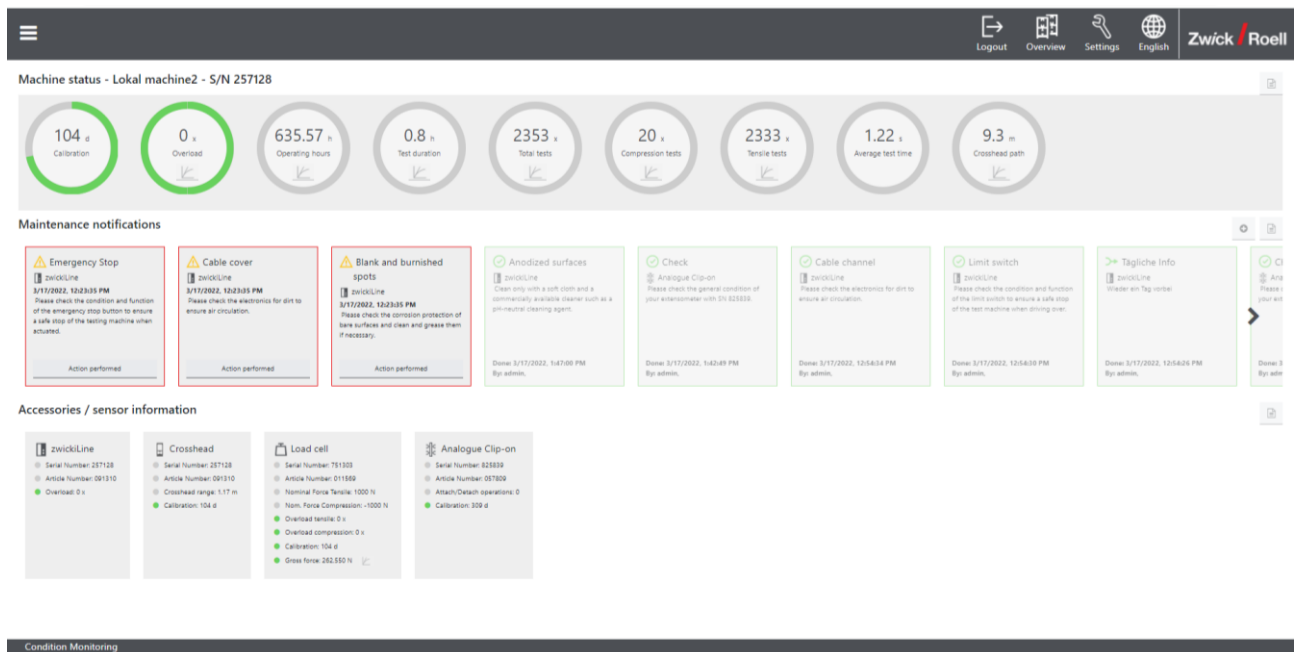


Installation Guide and FAQ for Condition Monitoring



Version	Notes	Date	Editor
1.0	Released	2020-02-05	uzi-cv
2.0	Adaptations for Expansion Stage 2 (V2.0.0)	2021-06-18	uze-cv
3.0	Adaptations for Expansion Stage 3 (V3.0.0)	2022-03-28	uze-cv

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Introduction

This document is a short introduction to the “*Condition Monitoring*” web client of expansion stage 3 (Version 3.0.0). In addition to new features of Condition Monitoring, this also includes user administration and licensing for all extended features.

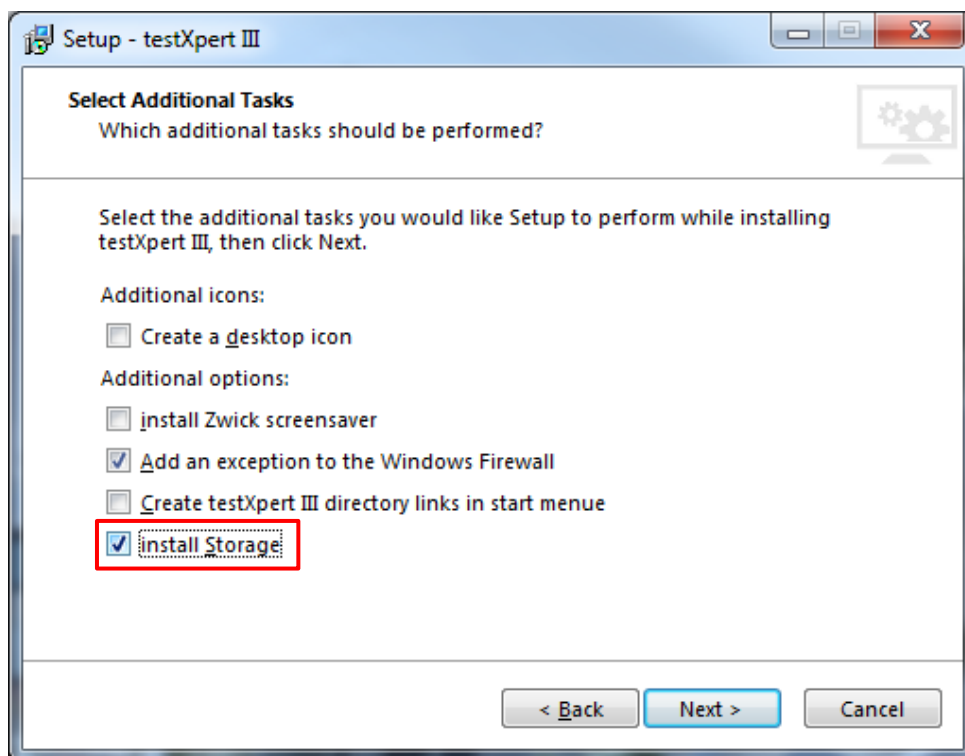
Requirements

The following is necessary to install the software package:

- testControl II (tCII) machine electronics
- testXpert III V1.6 and higher versions
- PC: Intel I5 (or comparable) with at least 8GB RAM
- Operating system Windows 10 64bit
- Hard disk as large as possible (recommended: 2TB), since the database (testXpert Storage) is installed locally on the test computer.
- Admin rights for installation
- Supported web browsers: Microsoft Edge, Google Chrome












Installation

The installation of all necessary components (testXpertIII, testXpert Storage, API-Gateway, Authentifizierungs-Server and Condition Monitoring) is handled directly by the testXpert III installation DVD since the version V1.7. Please make sure that you activate the control box “*Install Storage*” while selecting the installation options during the installation of testXpert III.







The setup for the "Condition Monitoring" web client and all the necessary components themselves are located in the "Support\Storage" subfolder of the testXpert installation DVD. From testXpert III V1.7 onwards, all necessary setups are executed directly from the testXpert setup and the web client for "Condition Monitoring" is installed along with it.

> CD > SUPPORT > Storage

Name	Date modified	Type	Size
 additionalImports	3/11/2022 11:21 AM	File folder	
 languagepackages	3/11/2022 11:21 AM	File folder	
 products	3/21/2022 10:25 AM	File folder	
 storageimporterfiles	3/11/2022 11:21 AM	File folder	
 _Storage_install.bat	6/30/2021 9:39 AM	Windows Batch File	1 KB
 config.json	3/11/2022 11:04 AM	JSON File	1 KB
 install-storageimporterfiles.bat	1/13/2020 2:20 PM	Windows Batch File	1 KB
 licenseCopy.bat	3/4/2022 10:42 AM	Windows Batch File	1 KB
 SetupStorageUploadService.exe	10/26/2021 9:40 AM	Application	14,483 KB
 testXpert Analytics.exe	2/28/2022 4:22 PM	Application	25,684 KB
 zstorageimporter.exe	1/9/2020 6:06 PM	Application	26,359 KB

If the Install Storage checkbox is forgotten during the installation of testXpert III, all necessary components can also be installed subsequently. To do this, simply execute the setup files *SetupStorageUploadService.exe* and *testXpert Analytics.exe* one after the other. The *testXpert Analytics.exe* will install all necessary components (*Storage V2.1.1*, *ApiXpert V2.11.9*, *Authentication-Server V3.0.15* and *Condition Monitoring V3.0.0*). The individual components are located in the subdirectory products:

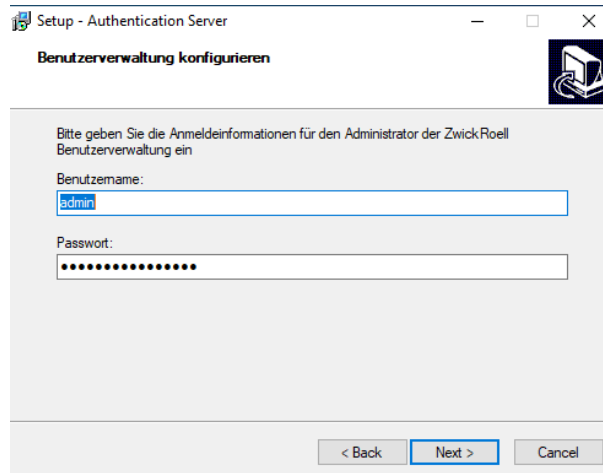
> CD > SUPPORT > Storage > products

Name	Date modified	Type	Size
 authentication-server-3.0.15	3/11/2022 11:21 AM	File folder	
 ApiXpertSetup-2.11.9.exe	3/17/2022 9:05 AM	Application	45,429 KB
 ConditionMonitoring-3.0.0.exe	3/18/2022 8:58 AM	Application	52,125 KB
 StorageSetup-2.1.1.exe	3/8/2022 7:21 AM	Application	541,632 KB

You can also execute these components one after the other, but then you should keep the following sequence:

1. ApiXpert V2.11.9
2. Authentication Server V3.015 (see in subfolder *authentication-server-3.0.15*)
3. Storage V2.1.1
4. Condition Monitoring V3.0.0

During the separate installation of the "Authentication Server" you will be prompted to change the password for the "Zwick Authentication Server" admin.

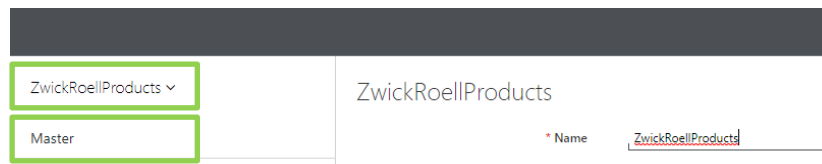


In case you don't do this, the default master password for the "Authentication Server" remains:

Me#F#R3wr,nayUg9

If you change the password during the installation, remember it well, because you need it for the administration of the "Authentication Server" and otherwise you will not have access to the administration.

Please also note that the admin of the "Authentication Server" is not the same user as the user "admin" for logging into "Condition Monitoring". These are two different areas within the "Authentication Server" (see [User administration](#)).

