

Contextualizing plant performance

with Oracle OEE data



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OUR JOURNEY TOGETHER



The **vision** – why context data matters



The **technology** – opening up connectivity



The **implementation** – deep dive and lessons learned

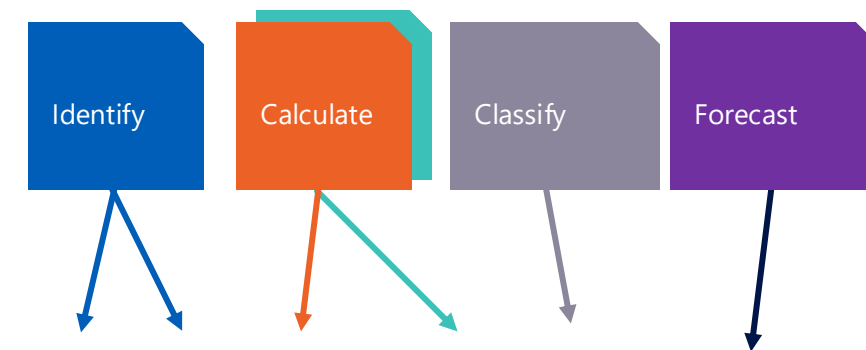
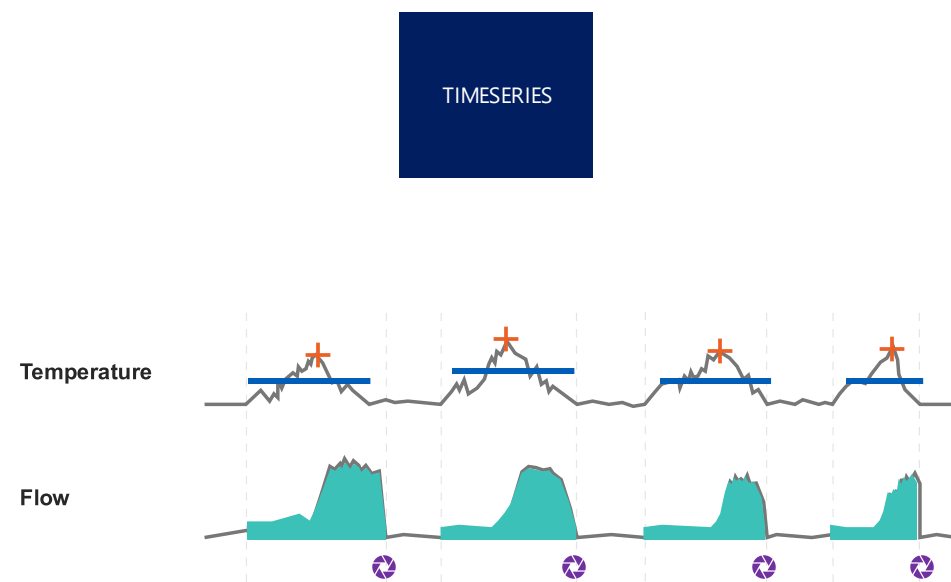


