OEE Studio
MTBF & MTTR

This Tool-Tip will guide you through the process of creating the MTBF and MTTR reports in OEE Studio.

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Last Updated: 06/06/2016

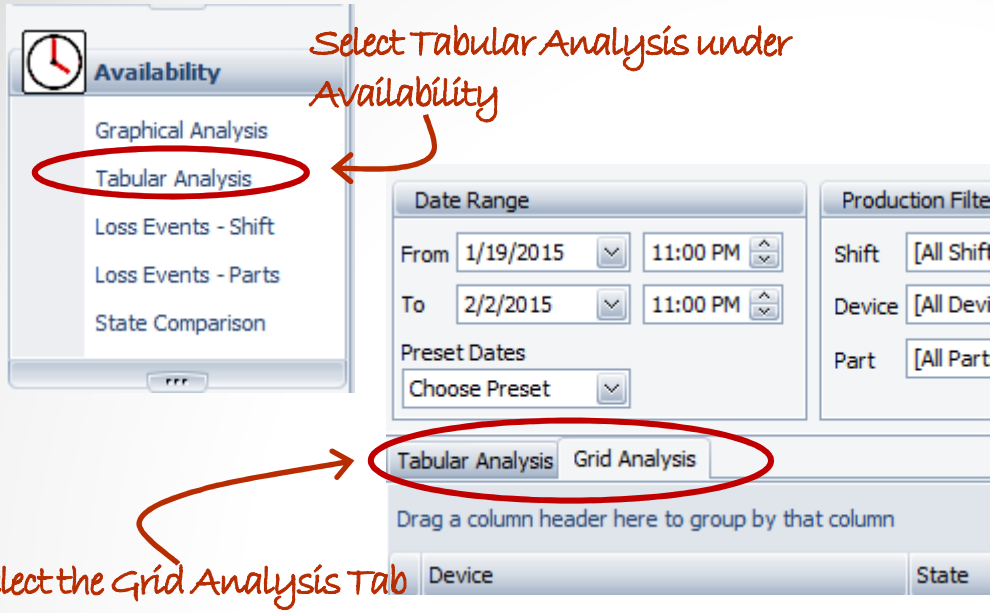
Tool-Tip - MTBF

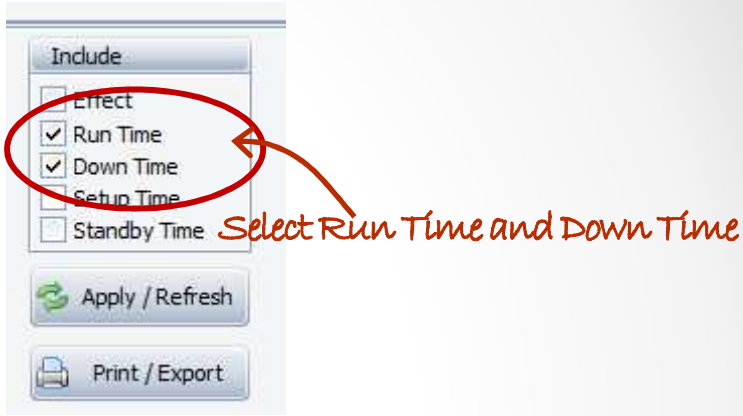
- The MTBF uses the **Availability – Tabular Analysis** sections of OEE Studio.
  - "Mean Time Between Failures" is literally the average time elapsed from one failure to the next. Usually people think of it as the average time that something works until it fails and needs to be repaired (again).
  - **MTBF** = Run Time/# of Breakdowns.
  - It is important to be able to specify the **TYPE** of breakdown to get a better picture of MTBF.
  - 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.

Tool-Tip - MTTR

- The MTTR uses the **Availability – Loss Events**.
  - "Mean Time To Repair" is the average time that it takes to repair something after a failure.
  - **MTTR** = Downtime/# Breakdown
  - Again, It is important to be able to specify the TYPE of breakdown to get a better picture of MTTR
  - With OEE Studio you can calculate **MTTR** either by Shift or by specific Parts.

Creating the MTBR Report





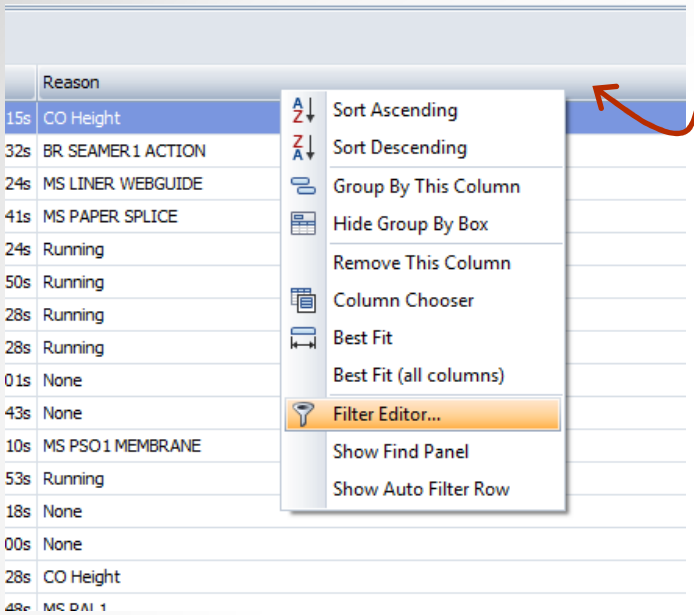
Click Apply/Refresh to view your data.

