature	19.000000	CEL	Celsius
Test density	800.000000	KGV	Kilogram/cubic meter
Air buoyancy indicator	<input checked="" type="checkbox"/>		
Air buoyancy factor	<input type="text"/>		
Hydrometer corr. indicator	<input checked="" type="checkbox"/>		
Meter correction factor	1.000000		

Transaction quantity

Quantity	10,000.0000	[icon] [icon]
----------	-------------	---------------

Expected results

Select expected results class:

- ☒ Check quantities & parameters
- ☐ Check quantities only
- ☐ Check parameters only

Then you enter the transaction quantity and UoM and either manually enter the parameter results and/or quantity results, or you select “Calculate expected results” (if you have already validated the correctness of the calculation) and save the test scenario by selecting the “Save scenario” (CTRL + F4) push button.



#### 4.5.1.3. Change Scenarios:

Here you change an existing scenario.

#### 4.5.1.4. Copy Scenarios

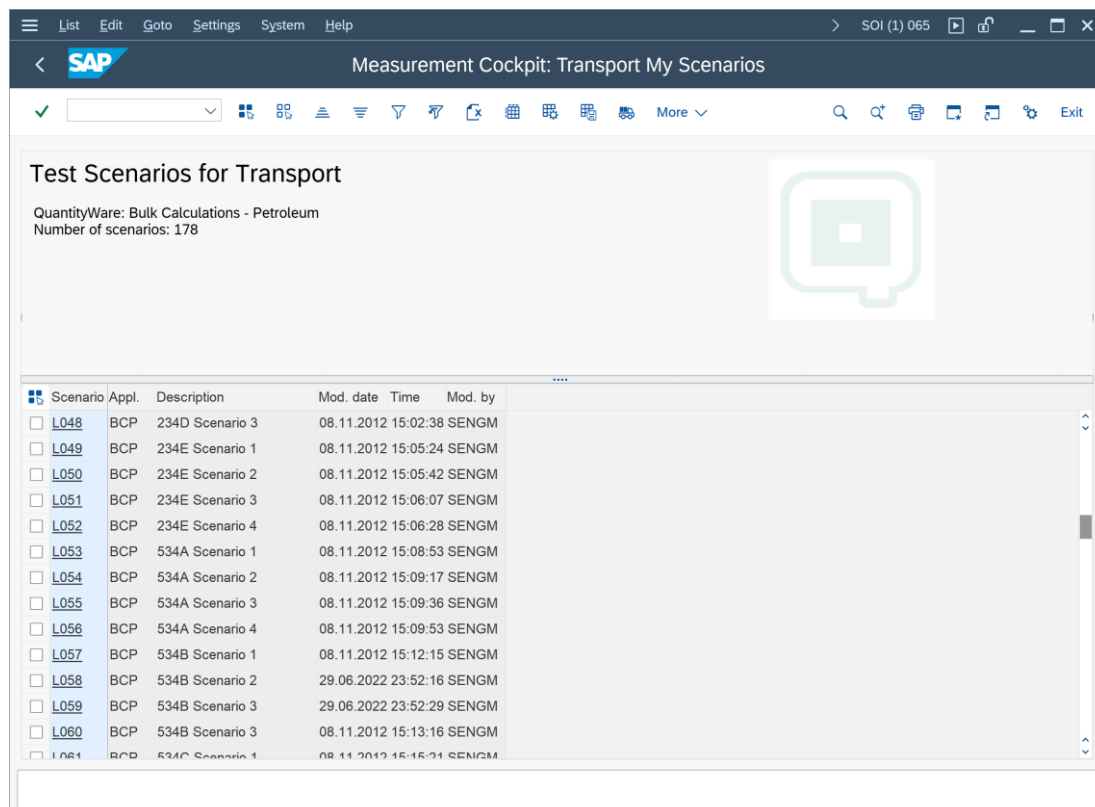
Allows you to copy an existing scenario to a new scenario ID.

#### 4.5.1.5. Delete Scenarios

Allows you to list a range of scenarios from which you can then select individual, or multiple scenarios for deletion.

#### 4.5.1.6. Transport Scenarios

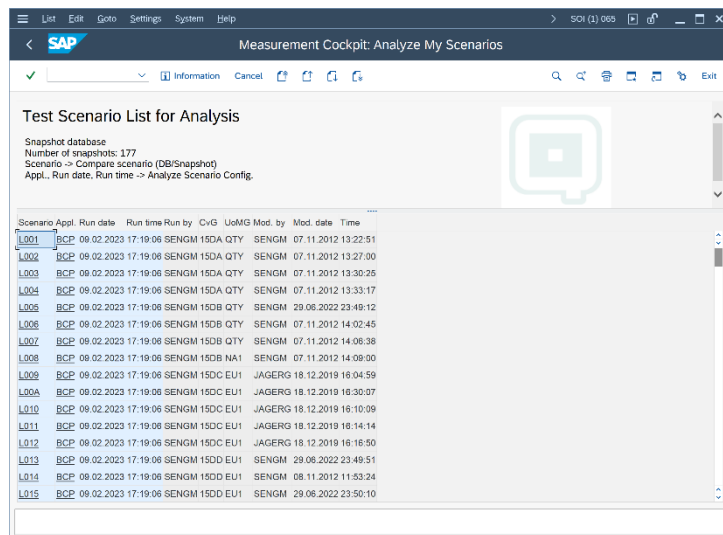
Allows you to list a range of scenarios from which you can then select individual, or multiple scenarios for inclusion into a customizing transport. This transport can be moved into another client or system within your system landscape.



Scenario	Appl.	Description	Mod. date	Time	Mod. by
<input type="checkbox"/> L048	BCP	234D Scenario 3	08.11.2012	15:02:38 SENG	
<input type="checkbox"/> L049	BCP	234E Scenario 1	08.11.2012	15:05:24 SENG	
<input type="checkbox"/> L050	BCP	234E Scenario 2	08.11.2012	15:05:42 SENG	
<input type="checkbox"/> L051	BCP	234E Scenario 3	08.11.2012	15:06:07 SENG	
<input type="checkbox"/> L052	BCP	234E Scenario 4	08.11.2012	15:06:28 SENG	
<input type="checkbox"/> L053	BCP	534A Scenario 1	08.11.2012	15:08:53 SENG	
<input type="checkbox"/> L054	BCP	534A Scenario 2	08.11.2012	15:09:17 SENG	
<input type="checkbox"/> L055	BCP	534A Scenario 3	08.11.2012	15:09:36 SENG	
<input type="checkbox"/> L056	BCP	534A Scenario 4	08.11.2012	15:09:53 SENG	
<input type="checkbox"/> L057	BCP	534B Scenario 1	08.11.2012	15:12:15 SENG	
<input type="checkbox"/> L058	BCP	534B Scenario 2	29.06.2022	23:52:16 SENG	
<input type="checkbox"/> L059	BCP	534B Scenario 3	29.06.2022	23:52:29 SENG	
<input type="checkbox"/> L060	BCP	534B Scenario 3	08.11.2012	15:13:16 SENG	
<input type="checkbox"/> L061	BCP	534C Scenario 1	08.11.2012	15:15:21 SENG	

#### 4.5.1.7. Analyze Scenarios

Allows you to list a range of scenarios from which you can then select individual, or multiple scenarios for error analysis. Requires that a snapshot for the scenario is available on the snapshot database:

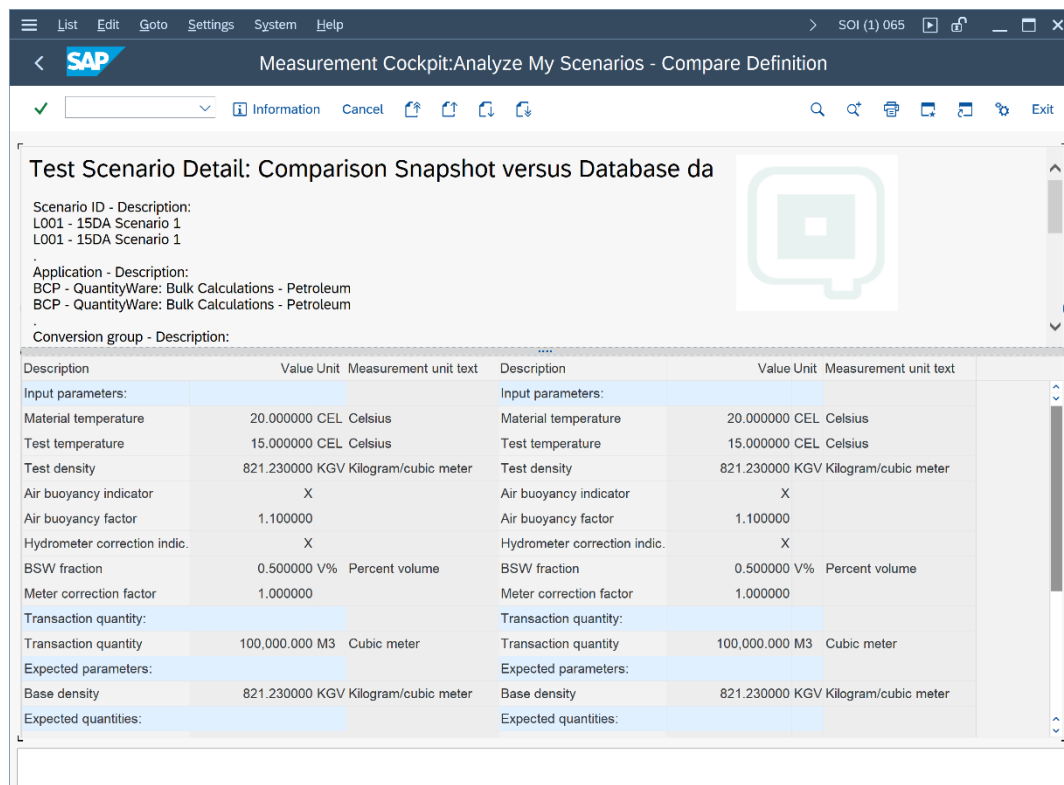


**Test Scenario List for Analysis**

Snapshot database  
Number of snapshots: 177  
Scenario -> Compare scenario (DB/Snapshot)  
Appl., Run date, Run time -> Analyze Scenario Config.

