

# **Qualitool user manual**

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## **Qualitool user manual**

## 1. General

The following extract from production equipment specification (for drawings) of the BMW Group serves for clarification on how the subject "Qualitool" is handled by BMW:

"Various CAD-departments at the BMW Group demand that suppliers check respective drawings using the Qualitool of the Venturis GmbH. This tool checks whether delivery instructions of the BMW Group have been observed for preparation of drawings. At the end of every test an automated test report is created listing possible "errors".

In general only error-free drawings are accepted. If 100% compliance with delivery instructions is not possible in exceptional cases, the corresponding test report is used as basis for further talks.

The necessary test rules for the Qualitool are provided by the BMW Group.

It must be clarified in the talks at project start and/or information is to be taken from the delivery instructions whether the respective CAD-department and/or the division is demanding the Qualitool."

The Qualitool offers various functionalities, the following are available for pure testing purposes:

- Testing of MicroStation elements (level, color, line type...)
- Checking TRICAD-data with rules and ENV-settings and repair, if possible
- Preparation of test reports
- Drawing file to be equipped with test stamp
- Testing of single or several files (batch)
- Inspection of quality stamps for several files (batch)
- Statistics function with protocol
- Testing of open lines
- Online help

A clear separation between CAD-testing and contents-related testing exists.



### 2. Setting up test rules

Since a drawing can be checked on conformity applying a certain standard, the program requires so-called test rules. These rules are stored in cfg-files (encoded: cfg\_C-files) and must be set up first of all for the program.

The program requires the file **Projects.cfg**, it must be incorporated via the MicroStation environment variable

**VENTURIS\_QUALI\_PROJECT**. The path of this variable must refer to the folder in which the file Projects.cfg is located. Example: The file Projects.cfg is in the folder C:\Programme\TRICAD\Quali.

→ The environment variable must be: VENTURIS\_QUALI\_PROJECT = C:/Programme/TRICAD/Quali/

In the file Projects.cfg various projects must be stored that refer to the already mentioned test rules. Now the projects can be selected in the program.

Example: The contents of the file Projects.cfg could be as follows:

🚺 Projects.cfg - Editor	
<u>D</u> atei <u>B</u> earbeiten F <u>o</u> rmat <u>A</u> nsicht <u>?</u>	
BMW : C:\Programme\TRICAD\Quali\BMW\ VW : C:\Programme\TRICAD\Quali\VW\ AUDI : C:\Programme\TRICAD\Quali\AUDI\ DAIMLER  : C:\Programme\TRICAD\Quali\DAIMLER	
<b>▼</b>	
Zeile 4,	Spalte 🎢

The folders "env/db/quali" must be created in the folder "BMW". Finally the test rules must be available in the created quali-folder. Therefore the test rules in the present example must be stored in the following folder: C:\Programme\TRICAD\Quali\BMW\env\db\quali

Presupposed all above-mentioned activities have been completed, the project "BMW" is available upon next start of the program in this example:

📕 VENTURIS QUALI-TO	OL R 💷 🗉 🔀		
Def	-Listen		
Prüfen	Definitionen		
TRICAD-MS Projektumgebung			
(ROHBAU 👻			
Prüfen	]		



## 3. Call of the program

### Tools $\rightarrow$ Quality Check

Station V8i (SELECTseries 2)	
	• •   ≣ • •   ⊙ • •   △ •
Fe <u>n</u> ster <u>H</u> ilfe Ausschnittsverwaltung MDL's Digital Factory Design Building Technology Plant Design Traffic Planing	Tools
efault	Configure Views
୧୧ <u>୨</u> ⊞ ୫ <mark>.●</mark> % ⊠ ⊡ ¦ # ♥ \$.©	Size of elements in fence
	Size of elements in active selection
	Size of all elements withing model
	Size of clicked element
	Search element with ID
	🥳 Quality check
S Ansi	Remirror/Rescale
	Plan generation
	Report manager
	8 Menü entfernen