The **results** – what we've achieved so far



Next steps – scale up value

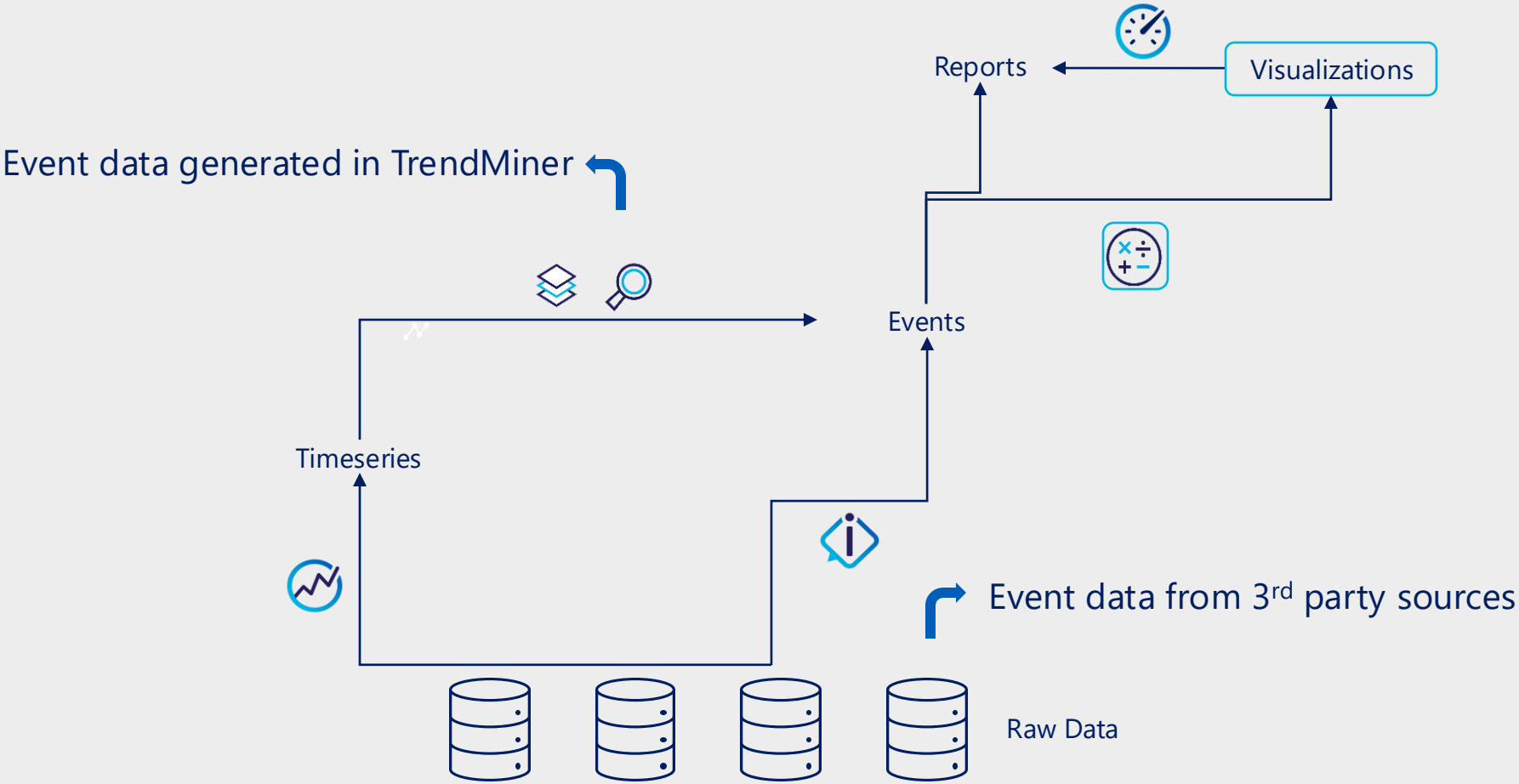
WHY CONTEXT DATA MATTERS



Batch ID	Duration	Max. temperature	Output	Grade	Quality
O36601	40min	63 °C	342m ³	Pharma	PASS
O36602	39min	68 °C	312m ³	Commercial	PASS
O36603	34min	62 °C	282m ³	Pharma	FAIL
O36604	25min	67 °C	379m ³	Pharma	PASS



ENHANCED DATA LAYER



TRENDMINER @ BAYER

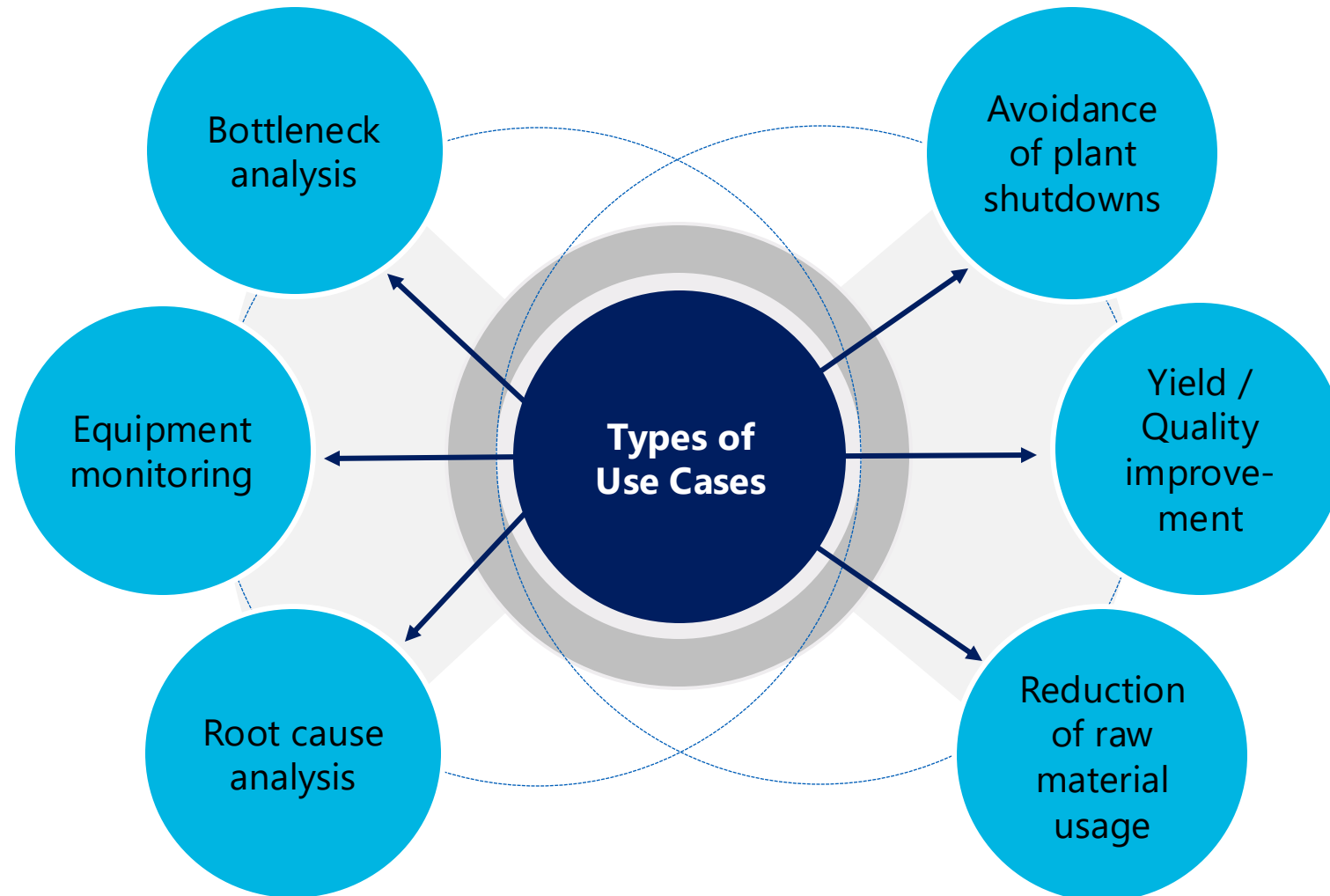
Benefits & Business impact

- // Increase process understanding
- // Support data driven decision making
- // Focus on Self Service Data analytics
- // Created tangible process improvements like:

COGS ↓ Yield ↑ Quality ↑ Cycle time ↓

TRENDMINER @ BAYER

Use Cases



OEE DATA IN LULING

Typical use cases

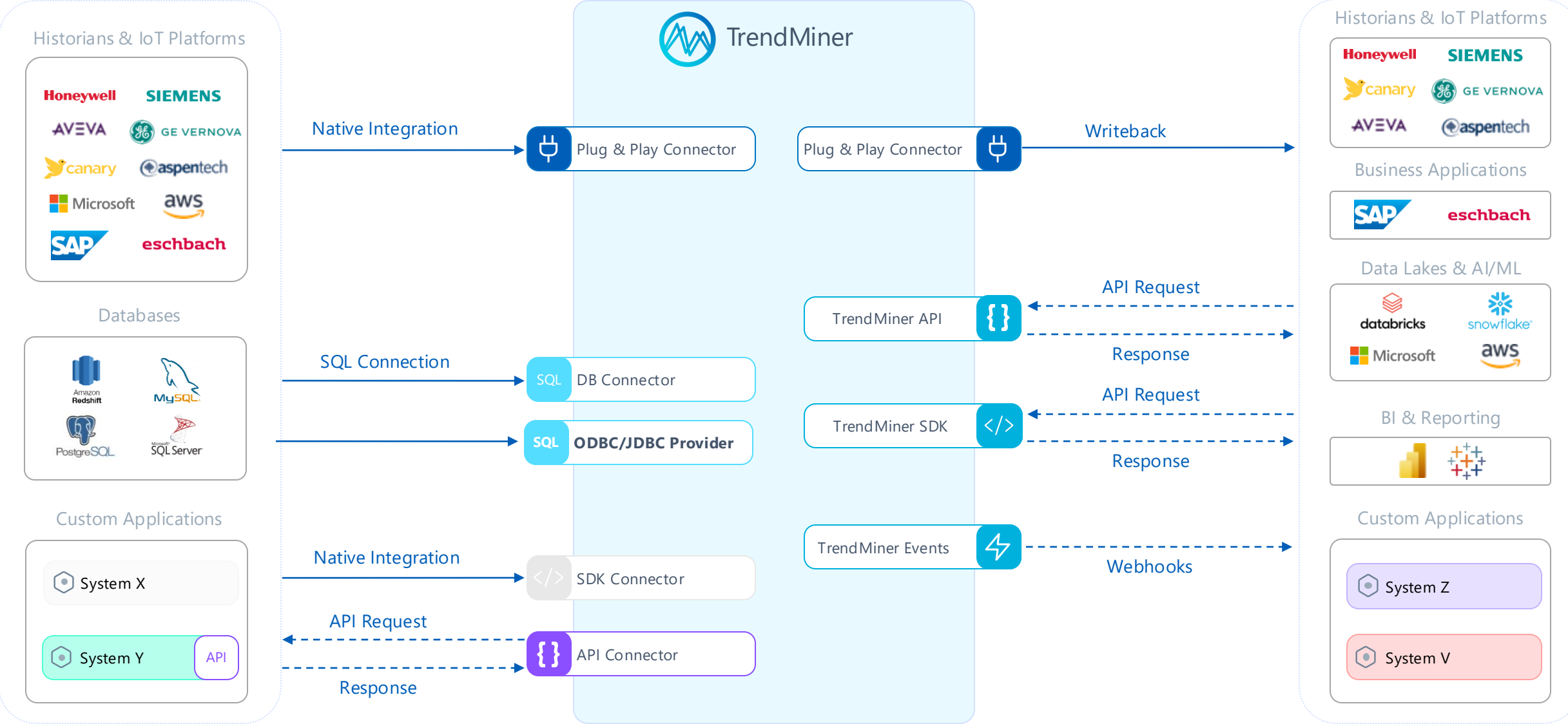
Luling

- IP21 historian connected
- TrendHub and DashHub

Bring in OEE Data

- Delta V database

FLEXIBLE INTEGRATION ARCHITECTURE





IMPLEMENTATION

	PROCESS_STEP	BATCH	DOWNTIME_HOURS	REASON_LV1	REASON_LV2	REASON_LV3	REASON_LV4	EVENT_COMMENT	LAST_UPDATED_BY	CREATED_DT_UTC	MODIFIED_DT_UTC	TM_ASSET
	DUMP HOLD	11028	0.28	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	DRY END	Manual Entry	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	DUMP HOLD	11035	0.33	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	DRY END	Manual Entry	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	STOP PCL3	11036	0.32	UNPLANNED DOWNTIME	OPERATIONAL	GISHYD9	HM ACTIVATED	GISFC103-05 < MV12	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	DUMP HOLD	11038	0.53	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	CRYSTALLIZER	Manual Entry	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	DUMP HOLD	11058	0.89	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	DRY END	Manual Entry	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	DUMP HOLD	11061	0.47	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	DRY END	Manual Entry	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	DUMP HOLD	11076	0.93	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	DRY END	Manual Entry	BORROMEO	2024-02-21 20:16:42	2024-02-21 20:16:42	LUL-GISHYDR9-DT
	DUMP HOLD	11654	0.27	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	PLANNED - INTERLOCK/USF CHECKS	Manual Entry	BORROMEO	2025-03-13 16:33:25	2025-03-13 16:33:25	LUL-GISHYDR9-DT
	DUMP END	11757	0.63	UNPLANNED DOWNTIME	OPERATIONAL	GISHYD9	HM ACTIVATED	HOLD button Active	BORROMEO	2025-03-17 13:38:21	2025-03-17 13:38:21	LUL-GISHYDR9-DT
	DUMPING	11612	0.27	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	INSTRUMENT - LEVEL	Manual Entry	BORROMEO	2025-03-12 02:59:01	2025-03-12 02:59:01	LUL-GISHYDR9-DT
	DUMPING	11758	0.43	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	INSTRUMENT - LEVEL	Manual Entry	BORROMEO	2025-03-17 15:06:30	2025-03-17 15:06:30	LUL-GISHYDR9-DT
	PCL3 CHARGE	11717	0.26	UNPLANNED DOWNTIME	OPERATIONAL	GISHYD9	RAW MATERIAL - PCL3 NOZZLE PLU	Manual Entry	BORROMEO	2025-03-16 00:07:27	2025-03-16 00:07:27	LUL-GISHYDR9-DT
	DUMP HOLD	11759	0.38	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	INSTRUMENT - LEVEL	Manual Entry	BORROMEO	2025-03-17 16:36:56	2025-03-17 16:36:56	LUL-GISHYDR9-DT
	PCL3 CHARGE	15797	0.25	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-23 21:06:12	2024-10-23 21:06:12	LUL-GISHYDR9-DT
	PCL3 CHARGE	15846	0.25	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-26 20:25:40	2024-10-26 20:25:40	LUL-GISHYDR9-DT
	STOP PCL3	15773	0.88	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	EQUIPMENT - VESSEL	Manual Entry	BORROMEO	2024-10-22 19:11:05	2024-10-22 19:11:05	LUL-GISHYDR9-DT
	PCL3 CHARGE	15847	0.25	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-26 21:33:26	2024-10-26 21:33:26	LUL-GISHYDR9-DT
	PCL3 CHARGE	15798	0.26	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-23 22:33:30	2024-10-23 22:33:30	LUL-GISHYDR9-DT
	PCL3 CHARGE	15848	0.25	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-26 22:42:03	2024-10-26 22:42:03	LUL-GISHYDR9-DT
	PCL3 CHARGE	15806	0.25	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-24 07:31:09	2024-10-24 07:31:09	LUL-GISHYDR9-DT
	DUMP END	15807	15.3	UNPLANNED DOWNTIME	OPERATIONAL	GISHYD9	HM ACTIVATED	HOLD button Active	BORROMEO	2024-10-25 01:02:40	2024-10-25 01:02:40	LUL-GISHYDR9-DT
	PCL3 CHARGE	15849	0.25	PERFORMANCE LOSS	PLANNED RATE REDUCTION	INTENDED RATE LOSS	DSIDA LIMITED		BORROMEO	2024-10-26 23:49:15	2024-10-26 23:49:15	LUL-GISHYDR9-DT
	STOP PCL3	15779	0.59	UNPLANNED DOWNTIME	OPERATIONAL	GISHYD9	EQUIPMENT - PIPING	Manual Entry	BORROMEO	2024-10-23 00:09:11	2024-10-23 00:09:11	LUL-GISHYDR9-DT
	DUMP HOLD	15779	0.46	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	EQUIPMENT - PIPING	Manual Entry	BORROMEO	2024-10-23 00:37:59	2024-10-23 00:37:59	LUL-GISHYDR9-DT
	STOP PCL3	15807	0.66	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LOSS	EQUIPMENT - AGITATOR	Manual Entry	BORROMEO	2024-10-24 21:01:44	2024-10-24 21:01:44	LUL-GISHYDR9-DT