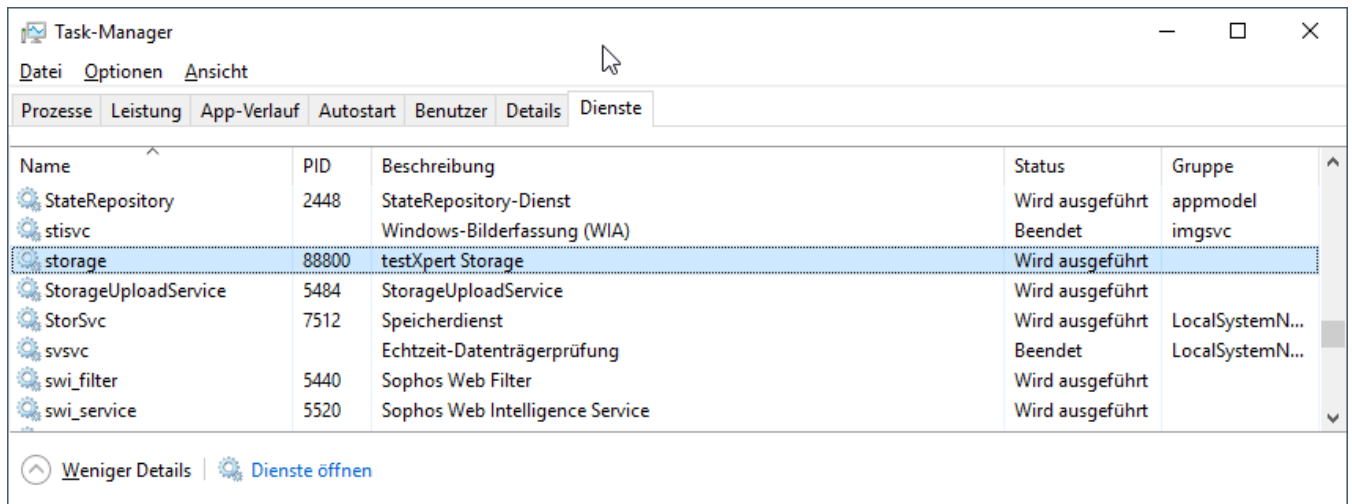


Important directories

Directory	Explanation
C:\ProgramData\zwick\testXpert III\StorageExport	Directory for the export files from testXpert III to testXpert Storage
C:\ProgramData\Zwick\testXpert III\StorageExport\Failed	Path of export files that could not be imported into testXpert Storage
C:\ProgramData\Zwick\storage\2.xx.yy.zz\logfiles	Log files of testXpert Storage (import and export)
C:\Program Files\Zwick\Condition Monitoring	Installation path of Condition Monitoring
C:\ProgramData\Zwick<ZwickRoell Produkt>\	General directory for all ZwickRoell product configurations and log files

Installed services

By installing the Storage and Condition Monitoring web client, different services are installed on the PC. These services can be viewed via the task manager and can be restarted and stopped with the appropriate rights. This can be very helpful for test purposes.



Services in Task-Manager

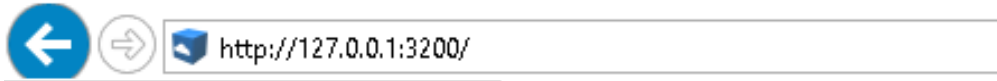
Service	Explanation
Storage	Service for accessing testXpert Storage
StorageUploadService	This service is responsible for importing the export files of testXpert III, which are generated after each test
ConditionMonitoring	Server service for preparing the storage data for display in the Condition Monitoring client
ZwickRoell apiXpert Gateway	Service for managing requests to ZwickRoell services.
ZwickRoell apiXpert ServiceRegistry	Assistance service of the apiXpert Gateway.
ZwickRoell apiXpert ServiceRegistryTemplating	Assistance service of the apiXpert Gateway.
ZwickRoell Import Export Service	Assistance service of the apiXpert Gateway.
ZwickRoell Authentication Server	Service for managing user rights.

Services overview of all installed services for Condition Monitoring

Functions

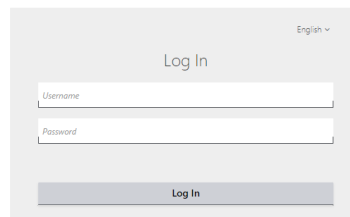
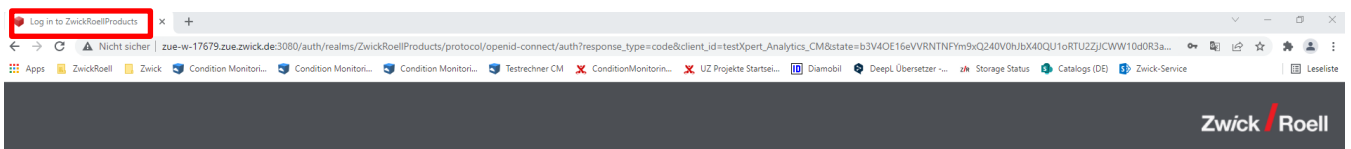
Starting the client

After starting an Internet browser (Microsoft Edge, Google Chrome), the Condition Monitoring client can be accessed simply by entering the address <http://127.0.0.1:3200/>. In addition, a testXpert Analytics program group is created during installation with a link to Condition Monitoring.



Login

The expansion stage 3 of Condition Monitoring also includes a simple user authentication requirement. The user "admin" also belongs to the user group "Admin" and therefore has all available rights (also: roles). Due to these comprehensive rights, creating a secure password is of high importance and should always be the first step. The default password is also "admin".



Log In window after calling the Condition Monitoring V3.0.0 link

In the standard configuration, the following users are created in the user administration for ZwickRoell Products:

- *admin*
- *labmanager*
- *tester*

The password is the same as the user's name. Remember that you will be asked to enter your own password the first time you log in. Remember this password well, otherwise you will not be able to log in to Condition Monitoring without changing the password via the "Administration Console" (see [User administration](#)).

Please note that for these 3 standard users the following roles are assigned:









User	Level	Role	Comment
admin	Level 3	Role_Admin	Role with unlimited authorization
labmanager	Level 2	Role_Lab_Manager	Role with limited authorization
tester	Level 1	Role_Tester	Role with basic authorization

In addition to the machine status display, Condition Monitoring also contains many extended features, which can only be executed with extended rights under the existing license. For this, you need the role "Role_Lab_Manager" at a minimum. This means that at least user level 2 is required to use the advanced Condition Monitoring features.

The role "Role_Admin" (Level 3) is intended for future administrative functions and features of Condition Monitoring, but can already be used now.

Licensing and user permissions

The following table gives an overview of the basic features (machine status display), the advanced features (condition monitoring) and the necessary user permissions.

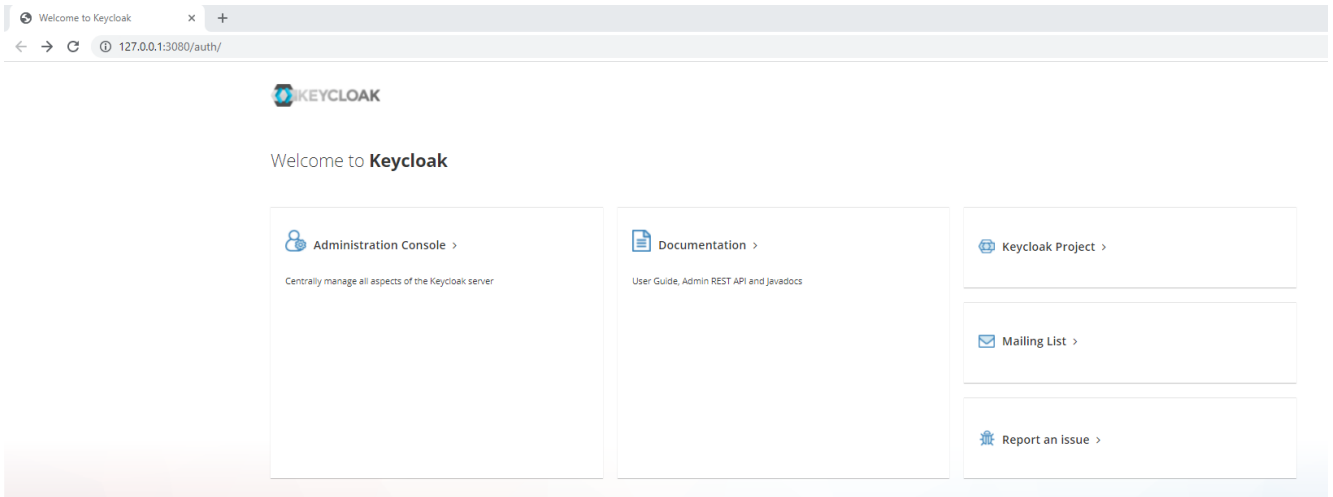
General Settings 	Machine status	Condition Monitoring 2022	Userright
Editable machine name	x	x	Level 2
Dossier number	x	x	Level 2
E-mail messaging	o	x	Level 2
Service interval configuration manager (import / export)	o	x	Level 2
Language DE / EN	x	x	Level 1
Machine Status 	Machine status	Condition Monitoring 2022	Userright
Calibration	x	x	Level 1
Overload	x	x	Level 1
Overload trend ↙	o	x	Level 1
Hours of operation ↙	x	x	Level 1
Test duration	x	x	Level 1
Test duration trend ↙	o	x	Level 1
Tests	x	x	Level 1
Tests trend ↙	o	x	Level 1
Compression tests ↙	x	x	Level 1
Compression tests trend ↙	o	x	Level 1
Tensile tests	x	x	Level 1
Tensile tests trend ↙	o	x	Level 1
Average test time	x	x	Level 1
Crosshead travel	x	x	Level 1
Crosshead travel trend ↙	o	x	Level 1
Machine status CSV export 	o	x	Level 1
Maintenance Information 	Machine status	Condition Monitoring 2022	Userright
Maintenance notifications per machine type and accessory ⚠	x	x	Level 1
Maintenance notifications acknowledgment	x	x	Level 1
Editable maintenance notifications time intervals	x	x	Level 2
Maintenance notifications can be deactivated / text can be edited + activation Messaging	o	x	Level 2
Upcoming maintenance notifications, 365 days 🕒	o	x	Level 2
Maintenance notifications date filter 📅	o	x	Level 2
Maintenance notifications CSV export 	o	x	Level 1
Maintenance log entry 	o	x	Level 2
Customised combined maintenance instructions	o	x	Level 2
Accessories / Sensors 	Machine status	Condition Monitoring 2022	Userright
Display of current accessories / sensors	x	x	Level 1
Accessory-specific condition information	x	x	Level 1
Load cell gross force trend ↙	o	x	Level 1
Accessories information for historic accessories / sensors	o	x	Level 1
Accessories / sensors CSV export 	o	x	Level 1
Overview (..overview)	Machine status	Condition Monitoring 2022	Userright
Generall	x	x	Level 1
Edit Machine List	x	x	Level 2