- Selection of work folder in which the test reports are to be stored 1
- 2 Test mask
- Statistics module 3
- Batch mode 4
- 5 6 Test stamp Testing of open lines (for TGA)
- 7 Help



## 4. Set up work folder

	Work folder	Ordner suchen	×
<b>≥ %</b> <u>2</u> <b>€ ≥ ⊗</b>	Work folder/list Select work folder	Arbeitsordner	
	C:\temp\	De la Install	
	(	MSOCache	
		NVIDIA	
		Disktbibliotheken - Object libraries	=
		PerfLogs	
		ProgramData	
		Programme	
		Programme (x86)	
		Recovery	
		System Volume Information	
		> temp	-
		tomp	
		Ordner: Comp	- 1
		Neuen Ordner erstellen OK Abbrecher	n

In this location all protocol files (\*\_proto.txt for the error protocol and \*\_statistics.txt for listing of used applications and MicroStation elements) are stored.

😂 C:\EC-Apps\fapla\out\report - Microsoft Inte	ernet Explorer provided by Microsoft
Datei Bearbeiten Ansicht Favoriten Extras	?
Contraction Contra	Suchen Ordner Ausschneiden Kopieren Einfügen Ans
Adresse 🛅 C:\EC-Apps\fapla\out\report	
Ordner <ul> <li>BACKUP</li> <li>bc7136118fc696031d1024c1d8</li> <li>BentleyDownloads</li> <li>BentleyDownloads</li> <li>Documents and Settings</li> <li>Coursents and Settings</li> <li>Compact Actions</li> <li>Compact Actions</li> <li>CosmoSoftware</li> <li>Dms</li> </ul>	Name A ELT_IST_0110_016x_G0000_MONT_R_v3.1_050715_po_jQ_proto.txt ELT_IST_0110_016x_G0000_MONT_R_v3.1_050715_po_jQ_statistics.txt FOE_IST_0110_016x_G0010_MONT_R_v4.0_050823_fj_jQ_proto.txt FOE_IST_0110_016x_G0010_MONT_R_v4.0_050823_fj_jQ_statistics.txt ELAENGSTRAVERSEN_MIT_Karosse_E63E64proto.txt LAENGSTRAVERSEN_MIT_Karosse_E63E64statistics.txt legende_proto.txt legende_statistics.txt legende_bau_proto.txt plankopf_be_proto.txt plankopf_be_statistics.txt trasse_proto.txt



## **Qualitool user manual**

### 5. Test mask



The technologies in the projects are administered in the test mask. Every project has one or several inspection rules.



### 6. Checking single files

Select the project and the rules and press the button Test design file

Depending on the drawing size the test procedure may take some time. So-called KO-criteria exist defining what must compellingly be fulfilled. If a KO-criterion in a drawing is violated, the test procedure is aborted with output of an error message. The test criteria defined as KO-criterion are dependent on the technology. In case of real estate and facility management these KO-criterion would be the work units and the global origin.

ELT_IST_0110_0170_G0000_GEBW_20023765_Z+F_proto.txt - Editor
Datei Bearbeiten Format Ansicht ?
<pre>////////////////////////////////////</pre>
ARBEITSEINHEITEN: – Einheiten von Designfile falsch:mm/mm 1/100 <> m/mm 1000/100 KO-KRITERIUM: ARBEITSEINHEITEN, Prüfung wird abgebrochen

If the KO-criteria are fulfilled, the test routine is executed and opens the test report after completion.

After completed testing a test stamp is entered into the drawing which can be requested by the **DGN-status**. In addition to the **test report** a **statistics protocol** is created or not in dependence on the technology, in this **statistics protocol** the used Venturis applications are listed and it is indicated which and how many MicroStation-elements are additionally contained in the drawing. Both protocols are requested via the button **display protocol**.