928-158-9 - Luling Downtime Event

Details

Attachments

CONTEXT ITEM DETAILS

Options

Component

GI2HYDR4-DT

Type

Luling Downtime Event - ODBC_Luling_D

Description

Keywords

Batch

16035

Event Comment

Manual Entry

Last Modified Date/Time

2024-07-30 08:58:56

Last Updated By

BORROMEO

Module Name

GI2HYDR4-DT

Plant Area

GI2

Process Step

DUMP HOLD

Reason LV1

PERFORMANCE LOSS

Reason LV2

RATE LOSS

Reason LV3

UNINTENDED RATE LOSS

Reason LV4

CRYSTALLIZER COOLING EFFICIENC

EVENTS

Started

7/29/2024 11:14:00 PM

15m 36s

Ended

7/29/2024 11:29:36 PM

Total duration

15m 36s





THE BUILDING BLOCKS

- TrendMiner's ODBC provider to set up and configure connectivity
- OracleDB ODBC driver to talk to the database (+ configure behaviour)
- Data model
- Queries to retrieve data and map to data model





ODBC DRIVER

Oracle ODBC Driver Configuration

Data Source Name:

Description:

TNS Service Name:

User ID:

OK Cancel Help Test Connection

Application Oracle Workarounds SQLServer Migration

Enable Result Sets ☒ Enable Query Timeout ☒ Read-Only Connection ☐

Enable Closing Cursors ☐ Enable Thread Safety ☒

Batch Autocommit Mode:

Numeric Settings:

Oracle ODBC Driver Configuration

Data Source Name:

Description:

TNS Service Name:

User ID:

OK Cancel Help Test Connection

Application Oracle Workarounds SQLServer Migration

Fetch Buffer Size:

Enable LOBs ☒

Enable Statement Caching ☐

Cache Buffer Size:

Max Token Size:

Translate ORA errors ☐

Failover Support

Enable Failover ☒

Retry:

Delay:

Aggregate SQL Type:

Lob Prefetch Size:

- Check available ODBC driver(s) for your datasource
- Tip: configure DSN to simplify connection string
- Check on customization options offered by driver



DATA MODEL

Event definition

id	batch	component	state	REASON_LV1	REASON_LV2	Comment	...
11000_1	11000	GI5HYDR9	Started	PERFORMANCE LOSS	DRY END	Manual Entry	...
11000_2	11000	GI5HYDR9	Ended	PERFORMANCE LOSS	DRY END	Manual Entry	...



id	type	name	parentId	dataType	dataValue
LULING	ASSET	LULING	NULL	NULL	NULL
GI1HYDR1	ATTRIBUTE	GI1HYDR1	LULING	DATA_REFERENCE	GI1-HYDR1
GI1HYDR2	ATTRIBUTE	GI1HYDR2	LULING	DATA_REFERENCE	GI1-HYDR2
GI2HYDR3	ATTRIBUTE	GI2HYDR3	LULING	DATA_REFERENCE	GI3-HYDR3
...					



Asset tree definition

Mapping IP21 tags with phase info to asset tree



QUERIES

```
3  ### Events Query ###
4
5
6  WITH DT_StartedEvents AS
7  (
8    SELECT
9      TO_CHAR(DOWNTIME_EVENT_ID) || '_0' as id,
10     DOWNTIME_EVENT_ID as name,
11     '01Test_Luling-DeltaV' as type,
12     EVENT_START_UTC as occurred_at,
13     MODIFIED_DT_UTC as modified_at,
14     '0e09ba57-cafc-4da6-b426-4a0025d99f32' as components,
15     'Started' as state,
16     null as description,
17     null as keywords,
18     DOWNTIME_EVENT_ID as grouping_key
19   FROM
20     OEE.TRENDMINER_CONTEXT_VIEW
21   WHERE
22     TO_DATE(EVENT_START_UTC, 'YYYY-MM-DD HH24:MI:SS') > TO_DATE({AFTER}, 'YYYY-MM-DD HH24:MI:SS')
23     AND
24     TO_DATE(EVENT_START_UTC, 'YYYY-MM-DD HH24:MI:SS') < TO_DATE({BEFORE}, 'YYYY-MM-DD HH24:MI:SS')
25   ),
26
27  DT_EndedEvents AS
28  (
29    SELECT
30      TO_CHAR(DOWNTIME_EVENT_ID) || '_1' as id,
31     DOWNTIME_EVENT_ID as name,
32     '01Test_Luling-DeltaV' as type,
33     EVENT_END_UTC as occurred_at,
34     MODIFIED_DT_UTC as modified_at,
35     '0e09ba57-cafc-4da6-b426-4a0025d99f32' as components,
36     'Ended' as state,
37     null as description,
38     null as keywords,
39     DOWNTIME_EVENT_ID as grouping_key
40   FROM
41     OEE.TRENDMINER_CONTEXT_VIEW
42   WHERE
43     TO_DATE(EVENT_END_UTC, 'YYYY-MM-DD HH24:MI:SS') > TO_DATE({AFTER}, 'YYYY-MM-DD HH24:MI:SS')
44     AND
45     TO_DATE(EVENT_END_UTC, 'YYYY-MM-DD HH24:MI:SS') < TO_DATE({BEFORE}, 'YYYY-MM-DD HH24:MI:SS')
46   ),
47
48  DT_Events AS
49  (
50    SELECT * FROM DT_StartedEvents
51    UNION
52    SELECT * FROM DT_EndedEvents
53    ORDER BY
54      id
55  )
56
57  SELECT
58    | | *
59  FROM
60    | | DT_Events
61  WHERE
62    | id > coalesce({CURSOR}, '0')
```

```
119 Types Query
120
121
122 WITH EventTypes AS (
123   SELECT
124     '01Test_Luling-DeltaV' as id,
125     'Luling Downtime Event' as name,
126     '001F1F' as color,
127     'Started' as startstate,
128     'Ended' as endstate,
129     'Started,Ended' as states,
130     '01_LDTE_PlantArea,02_LDTE_ModuleName,03_LDTE_ProcessStep,04_LDTE_Batch,05_LDTE_ReasonLV1,06_LDTE_ReasonLV2,07_LDTE_ReasonLV3,08_LDTE_ReasonLV4,09_LDTE_EventComment,10_LDTE_LastUpdatedBy,11_LDTE_LastModifiedDate' as fields
131   FROM dual
132 )
133 SELECT * from EventTypes
134 WHERE
135   id > coalesce(TO_CHAR({CURSOR}), '0')
136
137
138
139 Type by id query
140
```

```
163 WITH DT_Fields AS
164 (
165   | SELECT id, name, type, placeholder, options from OEE.TRENDMINER_CONTEXT_FIELDS
166 )
167 SELECT
168 *
169 FROM
170 DT_Fields
171 where id > coalesce(TO_CHAR({CURSOR})), '0')
172
```