User administration

If you want to make further configurations to the existing roles or create new users, you can open the user administration via the following link:

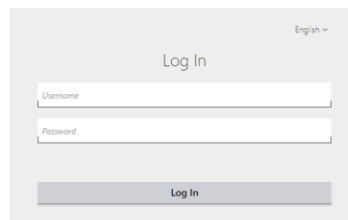
<http://127.0.0.1:3080/auth/>

This will take you to the user management start screen with Keycloak:



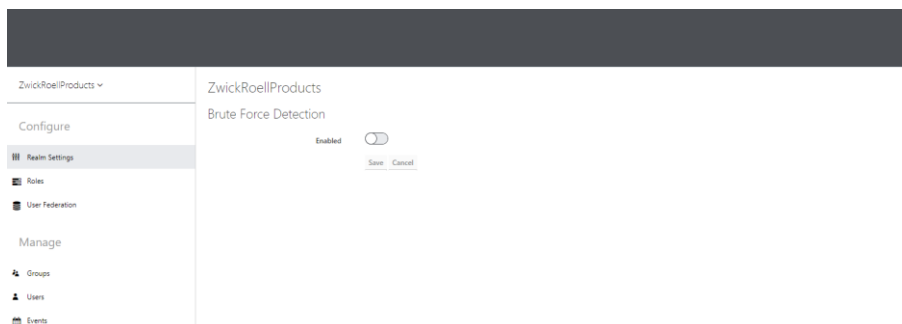
Start screen of the user administration with Keycloak

By selecting the menu item "Administration Console", you can log into the administration of the user management.



Login window of the user administration

Here you must log in with the admin of the "Zwack Authentication Server" admin (see also [Installation](#)). If you changed the password for the "Authentication Server" during installation, you must enter the changed password here. Otherwise you must enter the default master password "**Me#F#R3wr,nayUg9**" here.

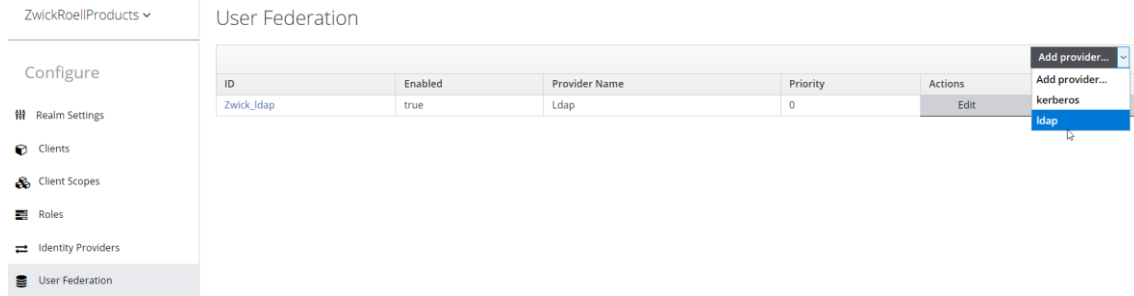


Under the menu item "Users" you can create and modify new users. When creating a user, access data must still be assigned to this user. To do this, you must navigate to the "Credentials" tab for the newly created user and set the password. If the "Temporary" option is enabled, the user must set a new password when logging in for the first time. If this is not done, the new user will not be able to log in.

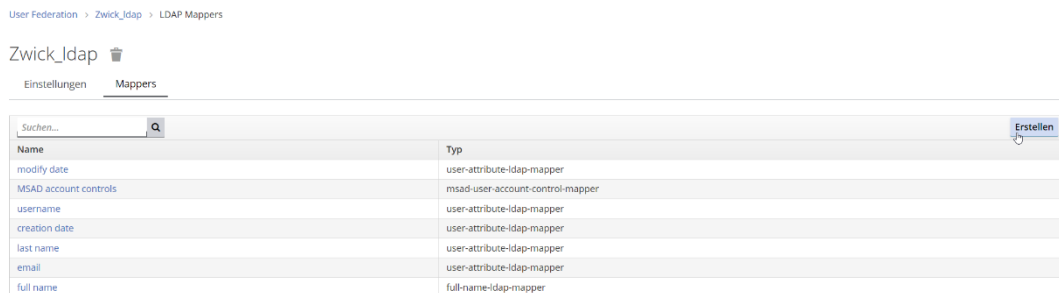
LDAP Anbindung

If your company already uses LDAP authentication, your IT can help you to set it up for ZwickRoell products.

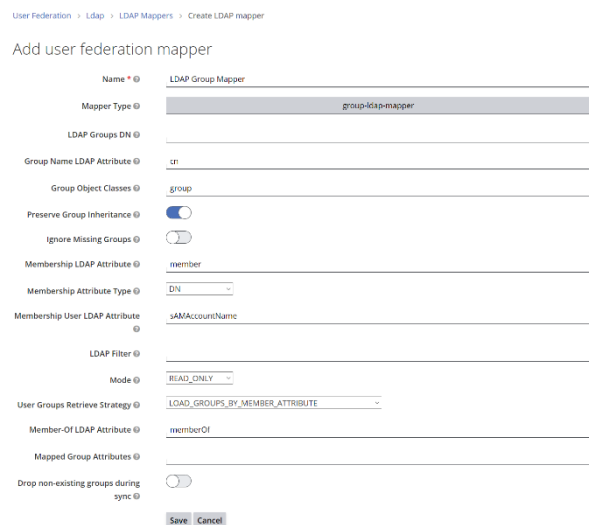
To do this, please select the "User Federation" option after logging into the user administration and you can set up access in accordance with your IT policies. Afterwards, the users available in the company network can be displayed and assigned to the corresponding roles.



To associate an LDAP role with a ZwickRoell user role, proceed as follows: Create a new LDAP mapper.



Assign a name and select "group-ldap-mapper". The configuration of the other values may have to be carried out by your IT department.



You can then select the available groups in the group view:

User Groups

The screenshot shows the 'User Groups' interface. At the top, there are two tabs: 'Groups' (selected) and 'Default Groups'. Below the tabs is a search bar with the text 'Search...' and a magnifying glass icon, followed by a 'View all groups' button. The main area displays a list of groups under the heading 'Groups'. The groups listed are: Skype_ZE, ZUE_Daten_tXR-sdk, ZUE_ZE, ZUE_ZE_Abteilungsleitung, ZUE_ZE_Admins, ZUE_ZE_BigData, ZUE_ZE_atlassian_users, ZUE_ZE_bamboo-admin, and ZUE_ZE_testXpert.

Now you can assign a user role to an LDAP group, click on the corresponding group and then select the desired ZwickRoell user role in the "Role assignment" tab.

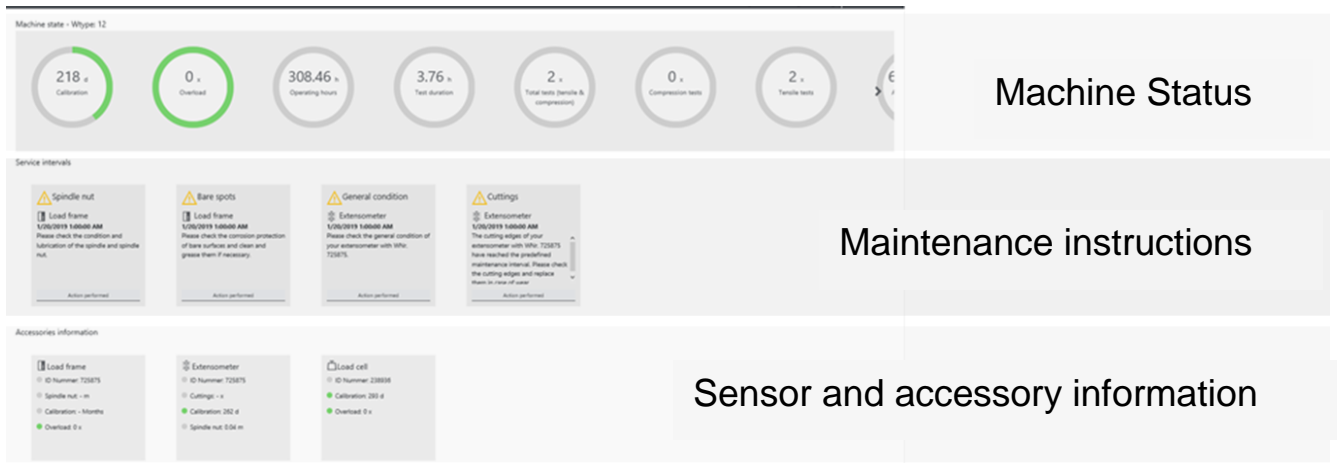
[Groups](#) > [ZUE_ZE_Admins](#)

ZUE_ZE_Admins

The screenshot shows the 'Role Mappings' tab for the 'ZUE_ZE_Admins' group. The interface includes several sections: 'Settings', 'Attributes', 'Role Mappings' (selected), and 'Members'. Below these are three main sections: 'Realm Roles', 'Available Roles', 'Assigned Roles', and 'Effective Roles'. The 'Available Roles' section contains a list of roles: offline_access, role_Lab_Manager, role_Tester, startscreen_2_Tiles, and startscreen_3_Tiles. The 'Assigned Roles' section shows 'role_Admin' selected. The 'Effective Roles' section lists: feature_Can_User_Overtake, feature_Delete_Specimen, feature_Modify_Specimen_List, feature_Setup_Periphery, and feature_System_Restorepoint. There is also a 'Client Roles' section with a dropdown menu labeled 'Select a client...'. Buttons for 'Add selected >' and '<< Remove selected' are visible between the 'Available Roles' and 'Assigned Roles' sections.