VENTURIS QUALI-TOOL R	Information
Def lists       Test     Definitions       TRICAD-MS project environment     TGA	Status of DGN : OK - (PROJ-REGEL-HOST-USER: TGA, DESIGN, BMUC421516, q253511) First inspection : 23.04.13 : 09.09.30 Last inspection : 23.04.13 : 09.09.30 Number of inspections: 1
Test Rules DESIGN  Test design file DGN status	ОК
Display protocol, faulty elements Display protocol Firm, - FilePos	Protokolle
FEHLER (Modell : FilePos)	Pruef - Protokoll Statistik - Protokoll
Error - INFO	
	Search ->
	OK Cancel



### 7. Automatic adaptation of rules

#### Attention: Applies to manufacture departments and TGA-departments only

A linkage between the drawing name and the associated rule is available in the Qualitool.

If the file to be examined has properly been created according to respective name convention, the correct rule for this file is suggested when selecting a wrong rule.

The rule in compliance with the name convention is automatically applied per file during batch run.





### 8. The test report

The test report is automatically opened after completed testing and displayed on the screen.

#### ATTENTION!!! The test report must be closed again to continue working in MicroStation.

anl_bas_0150_0125_g0000_rohb_60040881_gesamtlayout_proto.txt - Editor		
Datei Bearbeiten Format Ansicht ?		
######################################	ut.dgn, Gewerk RLT-Lueftung	
<pre>Histake+ TEXTSTYLE:</pre>	*	Ε
<ul> <li>TEXISTYLE not arrowed: mass_1_20</li> <li>MASSSTYLE:</li> <li>MASSSTYLE nicht erlaubt: KB_0500</li> <li>MASSSTYLE nicht erlaubt: KB_0150</li> <li>MASSSTYLE nicht erlaubt: KB_0750</li> <li>MASSSTYLE nicht erlaubt: KB_1000</li> <li>MASSSTYLE nicht erlaubt: KB_1000</li> <li>MASSSTYLE nicht erlaubt: KB_2000</li> <li>MASSSTYLE nicht erlaubt: KB_2000</li> <li>MASSSTYLE nicht erlaubt: KB_2000</li> <li>MASSSTYLE nicht erlaubt: KB_2000</li> <li>MASSSTYLE nicht erlaubt: KB_5000</li> </ul>		
MODELL: Default> 3D DESIGN **		
<pre>+Information+ REFERENCES (INFORMATION):     - ANL_BAS_0150_0125_G0000_ROHB_60040881_Gesamtlayout.dgn         - Logical Name : ANL_BAS_Gesamtlayout_KG2         - Description : 0150_0125_G0000_ROHB_Auf Master-Datei ausgerichtet         - Scale : 1.000         - offset(m) : 0.000, 0.000         - Rotation : 0.0'         - ANL_BAS_0150_0125_G0000_ROHB_60040881_Gesamtlayout.dgn         - Logical Name : ANL_BAS_Gesamtlayout_KG1         - Description : 0150_0125_G0000_ROHB_Auf Master-Datei ausgerichtet</pre>		

The name and path of the examined file is indicated in the header of the test report, in the same way **project** and **rule** used for testing are indicated. The **version number** shows the delivery instruction used for preparation of rules. Time and date of the test are entered into the date.

Then first of all messages follow which affect the entire drawing \*(wrong color table, wrong models...).

After that errors and other information for every model to be examined are listed \*\*

After the test report has been closed, the error messages appear in the test mask. Errors can partially be repaired immediately using these entries.



- 1. The error is located in the model default, it is a line width error
- 2. The faulty elements are highlighted
- 3. The errors are taken to the selection set, now all elements could be changed simultaneously
- 4. Via hotkeys it is moved from error to error. The error is centered on the screen and only this error is still selected. Now it can be changed separately.

In case of unambiguous errors like line type, line weight, color further information cannot be requested via the button "Error – INFO". Errors listed in the list with only one number show an error description that can be requested via the button "Error – INFO".