IMPLEMENTATION RESULTS

928-158-9 - Luling Downtime Event

Details

Attachments

CONTEXT ITEM DETAILS

Options

Component

GI2HYDR4-DT

Type

Luling Downtime Event - ODBC_Luling_D

Description

Keywords

EVENTS

Started

7/29/2024 11:14:00 PM

15m 36s

Ended

7/29/2024 11:29:36 PM

Total duration

15m 36s

Reason LV1

PERFORMANCE LOSS

Reason LV2

RATE LOSS

Reason LV3

UNINTENDED RATE LOSS

Reason LV4

CRYSTALLIZER COOLING EFFICIENC

EVENTS

Started

7/29/2024 11:14:00 PM

15m 36s

Ended

7/29/2024 11:29:36 PM

Total duration

15m 36s

Finished event

928-48B-4 - Luling Downtime Event

Details

Attachments

CONTEXT ITEM DETAILS

Options

Component

GI4HYDR7-DT

Type

Luling Downtime Event - ODBC_Luling_D

Description

Keywords

EVENTS

Started

9/4/2025 5:58:00 AM

Total duration

Reason LV1

UNPLANNED DOWNTIME

Reason LV2

OPERATIONAL

Reason LV3

GI4HYD7

Reason LV4

PLANNED - PLANNED SHUTDOWN

EVENTS

Started

9/4/2025 5:58:00 AM

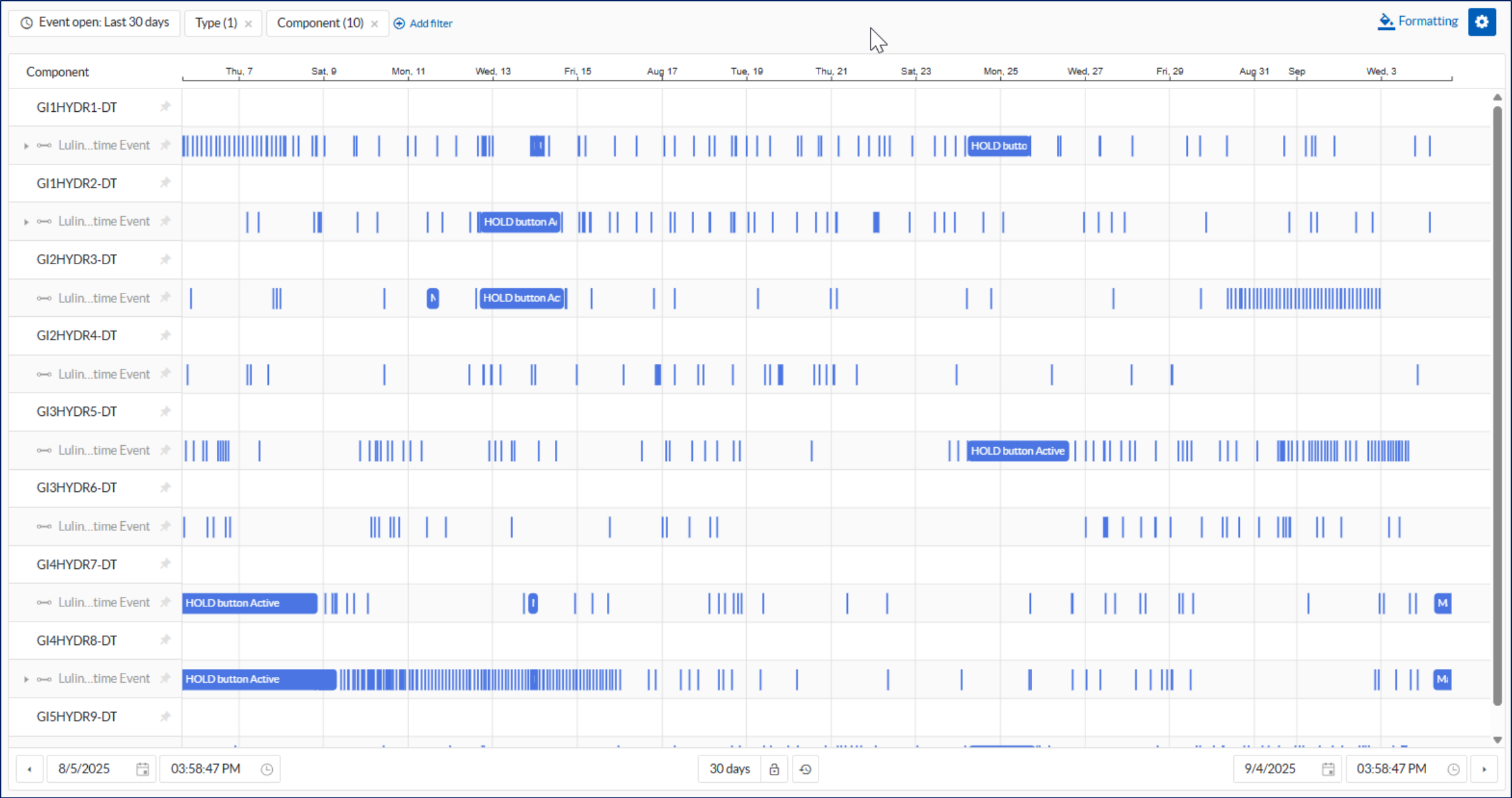
Total duration

Event in progress

© TRENDMINER

14

RESTRICTED





Rules configuration for Gantt

You can add new rules here

Close

Conditions on: Reason LV1

Conditions on: Reason LV4

Conditions on: Reason LV1

Add new rule

Enable conditional formatting ☒

Event open: Last 30 days

Type (1) x

Component (10) x

Add filter

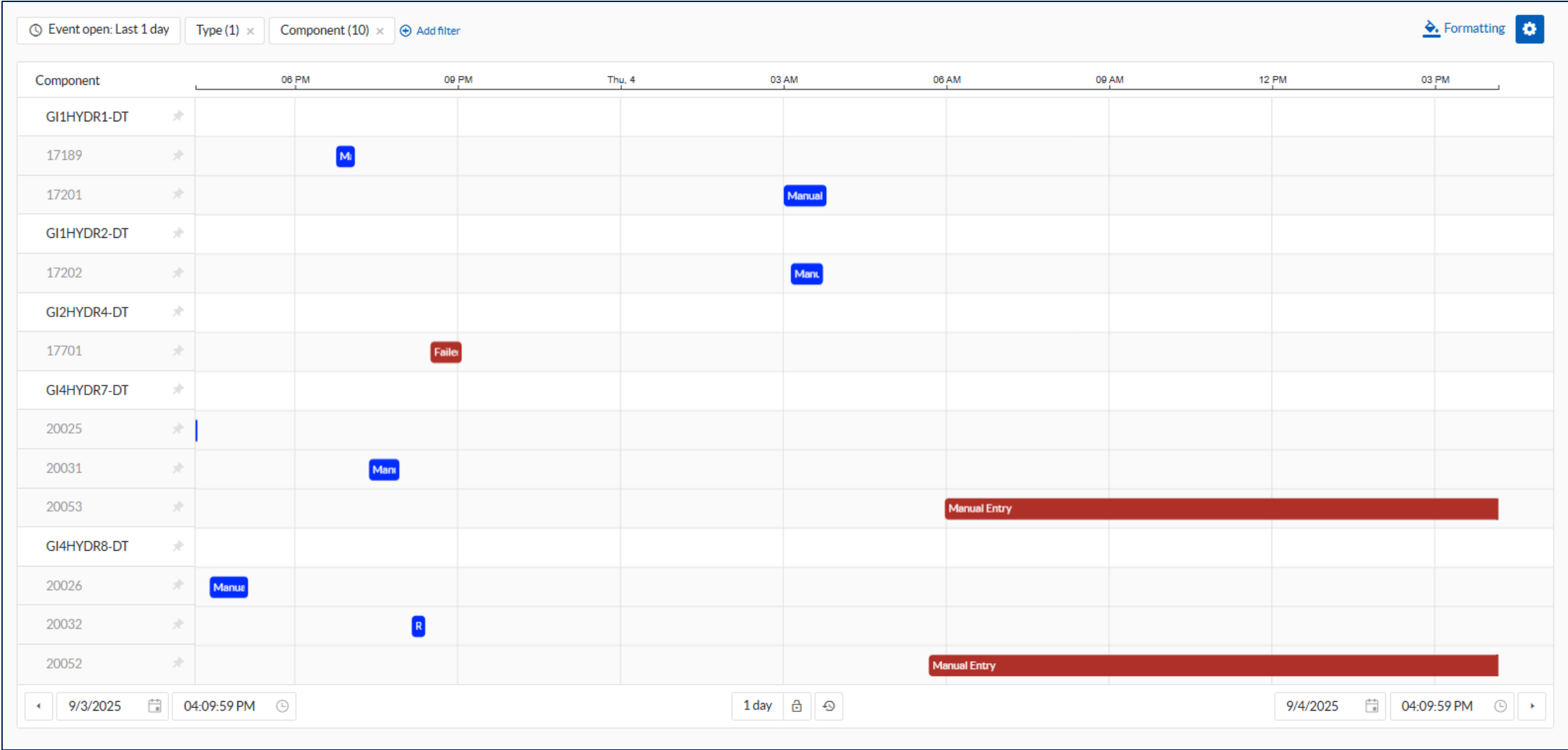
Formatting