Dashboard

The dashboard of the web client for Condition Monitoring consists of 3 main areas:



Machine Status:

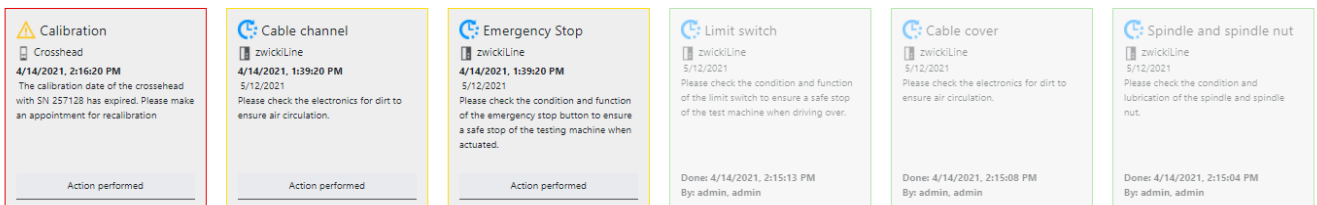
All status information of the current machine is displayed here. This includes:

- Calibration status of the active sensor system (crosshead travel and all external sensors)
- Overloads (load cell or load frame)
- Runtimes (total runtime, test time, average test time)
- Number of tests (by test type and total)
- Total travel of the machine

Maintenance notifications:

All maintenance notifications (active and acknowledged) are displayed here. The active notifications are always displayed on the left with a red border, and the already confirmed maintenance notifications are displayed on the right. Maintenance notifications with a clock symbol, are predictive maintenance notifications. They have a yellow border. They can be activated through the advanced features, and the number of days for the predictive notifications can be set. Maintenance notifications can and should be acknowledged via the "Action performed" button. Acknowledged maintenance notifications are shaded with a green border and are displayed with the date and time stamp of the acknowledgement. As of version 3.0 of Condition Monitoring, a user management function is also integrated, so that the user who has acknowledged the maintenance notification is also logged.

Maintenance Information



Sensor and accessories information:

All active sensors and active electronic accessories are displayed here with their respective information. This will enable the display of all sensors or accessories ever connected to the machine. If, for example, a load cell is only occasionally connected to a machine, it will still be displayed even if it is no longer connected. This also provides information (e.g. about the calibration date) even if the load cell is not currently used on this machine.

Accessories / Sensors information

The screenshot displays two panels of sensor information. The left panel, titled 'Current sensors' and outlined in green, shows four active sensors: zwickLine, Crosshead, and two Load cell sensors. The right panel, titled 'Historically used sensors' and outlined in blue, shows four sensors that were previously used: Analogue Clip-on, Load cell, Load cell, and Torque transducer. Each sensor card lists its name, serial and article numbers, nominal force, gross force, and calibration date.

Sensor Name	Serial Number	Article Number	Nominal Force	Gross Force	Calibration Date
zwickLine	257128	091310	-	-	0 x
Crosshead	257128	091310	1.37 m	-	74 d
Load cell	751303	011569	1000 N	262.964 N	158 d
Load cell	123124	066107	2500 N	-	104 d
Analogue Clip-on	666666	091657	-	-	550 d
Load cell	751303	066134	1000 N	-266.054 N	208 d
Load cell	444444	066107	1000 N	-	-
Torque transducer	781939	069336	2 N	-	Months

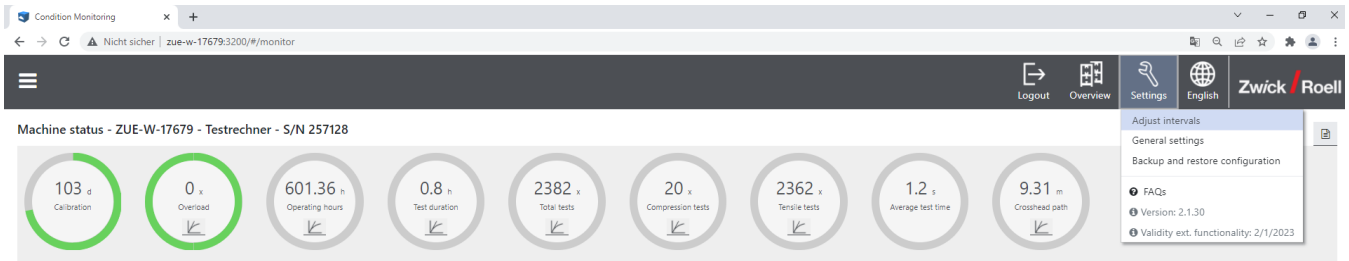
Current sensors

Historically used sensors

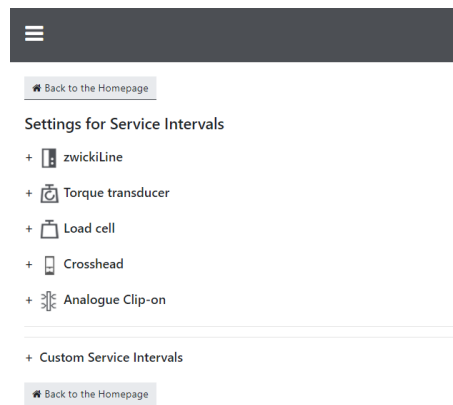
Settings menu

Adjust maintenance intervals

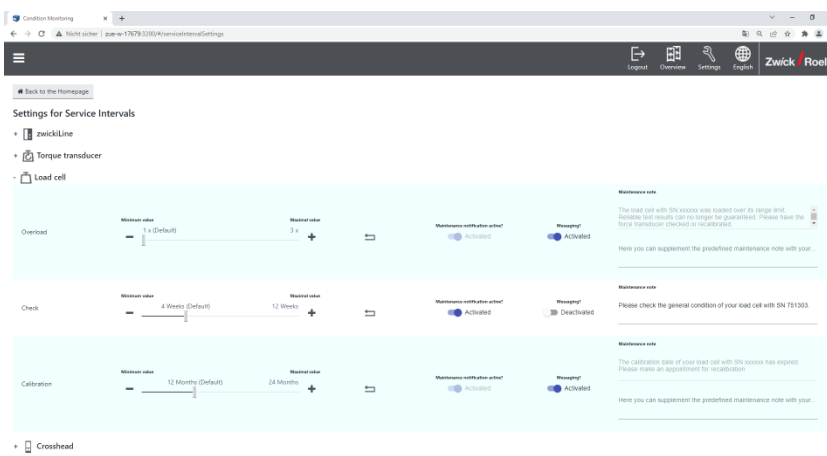
The “*Settings*” button can be used to access advanced functions and, among other things, to configure all service intervals available for the machine for maintenance instructions.



After selecting this menu item “*Adjust intervals*”, the following Settings menu is displayed:



Here, the maintenance intervals for the machine and all connected components and sensors can now be customized to the user. For this purpose, each component or rubric can be extended via the + button and configured accordingly.



Default values are taken from the operating manual of the corresponding machine type, component, or sensor. Use the back arrow to reset the default value at any time. Maintenance notifications that are not safety relevant can also be deactivated by an *Admin*. For this purpose, the slide control button of the corresponding maintenance notification must be deactivated. This is not possible for safety-relevant maintenance notifications, such as overload or expired calibration date.

With the advanced *Messaging* functionality, all maintenance notifications can also be configured to be sent to a recipient via email. More about this in the section *General Settings*.

Customized combined maintenance instructions

At the end of the maintenance instructions settings, you will see an area where you can create customized maintenance instructions - also combined maintenance instructions (similar to a car: maintenance after 1 year or every 15,000 km). You can adapt these specifically for your application.

Combined Service Intervals

+ new combined service interval

After pressing the button "New combined service interval" you can select any parameter from the machine hour counters and select an area for your maintenance notification:

The screenshot displays the configuration interface for a combined service interval. On the left, a scrollable list of machine parameters is shown, including 'Runtime', 'On-Time', 'Test-Time', 'On-Counter', 'Total tests', 'Tensile tests', 'Compression tests', 'Number of frame overloads', 'Number of protection door interlocks', 'Number of protection door closures', 'Calibration', 'Crosshead path', 'Count of tensile overload', 'Count of compression overload', 'Attach/Detach operations', 'Closing operations', 'Clamping operations', 'Time interval daily', and 'Time interval weekly'. The 'Time interval daily' parameter is selected. The central configuration area features a slider for setting the interval, with 'Minimum value' at 1 d and 'Maximal value' at 14 d. A 'Linking' toggle is set to 'Or-Connected'. The right-hand side includes a 'Messaging?' toggle set to 'Activated', a 'Delete' button, and a 'Maintenance note' field with a placeholder '## Placeholder-Text ##'.

Simply select the desired parameter of the machine hour counter and set the desired interval:

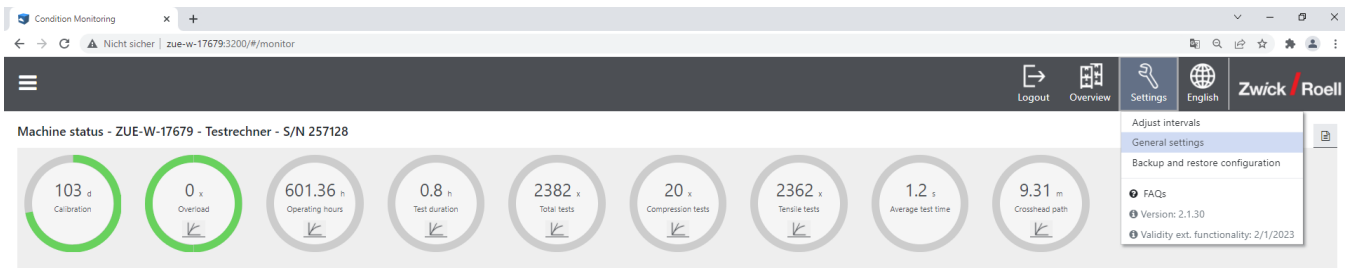
By selecting another parameter of the machine hour counter, a combined maintenance note can be generated in a simple way.

