

Using OEE Studio to Display Reason-Code Hierarchy or Categories

Click [here](#) for the Tool-Tip of guide you through some ideas for creating Reason codes in the Vorne XLv1 for reporting purposes.

Smart Reason Codes

- The most common method of capturing reasons for production events is through the use of Reason Codes in the Vorne XLvi device.
- For Downtime Reasons, it is a good idea to code your downtime reasons in the Vorne XL by the type of breakdown – i.e. BR = breakdown, MS = Minor Stop, QA = Quality and so on. Then in the BR category, you can add another type such as BR MECH or BR ELEC and so on. Or you can add the asset that caused the failure – such as BR Capper, BR Labels, etc.
- Keep it Simple, yet Smart!! Keep in mind that reason codes can be up to 24 characters. When displayed on the Vorne XLv1 scoreboard, only the first 16 characters are displayed.
- The following pages will provide examples of what other customers have done for their Smart Reason Codes.

Defining Reason Codes

- When you are getting ready to develop your Reason Code list, sit back and take a look at the **TYPES** of reasons that you have or want to have.
- What are they – Breakdown, Equipment, Quality, Mechanical, Setup, Manpower, Defect, Waiting, etc.
- Start by defining **CATEGORIES** of reason codes.
- Then start putting actual reason codes within those categories.
- You should start to see a pattern and could probably reduce the number of codes or use them more in a **Smart** way.
- Be consistent, use 1, 2 or 3 letter codes.

Availability Loss Comparison

Plant#nbr: 100

Date Range: From 2/28/2023 6:00 AM To 3/14/2023 6:00 AM

Production Filters: Shift [All Shifts] Part [All Parts]

Include Devices: 100_WC 520, 100_WC 523, 100_WC 530, 100_WC 531, 100_WC 550, 100_WC 572, 100_WC 573, 100_WC 575

Include: Run Time, Down Time, Setup Time, Standby Time

Buttons: Apply / Refresh, Print / Export

Tabular Analysis | Grid Analysis

Enterprise | Area | Line | Plant | Plant#nbr | Type

Duration (Sum) | Reason Count

Device	State	Loss Reason	Duration (Sum)	Reason Count	
100_WC 523	Down	PF- Case Packer	00h 08m 30s	1	
		PF- Case Sealer	00h 06m 15s	1	
		Scan Down Reason	00h 58m 29s	14	
		Scan Reason	06h 31m 14s	93	
		WA- Aerated Product	02h 22m 56s	3	
		WA- Cleaning	02h 35m 14s	13	
		WA- Empty Tank Check	00h 08m 52s	2	
		WA- FTO Pickup- FG	00h 08m 45s	1	
		WA- No Juice	07h 49m 13s	6	
		WA- QC Test	00h 42m 45s	2	
		WA- Safety Haz/Evac	00h 39m 37s	2	
		WA- Shift Change	02h 36m 07s	14	
		WA- Short Components	00h 49m 29s	6	
		Down Total		55h 17m 04s	452
		Setup	None	00h 00m 01s	1
			Setup	00h 20m 52s	4
			SU- Complete	11h 27m 26s	13
			SU- Sister	00h 33m 12s	3
SU- Tank Change	00h 37m 32s		4		
SU-Partial	02h 19m 17s		4		
Setup Total		15h 18m 23s	29		
Standby	Down- PM	02h 02m 19s	2		
	LP- Break	04h 31m 18s	29		
	LP- Lunch	08h 44m 12s	32		
	Lunch	00h 17m 50s	1		
	Not Scheduled	23h 32m 23s	12		
	Scan Reason	01h 58m 46s	1		
	UT- Not Scheduled	128h 19m 57s	102		
	UT-No Product Planned	02h 53m 44s	2		
	WA- No Juice	00h 05m 49s	1		
	Standby Total		172h 26m 22s	182	
100_WC 523 Total		243h 01m 50s	663		

Example of using 2 letter codes followed by a hyphen.

This will help us to create the Category field.

Scan Reason Total

[- Setup	Setup
[- SU- Complete	Setup
[- SU- Sister	Setup
[- SU- Tank Change	Setup
[- SU-Partial	Setup
[- UT- Not Scheduled	Standby
[- UT-No Product Planned	Standby
[- WA- Aerated Product	Down
[- WA- Cleaning	Down
[- WA- Empty Tank Check	Down
[- WA- FTO Pickup- FG	Down
[- WA- No Juice	Down
	Standby

Creating the Custom Field

Step 1 – Click on the bottom drop-down for additional features.