Scenario	Appl.	Run date	Run time	Run by	CvG	UoM	Mod. by	Mod. date	Time
L001	BCP	09.02.2023	17:19:06	SENGM	15DA	QTY	SENGM	07.11.2012	13:22:51
L002	BCP	09.02.2023	17:19:06	SENGM	15DA	QTY	SENGM	07.11.2012	13:27:00
L003	BCP	09.02.2023	17:19:06	SENGM	15DA	QTY	SENGM	07.11.2012	13:30:26
L004	BCP	09.02.2023	17:19:06	SENGM	15DA	QTY	SENGM	07.11.2012	13:33:17
L005	BCP	09.02.2023	17:19:06	SENGM	15DB	QTY	SENGM	29.06.2022	23:49:12
L006	BCP	09.02.2023	17:19:06	SENGM	15DB	QTY	SENGM	07.11.2012	14:02:45
L007	BCP	09.02.2023	17:19:06	SENGM	15DB	QTY	SENGM	07.11.2012	14:06:38
L008	BCP	09.02.2023	17:19:06	SENGM	15DB	NA1	SENGM	07.11.2012	14:06:00
L009	BCP	09.02.2023	17:19:06	SENGM	15DC	EU1	JAGERG	18.12.2019	18:04:59
L00A	BCP	09.02.2023	17:19:06	SENGM	15DC	EU1	JAGERG	18.12.2019	18:30:07
L010	BCP	09.02.2023	17:19:06	SENGM	15DC	EU1	JAGERG	18.12.2019	18:10:09
L011	BCP	09.02.2023	17:19:06	SENGM	15DC	EU1	JAGERG	18.12.2019	18:14:14
L012	BCP	09.02.2023	17:19:06	SENGM	15DC	EU1	JAGERG	18.12.2019	18:16:50
L013	BCP	09.02.2023	17:19:06	SENGM	15DD	EU1	SENGM	29.06.2022	23:49:51
L014	BCP	09.02.2023	17:19:06	SENGM	15DD	EU1	SENGM	08.11.2012	11:53:24
L015	BCP	09.02.2023	17:19:06	SENGM	15DD	EU1	SENGM	29.06.2022	23:50:10

If you click the Scenario ID for the scenario which reported an error, you compare the current scenario definition with the definition stored in the snapshot database:



**Test Scenario Detail: Comparison Snapshot versus Database da**

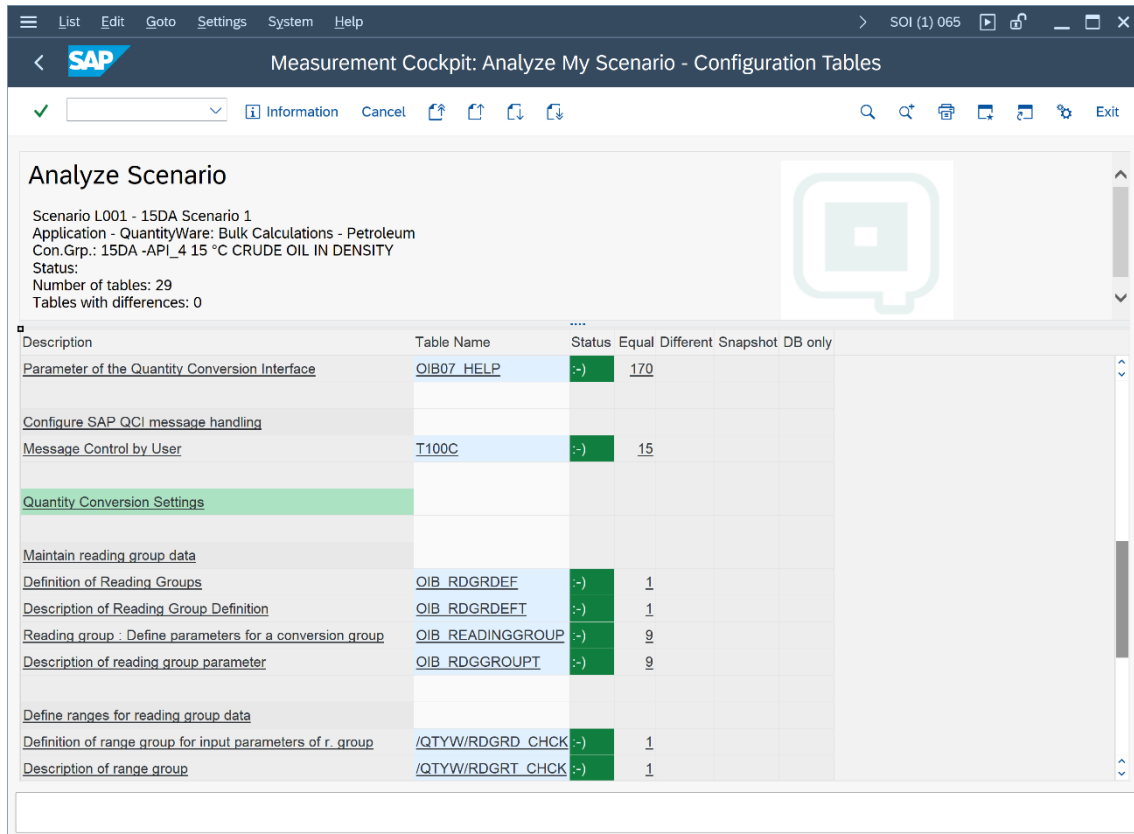
Scenario ID - Description:  
L001 - 15DA Scenario 1  
L001 - 15DA Scenario 1

Application - Description:  
BCP - QuantityWare: Bulk Calculations - Petroleum  
BCP - QuantityWare: Bulk Calculations - Petroleum

Conversion group - Description:

Description	Value	Unit	Measurement unit text	Description	Value	Unit	Measurement unit text
<b>Input parameters:</b>				<b>Input parameters:</b>			
Material temperature	20.000000	CEL	Celsius	Material temperature	20.000000	CEL	Celsius
Test temperature	15.000000	CEL	Celsius	Test temperature	15.000000	CEL	Celsius
Test density	821.230000	KGV	Kilogram/cubic meter	Test density	821.230000	KGV	Kilogram/cubic meter
Air buoyancy indicator	X			Air buoyancy indicator	X		
Air buoyancy factor	1.100000			Air buoyancy factor	1.100000		
Hydrometer correction indic.	X			Hydrometer correction indic.	X		
BSW fraction	0.500000	V%	Percent volume	BSW fraction	0.500000	V%	Percent volume
Meter correction factor	1.000000			Meter correction factor	1.000000		
<b>Transaction quantity:</b>				<b>Transaction quantity:</b>			
Transaction quantity	100,000.000	M3	Cubic meter	Transaction quantity	100,000.000	M3	Cubic meter
<b>Expected parameters:</b>				<b>Expected parameters:</b>			
Base density	821.230000	KGV	Kilogram/cubic meter	Base density	821.230000	KGV	Kilogram/cubic meter
<b>Expected quantities:</b>				<b>Expected quantities:</b>			

If you click on field Application, you compare the actual configuration settings with the settings stored in the snapshot database. If differences are found, the different entries will be shown in the detailed analysis screen:



Description	Table Name	Status	Equal	Different	Snapshot	DB only
Parameter of the Quantity Conversion Interface	OIB07_HELP	-)	170			
Configure SAP QCI message handling						
Message Control by User	T100C	-)	15			
<b>Quantity Conversion Settings</b>						
Maintain reading group data						
Definition of Reading Groups	OIB_RDGRDEF	-)	1			
Description of Reading Group Definition	OIB_RDGRDEFT	-)	1			
Reading group : Define parameters for a conversion group	OIB_READINGGROUP	-)	9			
Description of reading group parameter	OIB_RDGGROUPT	-)	9			
Define ranges for reading group data						
Definition of range group for input parameters of r_group	/QTYW/RDGRD_CHK	-)	1			
Description of range group	/QTYW/RDGRT_CHK	-)	1			

You click on an error line to display the setting which is different.

If a scenario runs into an unexpected error and neither the scenario nor the configuration are showing any differences, the ABAP code base is the only remaining source of error. Then you should run the installation test in client 045 to ensure a validated code base in that system and check that the code base is consistent through all systems in your system landscape.

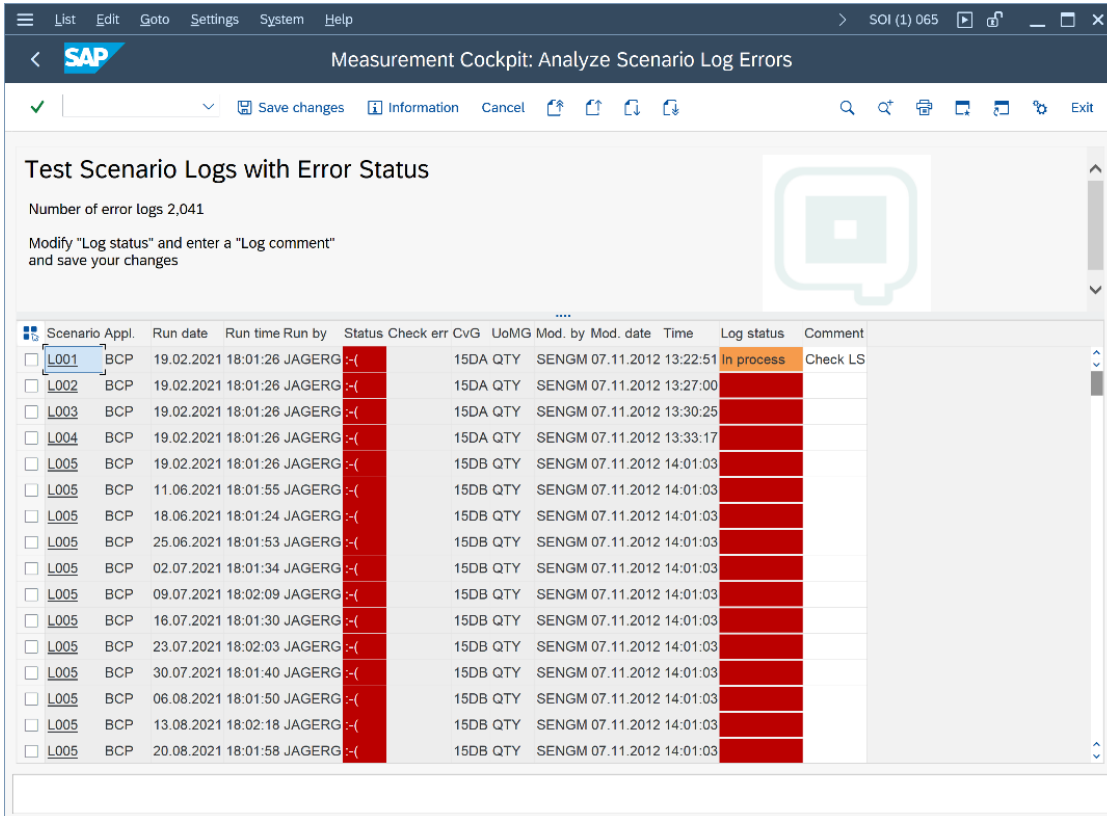
#### 4.5.2. Maintain Scenario Logs

If a test scenario runs into an error, you must analyze the reason for the error. Here you either:

- Display a range of scenario logs – from archive, database, or snapshot
- Analyze a range of scenario logs
- Delete a range of scenario logs

- Archive a range of scenario logs

In the analysis activity, you may set the log error status (none – in process – complete – confirmed) and write a comment line into the log:



**Test Scenario Logs with Error Status**

Number of error logs 2,041

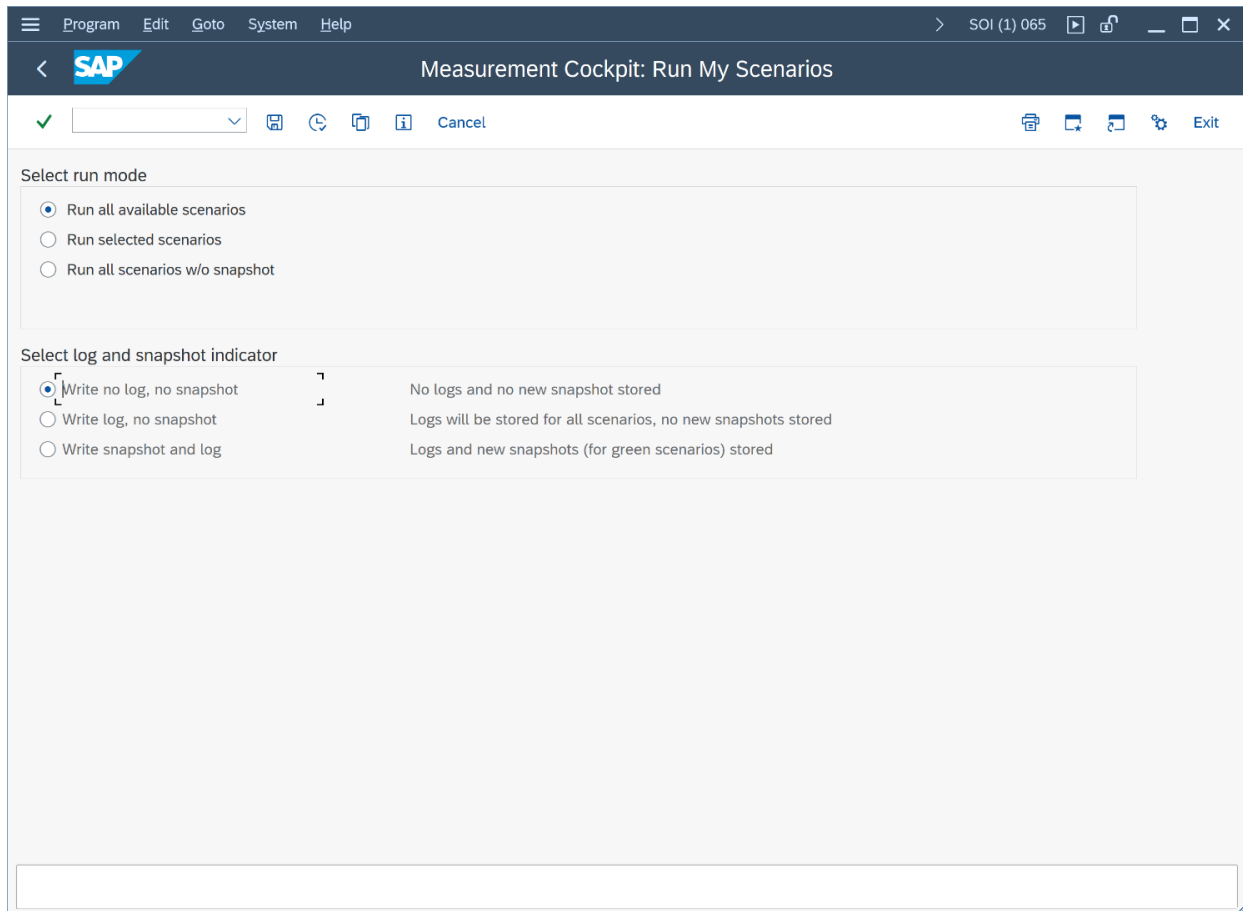
Modify "Log status" and enter a "Log comment" and save your changes

Scenario	Appl.	Run date	Run time	Run by	Status	Check err	CvG	UoMG	Mod. by	Mod. date	Time	Log status	Comment
L001	BCP	19.02.2021	18:01:26	JAGERG	-(		15DA QTY	SENGM	07.11.2012	13:22:51		In process	Check LS
L002	BCP	19.02.2021	18:01:26	JAGERG	-(		15DA QTY	SENGM	07.11.2012	13:27:00			
L003	BCP	19.02.2021	18:01:26	JAGERG	-(		15DA QTY	SENGM	07.11.2012	13:30:25			
L004	BCP	19.02.2021	18:01:26	JAGERG	-(		15DA QTY	SENGM	07.11.2012	13:33:17			
L005	BCP	19.02.2021	18:01:26	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	11.06.2021	18:01:55	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	18.06.2021	18:01:24	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	25.06.2021	18:01:53	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	02.07.2021	18:01:34	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	09.07.2021	18:02:09	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	16.07.2021	18:01:30	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	23.07.2021	18:02:03	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	30.07.2021	18:01:40	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	06.08.2021	18:01:50	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	13.08.2021	18:02:18	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			
L005	BCP	20.08.2021	18:01:58	JAGERG	-(		15DB QTY	SENGM	07.11.2012	14:01:03			

Note that error logs may only be archived if the log status is set to "confirmed".

### 4.5.3. Running Test Scenarios

If you select the “Run Scenarios” push button, you have the option to run all test scenarios, or one set of user specified scenarios. Here you set an indicator that writes a log protocol and/or snapshot for the scenario execution results.



The screenshot shows the SAP Measurement Cockpit interface with the title bar 'Measurement Cockpit: Run My Scenarios'. The window includes a menu bar (Program, Edit, Goto, System, Help) and a toolbar with icons for save, undo, redo, and other functions. The main content area is divided into two sections:

**Select run mode**

- ☒ Run all available scenarios
- ☐ Run selected scenarios
- ☐ Run all scenarios w/o snapshot

**Select log and snapshot indicator**

<input checked="" type="radio"/> Write no log, no snapshot	No logs and no new snapshot stored
<input type="radio"/> Write log, no snapshot	Logs will be stored for all scenarios, no new snapshots stored
<input type="radio"/> Write snapshot and log	Logs and new snapshots (for green scenarios) stored

At the bottom of the dialog, there is a large empty text area for additional notes or comments.

The results of each scenario run are displayed with the list format for the installation test scenario results.



Note: all these activities require a careful semi-manual procedure where you calculate your expected results independently from the system results and use at least a four eyes principle to validate your results. If your legacy SAP QCI conversion groups are validated to be o.k., you may simply convert conversion group results into test scenarios as described in this chapter.

## 4.6. Summary

---

The QuantityWare Test Scenario Tool provides easy-to-use management functions for all your important quantity conversion test scenarios. With these scenarios, you can continuously monitor and check the correctness of your productive BCP implementations, thus providing maximum security and stability for all logistics processes, which rely on accurate and well-defined quantity conversion data for bulk products. Governance, Risk Management and Control procedures should always include such a state-of-the-art test procedure for bulk quantity values

## 5. CTP – Configuration Template

---

### 5.1. Introduction

---

This chapter describes the configuration template that is delivered with CTP within one BC set.

QuantityWare delivers only **client dependent** customizing configuration data (template data) as part of the BC Set “/QTYW/BCP\_30X” (where “30X” is the current valid installed QuantityWare BCS release – e.g. “30A”), which CTP customers must activate in one new test client (045) in order to run the QuantityWare CTP installation test (identical with the BCP installation test) and validate the CTP installation.

QuantityWare delivers language-dependent entries in English (EN), French (FR), Spanish (ES) and Portuguese (PT) for all customizing template data which is visible to the business user.



All customizing data can be accessed via the QuantityWare Petroleum Measurement Cockpit (PMC) via transaction /n/qtyw/cockpit, menu path:

Goto -> QuantityWare IMG

The template configuration data can be divided into three parts:

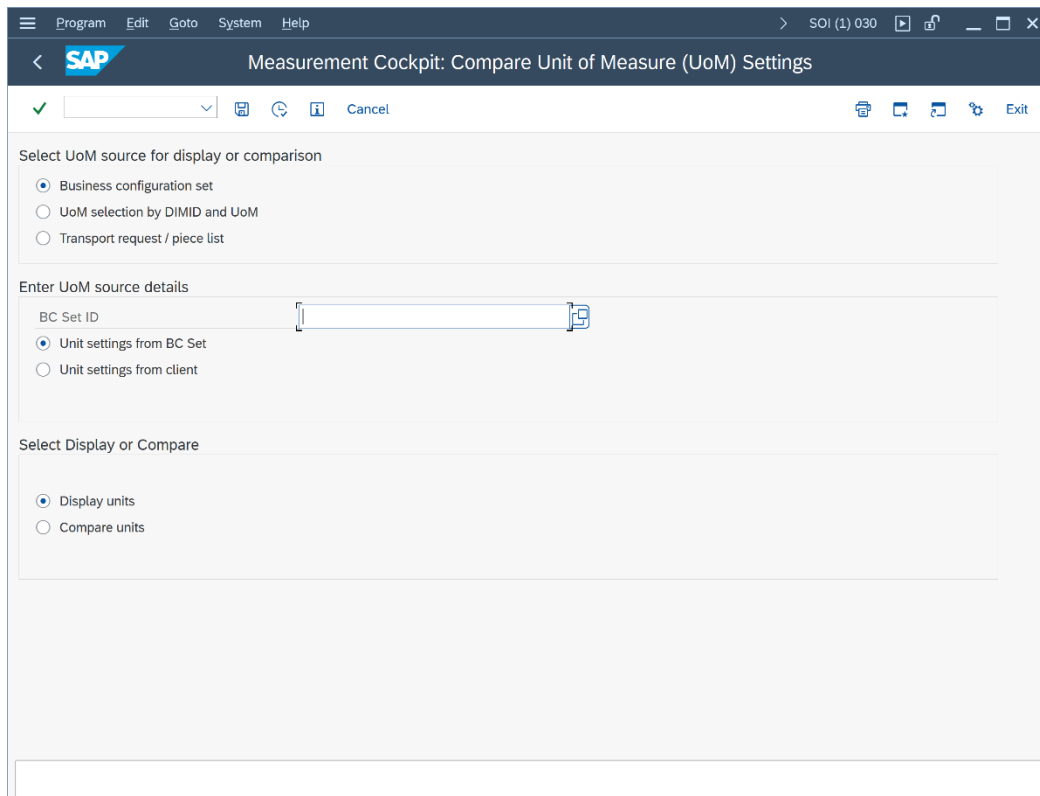
- Unit of measure definitions – SAP customizing tables
- Quantity conversion configuration – SAP customizing tables
- Quantity conversion configuration – QuantityWare customizing tables

## 5.2. Unit of Measure Definitions

QuantityWare delivers Unit of Measure (UoM) definitions and dimension ID as part of the template. These definitions have been carefully checked via the CTP UoM compliance analysis. In addition, ISO/UNECE code definitions are delivered. The UoM definitions fall into three categories:

- UoM definitions which are part of the SAP client 000 template, and which are not adjusted/corrected by QuantityWare with respect to quantity conversions – SAP UoM
- UoM definitions which are part of the SAP client 000 template, and which are corrected by QuantityWare with respect to quantity conversion – SAP UoM corrected
- New QuantityWare UoM definitions which are not part of the SAP client 000 template – QuantityWare UoM

You access and check all UoM configuration data directly from the PMC, via tab strip “Units of Measurement”; here you navigate to the UoM maintenance transaction CUNI “SAP Units -> Maintain” or display lists of UoM in your logon client “SAP Units -> Display” for various selection criteria. If you select “Unit Tools -> Comparison”, you may analyze the QuantityWare CTP BC set and compare UoM delivered within that BC set with UoM definitions in any client in your system:



The screenshot shows the SAP Measurement Cockpit: Compare Unit of Measure (UoM) Settings dialog box. The dialog has a title bar with the SAP logo and the text "Measurement Cockpit: Compare Unit of Measure (UoM) Settings". Below the title bar is a toolbar with icons for back, forward, search, and other functions. The main content area is divided into three sections:

- Select UoM source for display or comparison:** This section contains three radio buttons:
  - ☒ Business configuration set
  - ☐ UoM selection by DIMID and UoM
  - ☐ Transport request / piece list
- Enter UoM source details:** This section contains a text input field for "BC Set ID" and two radio buttons:
  - ☒ Unit settings from BC Set
  - ☐ Unit settings from client
- Select Display or Compare:** This section contains two radio buttons:
  - ☒ Display units
  - ☐ Compare units

At the bottom of the dialog is a large empty text area.