Via the linkage type

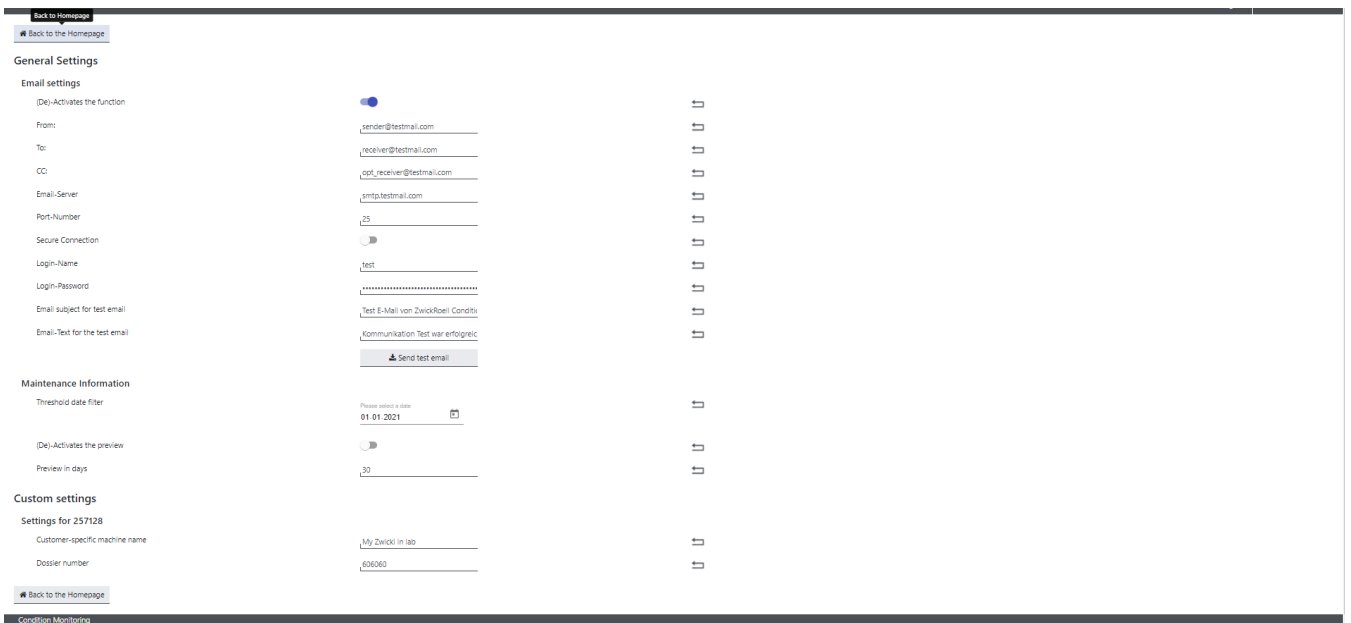
you can decide whether the individual criteria of your generated maintenance note are and- or or-linked.

As with all maintenance notifications, you can enter a heading and a notification text. In addition, you can also configure the notification so that it is also sent by email via the messaging function as soon as the corresponding criteria are met.

General settings

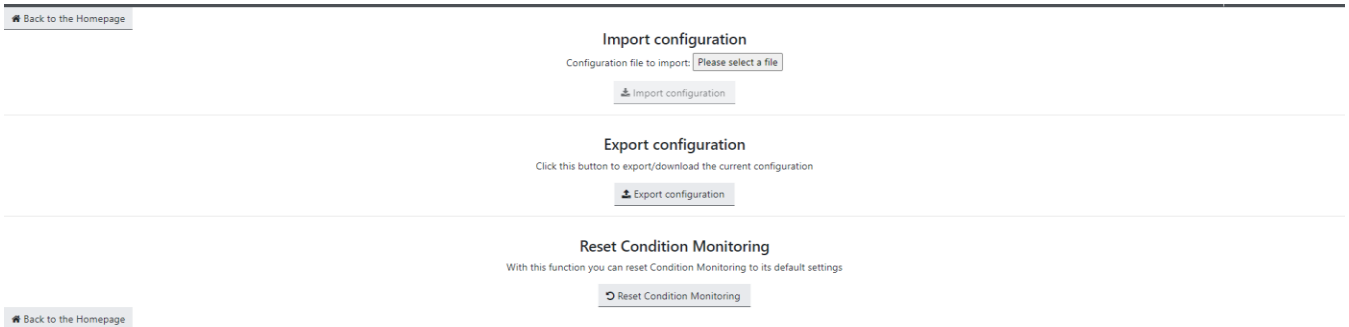
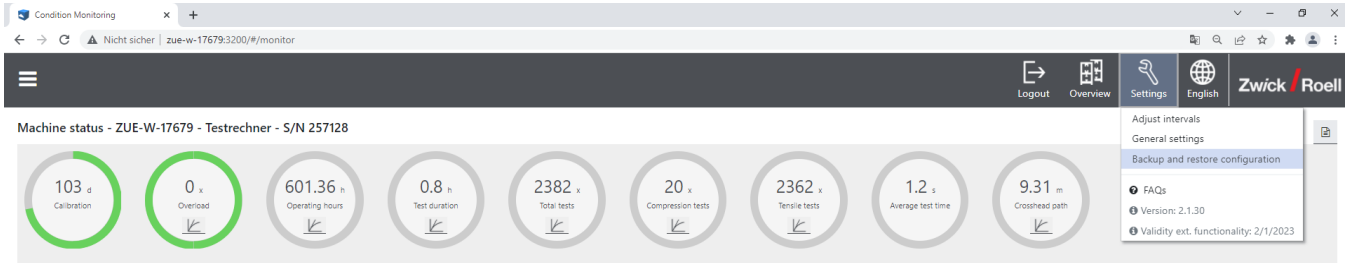


Using the “*General settings*” item in the “*Advanced*” menu, you can establish general settings for critical maintenance email notifications (sender, receiver, optional receiver and e-Mail Server settings), set a date filter for maintenance notifications, activate the predictive maintenance notifications, and add a customized name for your machine.



Backup and restore configuration

After calling up the menu item *Backup and restore configuration*, you can save your personalized settings (*Export configuration*) for maintenance notifications, maintenance intervals and your general settings or also import them again or transfer your settings to another machine (*Import configuration*).



Via the *Reset Condition Monitoring* button, you can reset all service intervals and the advanced settings to the factory defaults.

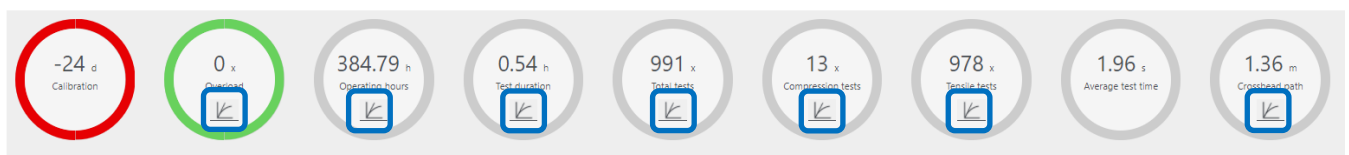
Note: All adjustments to the service intervals and advanced settings for Condition Monitoring will be lost if you have not saved the configuration.

Trend display

Condition Monitoring with extended functionality includes machine status display and other advanced features. These include the trend display of the machine status and as of testXpert III Version 1.6 also a total force progression curve if the gross force check has been activated in testXpert. The symbol

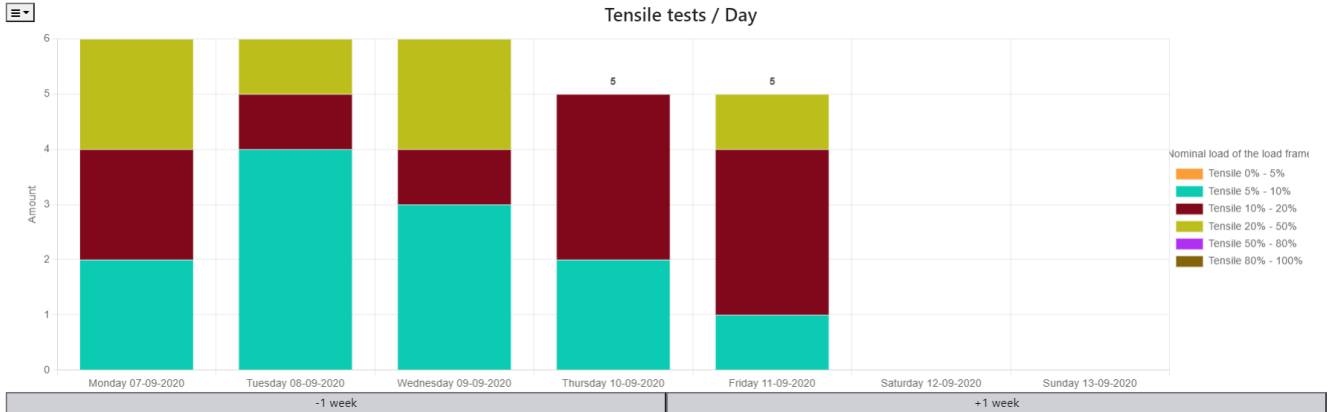


in the corresponding machine status or in the gross force parameter of the sensor information for a load cell makes the progression easily recognizable:




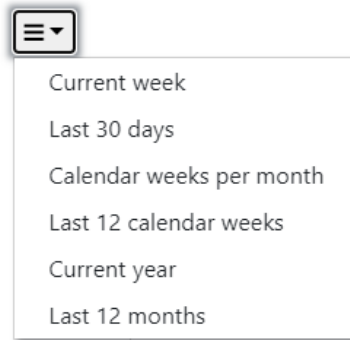
Machine status trend progressions

By double-clicking the icon at the corresponding machine status, a trend curve of the selected machine status is displayed.



Example Trend: Number of tensile tests in a specified week

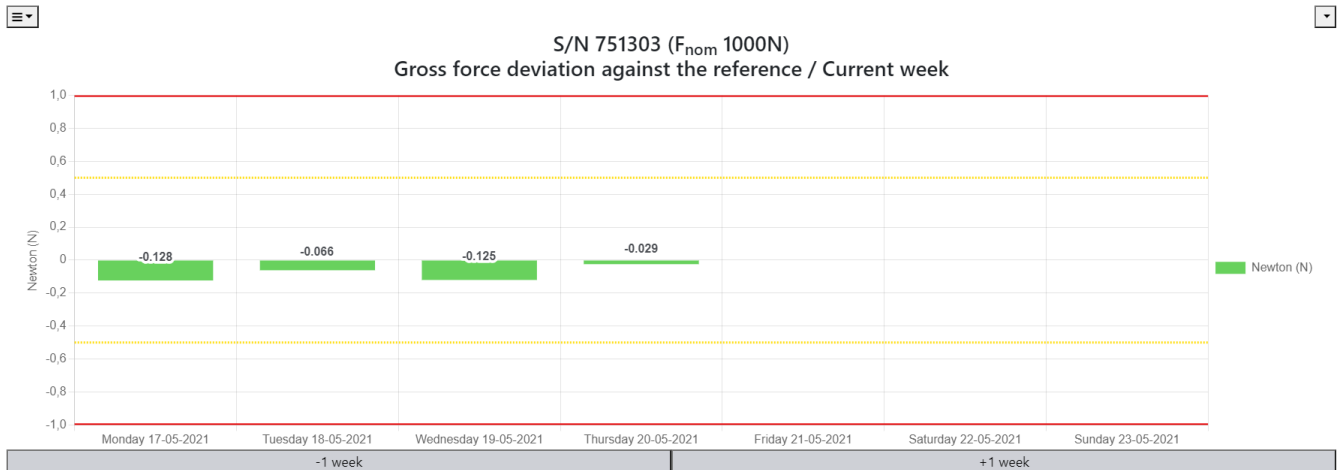
The following display formats of the trends are available via the selection menu  (top left):



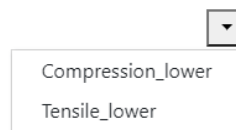
- **Current week:** The trend is displayed in a daily view of the current week.
- **Last 30 days:** The trend is displayed in a daily view dating back 30 days.
- **Calendar weeks per month:** The trend is displayed in calendar weeks of the current month.
- **Last 12 weeks:** Display of the last 12 calendar weeks dating back from today.
- **Current year:** Monthly view for the current calendar year.
- **Last 12 months:** Monthly view of the last 12 months dating back from today.