Step 2 – Select Define Custom Fields

The screenshot shows the SAP interface with the 'New Custom Expression' dialog box open. The 'Fields' sidebar on the left has 'Define Custom Fields' highlighted with a red box and a blue circle containing the number '2'. The 'New Custom Expression' dialog has the following settings:

- Options:** Field Description (empty), Append Summary Type to the Field Description (unchecked). Result Type: Decimal (selected). Summary Type: Sum (selected), The sum of the values. Hide Field (unchecked).
- Field Calculation:** Actual Values (selected). Description: This is the default behaviour. In this mode expressions will be calculated using the actual underlying data.
- Field Area:** Data Area (selected). Inset table shows 'Availability' and 'OEE' fields circled in red.

The inset table data is as follows:

Enterprise	Location	Plant	Line	Device	Device 2	Device 3	Grand Total
Area	Shift	Availability	OEE	Availability	OEE	Availability	OEE
Packaging	Shift 1	47.3	33.9	46.7	35.2	47.0	34.5
	Shift 2	0.0	0.0	0.0	0.0	0.0	0.0
	Shift 3	58.1	41.0	65.1	47.5	61.6	44.3
	Shift 4	3.9	3.1	10.9	8.8	5.8	4.7
	Packaging Total	37.7	26.9	45.3	33.6	41.2	30.0

At the bottom of the dialog, there are 'Cancel' and 'Proceed to Expression Editor >>' buttons. A red box at the bottom left of the screenshot contains the text 'Click here for Printing, Exporting, Field Selection and Layout Settings.' with a dropdown arrow.

New Custom Expression

Options

Field Description: **1**

Result Type:

- Boolean
- Date and Time
- Date Only
- Decimal
- Integer
- String** **2**
- Currency
- Custom Date Interval
- Duration

Summary Type:

- Count
- Sum
- Min
- Max
- Average
- Std Dev
- Std Dev P
- Var** **3**
- Var P

Append Summary Type to the Field Description

If the Field Description is "Cost" and the Summary Type is "Sum", the field will display as Cost (Sum) if this option is chosen. Otherwise it will simply display as "Cost".

Hide Field

Field Calculation

Actual Values

Actual Values

This is the default behaviour. In this mode expressions will be calculated using the **actual underlying data**.

Summary Values

Field Area

Data Area

Row Area **4**

Column Area

Filter Area

		Device 2		Device 3		Grand Total	
Area	Shift	Availability	OEE	Availability	OEE	Availability	OEE
Packaging	Shift 1	47.3	33.9	46.7	35.2	47.0	34.5
	Shift 2	0.0	0.0	0.0	0.0	0.0	0.0
	Shift 3	58.1	41.0	65.1	47.5	61.6	44.3
	Shift 4	3.9	3.1	10.9	8.8	5.8	4.7
Packaging Total		37.7	26.9	45.3	33.6	41.2	30.0

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Cancel Proceed to Expression Editor >>