### 5.3. Conversion Group Configuration

QuantityWare delivers a complete quantity conversion configuration for crude oil & products as part of the BCP template. These definitions are maintained in SAP and QuantityWare customizing tables. More than 450 conversion groups and associated reading groups, range check groups etc. are delivered with the BC set template. QuantityWare conversion groups (and the associated reading groups and range groups) follow the QuantityWare naming convention as described in the table below:

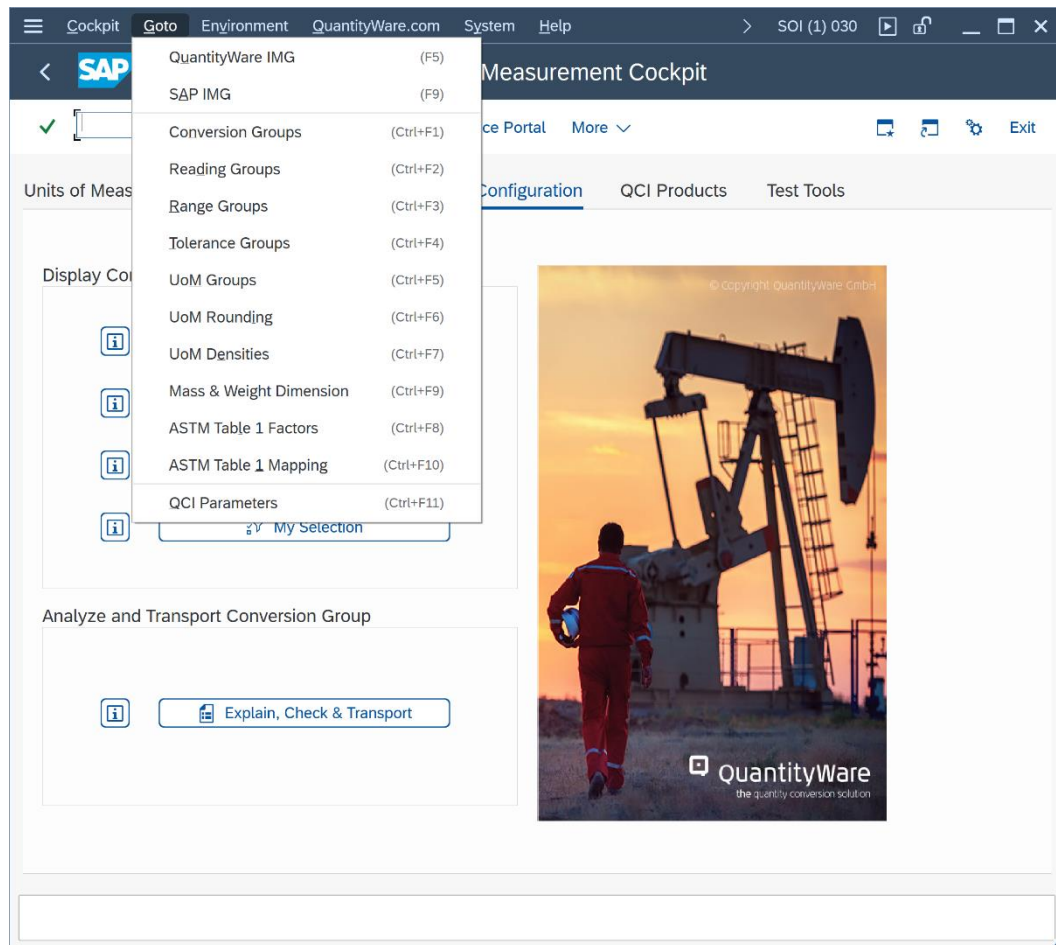
Conversion Group	Product Group
Q00* - Q0U*	Products handled by industry practice formula (e.g. linear density correction)
<b>Crude Oil &amp; Products</b>	
	<b>ASTM D 1250</b>
Q0V* - Q0Z*	ASTM D 1250-52 products
Q1*	Crude Oil
Q2*	Refined Products
Q3*	Special Applications "Chemicals"
Q4*	Lubricating Oils
<b>Other Standards</b>	
Q5*	Asphalt, Bitumen, Road Tar
Q7*	LPG – Liquefied Petroleum Gas
Q9*	Industrial Aromatic Hydrocarbons & Bulk Chemicals
QI*	Renewable Fuels & similar products
QS*	Solids (e.g., sulfur)
<b>Natural Gas – not part of BCP</b>	
QT*	High-pressure hydrogen gas - BCG
QU	LNG – Liquefied Natural Gas – BCG
QV*	Natural gas – high- and low-pressure pipeline – BCG
QWWW	MQCI zero model conversion group - technical



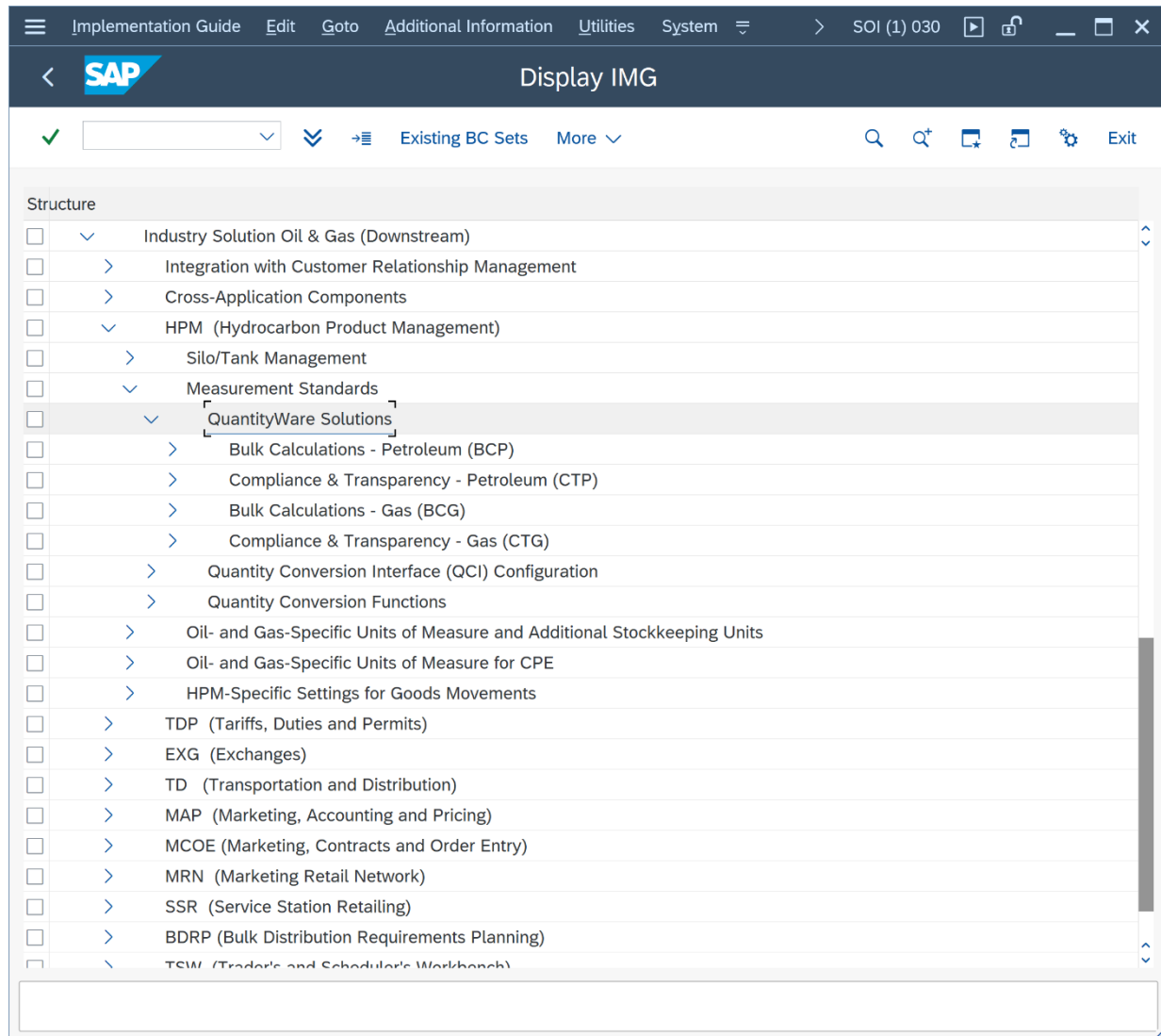
For CTP usage, these template conversion groups are not released and are solely utilized for the CTP installation test.

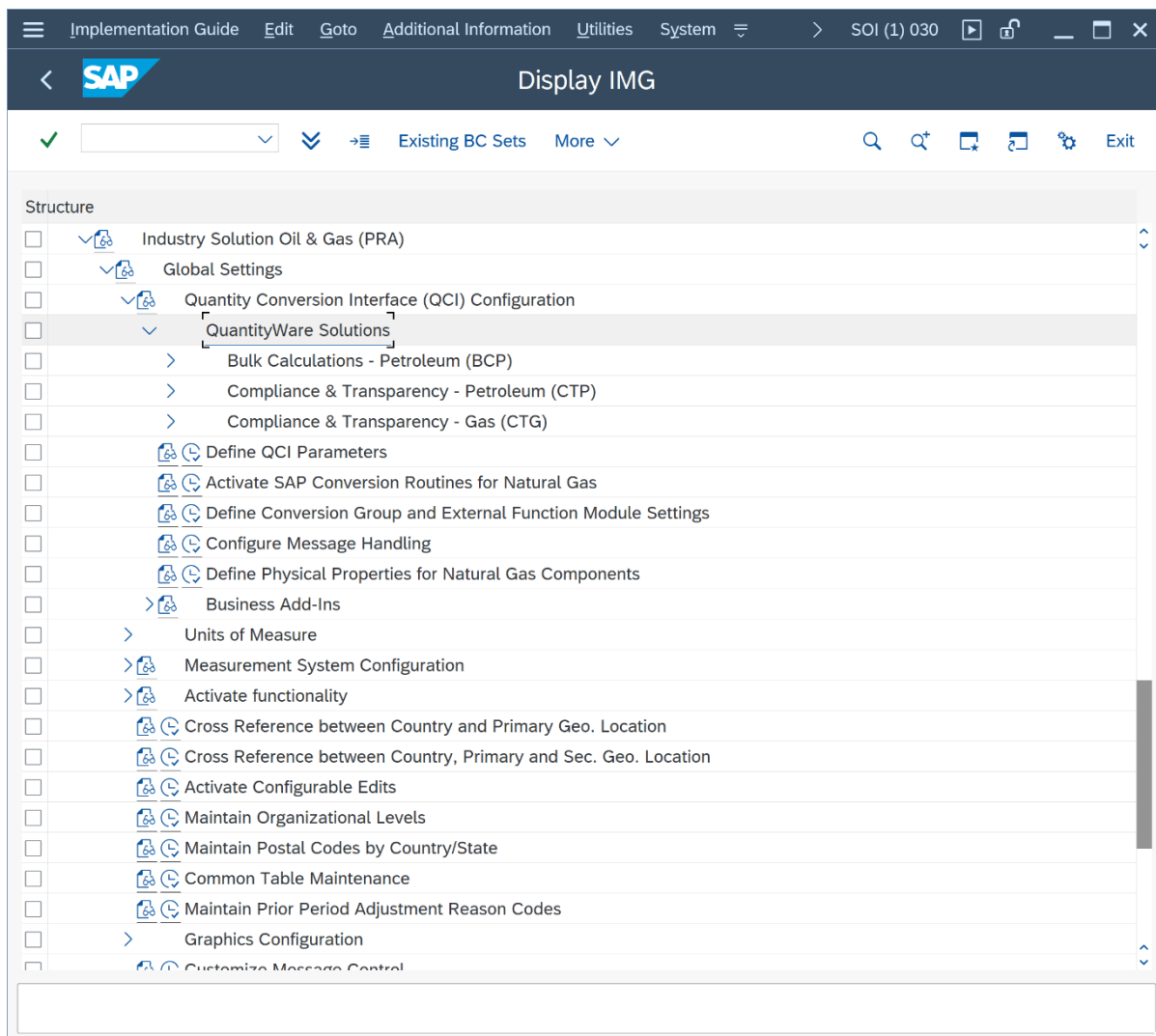
## 5.4. QuantityWare IMG Access

You access all configuration data of your legacy SAP QCI conversion group configuration from the PMC via the QuantityWare IMG:



The QuantityWare IMG is also integrated into the SAP Reference IMG:





### 5.4.1. Summary

A clearly defined template of values describing calculations parameters, as well as the background knowledge as to where the values can be found within SAP DDIC forms the basis of a reliable quantity calculations environment. Without such an extensive framework, true transparency and accurate representation of the calculations required by business processes and their regulatory bodies cannot be practically validated. QuantityWare presents such a clearly defined reference configuration template for quantity conversion renovation projects to meet customers' needs.