Gross force progression

As of testXpert III V1.6 on, a gross force check will be included in testXpert, which can be activated for certain test environments. If it is active, after setting a total force reference value for a load cell, the gross force can be checked in certain time intervals (e.g. daily, weekly). This is then exported to testXpert Storage with the reference value of the corresponding load cell and system configuration. A trend curve of the deviation from the reference value can then be displayed.



In the gross force trend, in addition to the selection of the trend view, there is also the selection of the test environment at which the gross force check was performed. This can be accessed at the top right of the trend diagram and here the various test environments can be selected.



Export functions and Logbook entries for the electronic maintenance guide

Condition Monitoring with advanced functionality includes export functions that allow the machine status, maintenance notifications and sensor and accessory information to be exported in CSV format.

The export function is easily recognizable by the export symbol next to each section:



The screenshot shows the Condition Monitoring interface for 'Lokal machine2 - S/N 257128'. It features several sections:

- Machine status:** A row of nine circular gauges showing Calibration (104 d), Overload (0 x), Operating hours (635.57 h), Test duration (0.8 h), Total tests (2353 x), Compression tests (20 x), Tensile tests (2333 x), Average test time (1.22 s), and Crosshead path (9.3 m). Each gauge has a small export icon in its top right corner.
- Maintenance notifications:** A list of seven notification cards, each with an export icon in its top right corner. The notifications include Emergency Stop, Cable cover, Blank and burnished spots, Anodized surfaces, Check, Cable channel, and Limit switch.
- Accessories / sensor information:** A list of four accessory cards (ZwickLine, Crosshead, Load cell, and Analogue Clip-on), each with an export icon in its top right corner.

Condition Monitoring

Export of the machine status

When exporting the machine status information, all machine status displays are exported to a CSV export file. This file contains the customer-specific machine name, the serial number, a date stamp and all machine status values.

Machine status from ZwickRoell Condition Monitoring		
Machine name	My Zwicki	
Serial number	257128	
Date	06.10.2020	
stateType	value	unit
Calibration	-99	d
Overload	0	x
Operating hours	145.82	h
Test duration	0.27	h
Total tests	296	x
Compression tests	5	x
Tensile tests	291	x
Average test time	3,33	s
Crosshead path	6,04	m

Export of the maintenance notifications

The export function of the maintenance notifications can be used to forward open maintenance notifications to the maintenance department or organization. The csv export file contains all information necessary for the maintenance, such as machine name, sensor type and the maintenance notification itself. The columns "acknowledgedOn" and "acknowledgedBy" can be used to filter exactly which maintenance notifications are to be edited or corrected.

Service intervals from ZwickRoell Condition Monitoring							
Machine name	My Zwicki						
Serial number	257128						
Date	06.10.2020						
sensorType	dataType	detectedOn	messageText	acknowledge	acknowledgedBy	critical	sensorId
Load cell	Calibration	2020-10-06T11:27:17.408Z	The calibration date of your load cell with SN 751303 has expired. Please make an appointment for recalibration.			true	tXpIII_SensorId_SN751303_T512
Crosshead	Calibration	2020-10-06T11:27:17.407Z	The calibration date of the crosshead with WNo. 257128 has expired. Please make an appointment for recalibration.			true	tXpIII_SensorId_SN257128_T769
Analogue Clip-on	Calibration	2020-08-25T06:31:20.863Z	The calibration date of your extensometer with SN 666666 has expired. Please make an appointment for recalibration.			true	tXpIII_SensorId_SN666666_T832
Crosshead	Calibration	2020-08-25T06:30:20.903Z	The calibration date of the crosshead with WNo. 257128 has expired. Please make an appointment for recalibration.	2020-10-06T	admin, admin	true	tXpIII_SensorId_SN257128_T769
Analogue Clip-on	Calibration	2020-08-18T15:05:05.716Z	The calibration date of your extensometer with SN 666666 has expired. Please make an appointment for recalibration.	2020-08-25T	admin, admin	true	tXpIII_SensorId_SN666666_T832
Crosshead	Calibration	2020-08-18T15:02:05.714Z	The calibration date of the crosshead with WNo. 257128 has expired. Please make an appointment for recalibration.	2020-08-25T	admin, admin	true	tXpIII_SensorId_SN257128_T769
Zwicki	Cable cover	2020-08-19T12:06:41.748Z	2020-09-16T12:06:11.000Z Please check the electronics for dirt to ensure air circulation.	2020-08-19T	admin, admin	true	tXpIII_SensorId_SN257128_T320
Zwicki	Cable channel	2020-08-19T12:06:41.748Z	2020-09-16T12:06:01.000Z Please check the electronics for dirt to ensure air circulation.	2020-08-19T	admin, admin	true	tXpIII_SensorId_SN257128_T320
Analogue Clip-on	Check	2020-08-19T12:06:41.748Z	2020-09-16T12:05:56.000Z Please check the general condition of your extensometer with SN 666666.	2020-08-19T	admin, admin	false	tXpIII_SensorId_SN666666_T832
Load cell	Check	2020-08-19T12:06:41.748Z	2020-09-16T12:05:53.000Z Please check the general condition of your load cell with SN 751303.	2020-08-19T	admin, admin	false	tXpIII_SensorId_SN751303_T512
Zwicki	Anodized surfaces	2020-08-19T12:06:41.747Z	2020-09-16T12:05:48.000Z Clean only with a soft cloth and a commercially available cleaner such as a pH-neutral cleaning agent.	2020-08-19T	admin, admin	false	tXpIII_SensorId_SN257128_T320
Zwicki	Painted surfaces	2020-08-19T12:06:41.747Z	2020-09-16T12:06:13.000Z Clean only with a soft cloth and a commercially available cleaner such as a pH-neutral cleaning agent.	2020-08-19T	admin, admin	false	tXpIII_SensorId_SN257128_T320
Zwicki	Spindle and spindle nut	2020-08-19T12:06:41.747Z	2020-09-16T12:05:50.000Z Please check the condition and lubrication of the spindle and spindle nut.	2020-08-19T	admin, admin	true	tXpIII_SensorId_SN257128_T320
Zwicki	Blank and burnished spots	2020-08-19T12:06:41.747Z	2020-09-16T12:05:43.000Z Please check the corrosion protection of bare surfaces and clean and grease them if necessary.	2020-08-19T	admin, admin	false	tXpIII_SensorId_SN257128_T320
Zwicki	Limit switch	2020-08-19T12:06:41.747Z	2020-09-16T12:06:17.000Z Please check the condition and function of the limit switch to ensure a safe stop of the test machine when driving over.	2020-08-19T	admin, admin	true	tXpIII_SensorId_SN257128_T320
Zwicki	Emergency Stop	2020-08-19T12:06:41.747Z	2020-09-16T12:05:45.000Z Please check the condition and function of the emergency stop button to ensure a safe stop of the testing machine when actuated.	2020-08-19T	admin, admin	true	tXpIII_SensorId_SN257128_T320

The export of all maintenance instructions corresponds to an "electronic maintenance manual" and thus all maintenance work that has been carried out on the machine can be traced.

Export of sensor and accessory information

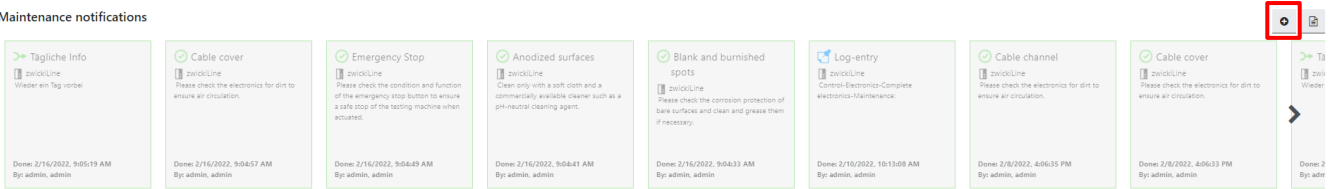
The CSV file of the sensor and accessory information export function contains the customer-specific machine designation, the serial number, a date stamp and all sensor information from the sensor and accessory overview.

Accessory information from ZwickRoell Condition Monitoring								
Machine name	My Zwicki							
Serial number	257128							
Date	06.10.2020							
categoryName	typeName	serialNumber	id	inactive	dataType	label	value	unit
Load frame	Zwicki	257128	tXpIII_Sensor	false	serialNumber	Serial Number	257128	
						16390 Article Number	91310	
						16415 Overload	0	x
Crosshead	Crosshead	257128	tXpIII_Sensor	false	serialNumber	Serial Number	257128	
						16390 Article Number	91310	
						28675 Crosshead range	Jan 17	m
						36866 Calibration	-99	d
Load cell	Load cell	751303	tXpIII_Sensor	false	serialNumber	Serial Number	751303	
						16390 Article Number	66134	
						28675 Nominal Force Tensile	1000	N
						28676 Nom. Force Compression	-1000	N
						GrossForceValue Gross force	-267.101	N
						16391 Overload tensile	0	x
						16393 Overload compression	0	x
						36866 Calibration	-16	d

Logbook entries for the electronic maintenance guide

With version 3.0 of Condition Monitoring, the extended function "Machine logbook entry" is available to round off the "electronic maintenance guide". This can be accessed via the **+** button on the right above the maintenance notifications.

Maintenance notifications



After clicking the button, an input menu opens for selecting maintenance and service work performed (e.g. also replacement of a component).

Log entry
Here you can log information relevant to you if required

Date / Time: Please specify a date
18.03.2022 11:26

Select main component: Control-Electronics

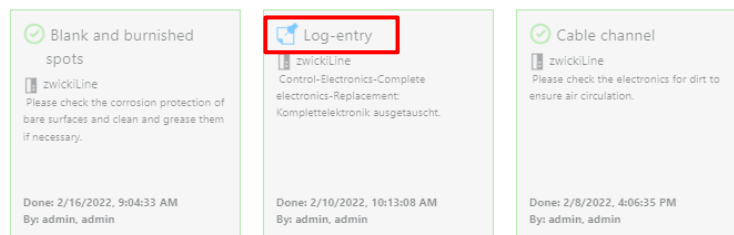
Select sub component: Complete electronics

Select action: Maintenance

Description
Please add more information

Save Cancel

Extensive maintenance and repair work can now be documented and saved in this dialog. For this purpose, a main component and a sub-component can be selected and also a corresponding standard action (e.g. replacement, inspection). A description as free text entry completes the logbook entry. After saving a logbook entry, these are displayed together with the maintenance notification with a special icon.