Tabular Analysis | Grid Analysis

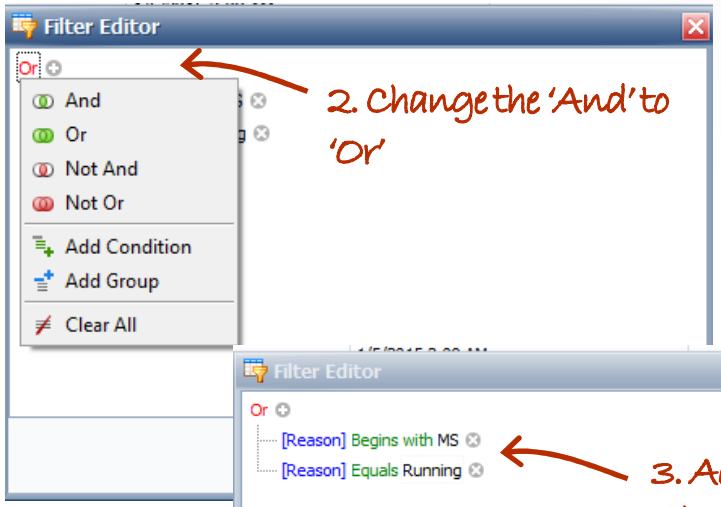
Drag a column header here to group by that column

Device	State	Start Time	End Time	Duration	Reason
D006_104WND100	Down	1/5/2015 5:32 AM	1/5/2015 5:41 AM	00h 09m 15s	CO Height
D006_104WND100	Down	1/4/2015 11:23 PM	1/5/2015 12:45 AM	01h 22m 32s	BR SEAMER 1 ACTION
D006_104WND100	Down	1/5/2015 2:09 AM	1/5/2015 2:14 AM	00h 05m 24s	MS LINER WEBGUIDE
D006_104WND100	Down	1/5/2015 1:28 AM	1/5/2015 1:39 AM	00h 11m 41s	MS PAPER SPLICE
D006_104WND100	Running	1/5/2015 2:14 AM	1/5/2015 5:32 AM	03h 17m 24s	Running
D006_104WND100	Running	1/4/2015 11:10 PM	1/4/2015 11:23 PM	00h 12m 50s	Running
D006_104WND100	Running	1/5/2015 12:45 AM	1/5/2015 1:28 AM	00h 42m 28s	Running
D006_104WND100	Running	1/5/2015 1:39 AM	1/5/2015 2:09 AM	00h 29m 28s	Running
D006_105WND100	Down	1/5/2015 3:00 PM	1/5/2015 3:00 PM	00h 00m 01s	None
D006_105WND100	Down	1/5/2015 10:43 PM	1/5/2015 10:51 PM	00h 07m 43s	None
D006_105WND100	Down	1/5/2015 3:08 PM	1/5/2015 3:14 PM	00h 06m 10s	MS PSO1 MEMBRANE
D006_105WND100	Running	1/5/2015 3:14 PM	1/5/2015 10:43 PM	07h 28m 53s	Running
D006_104WND100	Down	1/5/2015 3:00 PM	1/5/2015 3:02 PM	00h 01m 18s	None

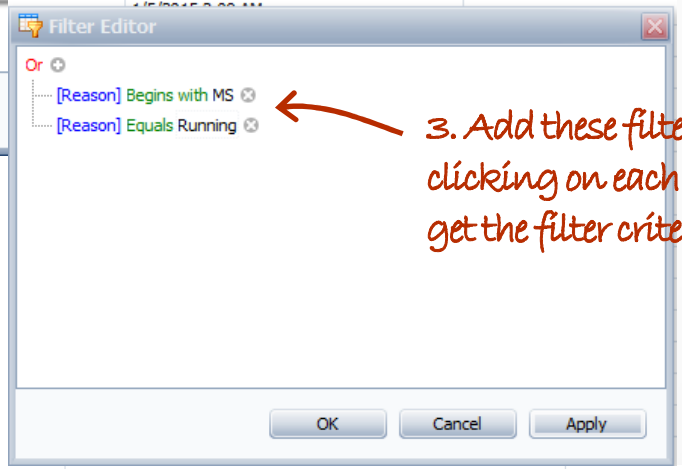
Creating the Filter



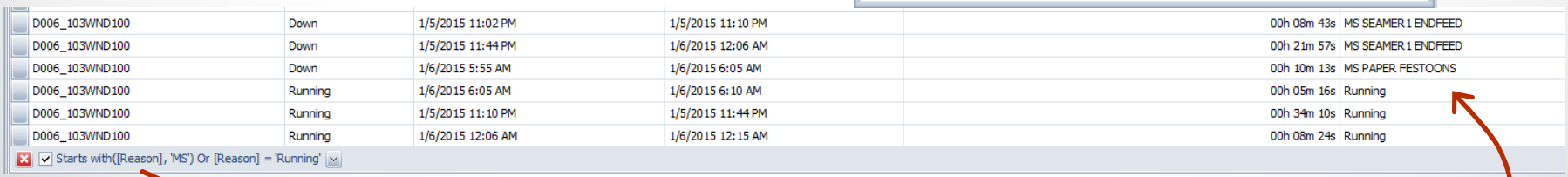
1. Right-Mouse click on Reason Column heading and select Filter Editor