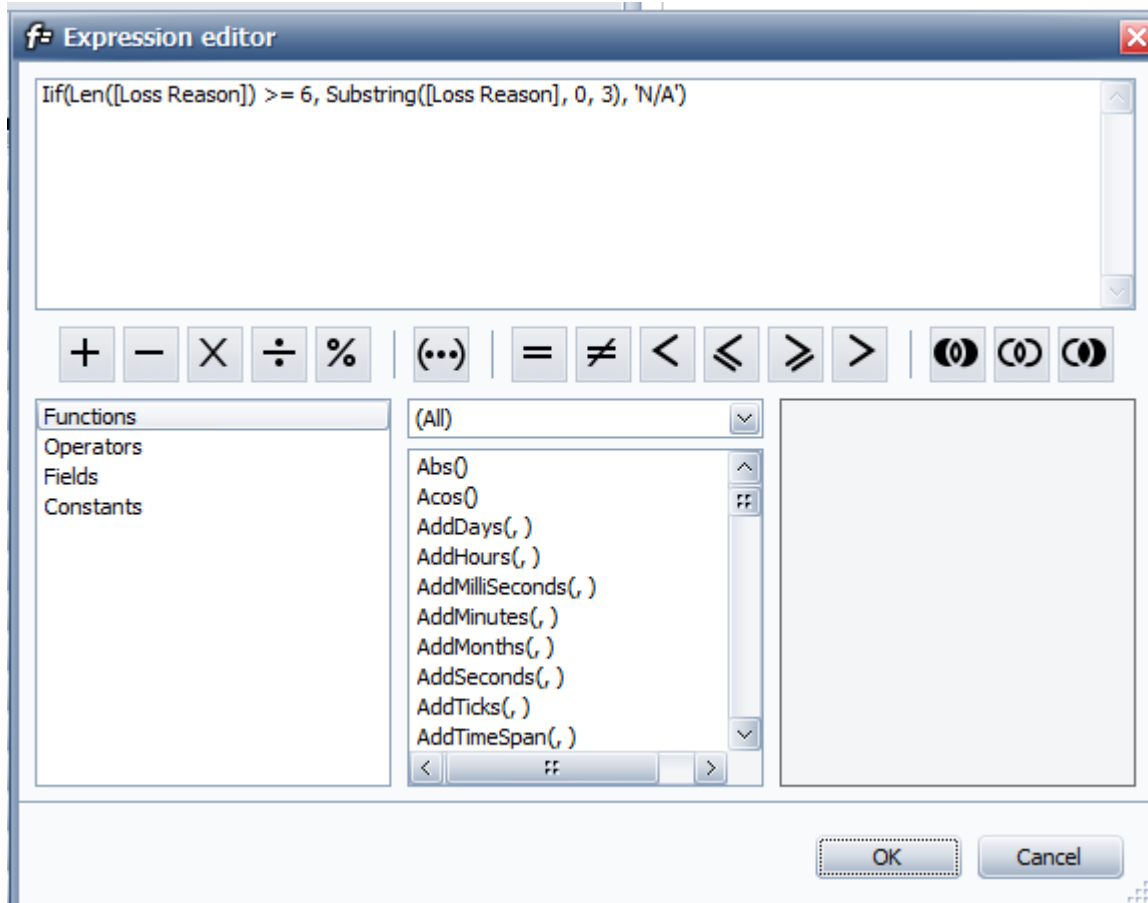
Step 1 – give the field a name

Step 2 – the Result Type should be **String**

Step 3 – the Summary Type should be **Var**

Step 4 – the field should be displayed in the **Row Area**

Step 5 – Click the **Proceed to Expression Editor** button



Create the Expression

Copy this string into the Expression Editor window and click OK.

- **`Iif(Len([Loss Reason]) >= 6, Substring([Loss Reason], 0, 3), 'N/A')`**
 - `IifExpression`. `Iif(Expression, TruePart, FalsePart)`
 - Returns either `TruePart` or `FalsePart`, depending on the evaluation of the Boolean
- This will return 'N/A' if it cannot determine the category, otherwise 'LP-', 'SU-' etc.
 - `Substring(String, StartPosition, Length)`
 - Retrieves a substring from `String`. The substring starts at `StartPosition` and has the specified `Length`.

Category	Loss Reason	State	
No	No Operator	Down	
No Total			
Not	Not Scheduled	Standby	
PF-	PF- Case Packer	Down	
	PF- Case Sealer	Down	
PF- Total			
Sca	Scan Down Reason	Down	
	Scan Reason	Down	
		Standby	
Scan Reason Total			
Sca Total			
SU-	SU- Complete	Setup	
	SU- Sister	Setup	
	SU- Tank Change	Setup	
	SU-Partial	Setup	
SU- Total			
UT-	UT- Not Scheduled	Standby	
	UT-No Product Planned	Standby	
UT- Total			
WA-	WA- Aerated Product	Down	
	WA- Cleaning	Down	
	WA- Empty Tank Check	Down	
	WA- FTO Pickup- FG	Down	
	WA- No Juice	Down	
		Standby	
	WA- No Juice Total		
	WA- QC Test	Down	
	WA- Safety Haz/Evac	Down	
	WA- Shift Change	Down	
WA- Short Components	Down		

- You may have to further filter out the reason codes you don't want in the list, such as Scan Reason.
- You can also collapse the Category to get a total for each Category

Device	Category	Loss
100_WC 523	Adj	
	BK-	
	Cle	
	Dow	
	LP-	
	N/A	
	No	
	Not	
	PF-	
	Sca	
	SU-	
UT-		
WA-		
100_WC 523 Total		