Machine overview

As of version 3.0 of Condition Monitoring, the extended functionality makes it possible to display a machine overview of all machines in the company network. To use this for the respective machine, the corresponding testXpert Storage option and the corresponding services of the machine computer must be made visible in the company network, as Condition Monitoring can only be accessed via the local test computer (<http://localhost:3200> or <http://127.0.0.1:3200>) by default.

Making machine computers visible via the company network

By adapting the configuration files, access is also possible via the company network.

To use computer names - "Full Qualified Domain Name" (FQDN full computer name with domain) - in the configuration files, a local DNS server with IP address must be specified in the configuration file of the API Gateway (see point 2). Otherwise, only IP addresses are to be used for configuration

For this purpose, the following adjustments must be made on the test computer:

1. Make testXpert Storage available on the network:
 - Add the following yellow marked lines and set the IP address or computer name in "C:\Program Files\zwick\storage 2.yy.zz\storage\src\config\env\production.js" :

```
module.exports = {
  host: "0.0.0.0",
  port: 3001,
  publicBaseUrl: "<Hostname oder IP des Maschinenrechners>:3001",
  // z.B. publicBaseUrl:"10.2.3.98:3001" or „zue-h-16868.test.muster.com:3001“,
  ...
};
```

To deactivate the remote functionality this configuration file can also be reset.

- Adjust "C:\Program Files\zwick\storage 2.yy.zz\storage\src\config\production.js":

```
module.exports = {
  host: "127.0.0.1",
  port: 3001,
  ...
};
```

2. Make API gateway callable via the network:
 - Adjust "C:\Program Files\Zwick\apiXpert\gateway\openresty\conf\api_gateway.conf":

```
server {
  ...
  listen 127.0.0.1:3080 so_keepalive=on;
  ...
};
```

- Change to

```
server {
  ...
  resolver 172.30.xx.yy // (IP address of the local DMS server)
  listen 0.0.0.0:3080 so_keepalive=on;
};
```

3. Make Authentication Server of the user administration visible in the network:

- Adjust „C:\Program Files\Zwick\Condition Monitoring\client\dist\assets\config\config.json“:

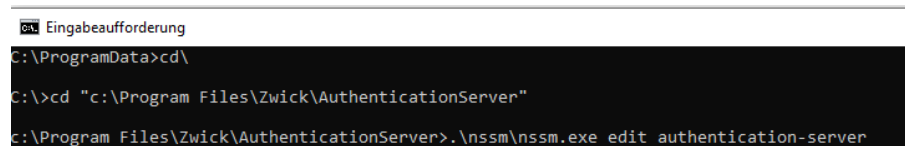
```
"authConfig": {  
  "authorization": "Basic RtaW46c2VjcmV0",  
  "authenticationServerHostname": "127.0.0.1"  
},
```

- Change to:

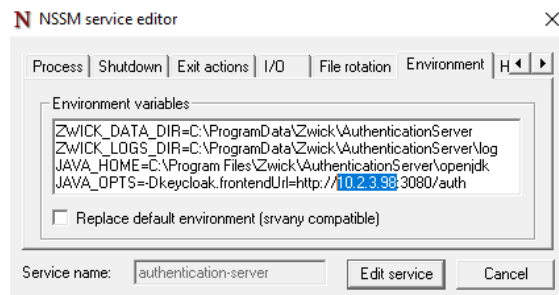
```
"authConfig": {  
  "authorization": "Basic RtaW46c2VjcmV0",  
  "authenticationServerHostname": "<Hostname oder IP des Maschinenrechners>"  
  // z.B. „10.2.3.98“ or „zue-h-16868.test.muster.com“  
},
```

4. Adjust settings of the Authentication Server. To do this, enter the following at the prompt:

```
cd\  
  
cd "c:\Program Files\Zwick\AuthenticationServer"  
  
.\nssm\nssm.exe edit authentication-server
```



-> NSSM service editor is startet:



In NSSM service editor on tab "Environment" (second last tab) the following line

```
JAVA_OPTS=-Dkeycloak.frontendUrl=http://127.0.0.1:3080/auth
```

change to:

```
JAVA_OPTS=-Dkeycloak.frontendUrl=http://zue-h-16868.test.muster.com:3080/auth
```

Then close NSSM Service Editor by clicking the "Edit service" button.

To edit and save the configuration files, admin rights may be required, depending on the user rights on your test computer. For this purpose, it is necessary to execute a suitable editor with admin rights so that the files can also be saved.

After these changes, all services (API-Gateway, Authentication Server, Storage and Condition Monitoring) should be restarted in the Task Manager or restart your computer.

After these changes, Condition Monitoring is also accessible under the configured computer name without domain specification in the company network. In the above example with the "Full Qualified Domain Name" (FQDN full computer name with domain) "zue-h-16868.test.muster.com", i.e. under:



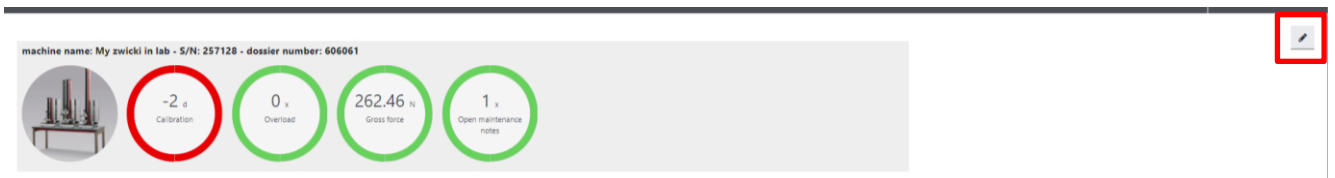
← → ↻ ⓘ zue-h-16868:3200

Accessing the machine overview

The overview page can be accessed via the Overview[®] Button in the Condition Monitoring Dashboard toolbar:.



After that, a dashboard of all machine statuses appears:



Using the Edit button (top right), additional test computers can also be added to the individual test machine with test computer by Adding the corresponding computer name or IP address.

Machine 1:

Machine 2:

For this purpose, only a computer name or IP address of a test computer has to be entered in the input lines for machine 2, etc. All machine names or IP addresses to be used here must be configured beforehand for access via the company network (see [Making machine computers visible via the company network](#)).

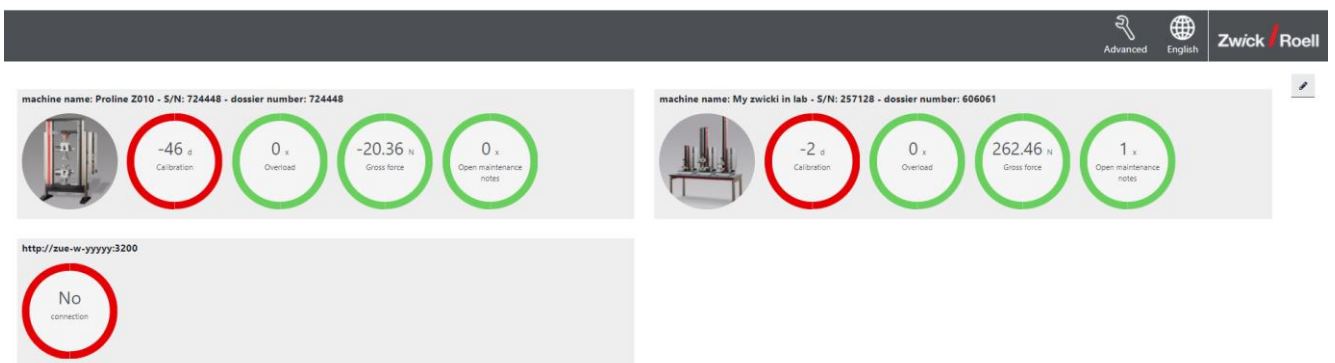
Machine 1:

Machine 2:

Machine 3:

Machine 4:

After confirming with the “Save” button all machine statuses are displayed in the overview.



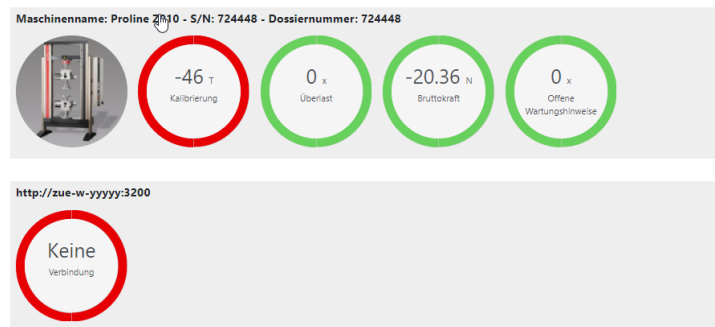
Machines or test computers that are not active at this time (shut down or disconnected from the company network) are displayed with the message:



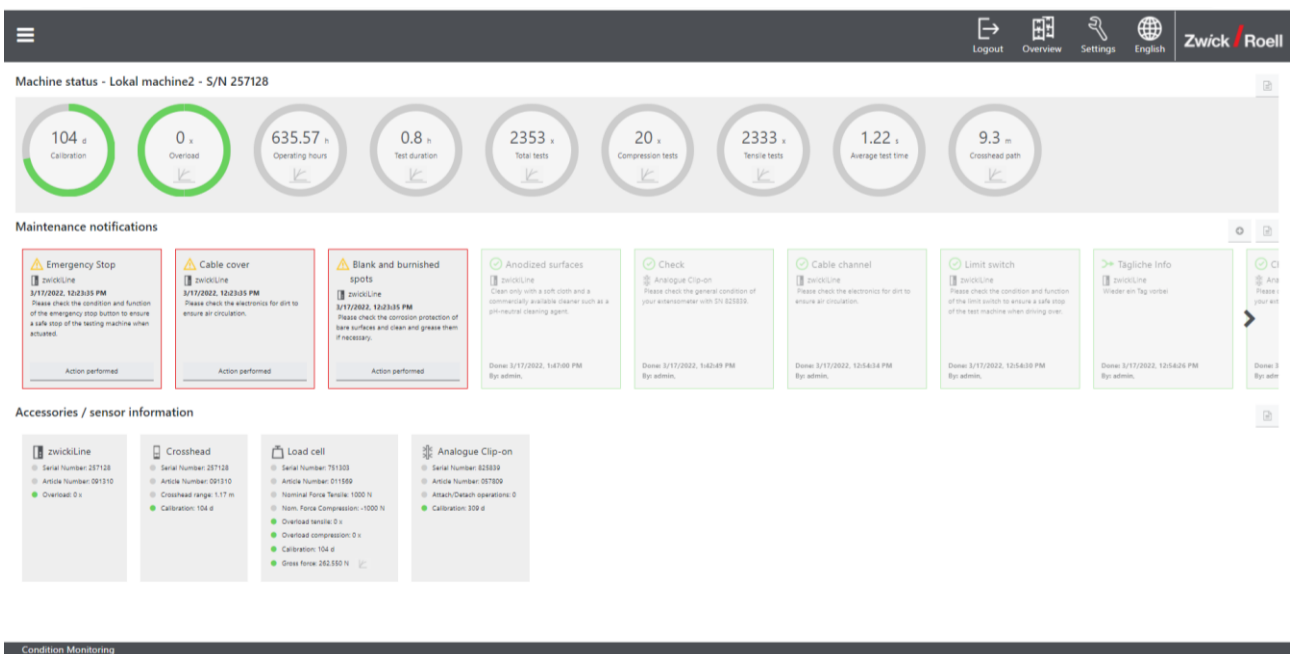
Machines that do not have a license for the extended functions of Condition Monitoring are shown in the overview as follows:



By clicking on the overview of a machine, you can then easily switch to the single dashboard of Condition Monitoring.