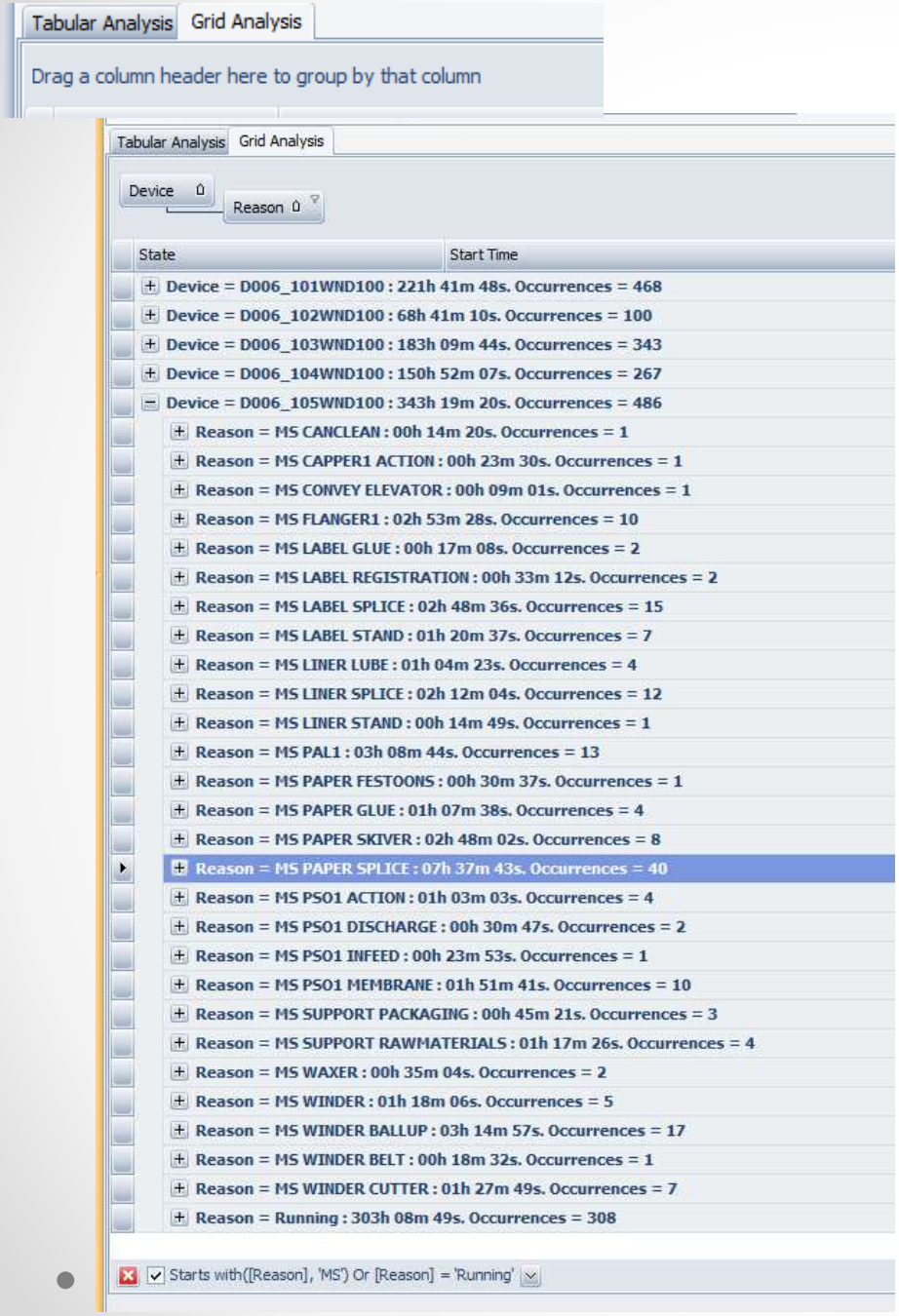
2. Change the 'And' to 'Or'



3. Add these filters by clicking on each word to get the filter criteria.



Now you have the correct dataset and you can see your filter criteria at the bottom of the grid.



Creating the Report

Drag the Device Column to the top where it says '*Drag a column header here*'.