8/5/2025 03:58:47 PM

30 days

9/4/2025 03:58:47 PM





🕒 Event open: Last 1 day

Type (1) ×

Component (10) ×

⚙️ Add filter

⚙️

☐	Start date	Current st...	Type	Component	Duration	Process Step	Reason LV1	Reason LV2	Reason LV3	Reason LV4
☐	9/4/2025 5:58:00 AM	Started	Luling Dow...	GI4HYDR7-DT	10h 14m 3...	DSIDA ADD	UNPLANNED DOWNTI	OPERATIONAL	GI4HYD7	PLANNED - PLANNED SHUTDOV
☐	9/3/2025 4:26:00 PM	Ended	Luling Dow...	GI4HYDR8-DT	42m 36s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☐	9/3/2025 7:22:00 PM	Ended	Luling Dow...	GI4HYDR7-DT	33m 36s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☐	9/3/2025 8:09:00 PM	Ended	Luling Dow...	GI4HYDR8-DT	15m 00s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	GI4HYD8	UNKNOWN
☐	9/3/2025 6:45:00 PM	Ended	Luling Dow...	GI1HYDR1-DT	20m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☐	9/4/2025 3:00:00 AM	Ended	Luling Dow...	GI1HYDR1-DT	47m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	PROCESS CONDITIONS - NON-F
☐	9/4/2025 3:08:00 AM	Ended	Luling Dow...	GI1HYDR2-DT	35m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	PROCESS CONDITIONS - NON-F
☐	9/3/2025 8:30:00 PM	Ended	Luling Dow...	GI2HYDR4-DT	34m 48s	PCL3 CHARGE	UNPLANNED DOWNTI	EQUIPMENT	GI2HYD4	SM ACTIVATED
☐	9/4/2025 5:40:00 AM	Started	Luling Dow...	GI4HYDR8-DT	10h 32m 3...	PCL3 CHARGE	UNPLANNED DOWNTI	OPERATIONAL	GI4HYD8	PLANNED - PLANNED SHUTDOV



