



# TrendMiner – Online Trainings

Recording and slides

Difficulty: intermediate







1. Best practices on searches
  - i. Value based search
  - ii. Similarity search
2. Working with search results
  - i. Filter data
  - ii. Compare results
  - iii. Monitoring
3. Searches – Tips and Tricks
  - i. Combining AND & OR conditions
  - ii. Find short spikes below indexing resolution
  - iii. Other TrendMiner search options
4. Contextualisation of process data
  - i. Annotate past process conditions
  - ii. Monitor future process conditions
  - iii. Create process overview on dashboard
5. Creating fingerprints to monitor your process
  - i. Capture recurring patterns (e.g. grade transitions)
  - ii. Compare bad patterns with fingerprint
  - iii. Analyse deviations
6. Correlation analysis with RE
  - i. Find correlating tags (for multiple events)
  - ii. Setting filter expression
  - iii. Annotate and monitor correlating events
7. Methods of correlation analysis in TrendMiner
  - i. Influence factor analysis incl. time shift
  - ii. Non-linear correlations in Scatter plots
  - iii. Comparison table
8. Tips & Tricks with the Tag builder
  - i. Creating new tags by formula and aggregations
  - ii. Calculating the slope of a tag
  - iii. If-Statements
9. Continuous Process Monitoring
  - i. Dashboard tiles: TrendHub, Monitoring and Value
  - ii. Monitoring production volume of last 24 h
  - iii. Monitoring process oscillations
10. Pre-processing data for relevant analysis
  - i. Filter
  - ii. Reducing noise
  - iii. Removing process outliers



11. Contextualisation of process data
  - i. Context Items from search results and monitoring
  - ii. Gantt Chart
  - iii. Dashboard: Monitoring and Context Item counter
12. Correlation analysis with Fingerprint
  - i. Creating and editing a Fingerprint
  - ii. Deviations analysis with Recommendation Engine
  - iii. Monitoring deviations
13. 3 Ways to Compare Past Process Changes
  - i. Aggregation, Context Items creation and search
  - ii. Layering and Comparison Table
  - iii. Fingerprints and monitoring
14. Tips & Tricks with Time Tags
  - i. Calculate a cumulative production over 24h
  - ii. Improved DashHub tiles
  - iii. Sending a monitor at a fixed time
15. Layers
  - i. Comparing Specific Time Periods
  - ii. Comparing Batches
  - iii. Layers in TrendHub Beta
16. 4 Use Cases with the Tag Builder
  - i. Maximum of a set of tags
  - ii. Data Pre-processing
  - iii. Temperature variations analysis
  - iv. Nested Formulas
17. DashHub Dashboards
  - i. ContextHub View Count Tile (Event Counter)
  - ii. Current Value Tile
  - iii. Monitor/Alert Tile
  - iv. TrendHub View Tile

# TrendMiner Searches – Best practices



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| <b>Title</b>          | TrendMiner Searches – Best practices on searches             |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners) |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view       |
| <b>Content:</b>       | Focus on Value Based and Similarity Search                   |
| <b>Sessions EMEA</b>  | <a href="#">Slides</a> , <a href="#">Recording</a>           |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recording</a>           |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recording</a>           |



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| <b>Title</b>          | TrendMiner Searches – Working with search results                          |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)               |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search     |
| <b>Content:</b>       | Use searches to filter your data, compare results and monitor your process |
| <b>Sessions EMEA</b>  | <a href="#">Slides</a> , <a href="#">Recording</a>                         |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recording</a>                         |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recording</a>                         |

# TrendMiner Searches – Tips & Tricks



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| <b>Title</b>          | TrendMiner Searches – Tips and Tricks   |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)  |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, working with search results |
| <b>Content:</b>       | Learn Tips & Tricks and think a little outside the box to step up your search game                  |
| <b>Sessions EMEA</b>  | <a href="#">Slides</a> , <a href="#">Recording</a>  |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recording</a>  |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recording</a>  |