## 6. CTP - SAP QCI Enhancements of Legacy Configurations

### 6.1. Introduction

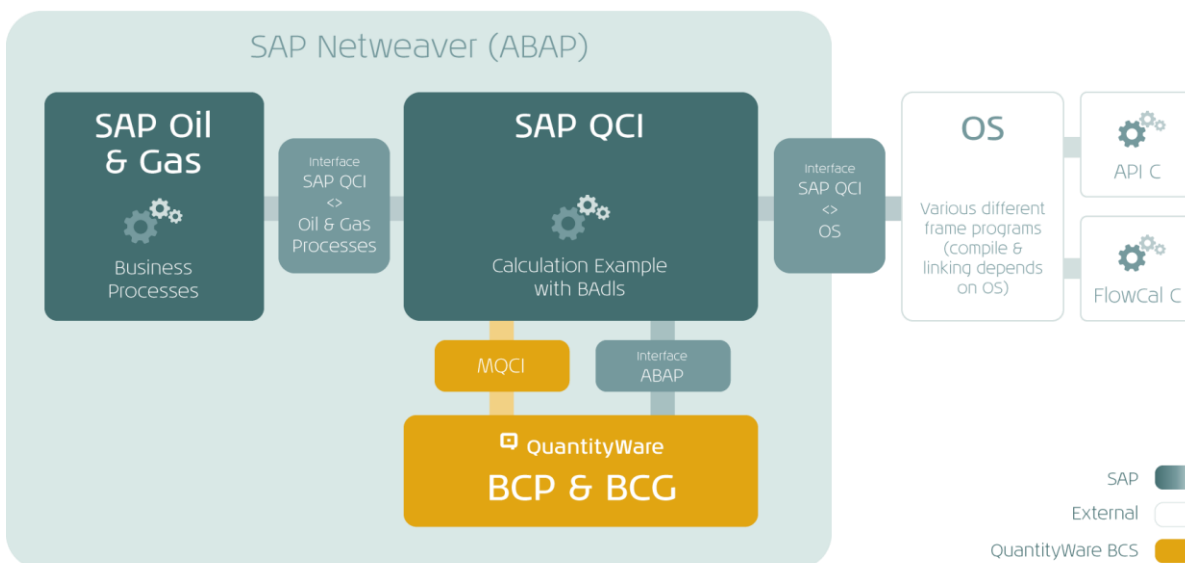
There are several ways in which quantity conversion calculations can be approached, all of which are comprised of distinct “calculation steps”. A sequence of calculation steps, typically including calculation procedures of measurement parameters, the conversion of different kinds of quantities (“dimensions” in SAP terminology), as well as rounding procedures, comprise the basic definition of the conversion model.

Different conversion models are defined in national and international measurement standards and are in use within the oil & gas and chemicals industries.

Technically, the implementation of a specific model should be independent of the interface by which the model-based conversion algorithms are accessed.

The standard SAP QCI (Quantity Conversion Interface) provides one calculation model which is integrated within the technical interface. This model can be enhanced via BAdI (Business Add In) implementations to a certain extent but does not allow for deviation from the hard-coded SAP QCI calculation model. Using the CTP PMC capabilities, your SAP QCI legacy conversion group configuration can be enhanced considerably without changing your validated calculation logic.

### 6.2. Parameter Range Check Settings



Within the SAP QCI, you cannot define that certain measurement parameters have to lie within a specified range of values.

An example would be the natural gas heating value. In the standard SAP Oil, Gas, & Energy system, you can enter any value between 0.00001 and 1,000,000.000 MJM (Mega joule per cubic meter), and the system calculates volume and energy quantity values for any heating value. Typically, several parameters are required for the quantity conversion, thus data entry can be cumbersome and, if not checked, lead to erroneous results which may have considerable financial impact on your business. This is true for automated data input via SAP BAPI as well as manual user data entry.

To provide this important requirement, QuantityWare delivers customizing tables (maintainable via transaction /QTYW/RANGES or directly from the PMC) which can be defined to contain for all your legacy reading groups the relevant parameter reading group range data range sets.

If you select one specific reading group, you can select all available parameters for which the following data can be maintained:

- High level error limit: Any number with up to 6 decimal places
- Low level error limit: Any number with up to 6 decimal places
- High level warning limit: Any number with up to 6 decimal places
- Low level warning limit: Any number with up to 6 decimal places
- The unit of measure (UoM) for each parameter

For character format parameters, you can define an exact match or if a value needs to be excluded. The CTP range check function can be activated for your SAP QCI legacy conversion groups.



It is not required to maintain all data for all parameters. You can for example just maintain lower limits (E and W), or just Warning limits.

Technically, the range checks are executed if function /QTYW/CHECK\_PARAM\_RANGES is included within the conversion group. As soon as range data is maintained, the checks are performed for each quantity conversion calculation.

Example: Legacy SAP QCI conversion group 534B CTP extension with range check function:

SAP Change View "External function calls and sequence": Overview

Dialog Structure

- Conversion group definition
  - External function calls and sequence
  - Link reading group to conversion
  - Assign ID for physical process
  - Ass. of QCI UOM - T006

External function calls and sequence

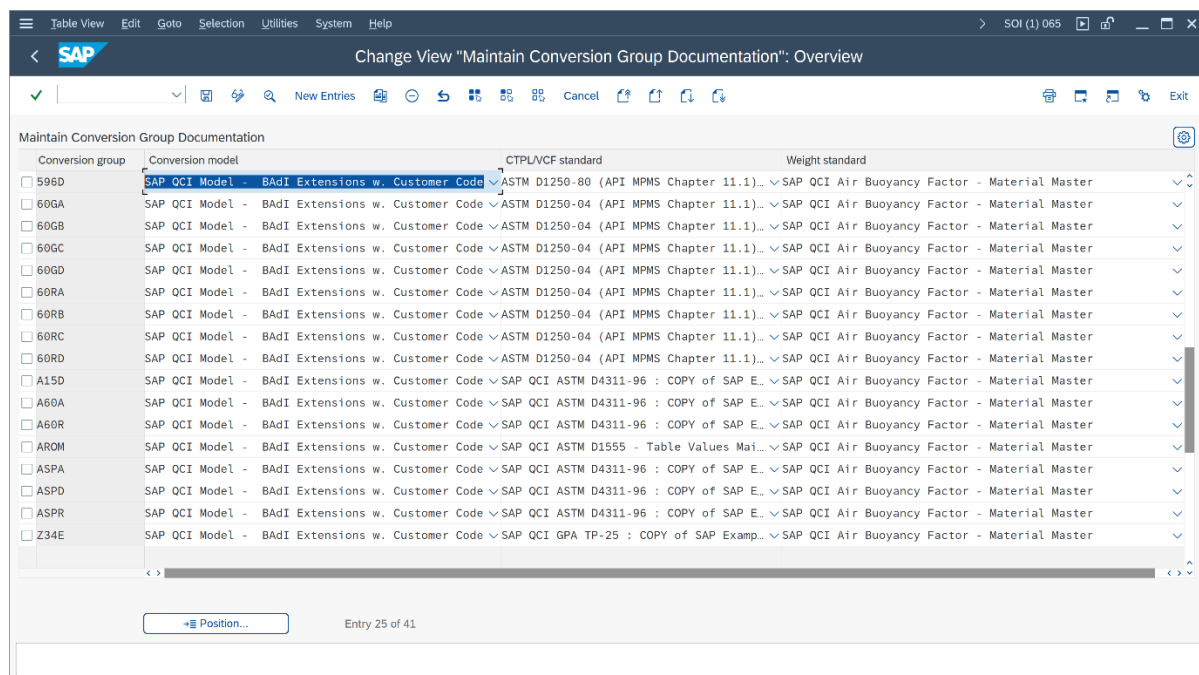
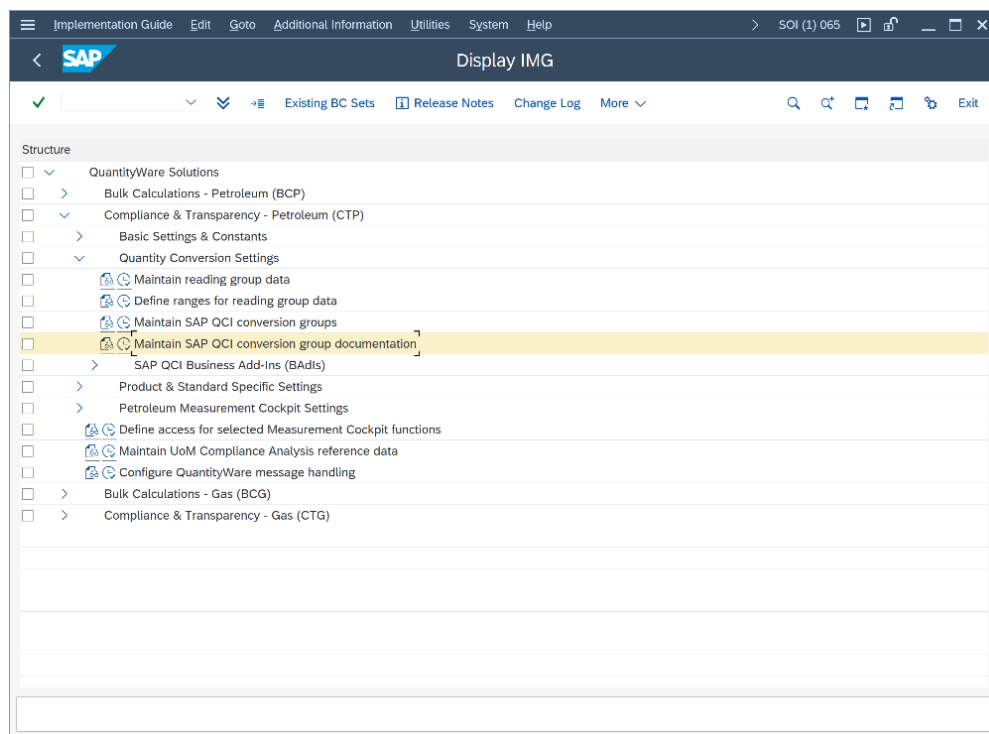
Co...	F...	FM name	FM subrt.	F. FM import	FM exp...
<input checked="" type="checkbox"/>	534B 1	/QTYW/CHECK_PARAM_RANG...		5	
<input type="checkbox"/>	534B 3	\\qtywst2\sapmnt\trans\API_AG...	tab53b	3 OIBIA1	OIBEA1
<input type="checkbox"/>	534B 4	\\qtywst2\sapmnt\trans\API_AG...	tab54b	3 OIBIA2	OIBEA2