Event open: Last 1 day Type (1) × Component (10) × Add filter

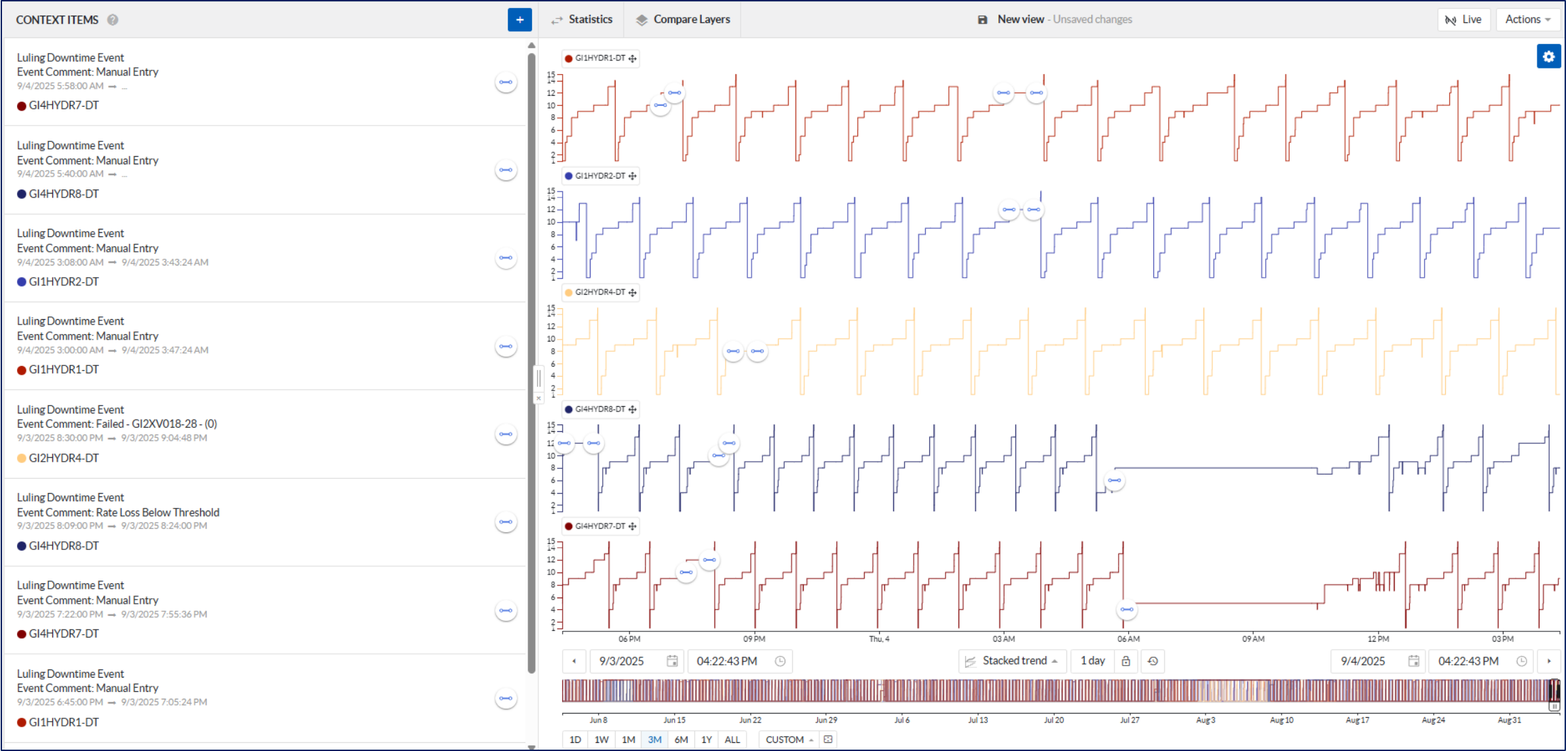
	Start date	Current st...	Type	Component	Duration	Process Step	Reason LV1	Reason LV2	Reason LV3	Reason LV4
☒	9/4/2025 5:58:00 AM	Started	Luling Dow...	GI4HYDR7-DT	10h 14m 3...	DSIDA ADD	UNPLANNED DOWNTI	OPERATIONAL	GI4HYD7	PLANNED - PLANNED SHUTDO
☐	9/3/2025 4:26:00 PM	Ended	Luling Dow...	GI4HYDR8-DT	42m 36s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☐	9/3/2025 7:22:00 PM	Ended	Luling Dow...	GI4HYDR7-DT	33m 36s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☐	9/3/2025 8:09:00 PM	Ended	Luling Dow...	GI4HYDR8-DT	15m 00s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	GI4HYD8	UNKNOWN
☐	9/3/2025 6:45:00 PM	Ended	Luling Dow...	GI1HYDR1-DT	20m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☐	9/4/2025 3:00:00 AM	Ended	Luling Dow...	GI1HYDR1-DT	47m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	PROCESS CONDITIONS - NON-F
☐	9/4/2025 3:08:00 AM	Ended	Luling Dow...	GI1HYDR2-DT	35m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	PROCESS CONDITIONS - NON-F
☒	9/3/2025 8:30:00 PM	Ended	Luling Dow...	GI2HYDR4-DT	34m 48s	PCL3 CHARGE	UNPLANNED DOWNTI	EQUIPMENT	GI2HYD4	SM ACTIVATED
☒	9/4/2025 5:40:00 AM	Started	Luling Dow...	GI4HYDR8-DT	10h 32m 3...	PCL3 CHARGE	UNPLANNED DOWNTI	OPERATIONAL	GI4HYD8	PLANNED - PLANNED SHUTDO