📕 VENTURIS QUALI-TOOL R 📼 🔲 🕺	
Test	
TRICAD-MS project environment	
Test	
Rules RLT-Lueftung	
Test design file DGN status	
Display protocol, faulty elements	
Display protocol Error - FilePos	
FERLER (Modell : FileFos)	
Default : Color: 512 Default : TEXTLEVEL_VERBOTEN_ERROF	K Error - INFO
Default : MASSI EVEL_VERBOTEN_ERROF	
	- TEXTSTYLE not allowed: kb_03000
Error - INFO	- TEXTSTYLE not allowed: kb_00150



## 9. Statistics protocol

📙 RLT_IST_0710_0300_UEBER_ENGT_XXXXXXX_Hallengrundriss_statistics.txt - Editor 📃 🗖 🗙
Datei Bearbeiten Format Ansicht ?
STATISTIK: DESIGNFILE: F:\CAD\quali\beispieldateien\viel modelle\RL
MODEL: Default
VENTURIS:
- Lueftung: - 6.00 : 872 Elemente
- 6.35 : 467 Elemente
- Heizung:
– Sanitaer: – Elektro:
- Buebpepmodul:
- Schleppkurven:
MICROSTATION:
– ZELLEN: –M3D: 523
- LINE: 56
- LINESTRING: 9 - Shapes: 4
- TEXT-NODE: 65
- MULTILINE_ELM: 0
MESH_HEADER: 0
MODEL: 1_25_LP63
VENTURIS: - Lueftuna:
- Heizung: - Sapitaer:
- Elektro:
– Schleppkurven:
– Lackmodul: MICROSTATION:
- ZELLEN:
- Index_lst : 1
- Nordprei1_0/10 : 1
- Verschachtelte Zellen: - S-Textfeld - x - x - x : 1
- LINE: 1304 - LINESTRING: 7
- Shapes: 56
MODEL: hatch_3d
VENTURIS:
- Lueftung: - 6.35 : 559 Elemente
- 6.00 : 1263 Elemente
- Heizung:
– Sanitaer: – Elektro:



The statistics protocol documents per model, it documents used applications (currently only for Venturis products) and used MicroStation-elements. Cells and pseudocells are listed with names and nesting depth.

Statistics can also be created separately:

Either across all modules or separately, the resulting protocol is stored in the work folder.



	Module
Apply	VENTURIS
0. H. H.	MICROSTATION
Statistics	Lueftung
	Heizung
	Santaer
	Sprinkler
	Infrastruktur
	Piping
	Foerdertechnik
	Layout
	Flaechenmodul
	Kranmodul
	Buehnenmodul
	Schleppkurven
Out at a sector of	



## 10. Testing in batch mode

It is recommended to test a very high number of drawings, possibly from different trades, in batch mode.



	_
TGA	
Rules RLT-Lueftung	
Work folder/list	_ 2
Select work folder	
\q253511\Desktop\Amcad beauftragung\	- 3
List	
Design files	4
Folder of the design files	
	5
Select design files All	~
Start BATCH	
Draw up EXCEL report	6
EACEL OUR XIS	~
Start batch run	
Start batch run (background msbatch)	7
Protocole for STAMP	

- Set up project and rule (if the so-called check criterion NAME\_RULE on the part of BMW has been defined in the test rules (technology-dependent), no rule has to be selected, because the suitable rule is selected by the drawing name. Prerequisite: BMW name conventions have been observed!
- 2. Select work folder (see chapter 3) into which everything necessary for batch run is written (batch routine, reports, text file with content of the files to be tested)
- 3. Select list from work folder. For this purpose an empty text-file (.txt) must have been created in the work folder in advance.
- 4. Select main folder of files to be tested (Folder of design files).
- 5. Select design files. Clicking on All inserts all files of the main folder and available subfolders into previously selected list-text-file (only the files entered into this text-file are tested).
- 6. Start batch run→ Batch run is started online. All design files are loaded according to their order and processed or Start batch run (background..msbatch)→ The file msbatch.bat is created in the work folder and started in the background.
- 7. On completion of the batch process checking the protocols **OK** or **error**.