# Contextualisation of process data



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| <b>Title</b>          | Contextualisation of process data  |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)   |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher   |
| <b>Content:</b>       | Contextualising process events like batches, operational or maintenance periods as well as in- or off-spec production to be used for visualization of process conditions and dashboarding. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |

# Creating fingerprints to monitor your process



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| <b>Title</b>          | Creating fingerprints to monitor your process  |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube course for beginners</a> )  |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, layering, recommended TrendMiner version 2020.R1 or higher   |
| <b>Content:</b>       | Are you using fingerprints to their full potential? Capture recurring patterns such as process start-ups, product transition, and golden batches through fingerprints to compare certain events, monitor process dynamics or perform a root cause analysis to avoid deviations from the ideal profile. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recording</a>   |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recording</a>   |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recording</a>   |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recording</a>   |



# Correlation Analysis 1 – Recommendation Engine



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| <b>Title</b>          | Correlation analysis with Recommendation Engine  |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)   |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, layering, TrendMiner version 2020.R1 or higher. Please search for tags with starting with TM-TSP-*, if not available please let us know at the beginning of the training.  |
| <b>Content:</b>       | Correlation does not necessarily imply causation but it can be a good indicator and starting point for further analysis. Learn how to automatically search for correlating tags and find early indicators. This can be done with the recommendation engine for one or multiple events up to 1 h before an event happens. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |

# Correlation Analysis 2 – Further methods



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| <b>Title</b>          | Methods of correlation analysis in TrendMiner   |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube course for beginners</a> )   |
| <b>Prerequisites:</b> | Adding tags, navigating in time, saving & loading a view, doing a search, layering, TrendMiner version 2020.R1 or higher. Please search for tags starting with TM-TSP-*, TM-HEX-* and TM-GRA*, if not available please let us know at the beginning of the training   |
| <b>Content:</b>       | Next to the Recommendation Engine TrendMiner has additional ways to check correlations between tags & layers. Learn how to check for correlations between tags by the influence factor analysis, visualisation in scatter plots and compare key statistics between multiple layers of one tag in this training. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> <a href="#">Recordings</a>   |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |

# Tips & Tricks with the Tag builder



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| <b>Title</b>          | Tips and tricks with the Tag Builder   |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)   |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher   |
| <b>Content:</b>       | Besides learning how to create new tags based on formulas or aggregations, we will also show some handy tips and tricks on how to work with the tag builder to solve some very common use cases, such as calculating the slope of a tag, nesting formulas such as IF-statements or determine the maximum value of a set of tags. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |



# Continuous Process Monitoring



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| Title          | Continuous process monitoring  |
| Difficulty:    | Intermediate ( <a href="#">Youtube</a> course for beginners)   |
| Prerequisites: | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .  |
| Content:       | Next to functionalities for root cause analysis covered in previous trainings, TrendMiner offers a multitude of options to keep track of the current state of your process. Learn how to create a view that always shows the latest data including upper and lower limit, how to get notified about critical process conditions or simply keep track of the product volume of the last 24 h. |
| Session EMEA   | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| Session GER    | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| Session US     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| Session ES     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |

# Preprocessing data for relevant analysis



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| Title          | Preprocessing data for relevant analysis  |
| Difficulty:    | Intermediate ( <a href="#">Youtube</a> course for beginners)  |
| Prerequisites: | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .   |
| Content:       | Learn in this online training how to preprocess your data ensuring comparability of analyzed data sets by reducing noise, removing outliers in your process data and filtering data based on a specified time or conditions. In this training we will focus on creating filters and using the tag builder to enable meaningful troubleshooting. |
| Session EMEA   | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| Session GER    | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| Session US     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| Session ES     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |

# Contextualization of process data



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| Title          | Contextualization of process data  |
| Difficulty:    | Intermediate ( <a href="#">Youtube course for beginners</a> )  |
| Prerequisites: | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .  |
| Content:       | Sometimes looking at numbers and trends just isn't enough to complete an investigation, some additional contextual information can make all the difference. Learn in this online training how to add context items to your trends both manually and automatically to improve the overall knowledge of an incident. We will focus on adding contextual data to our continuous processes to add more qualitative data to the analysis being performed. |
| Session EMEA   | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| Session GER    | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| Session US     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| Session ES     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |



# Correlation Analysis with Fingerprints



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| Title          | Correlation Analysis with Fingerprints  |
| Difficulty:    | Intermediate ( <a href="#">Youtube</a> course for beginners)  |
| Prerequisites: | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .   |
| Content:       | Fingerprinting is a great tool to capture and to compare recurring process events. But did you know you could also use Fingerprints to perform a root cause analysis? In this training you will learn how to use fingerprinting to determine the cause of a batch process anomaly and how to set up a monitor to avoid deviations from the ideal profile. |
| Session EMEA   | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| Session GER    | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| Session US     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| Session ES     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |

# 3 Ways to Compare Past Process Changes



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| Title          | 3 Ways to Compare Past Process Changes  |
| Difficulty:    | Intermediate ( <a href="#">Youtube</a> course for beginners)  |
| Prerequisites: | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .   |
| Content:       | Using past process data is a great way to figure out how the current process might behave. In this training we will cover three different ways you can leverage previous process changes to have more success in the present and in the future. For this training you will learn how to use ContextHub views, compare tables, and fingerprints. |
| Session EMEA   | <a href="#">Slides, Recordings</a>  |
| Session GER    | <a href="#">Slides, Recordings</a>  |
| Session US     | <a href="#">Slides, Recordings</a>  |
| Session ES     | <a href="#">Slides, Recordings</a>  |

# Tips & Tricks with Time Tags



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| Title          | Tips & Tricks with Time Tags   |
| Difficulty:    | Intermediate ( <a href="#">Youtube</a> course for beginners)   |
| Prerequisites: | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2021.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .  |
| Content:       | The new TrendMiner versions have Time Tags shipped with the installations. These Time Tags show time as a tag through year, month, day, and hour tags. These discrete time tags can be used in many different ways to get more out of your process data and display KPIs and metrics in useful ways. For this training you will create TrendHub and DashHub views to display interesting insights. |
| Session EMEA   | <a href="#">Slides, Recordings</a>   |
| Session GER    | <a href="#">Slides, Recordings</a>   |
| Session US     | <a href="#">Slides, Recordings</a>   |
| Session ES     | <a href="#">Slides, Recordings</a>   |





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| <b>Title</b>          | Layers – Comparing Against Historic Periods  |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)   |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2020.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .  |
| <b>Content:</b>       | Every process has its own quirks that affect how it behaves in certain conditions. Comparing each process to its own historic data is the best way to find differences and similarities between time periods. In this training we will cover how to overlay different time periods as layers and how to use those layers as tools for analysis and comparison. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |
| <b>Session FR</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>  |

# 4 Use cases with the Tag Builder



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| <b>Title</b>          | 4 Use cases with the Tag Builder  |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)  |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2021.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .   |
| <b>Content:</b>       | In TrendMiner you can build your own personalized tags using a range of operators available in the Tag Builder. In this training, we will work on 4 use cases, and you will see how you can apply different types of formulas and aggregations to analyse your process. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session FR</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |

# DashHub Dashboard



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| <b>Title</b>          | DashHub Dashboard   |
| <b>Difficulty:</b>    | Intermediate ( <a href="#">Youtube</a> course for beginners)  |
| <b>Prerequisites:</b> | Adding tags, navigate in time, saving & loading a view, doing a search, recommended TrendMiner version 2021.R1 or higher. TrendMiner basics are covered in the 'TrendMiner Training' available on <a href="#">YouTube</a> .         |
| <b>Content:</b>       | DashHub is your control center where you can oversee multiple aspects of your process. Learn how to create a personalized Dashboard to keep count of specific events and monitor the current value of your main process parameters. |
| <b>Session EMEA</b>   | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session GER</b>    | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session US</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session ES</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |
| <b>Session FR</b>     | <a href="#">Slides</a> , <a href="#">Recordings</a>   |