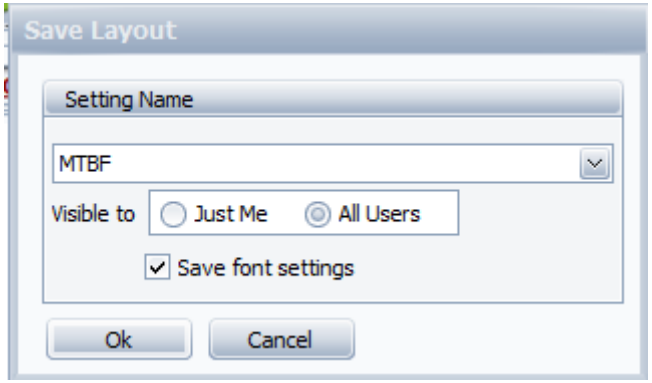
Next drag the Reason Column header to be next to the Device.

All of the data will be collapsed.

You can expand a device to see all the **events** with duration and counts.

You also see the total **Running** duration.

You can drill down further by selecting specific down events.



Saving the Report

Select the "***Click here for Printing. . .***" options.

Click on the **Save Layout** button.

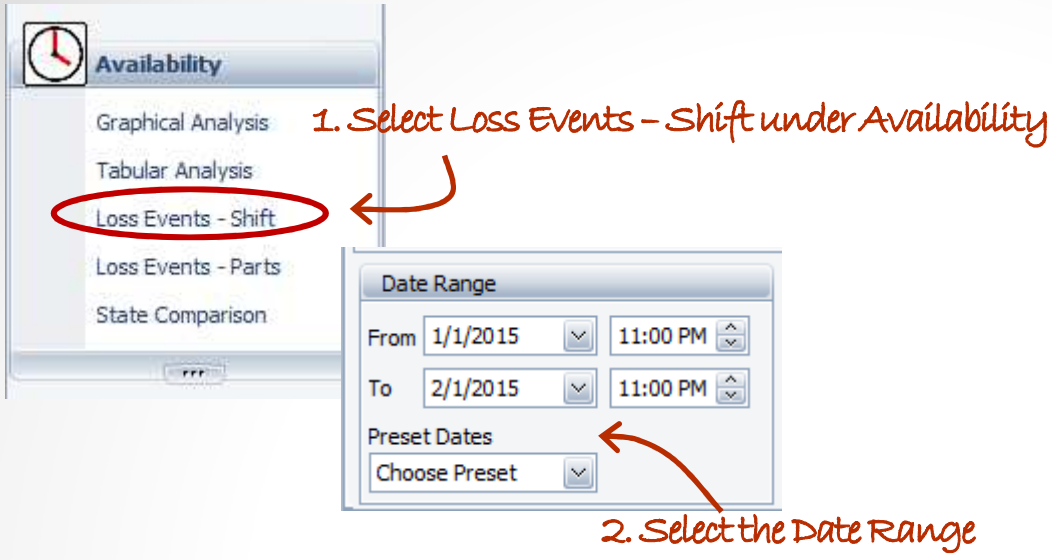
Enter a name for the report.

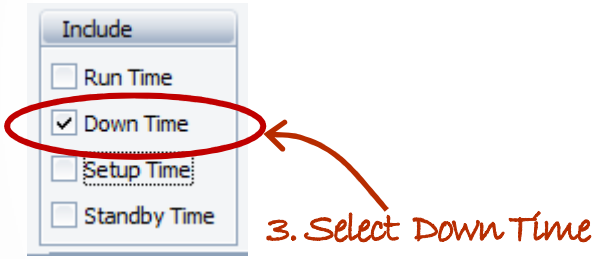
Select '**All Users**'.

Click the **OK** button.

You can call up the report by following the same process and select the **Restore Layout** button.

Creating the **MTTR** Report





4. Click Apply/Refresh to view your data. >>>

The process is the same whether you select **Availability - Loss Events – Shift** or **Loss Events – Parts**.

State	Device	Shift	Grand Total Duration	Grand Total Reason Count
Down	D006_101WND100	First Shift	26h 13m 43s	144
		Second Shift	23h 06m 21s	123
		Third Shift	11h 49m 16s	71
	D006_101WND100 Total		61h 09m 20s	338
	D006_102WND100	First Shift	06h 03m 16s	28
		Second Shift	03h 59m 17s	20
		Third Shift	07h 18m 53s	15
	D006_102WND100 Total		17h 21m 26s	63
	D006_103WND100	First Shift	23h 52m 32s	86
		Second Shift	22h 07m 29s	100
		Third Shift	13h 30m 31s	57
	D006_103WND100 Total		59h 30m 32s	243
	D006_104WND100	First Shift	19h 51m 15s	74
		Second Shift	16h 56m 24s	76
		Third Shift	23h 55m 15s	49
	D006_104WND100 Total		60h 42m 54s	199
	D006_105WND100	First Shift	23h 30m 19s	108
		Second Shift	30h 28m 36s	134
		Third Shift	27h 10m 36s	110
	D006_105WND100 Total		81h 09m 31s	352
Down Total			279h 53m 43s	1195

Creating the Filter

First, we need to get our data elements set up.