Position... Entry 1 of 3



## 6.3. Conversion Group Documentation

Via customizing, you document your SAP QCI legacy conversion groups:

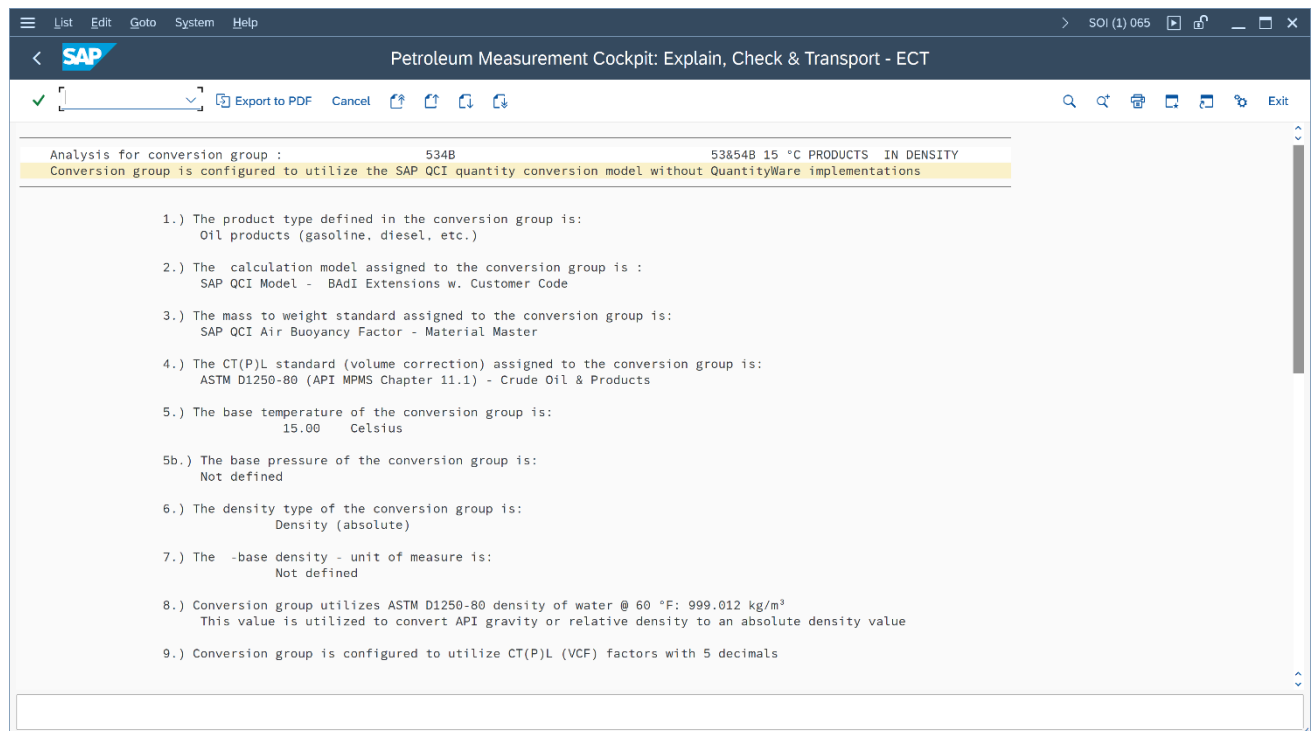


The conversion model is the SAP QCI model (or customer specific). The weight standard is typically the SAP QCI air buoyancy factor model (or customer specific). As CTPL standard the legacy PC solutions - API c-codes (ASTM D1250-80) or API Flow-Cal c-codes (ASTM D1250-04) - are typically in use, as well as legacy ASTM D4311-96, GPA TP-25 (copy of SAP example) and customer table values for ASTM D1555.



This conversion group documentation is mandatory if you wish to utilize all PMC tools for your SAP QCI legacy conversion groups.

Example: Conversion group documentation for SAP QCI legacy conversion group 534B:



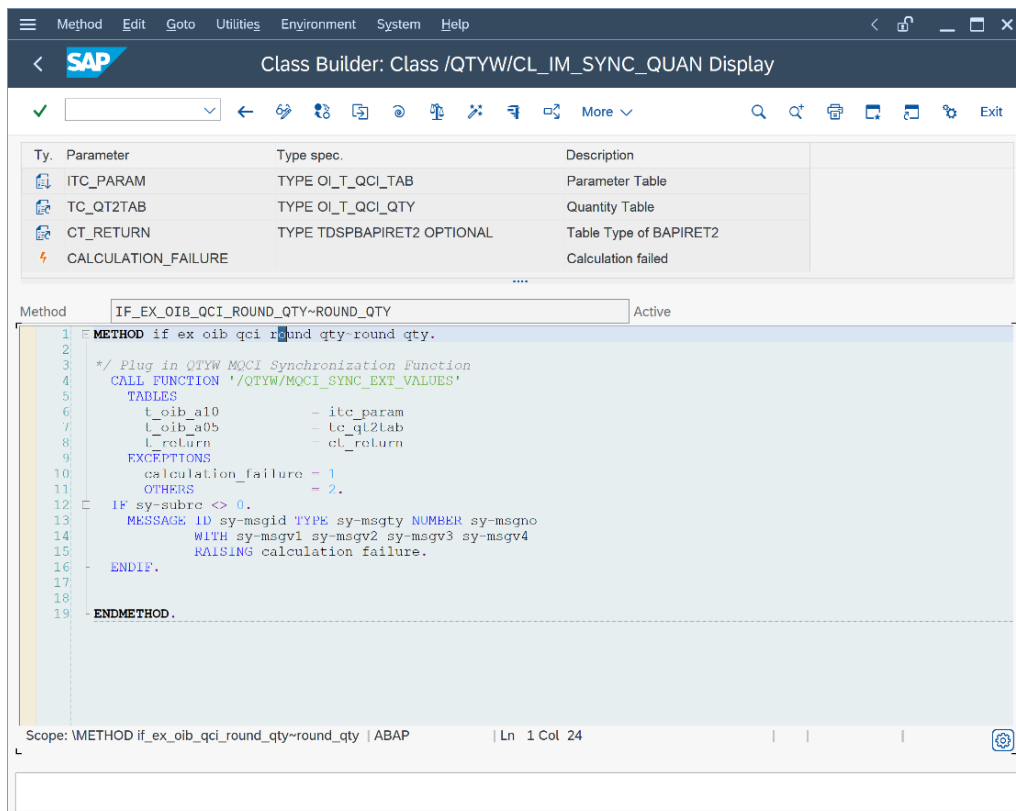
The screenshot shows the SAP Petroleum Measurement Cockpit: Explain, Check & Transport - ECT window. The window title bar includes 'SAP' and 'Petroleum Measurement Cockpit: Explain, Check & Transport - ECT'. The main content area displays the following information:

Analysis for conversion group : 534B 53854B 15 °C PRODUCTS IN DENSITY  
 Conversion group is configured to utilize the SAP QCI quantity conversion model without QuantityWare implementations

- 1.) The product type defined in the conversion group is:  
Oil products (gasoline, diesel, etc.)
- 2.) The calculation model assigned to the conversion group is :  
SAP QCI Model - BAdI Extensions w. Customer Code
- 3.) The mass to weight standard assigned to the conversion group is:  
SAP QCI Air Buoyancy Factor - Material Master
- 4.) The CT(P)L standard (volume correction) assigned to the conversion group is:  
ASTM D1250-80 (API MPMS Chapter 11.1) - Crude Oil & Products
- 5.) The base temperature of the conversion group is:  
15.00 Celsius
- 5b.) The base pressure of the conversion group is:  
Not defined
- 6.) The density type of the conversion group is:  
Density (absolute)
- 7.) The -base density - unit of measure is:  
Not defined
- 8.) Conversion group utilizes ASTM D1250-80 density of water @ 60 °F: 999.012 kg/m³  
This value is utilized to convert API gravity or relative density to an absolute density value
- 9.) Conversion group is configured to utilize CT(P)L (VCF) factors with 5 decimals

## 6.4. Quantity Value Synchronization

For CTP usage, QuantityWare has released the MQCI function /QTYW/MQCI\_SYNC\_EXT\_VALUES. You may implement this function in your SAP QCI BAdI OIB\_QCI\_ROUND\_QTY, to ensure that external quantity values are always synchronized with internally calculated values. Read the [Synchronization FAQ](#) for details.



## 6.5. Summary

Leveraging the flexibility of SAPs Oil & Gas solution technical design, you considerably enhance existing SAP QCI functionality, allowing to represent business- and regulatory-driven calculation requirements accurately and transparently in a single, controlled environment, on demand.

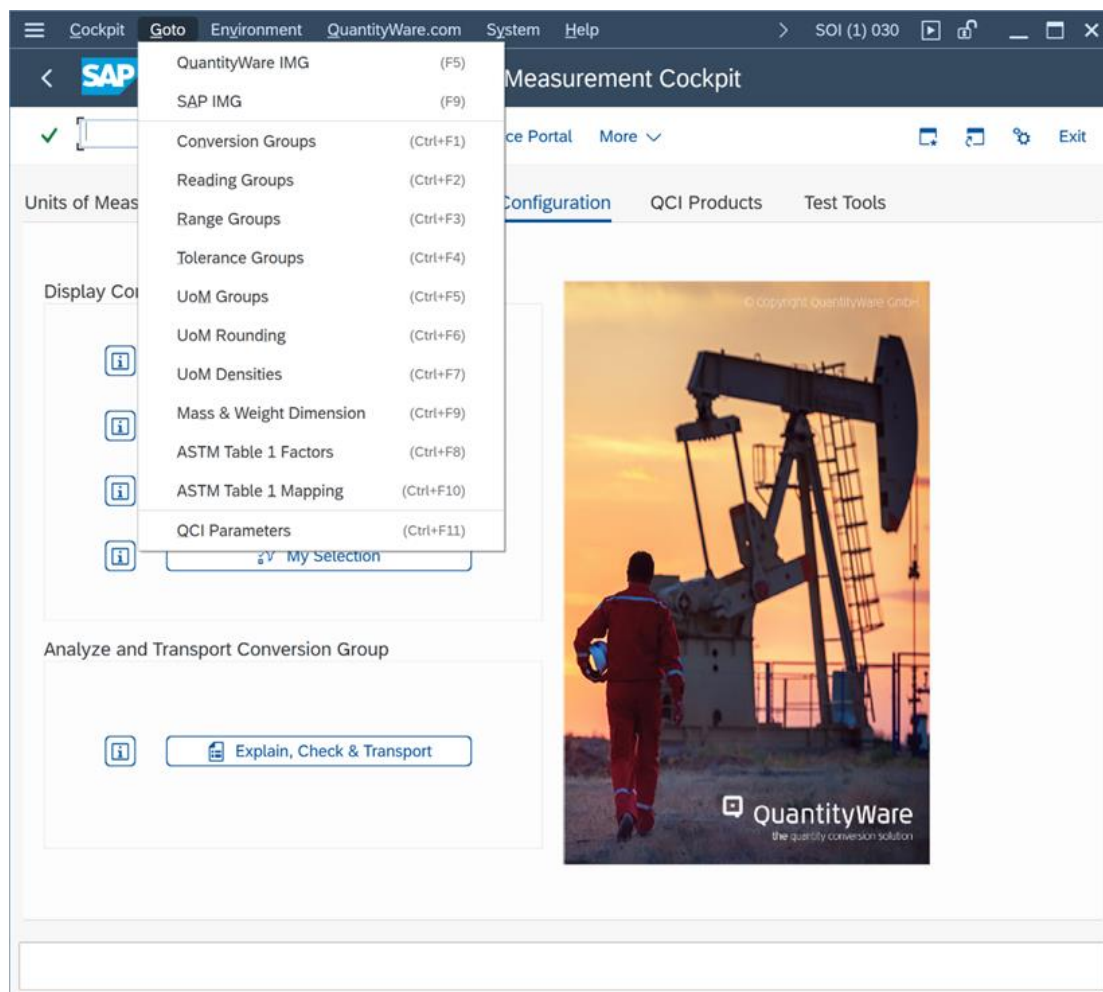
## 7. CTP - Customizing Transactions

### 7.1. Introduction

Within this chapter, we provide an overview of CTP customizing transaction access, as well as some basic documentation on the configuration options provided via customizing options.

