

Getting started!

CoroPlus[®] MachiningInsights

Version: 1-1

Contents

Getting started!	. 3
Purpose of this document	3
Login for the first time (as admin)	. 4
Change password and add users	. 4
Change the password of the admin password	4
Adding/Deleting Users Which roles should I use?	4
Name and group your machines	. 6
Set up the operator panel	. 7
Adding buttons to the operator panel Lock a tablet to only show CoroPlus [®] MachiningInsights	7 8
Setting Ideal cycle time (Targets)	. 9
Calibration of MachiningInsights	10
Definitions	11
State definitions	. 11
OEE – Overall equipment efficieny definitions	. 12 13

Getting started!

Purpose of this document

The purpose of this document is to help you as a new customer and administrator to get started with CoroPlus[®] MachiningInsights. This document gives guidance how to set up CoroPlus[®] MachiningInsights so it will fit to your specific needs.

Getting started consisting of the following steps:

- 1. Login for the first time (as admin)
- 2. Change password and add users
- 3. Name and group your machines
- 4. Set up the operator panel
- 5. Setting Ideal cycle time (Targets)
- 6. Calibration of CoroPlus® MachiningInsights
- 7. Definitions

Login for the first time (as admin)

Directly after the first installation of CoroPlus[®] MachiningInsights, a delivery receipt is being sent to an administrator appointed at your company. This delivery receipt contains the login details needed to log in for the first time and configure CoroPlus[®] MachiningInsights.

Note: All users with administrator access rights can execute the configurations described in this document.

Change password and add users



The first thing you need to do when getting started with CoroPlus[®] MachiningInsights is to change the default password.

To change the default password and add new users:

- Select 'Users' from the settings icon (top-right).
- https://machininginsights.sandvikcoromant.com/#/users

Change the password of the admin password

To edit the details of the admin account:

- 1. Select the required user from the list.
- 2. Update User: admin page will open on the right.
- 3. Click on the necessary fields and make necessary changes.
- 4. Click on "Save".

Note: The field "Username" is not editable

Adding/Deleting Users

To add new user, click on "Create User" button and fill the required fields.

Each user can be allotted single or multiple roles. The Roles tab enables the Admin to add more roles in the plant.

To hide a user, uncheck the Enabled option under "User Status" to disable the user. User can only be deleted completely via the support desk.

Which roles should I use?

Role	Summary
Administrator	Can access, edit all parts of the app and manage users
Editor	Can view all parts of the app, edit dashboards/pan- els/report but cannot manage users
Viewer	Can access all parts of the app but cannot edit dash- boards, panels, reports and targets
Operator	Can view operator panel & dashboards, classify downtimes and create tickets
Reports Viewer	Can view all reports
Guest	Can view dashboards and tickets

Note: A user can have more than one role

Name and group your machines



The next thing you need to do is to name your machines and if needed group them.

Direct link:

https://machininginsights.sandvikcoromant.com/#/devices

Picture below explains how to change name, create groups and set up your machines



Set up the operator panel



Adding buttons to the operator panel

		-	Create Activity	0
			H Sav	X Cancel
Users Devices Plan Rule Configuration	Administration Profile Language Documentation	*	Details Name * Vorkpiece Handling Description Loading or unloading the part on the machine	Type name of the activit
	Switch Plant Targets	_	States	Select one or more states for the activity
	Calendar Logout			Select if user should prompt for an action when this activity is classified
			Impanded Devrifee Selat Selat	ctassified

Note that you can configure an action for an activity whenever you need the operator to perform an input based on a classification E.g. Action "Change Part Kind" which will prompt operator to start/stop part-kind whenever classification *Planned Downtime: Workpiece Setup* is classified

Shutdown

Lock a tablet to only show CoroPlus[®] MachiningInsights

If you want to prevent operators to check other applications, then CoroPlus[®] MachiningInsights on the tablets there's an easy way to put your tablet into "kiosk mode" that locks down device access to a single application.

Below are two links but you can also search on google to find instructions how to set your particular tablets in Kiosk mode.

- IoS (Apple) https://www.webascender.com/blog/setup-kiosk-mode-lock-ipad-just-one-app/
- Android https://support.google.com/android/answer/6118421?hl=en

Setting Ideal cycle time (Targets)

-- This step is optional --

A target can be for a part kind or for a device-part kind. CoroPlus[®] MachiningInsights need targets to compute Performance (and OEE) since Performance and OEE are calculated based on how the target is set.