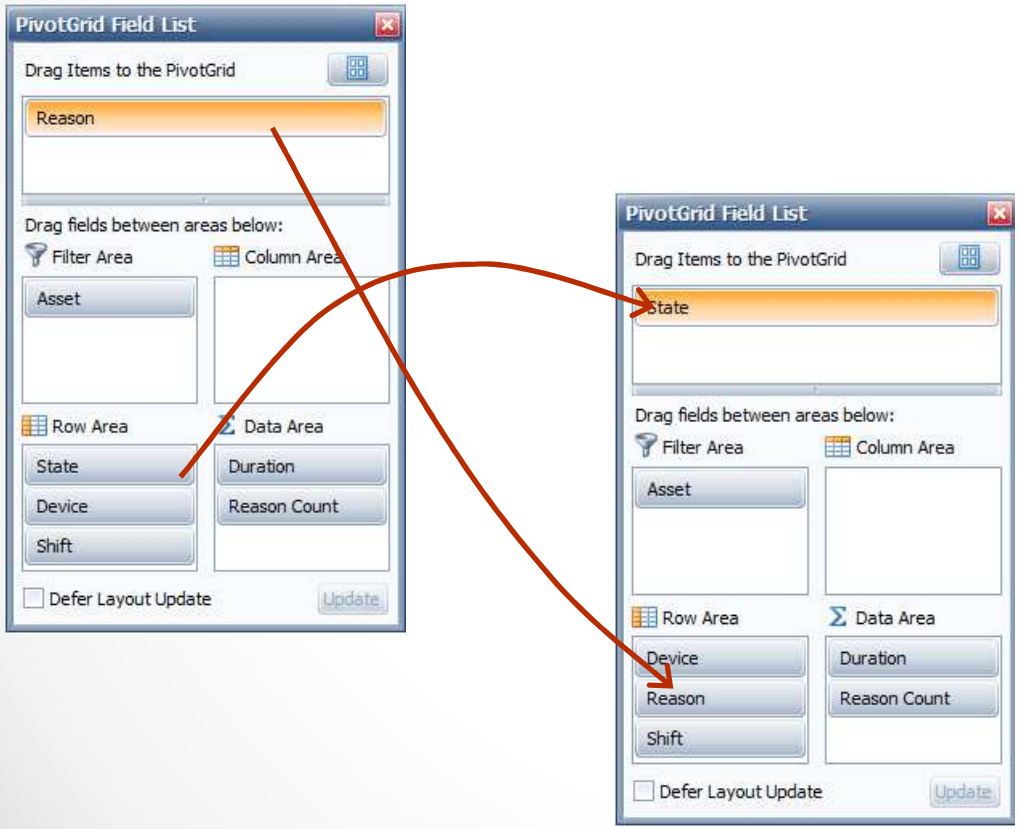
Select the "*Click here for Printing . . .*".

Click on the **Show and Hide Fields** button.

The PivotGrid Field List on the left is the default display.

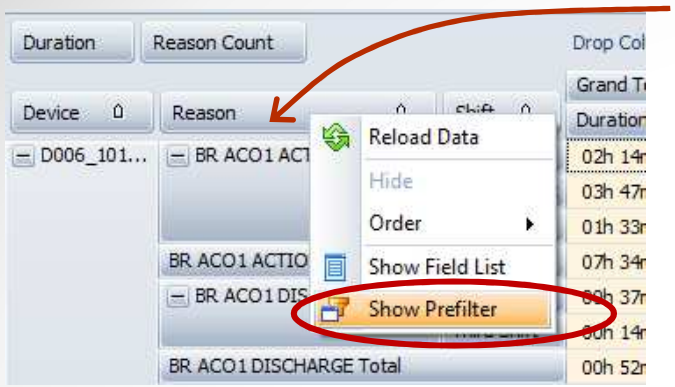
1. Drag the State Item on the bottom left to the top.

2. Drag the Reason from the top to the bottom left as shown on the right display.

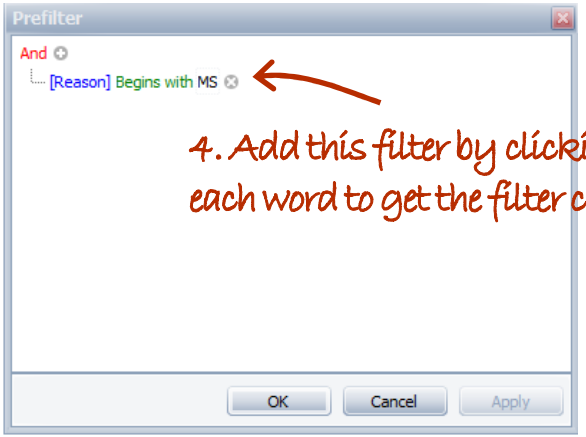


Create Filter – (cont'd)

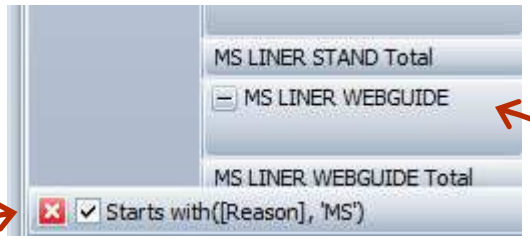
Select the specific reason set.



3. Right-Mouse click on Reason Column heading and select Show Prefilter



4. Add this filter by clicking on each word to get the filter criteria.



Now you have the correct dataset and you can see your filter criteria at the bottom of the grid.