### 7.2. QuantityWare Customizing Transactions

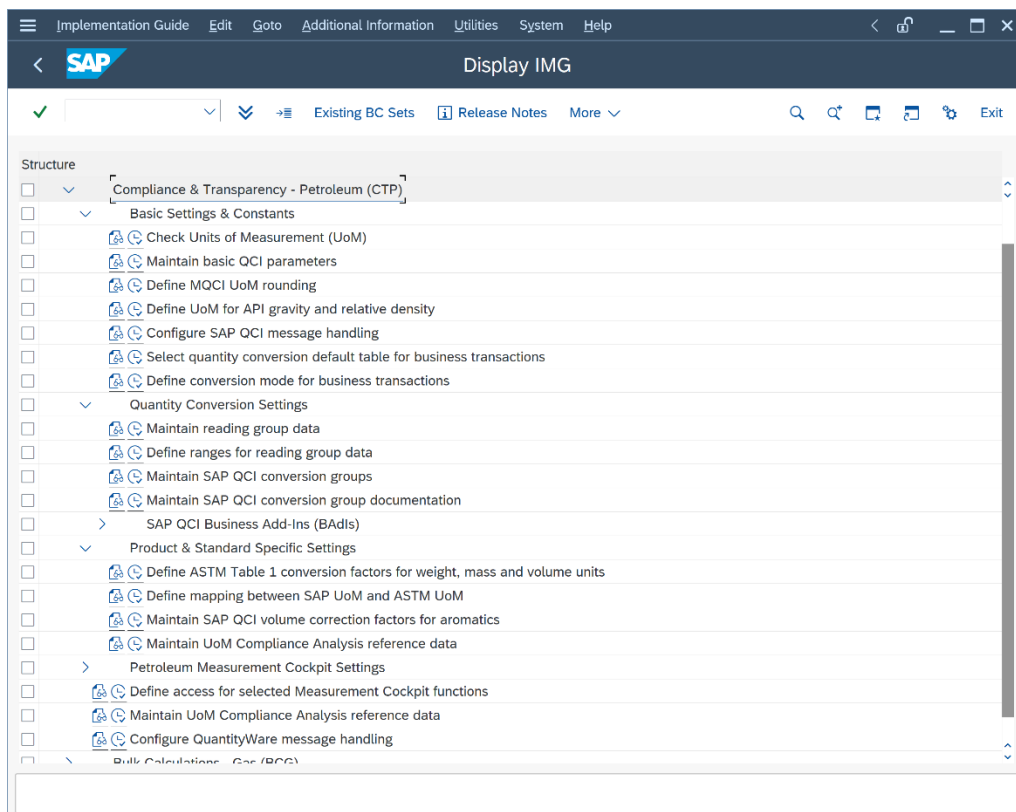
QuantityWare delivers the PMC from which customizing data for CTP is maintainable via transactions for all SAP QCI legacy conversion groups. All relevant customizing transactions for bulk quantity conversion configuration can be accessed via the QuantityWare PMC (transaction /QTYW/COCKPIT):



Under menu path GOTO you can navigate to the QuantityWare IMG, as well as to the complete SAP IMG.

For fast access, the following transactions can be called directly from the menu:

- Conversion Groups – SAP QCI conversion group maintenance
- Reading Groups – SAP QCI reading group maintenance
- Range Groups - /n/PTYW/RANGES
- Tolerance Groups – SAP QCI BAdI implementations
- UoM Groups – SAP QCI UoM group definition
- UoM Rounding - SAP QCI BAdI implementations
- UoM Densities - /n/PTYW/API\_RDW
- Mass & Weight Dimension - SAP QCI BAdI implementations
- ASTM Table 1 Factors - /n/PTYW/ASTM\_TAB\_1
- ASTM Table 1 Mapping -/n/PTYW/SAP\_ASTM
- QCI Parameters - /n/PTYW/PARAMETERS



QuantityWare requires that you perform your configuration work using the Petroleum Measurement Cockpit in logon language English (EN). As a last step, you should check and possibly enhance the configuration data in your required language. With CTP, you can also launch the Petroleum Measurement Cockpit in all other logon languages. While the Cockpit user interface (UI) is available in English (EN) only, the high-level customizing access is delivered in French (FR), Spanish (ES) and Portuguese (PT) as well. In detail, the following relevant configuration data is translated within the CTP template:

- All UoM definitions (dimensions, ISO/UNECE codes, UoM short and long texts)

### 7.3. Summary

---

Via a comprehensive IMG structure, the complex and detailed customizing required for modern quantity conversions can be accessed and governed in an efficient and transparent manner.

## 8. CTP - Web Services

---

### 8.1. Introduction

---

Web service enablement of ERP-based software solutions is an important technological key development allowing existing large scale ERP installations to be leveraged and integrated into dynamic and flexible web service landscapes. This results in integrated common procedures and greater return on investment (ROI) for the ERP investment and software solutions concerned.

The realization of web-service based business processes is still being heavily debated within various industries. Even although SAP has extensively service-enabled its ERP solution, standardized quantity conversion web services are not available.

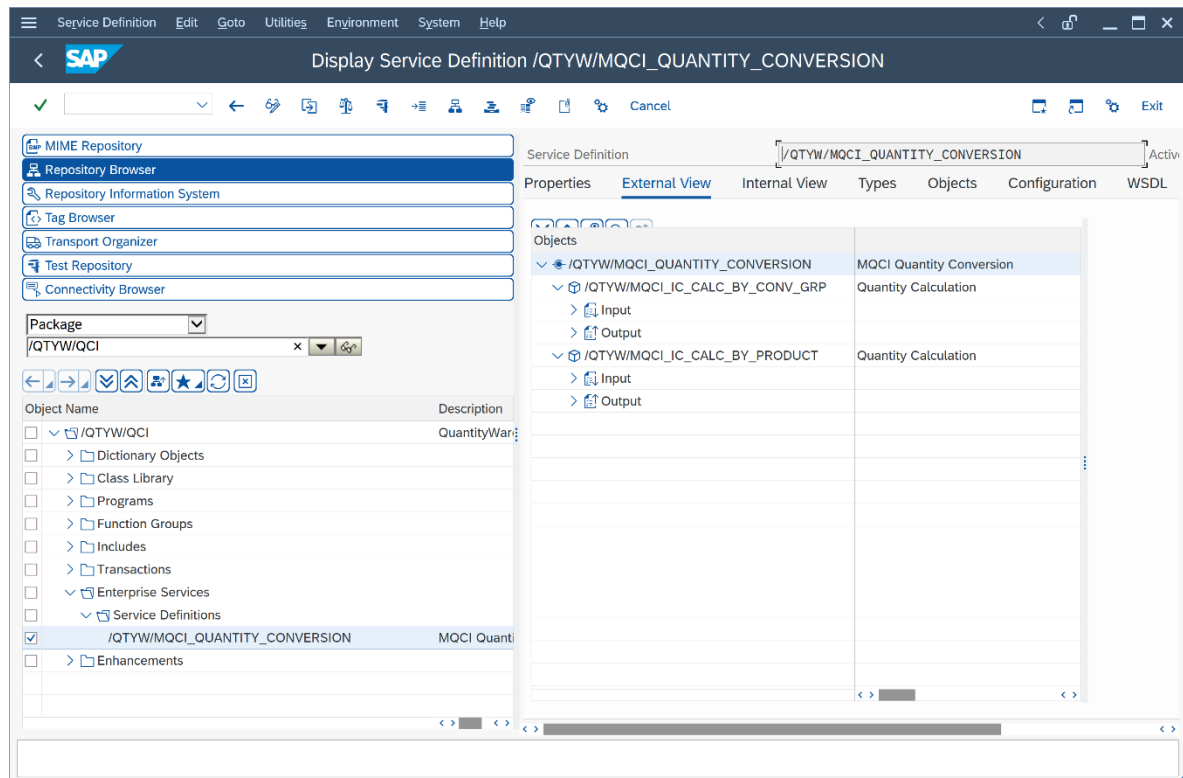
Quantity conversions are required along the complete oil & gas supply chain. While the implementation of a standards-based quantity conversion is a highly complex task, the provision of a quantity conversion service with understandable interface operations is considerably easier; QuantityWare solutions can provide a “plain calculation” service without needing to store any data in a database.

With BCP, QuantityWare delivers a set of two web service enabled function groups, which both provide three quantity conversion operations for a wide range of oil bulk products.

Based on these web service enabled functions, BCP customers can readily extend their high quality BCP quantity conversion implementations from their SAP Oil, Gas, & Energy ERP backend into the web world, either restricting access to locations within company boundaries or, license permitting, even granting access to quantity conversions to external bodies.

## 8.2. Installation Components

The main part of the web service enablement installation is delivered within software package /QTYW/MQCI for BCP:

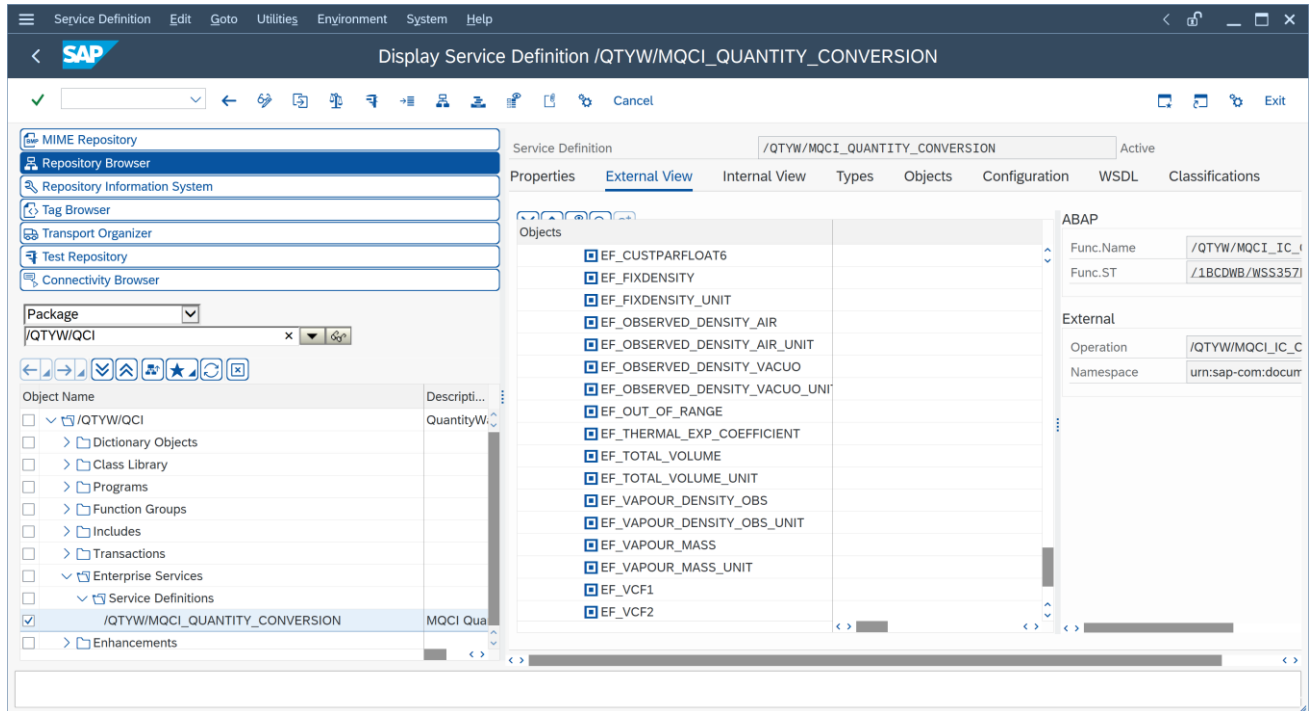


As displayed above, two Service Definitions are delivered:

- /QTYW/MQCI\_IC\_CALC\_BY\_CONV\_GRP
- /QTYW/MQCI\_IC\_CALC\_BY\_PRODUCT.