If target cycle time is set for part kind alone, then the target will apply to just the part-kind and whenever Performance or OEE is viewed by part kind, the value computed is the one computed based on just the part kind target.

If target cycle time is set for device-part kind, then the target will apply to the part kind of the device and the Performance/OEE value computed is the one computed based on the device-part kind target.

If setting target for device-part kind, then both the device and the part kind should be entered in the Targets screen

				Create Target	٥	
		*		Device	Bave X Cancel	Click "Create Tar-
-	Administration	•		Grinder × Search		get" button to set
	Profile	<u> </u>	Create Target	Part Kind		the Ideal Cycle
	Language			Date Range		<i>Time</i> for a part-kind
	Documentation Contact Support			Foliater January 02, 2019 to February 28, 2019 Period		
	Targets			Workday Shift 1 Metric		
	Calendar			Cycle Time @		
	Logout			Enter "Cycle Time" target in seconds 340		

Field	Definition
Device	Pick the device for which the <i>Ideal Cycle Time</i> target should apply for from the dropdown If the target is to apply for just the part-kind, leave this device field blank.
Part Kind	Manually enter the value of the part kind
Date Range	Pick a date range by clicking the empty field or select "Forever" if the <i>Ideal CT</i> should apply for all time
Period	Pick the period for which the target should apply for. <i>Default:</i> Workday
Metric	Select "Cycle Time" from this dropdown
Value	Enter the value of the Ideal CT in seconds

Calibration of MachiningInsights

A challenge for all data collection systems such as CoroPlus[®] MachiningInsights is to capture the operation of the machines correctly, especially for more complex machines. One of many benefits with CoroPlus[®] MachiningInsights is that it can be calibrated with tailor made rules to capture your specific machine and operation characteristics.

The stripe charts below illustrate the difference between a setup that uses one rule (Rule 1) to determine if the machine is running or not compared to CoroPlus[®] MachiningInsights where several rules are being used to determine machine status (Rule 10). As you can see there is a big difference between rule 1 and Rule 10 in how the utilization of the machine will be calculated.

Execution = ACTIVE					
tate					
2018-01-25 06:00:00	09:00	12:00	15:00	18:00	21:00 00:00
			Time (HH:MM)		Data-Unavailable Non-Producing Producing
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Sta		,			
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tate					
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le l					
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2018-01-25 06:00:00	09:00	12:00	15:00	18:00	21:00 00:00
			Time (HH:MM)		Data-Unavailable Non-Producing Producing

Rule 1: Execution = ACTIVE (Default rule in CoroPlus® MachiningInsights)

Rule 2: Execution = ACTIVE and Controller Mode = AUTOMATIC

Rule 3: Execution = ACTIVE and Path Feedrate != 0

Rule 4: Execution = ACTIVE and Path Feedrate != 0 and Spindle Speed != 0

Rule 5: Execution = ACTIVE and Path Feedrate != 0 for duration > 30 seconds

Rule 6: Execution = ACTIVE and Spindle Speed != 0 for duration > 30 seconds

Rule 7: Execution = ACTIVE and Controller Mode = AUTOMATIC and Path Feedrate!= 0 for duration > 30 seconds

Rule 8: Execution = ACTIVE and Controller Mode = AUTOMATIC and Spindle Speed!= 0 for duration > 30 seconds

Rule 9: Execution = ACTIVE and Path Feedrate != 0 for duration > 30 seconds and

Spindle Speed != 0 for duration > 30 seconds

Rule 10: Execution = ACTIVE and Controller Mode = AUTOMATIC and Path Feedrate!= 0 for duration > 30 seconds and Spindle Speed != 0 for duration > 30 seconds

To change the default rule from please contact your Sandvik Coromant representative or the support desk. Contact details can be found on the support page in CoroPlus[®] MachiningInsights.