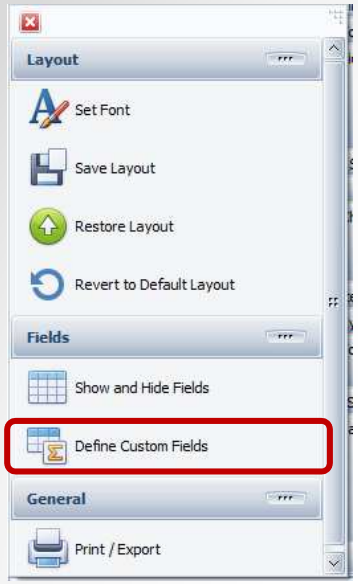
Creating the MTTR Calculation

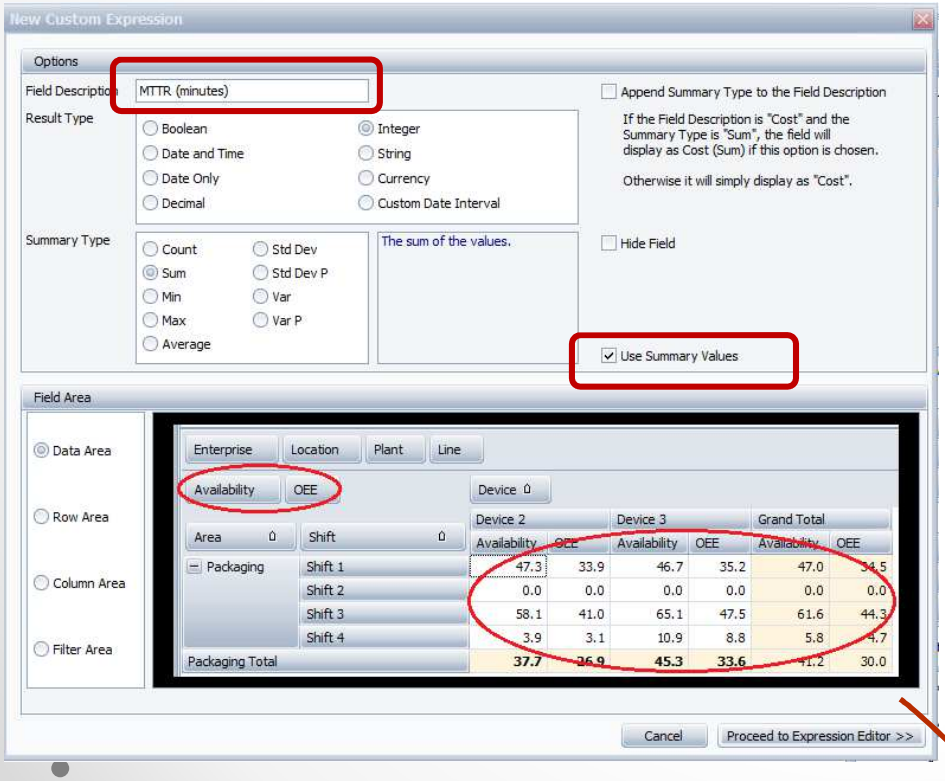
Create the MTTR calculation =

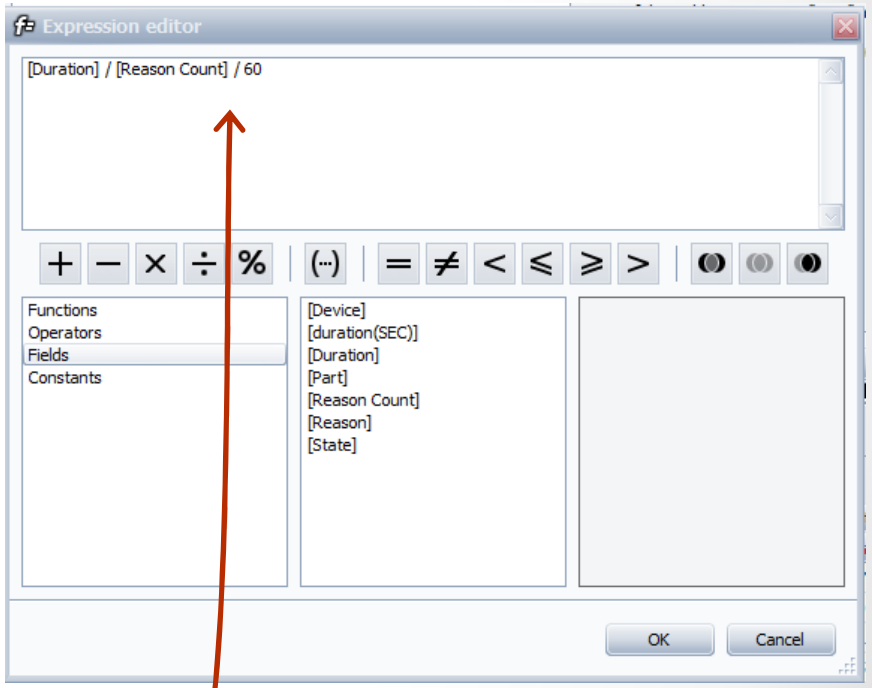
Duration/Reason Count/60

Duration is in seconds so we need to divide by 60 to get minutes.