Delete Resync Visualize 3 context items are selected.
 Select all filtered context items

Event open: Last 1 day Type (1) × Component (10) × Add filter

	Start date	Current st...	Type	Component	Duration	Process Step	Reason LV1	Reason LV2	Reason LV3	Reason LV4
☐	9/4/2025 5:58:00 AM	Started	Luling Dow...	GI4HYDR7-DT	10h 14m 3...	DSIDA ADD	UNPLANNED DOWNTI	OPERATIONAL	GI4HYD7	PLANNED - PLANNED SHUTDO
☒	9/3/2025 4:26:00 PM	Ended	Luling Dow...	GI4HYDR8-DT	42m 36s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☒	9/3/2025 7:22:00 PM	Ended	Luling Dow...	GI4HYDR7-DT	33m 36s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☒	9/3/2025 8:09:00 PM	Ended	Luling Dow...	GI4HYDR8-DT	15m 00s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	GI4HYD8	UNKNOWN
☒	9/3/2025 6:45:00 PM	Ended	Luling Dow...	GI1HYDR1-DT	20m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	DRY END - OTHER
☒	9/4/2025 3:00:00 AM	Ended	Luling Dow...	GI1HYDR1-DT	47m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	PROCESS CONDITIONS - NON-F
☒	9/4/2025 3:08:00 AM	Ended	Luling Dow...	GI1HYDR2-DT	35m 24s	DUMP HOLD	PERFORMANCE LOSS	RATE LOSS	UNINTENDED RATE LO	PROCESS CONDITIONS - NON-F
☐	9/3/2025 8:30:00 PM	Ended	Luling Dow...	GI2HYDR4-DT	34m 48s	PCL3 CHARGE	UNPLANNED DOWNTI	EQUIPMENT	GI2HYD4	SM ACTIVATED
☐	9/4/2025 5:40:00 AM	Started	Luling Dow...	GI4HYDR8-DT	10h 32m 3...	PCL3 CHARGE	UNPLANNED DOWNTI	OPERATIONAL	GI4HYD8	PLANNED - PLANNED SHUTDO

Delete Resync Visualize 6 context items are selected.
 Select all filtered context items





Event open: 6/4/2025 4:22:43 PM - 9/4/2025 4:22:43 PM

Type (1)

Batch (1)

Open in ContextHub

Edit context filters

Add calculation

Save this search

<->

I< 6/4/2025 4:22:43 PM

>I 9/4/2025 4:22:43 PM

Search

RESULTS (1)

⋮

🏠

📊

📄

📅 9/3/2025 8:09:00 PM

15m

GI4HYDR8-DT

Add layer | Set as base layer

Open event analytics

CONTEXT ITEM SEARCH

Event open: 6/4/2025 4:22:43 PM - 9/4/2025 4:22:43 PM

Type (1)

Reason LV1 (1)

Open in ContextHub

Edit context filters

Add calculation

Save this search

<->

I< 6/4/2025 4:22:43 PM

>I 9/4/2025 4:22:43 PM

Search

RESULTS (223)

⋮

🏠

📊

📄

September

5

August

66

July

97

June

55

Open event analytics



LESSONS LEARNED

- **Start from a use case**
 - Keeping value in mind
 - Have a clear picture of the end goal to work towards
- **Availability of a DBA (database admin) is crucial**
 - Setting up the ODBC connection
 - Creating dedicated table views, also for testing
 - Troubleshooting
- **Step-by-step approach**
 - Start from a simple connection and some empty context items
 - Adding in fields and attributes gradually
- **Documentation**
 - Document what has been built, how and why
 - This helps scale activities to other data sources / plants





LESSONS LEARNED (2)

- Improvements to the admin experience would fast-track development of connection
 - Syntax correctness
 - Validating columns, variables etc.
 - Completeness of query set
- Learnings are being applied by product team to bring improvements to market in 2026





SNEAK PEAK

Query Builder

0 of 12 configured

Configure Query Types

Set up your data source queries. Each query type can only be configured once.

Events Query Click to configure	Event by ID Query Click to configure	Types Query Click to configure	Type by ID Query Click to configure
Fields Query Click to configure	Field by ID Query Click to configure	Event Fields Query Click to configure	Tag List Query Click to configure
Index Query Click to configure	Plot Query Click to configure	Digital States Query Click to configure	Events by Grouping Key Query Click to configure



Gallery



Event by ID Query

Event by ID Query X

Event by ID Query

Event by ID Query



Back to Gallery

Query Name

Event by ID Query

Query Type

Event by ID Query

SQL Query



Run Query

```
1 select id, name, type, occurred_at,  
2 modified_at, components, state, description,  
3 keywords, grouping_key from Event where  
4 Id = [ID]
```

Query Results

5 rows returned

ID	Name	Type	Occurred At
702	DELETED_AFTER_2020-12-23 00:15:37.960	Event	2020-12-23 00:15:37
703	QA_journey_to_redirect	Journey	2021-01-15 10:30:00
704	QA redirect flow to journey	Flow	2021-02-10 14:20:00

<> Template Variables

Click to insert into query

[AFTER]



Start date filter
2024-01-01T00:00:00

[BEFORE]



End date filter
2024-12-31T23:59:59

[CURSOR]



Pagination cursor
0

[LIMIT]



Row limit
100

[STARTDATE]



Time series start
2024-01-01

[ENDDATE]



Time series end
2024-12-31

[ID]



Entity ID
123

[MYID]



Custom ID prefix
MyDS



SNEAK PEAK

Query Builder

4 of 12 configured

Configure Query Types

Set up your data source queries. Each query type can only be configured once.

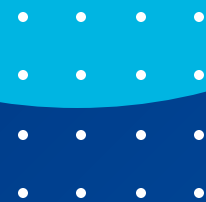
Events Query Click to configure	Event by ID Query 5 results Click to edit	Types Query Configured Click to edit	Type by ID Query Configured Click to edit
Fields Query Click to configure	Field by ID Query Click to configure	Event Fields Query Click to configure	Tag List Query Click to configure
Index Query Configured Click to edit	Plot Query Click to configure	Digital States Query Click to configure	Events by Grouping Key Query Click to configure



NEXT STEPS

- ✔ Initiation of the Journey
- ✔ Establishing ODBC Connection
- User Training
- Adoption Monitoring
- Future Vision





Q&A