This will then be displayed in a new tab in the browser.



Backup and recovery of testXpert Storage

testXpert Storage does not currently offer a GUI for a complete backup. However, for Condition Monitoring, a data backup of all relevant testXpert Storage data can still be created manually and can later be restored manually. If the testXpert Storage installation is no longer executable, such a backup can be used to import all the data required for Condition Monitoring into a new testXpert Storage installation, thus maintaining the original state of this data.

The tools *mongodump* and *mongorestore* can be used to back up and restore testXpert Storage and the MongoDB used. These are located in the bin directory of the MongoDB installation (e.g. *C:\Program Files\MongoDB\Server\3.6\bin*).

Backup

Since the MongoDB used by Storage runs on the standard port, a *dump* can be performed as shown in the example.

In this example, the archive argument is used to create an archive.

mongodump: Create a dump of the whole MongoDB

```
cd "Program Files\Zwick\storage"  
.\nodejs\bin\node.exe .\storage\scripts\prod\storageDump.js "C:\Program  
Files\MongoDB\Server\3.6\bin\mongodump" c:\temp\MongoDump
```

Restore

The following command line can be used with the Microsoft Windows command line to restore a backup of the data, back into Storage and the associated Mongo DB:

mongorestore: Use dump for restore

```
cd "Program Files\Zwick\storage"  
.\nodejs\bin\node.exe .\storage\scripts\prod\storageRestore.js "C:\Program  
Files\MongoDB\Server\3.6\bin\mongorestore" c:\temp\MongoDump
```

Firewall rules

The „*Condition Monitoring*“ client is communicating with testXpert Storage via the network. The following program and port exceptions must be set up in the firewall. As a rule, these are set up by the installation routine of the overall package (testXpert III V1.7, Storage V2.1.1 with API Gateway and Condition Monitoring V3.0.0), but must be checked and possibly set up manually if installed manually.

testXpert Storage

- *node.exe* (C:\Program Files\Zwick\storage X.Y.Z\nodejs\bin)
 - Port 3001
 - Port 3030
 - Port 3031
- *mongod.exe* (C:\Program Files\MongoDB\Server\X.X\bin)
 - Port 27017 (MongoDB)

ZwickRoell Authentication Server

- *java.exe* (C:\Program Files\Zwick\AuthenticationServer\openjdk\bin)
 - Port 8080
 - Port 3090

ZwickRoell Service Registry

- *consul.exe* (C:\Program Files\Zwick\apiXpert\serviceRegistry\consul)
 - Port 8300
 - Port 8500

API Gateway

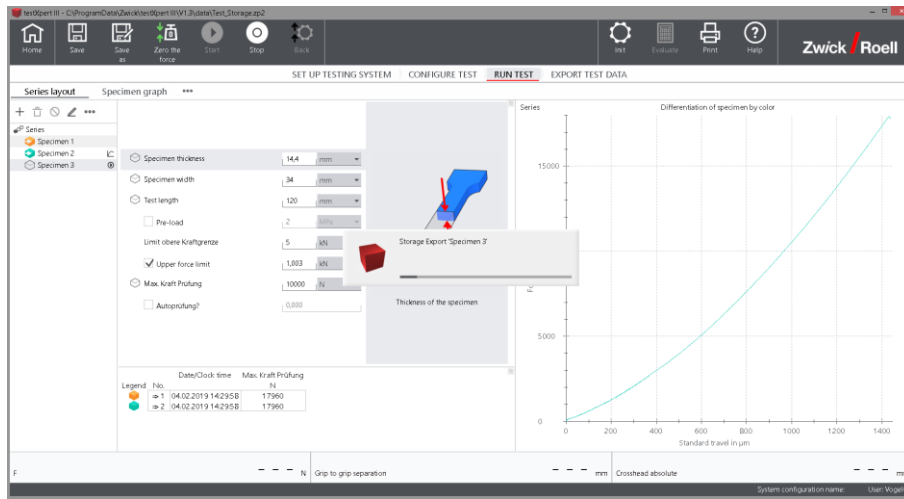
- *nginx.exe* (c:\Program Files\Zwick\apiXpert\gateway\openresty)
 - Port 3080

Condition Monitoring client

- *node.exe* (C:\Program Files (x86)\Zwick\Condition Monitoring X.XX.X.X\nodejs\bin)
 - Port 3200
 - Port 3001
 - Port 3030

FAQ

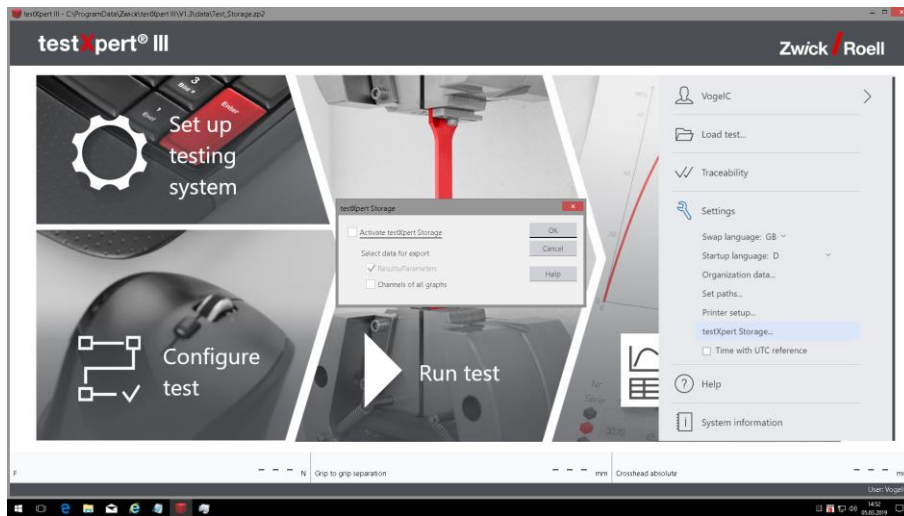
Q: Is the message "Storage Export" normal after the test or can I prevent the message from generating?



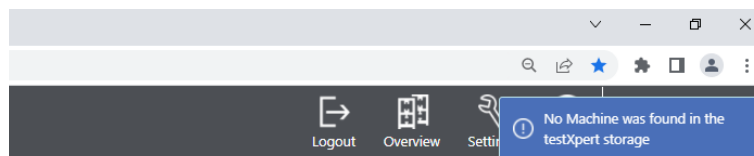
A: The message is normal after activation of the Storage export and cannot be disabled.

Q: Can I disable the testXpert Storage export function?

A: Yes, you can activate and deactivate the testXpert Storage export function via the menu item "testXpert Storage..." in the Settings menu in testXpert III.



Q: When I open the Condition Monitoring Client, I get the following error message:



A: If this error message or note appears, no data has yet been imported into the storage and the storage does not contain any machine data for a machine. For a display in the Condition Monitoring Client, at least one test must be performed with an activated storage export (see above).

Q: Can I deactivate individual maintenance notifications?

The screenshot shows the 'Settings for Service Intervals' page. Under the 'Load frame' section, there are four categories:

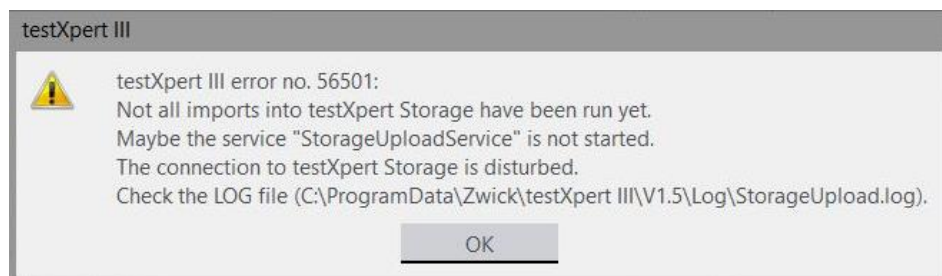
- Bare spots:** Range from 5 Weeks (Default) to 15 Weeks. Maintenance information active? (Activated), Messaging? (Activated). Note: Please check the corrosion protection of bare surfaces and clean and grease them if necessary.
- Limit switch:** Range from 1 Month to 6 Months (Default). Maintenance information active? (Activated), Messaging? (Activated). Note: Please check the condition and function of the limit switch to ensure a safe stop of the test machine when driving over.
- Emergency stop:** Range from 1 Month to 6 Months (Default). Maintenance information active? (Activated), Messaging? (Activated). Note: Please check the condition and function of the emergency stop button to ensure a safe stop of the testing machine when actuated.
- Overload:** Range from 1 x (Default) to 3 x. Maintenance information active? (Activated), Messaging? (Activated). Note: The load frame was loaded beyond its range limit. Reliable test results can no longer be guaranteed. Please have the load frame checked and, if necessary, have the load cell recalibrated.

A: With the advanced functionality of Condition Monitoring, it is now possible to deactivate all non-safety related maintenance notifications, so that the user and operator are not overwhelmed with maintenance instructions for less relevant tasks, e.g. "cleaning of anodized surfaces". This is not possible for safety related maintenance notifications.

Q: How do I proceed in case of error?

A1: First, check that all relevant services (StorageUploadService, Storage, and ConditionMonitoring) are running. If not, restart them or restart the computer.

A2: If you receive the following error message when starting testXpert,



the directory "*C:\ProgramData\Zwick\testXpert III\StorageExport\Failed*" contains Export files from testXpert III, which could not be imported into testXpert Storage. For analysis, send these export files and the log files from the folder "*C:\ProgramData\Zwick\storage\2.xx.yy.zz\logfiles*" via email.