Make sure you select **Use Summary Values**.

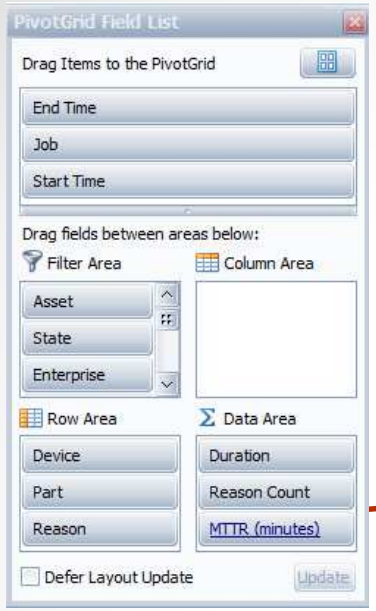






Completing the Report

The new field appears in the Data Area.



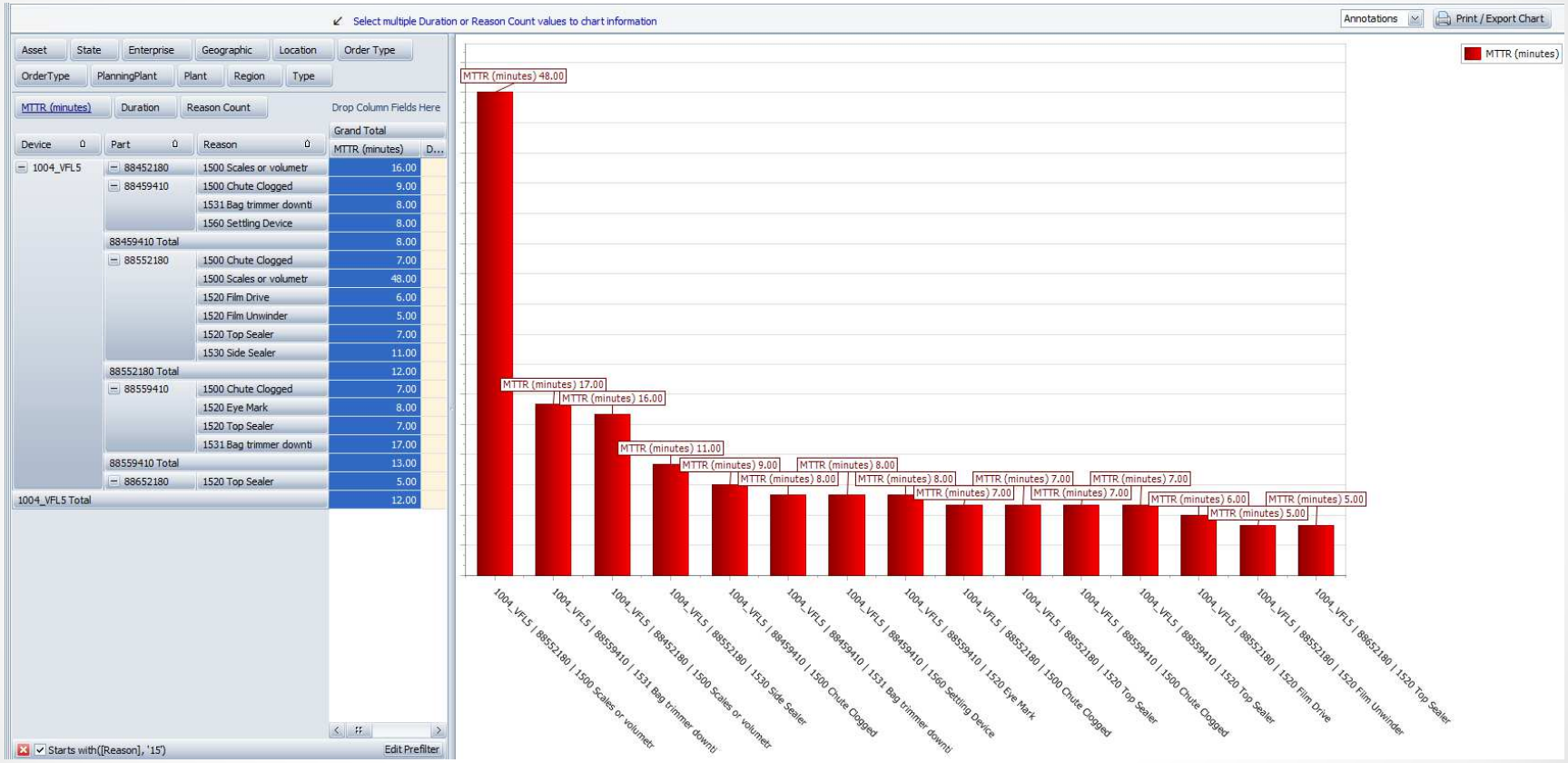
Asset	State	Enterprise	Geographic	Location	Order Type	OrderType	PlanningPlant	Plant