### **11. Protocols for stamps**

#### **Protocol OK**

```
📕 qualistamp_ok.proto - Editor
Datei Bearbeiten Format Ansicht ?
DESIGNFILE : c:\data\beispiel\Bmw_Z3-Coup.dqn
       OK.
            - HOST/USER: WMUC226074/Q073728
           - Projekt: WERKZEUGBAU
- Regel: EINGABE

- Erste Prüfung: 15.01.07 : 15.35.02

- Letzte Prüfung: 14.06.07 : 12.31.07

- Anzahl Prüfungen: 10

DESIGNFILE : c:\data\beispiel\ELT_IST_0710_0100_G+000_ZG_K_Nord_NichtNachmodelliert.
      – OK
           - HOST/USER: WMUC226074/0073728
           - Projekt: WERKZEUGBAU
           - Regel: EINGABE
- Erste Prüfung: 11.01.07 : 09.18.29
- Letzte Prüfung: 14.06.07 : 12.31.11
            - Anzahl Prüfungen: 18
|DESIGNFILE : c:\data\beispiel\me1_TEK_0710_0500_G0500_MONT_R_v5.0_051024_1p_iQ.dgn
       - ок
           - HOST/USER: WMUC226074/Q073728

    Projekt: WERKZEUGBAU
    Regel: EINGABE

           - Erste Prüfung: 15.01.07 : 15.35.01
- Letzte Prüfung: 14.06.07 : 12.31.12
- Anzahl Prüfungen: 13
DESIGNFILE : c:\data\beispiel\RLT_aus_0710_0500_G0380_MONT_R_v5.0_051024_lp_i0.dgn
      – OK
            - HOST/USER: WMUC226074/Q073728
            – Proiékt: WERKZEUGBAU
```

#### **Protocol ERROR**

📕 qualistamp\_error.proto - Editor Datei Bearbeiten Format Ansicht ? DESIGNFILE : c:\data\beispiel\ELT\_IST\_0710\_0100\_G+000\_ZG\_K\_Nord.dgn - FEHLER HOST/USER: WMUC226074/Q073728 - Projekt: BAU\_MS - Regel: MODELL - Erste Prüfung: 11.01.07 : 09.18.29 - Letzte Prüfung: 14.06.07 : 12.50.52 - Anzahl Prüfungen: 20 DESIGNFILE : c:\data\beispiel\me1\_TEK\_0710\_0500\_G0500\_MONT.dgn – FEHLER - HOST/USER: WMUC226074/Q073728 - Projekt: BAU\_MS - Regél: MODELL - Erste Prüfung: 15.01.07 : 15.35.01 - Letzte Prüfung: 14.06.07 : 12.50.54 - Anzahl Prüfungen: 15 DESIGNFILE : c:\data\beispiel\RLT\_aus\_0710\_0500\_G0380\_MONT.dgn – FEHLER – HOST/USER: WMUC226074/Q073728 - Projekt: BAU\_MS - Regel: MODELL - Erste Prüfung: 15.01.07 : 15.35.00

#### The actual error protocols are also located in the work folder.



## 12. Checking quality stamp



📕 Check QUALI sta 📼 💷 🔀					
Work folder/list					
Select work folder					
\q253511\Desktop\Amcad beauftragung\					
List					
Design files					
Folder of the design files					
Select design files					
Test, display STAMP, load DGN					
Check QUALI STAMP					
Protocol OK Protocol ERROR					
IOad design file					

#### Checking quality stamp:

All files of the indicated list (here: ver.txt) of the work folder are processed. The already available stamp of the files is read. The status is entered into the corresponding protocol lists OK or ERROR.