Definitions

State definitions

State	Definition
Producing Duration	Total duration of time that was spent is producing parts
Producing %	Ratio of producing duration to the total duration
Unplanned Downtime Duration	Duration of time that was lost due to unplanned downtime activity
UDT - Unplanned Downtime %	Ratio of Unplanned downtime duration to the total duration
Planned Downtime Duration	Duration of time that was spent on planned downtime activity
PDT - Planned Downtime %	Ratio of Planned downtime duration to the total duration
Standby Duration	Duration of time the device was ready to make a part but not pro- ducing
Standby %	Ratio of Standby duration to the total duration
Setup Duration	Duration of time the device is being setup to make a Part
Setup %	Ratio of Setup duration to the total duration
Shutdown Duration	Duration of time the device is not in operation due to a scheduled shutdown
Shutdown %	Ratio of Shutdown duration to the total duration
Data Unavailable Duration	Duration of time the device data was unavailable
Data Unavailable %	Ratio of Data Unvailable duration to the total duration

Metric	Definition	From where the data comes?
Availability	Available time / Potential Available time Available Time = Producing Time + Standby Potential Available Time = Available Time+ Setup + UDT	Producing sum of duration of producing periods of the part-kind. Can be classified using a rule or manually Standby sum of duration of standby periods of the part-kind. This classification can be used such that unknown downtimes while running a part are accounted for in the available time eg. when there are stops in the middle of the cycle though the machine is running Setup sum of duration of all setup periods Unplanned Downtimes (UDT) sum of duration of all unplanned downtimes downtimes like machine-tool-failure, unknown down- times, and other classified unplanned downtimes
OEE	Availability * Performance * Quality	OEE is defined per part-kind of a machine. OEE for a machine is the weighted average of the OEE for all the part-kinds of the machine (weighted average with respect to potential available time)
OEE for a machine	[(P1.OEE * P1.PT) + (P2.OEE * P2.PT) + (P3.OEE * P3.PT)] / (P1.PT + P2.PT + P3.PT) where P1, P2 and P3 are three part-kinds PT is Potential Available Time	Note If there is no target for cycle-time set or no good/bad parts data, CoroPlus [®] MachiningInsights will return the value of OEE only based on <i>Availability</i>
Performance	Ideal Cycle Time / Actual Cycle Time	Ideal Cycle Time Users can set the <i>Ideal Cycle Time</i> for a part-kind through Targets Once that value is set, it will use that for computing <i>Per- formance</i> by measuring it with respect to the actual cy- cle time <u>Note</u>

OEE – Overall equipment efficieny definitions

		 if there are multiple Ideal cycle times set for the same part-kind of a machine, CoroPlus[®] MachiningInsights will consider the latest set for its calculation If there is no target set, CoroPlus[®] MachiningInsights will <u>NOT</u> consider the <i>Performance</i> metric from the OEE calculation and just return OEE based on <i>Availability</i> and <i>Quality</i> Actual Cycle Time Actual cycle time = producing duration/ total part count Note: this will be for a part kind Can also be seen in the <i>Part Metrics</i> report for a specific part and <i>Performance Grid</i> report across all parts
Quality	Number of Good Parts / Total num- ber of parts	Good and Bad Part Count Operator Panels will have an input where the operator can increase the number of good/bad parts operator can increment the good/bad part count total part count = good part count + bad part count <u>Note</u> If there are no good/bad parts data, Machining Insights will <u>NOT</u> consider the <i>Quality</i> metric from the OEE cal- culation and just return OEE based on <i>Availability</i> and <i>Performance</i>

Utalization and cycle time

Utilization	Producing duration / (Total duration - Shutdown duration)	This is the main metric in CoroPlus [®] MachiningInsights which is displayed in the dashboards and the reports: Performance Grid, Part Metrics and Operator Metrics <u>Producing Duration</u> (Total duration - Shutdown duration)
Net Utilization		Displayed in the reports Performance Grid, Part Metrics and Operator Metrics report Net Utilization = (Producing duration) / ((Duration when operator is logged in - ("Unplanned Downtime: Machine Tool Failure"+ "Unplanned Downtime: NC Program Problem"+ "Unplanned Downtime: Lack of mate- rial/work/tooling"+ "Planned Downtime: Operator Break"))

		Note: Duration when operator is logged in is available only if Machining Insights gets operator information cur- rently from eg the operator panel.
Staffed Utilization	Producing dura- tion/total duration the operator is logged in	Staffed Utilization is the percentage of time the ma- chine is producing when the operator is logged in to the machine Staffed Utilization = <u>Producing duration</u> total duration the operator is logged in Producing duration = whenever state is producing (green) Total duration operator is logged in = when value of op- erator from BMS database is not empty Note: Duration when operator is logged in is available only if Machining Insights gets operator information currently from eg the operator panel.
Cycle Time	The cycle time of a part	Cycle time = producing duration / total part count Note: If CoroPlus [®] MachiningInsights does not get the part count from either the machine data, the operator panel (as a manual part count) or via an integration with an external system the part cycle time can not be calcu- lated.