Each service definition consists of one interface which provides all calculation options:



- /QTYW/MQCI\_IC\_CALC\_BY\_CONV\_GRP calculation requires knowledge of a conversion group
- /QTYW/MQCI\_IC\_CALC\_BY\_PRODUCT requires knowledge of the product and plant for which a quantity conversion operation is requested

## 8.3. Web Services - Interface Documentation

### 8.3.1.1. Standard Compliance Methodology – Syntax

With respect to the syntactical standardization of web service interfaces, QuantityWare service definitions rely on the state-of-the-art SAP standards methodology.

### 8.3.1.2. Standard Compliance Methodology – Semantics

Since BCP is targeted towards the oil & gas and allied industries, the semantics of the interface operations are based on oil & gas industry terminology as defined in various API (American Petroleum Institute) standards, the main reference being the API Manual of Petroleum Measurement “API MPMS” terminology.

Quantity conversion operations require quantity values handling.

Examples of quantity values are:

Volume 120,090 L

Mass 320,001 lb

Weight 320,001 lb

A quantity value thus requires assignment of a specific quantity (e.g., volume, mass, weight) description (ID), a numerical factor and a unit of measure. Two different quantities can thus use the same set of units of measure, e.g., weight and mass utilize the same units of measure. To differentiate between mass and weight, a quantity ID must be communicated with each numerical factor and unit of measure.

The technical implementation of such calculations within SAP ERP systems have led to the following technical representation of quantity values within the service definition:

1. SAP ERP systems **do not support** the assignment of different quantities to one set of units of measure. Thus, units of measure for weight are defined with one set of commercial keys, the units of measure for mass with another differing set of commercial keys. LB is e.g., the customized commercial key for pound (mass) and LBA the customized commercial key for pound (weight). In this way, the commercial keys carry the information for which quantity the quantity value is expressed.
2. SAP ERP systems support unit of measure definitions, where a temperature and/or pressure value is assigned to a unit of measure (an industry requirement). Units such as UG6 (gallon at 60 °F) and L15 (liter at 15 °C) are available. This definition unfortunately violates standardization practices defined in ISO standards; it is also not fully supported by the UNECE recommendation 20, which defines standardized unit of measure codes across industries for electronic trade. However, this design has proven to be practical within the oil & gas industry and describes a de facto industry standard developed by SAP and industry experts.
3. State-of-the-art industry standards by the API define software implementation guidelines for quantity conversions which need to be based on 64bit floating point accuracy.

Based on the above noted circumstances, quantity values for the QuantityWare web service interface definitions require numeric floating-point representation.

For unit of measure representation, we simply utilize the SAP commercial keys, to avoid complex mapping of unit codes (and there are no UNECE recommendation codes for standardized units such as L15, UG6 etc.).

## 8.4. Summary

---

Through the leverage of Web Services, QuantityWare BCS can become the central reference calculations engine for an entire landscape of applications, without being limited to the functional and implementation boundaries of the SAP ERP Oil & Gas solution.

## 9. CTP – Petroleum Measurement Cockpit - Security

With BCS, additional authority profiles, single roles and example composite roles for PMC and GMC access and usage (including SAP QCI legacy RFC and “call system” test reports) are defined, implemented and shipped.

13 technical authorization objects are the basis for all single roles, 20 single roles are available:

Role Name (2) 20 Entries found	
Single Roles	Composite Roles
Roles	
Single Role	Short Role Description
Y_QTYW_BUSINESS_OBJ_DISPLAY	QTYW single role - display business objects
Y_QTYW_CALCULATIONS	QTYW single Role - execute calculations
Y_QTYW_CALL_SYSTEM	QTYW single role - CALL SYSTEM by QTYW
Y_QTYW_COCKPIT	QTYW single role - Cockpit authorization
Y_QTYW_CROSS_CLIENT	QTYW single role - Cross client reading of customizing data
Y_QTYW_CUSTOMIZING	QTYW single role - create, maintain and delete customizing
Y_QTYW_LICENSE_MAINTAIN	QTYW single role - install and update QW licenses
Y_QTYW_LIST	QTYW single role - generate and print lists of standards
Y_QTYW_RFC	QTYW single role - authorization to use the QTYW RFC modules
Y_QTYW_TABU_DISPLAY	QTYW single role - Display QTYW customizing tables
Y_QTYW_TABU_MAINTAIN	QTYW single role - Maintain QTYW customizing tables
Y_QTYW_TABU_SAP_DISPLAY	QTYW single role - Display SAP customizing tables
Y_QTYW_TABU_SAP_MAINTAIN	QTYW single role - Maintain SAP customizing tables
Y_QTYW_TCD_CUS_MAINTAIN	QTYW single role - create, maintain and delete customizing
Y_QTYW_TCD_SAP_BUS_OBJ_DIS...	QTYW single role - display business objects of SAP
Y_QTYW_TCD_SAP_CUS_MAINTAIN	QTYW single role - create, maintain and delete customizing of SAP
Y_QTYW_TEST_EXECUTE	QTYW single role - execute test programs
Y_QTYW_TEST_MAINT_LOGS	QTYW single role - maintain the scenario log database
Y_QTYW_TEST_MAINT_SCENARIOS	QTYW single role - Crate, change and delete test scenarios
Y_QTYW_TEST_MAINT_SNAPSHOTS	QTYW single role - maintain the scenario snapshot database

These single roles encompass all Petroleum and Gas Measurement capabilities for which a user may be granted authority.



No additional QuantityWare authority check is performed during actual quantity conversion calculations in business transactions - all QuantityWare implementations are ABAP based calculations which are already secured via the standard SAP-suggested security concepts implemented in these transactions.

3 composite roles are delivered as examples:

Role Name (2) 3 Entries found		
Single Roles	Composite Roles	Roles
<div> <span>✓</span> <span>✕</span> <span>🔍</span> <span>🔍+</span> <span>★</span> <span>?</span> <span>🖨</span> <span>▼</span> </div> <div>Print Locally</div>		
Composite role	Short Role Description	
Y_QTYW_CERTIFIED_CONSULTANT	QTYW composite role - Certified BCS Consultant	
Y_QTYW_EXPERT_BUSINESS_USER	QTYW composite role - Expert Business User	
Y_QTYW_MEASUREMENT_SPECIALIST	QTYW composite role - Measurement Specialist	

All roles are documented and accessible via standard SAP role maintenance. Role Y\_QTYW\_CERTIFIED\_CONSULTANT must be assigned to the user ID which is used to run the QuantityWare implementation and installation test in client 045.

## 10. CTP - Protection of Intellectual Property

---

With QuantityWare BCS, QuantityWare delivers a powerful and unique quantity conversion solution to the oil & gas industries. Technically, the solution is delivered as a certified SAP Add-On to the Oil & Gas solution. To enhance customer security and protect QuantityWare GmbH's intellectual property (IP), three protection measures have been defined as an integral part of the technical ABAP solution:

Every BCS customer requires a valid software license key to execute the installation test and subsequent quantity conversions. CTP customers have decided not to utilize QuantityWare implementations and do not require such a license key after the installation test has been performed successfully.

The ABAP source code that implements the license check logic, the QuantityWare MQCI and all central ABAP implementations of CTPL / CTPG standards are technically defined – using standard SAP methods – to be SAP system programs and thus *cannot* be debugged

All code comments marked internally with \*/ and empty lines are removed from all BCS ABAP sources before shipment of BCS.

Software license installation is documented in the BCS Technical Installation Guide.

## 11. Abbreviations

---

In this section, we provide a list of abbreviations used in the CTP documentation documents. For detailed explanations of the terms, refer to the individual CTP documentation documents:

ABNT Associação Brasileira de Normas Técnicas (Brazilian National Standards Organization)

AGA American Gas Association

API (1) American Petroleum Institute

API (2) SAP commercial key for API gravity unit

ASTM ASTM International (originally, "American Society for Testing and Materials")

BAdI Business Add In (SAP term)

BCG Bulk Calculations – Gas

BCP Bulk Calculations - Petroleum

BCU Base Conversion Unit

BTI BaTch Input (SAP term)

CSP Component Support Package

CTP Compliance& Transparency – Petroleum

CTPL Correction factor for the effects of Temperature and Pressure on the Liquid

DIN Deutsches Institut für Normung e.V.

GERG Groupe Européen de Recherches Gazières

GMC	Gas Measurement Cockpit
GOST	Gossudarstwenny Standard – Russian standard organization
GPA	Gas Processors Association
GRC	Governance, Risk management & Control
HPM	Hydrocarbon Product Management (SAP term)
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MQCI	Model based Quantity Conversion Interface
MPMS	Manual of Petroleum Measurement Standards (API term)
NIST	National Institute of Standards and Technology
NGL	Natural Gas Liquids
PAIG	Project Assessment and Implementation Guidelines
PMC	Petroleum Measurement Cockpit
QCI	Quantity Conversion Interface (SAP term)
ROI	Return On Investment



SI	Système International d'unités
TD	Transportation and Distribution (SAP term)
TSW	Traders and Schedulers Workbench (SAP term)
UoM	Unit of Measure or Unit of Measurement
VCF	Volume Correction Factor

## 12. CTP – Documentation Rules

---



The decimal point and thousand separators for numbers and quantity values for BCP 3.0 documentation documents are defined as follows: The decimal point is a dot '.', the thousand separator is a comma ',' or space ' '. Example: 123,456.987 or 123 456.987. Owing to the definition of business-relevant scenarios in our systems, numbers in screen prints may display differing formats.



For unit of measure symbols and spelling of unit names, NIST special publication 811 (latest version) is relevant – see the document “BCP 3.0 supported standards” for details

## Legal Notices

---

© Copyright 2023 QuantityWare GmbH. All rights reserved.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies.

Microsoft, Windows, SQL-Server, PowerPoint and Outlook are registered trademarks of Microsoft Corporation.

These materials and the information therein are subject to change without notice. These materials are provided by the company QuantityWare GmbH for informational purposes only. There is no implied representation or warranty of any kind, and QuantityWare GmbH shall not be liable for errors or omissions with respect to the materials provided. The only warranties for the products and services of QuantityWare GmbH are those set forth in the express warranty statements accompanying such products and services, if any. No statement within this document should be construed as constituting an additional warranty.