#### Loading design file:

All stamps of the design files of the indicated list (here: ver.txt) from both protocol files are indicated. The selected design file is loaded in order to be able to change the file, if required.

Designfiles							
	1205-IN-0484.dgn						
	ANL_BAS_0150_0125_G0000_ROHB_60040881_Gesamtlayou						
	ANL_IST_0110_UBER_G0010_MONT_20044991_01_HG.dgn						
	BAU_IST_1010_0300_G-010_BAUP_60040879_mm_3D.dgn						
	BAU_IST_1010_0300_G0000_BAUP_60040877_mm_3D.dgn						
	BAU_IST_1010_0300_G0010_BAUP_60040878_mm_3D.dgn						
	BAU_IST_1010_0300_UEBER_BAUP_60040880_mm_3D.dgn						
	FOE_AUS_0240_0815_00800_ROHB_60051478_L7_F34_F36_						
	STR_AUS_1010_0310_G0000_ROHB_60044309_F26_EMS_UB_						
	test.dgn						
Select All No Selection							
	OK Cancel						



## **13.** TRICAD statistics tool open lines

This function checks design files on open pipeline and channel systems. All pipes, channels, fitting etc. without own connection element are indicated - if these have been created using Tricad applications.



K TRICAD-MS
Prüfen
Offene Stränge
Zentrieren

If one clicks on Offene Stränge (open lines), all lines without connection element are displayed.



Here it is defined in which window open lines are to be displayed. Centering makes sense in any case – especially for big design files. Use the arrow keys to toggle through open lines.



# 14. Tips & tricks

Hidden models in drawings

MicroStation drawings might contain hidden models, e.g. such hidden models can get into the drawing via the application Speedikon. If permitted models are defined in the quality tool test rules and contain a hidden model (normal case), it results in a testing error message.

The MicroStation drawing can be stored exclusively with known (correct) models to solve this problem:

Select ",Datei"  $\rightarrow$  ",Speichern unter"  $\rightarrow$  ",Optionen" (File – Save-as – Options):

📕 Speichern unte	er - C:\temp\tricad	J\			<b>X</b>
Speichem in:	鷆 tricad	•	o 🌶 🖻 🖽	*	
	Name	*	Änderungsdatum	Тур	
		Es wurden keine Sucherge	ebnisse gefunden.		
	<				
	Dateiname:	150_0125_G0000_ROHB_6004088	31_Gesamtlayout.dgn ▼	Speichem	
	Dateityp:	MicroStation V8 DGN-Dateien (*.dgr	n) 🔻	Abbrechen	
Optio					.#.

Then the tab "Filter"  $\rightarrow$  "Modelle ..." (Filter – Models):

V	/8-Speicheroptionen							
Zuordnen Referenzen Filter								
	Geometrie: Alles Zaunmodus: Innen Ausschnittvolumen: Ignorieren	Modelle	auswähle	en				
	Modelle	Тур	2D/3D	Name		Beschreibung		
	✓ Hilfskoordinatensysteme		Î	Default		Master Model		
	V Festansichten		Û	1_100_		Plannummer	=	
	V Pseudozelleninstanzen		Û	KG2		Master Model		
	Ungenutzte Pseudozellendefinitionen		Û	KG3		Master Model		
			Û	KG1		Master Model	-	
		<		III		4		
	<u>o</u> k		[	<u>0</u> K		Abbr.		

Now needed models can be selected.



Please direct questions about the Qualitool to me and not to the company Venturis.

Contact address for ordering the Demo-CD and license

VenturisIT GmbH Herr Holga Schwipp Auf der Krautweide 32 65812 Bad Soden Tel: 06196 76129-11 holga.schwipp@venturisit.de http://www.venturisit.de/

Please indicate for the purchase order of the CD whether you are a user of Triplan products or "only" want to check MicroStation plans and please indicate your version: V8i SS2.