Duration | Reason Count | MTTR (minutes) — Drop Column Fields Here

			Grand Total		
Device	Part	Reason	Duration	Reason Count	MTTR (minutes)
1004_VFL5	88452180	1500 Scales or volumetr	00h 16m 14s	1	16.00
	88459410	1500 Chute Clogged	00h 08m 51s	1	9.00
		1531 Bag trimmer downti	00h 07m 45s	1	8.00
		1560 Settling Device	00h 07m 35s	1	8.00
	88459410 Total		00h 24m 11s	3	8.00
	88552180	1500 Chute Clogged	00h 13m 51s	2	7.00
		1500 Scales or volumetr	00h 47m 32s	1	48.00
		1520 Film Drive	00h 11m 50s	2	6.00
		1520 Film Unwinder	00h 04m 59s	1	5.00
		1520 Top Sealer	00h 06m 40s	1	7.00
		1530 Side Sealer	00h 43m 37s	4	11.00
	88552180 Total		02h 08m 29s	11	12.00
	88559410	1500 Chute Clogged	00h 22m 29s	3	7.00
		1520 Eye Mark	00h 07m 34s	1	8.00
		1520 Top Sealer	00h 13m 32s	2	7.00
		1531 Bag trimmer downti	03h 03m 28s	11	17.00
	88559410 Total		03h 47m 03s	17	13.00
	88652180	1520 Top Sealer	00h 04m 53s	1	5.00
1004_VFL5 Total			06h 40m 50s	33	12.00

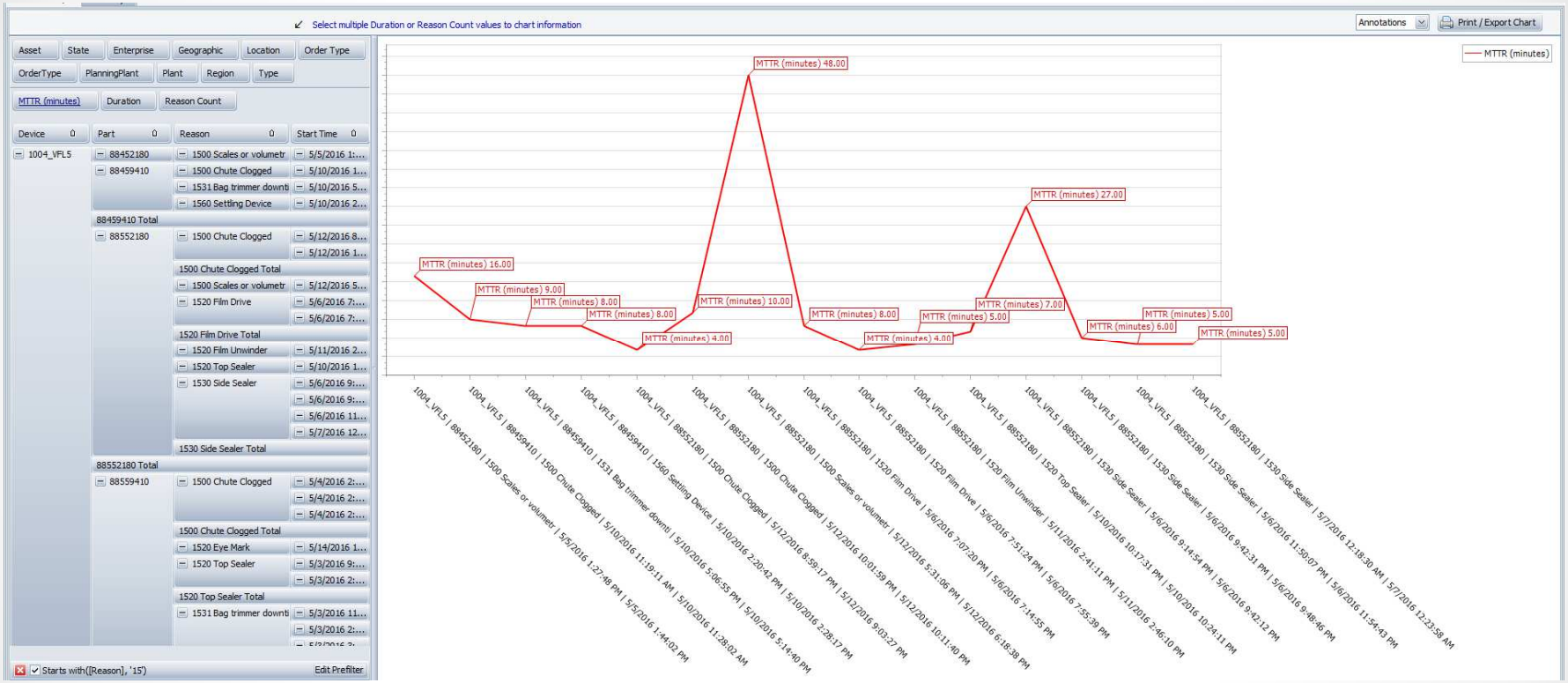
Graphing the Report

Click on the MTTR column heading to automatically graph the results.

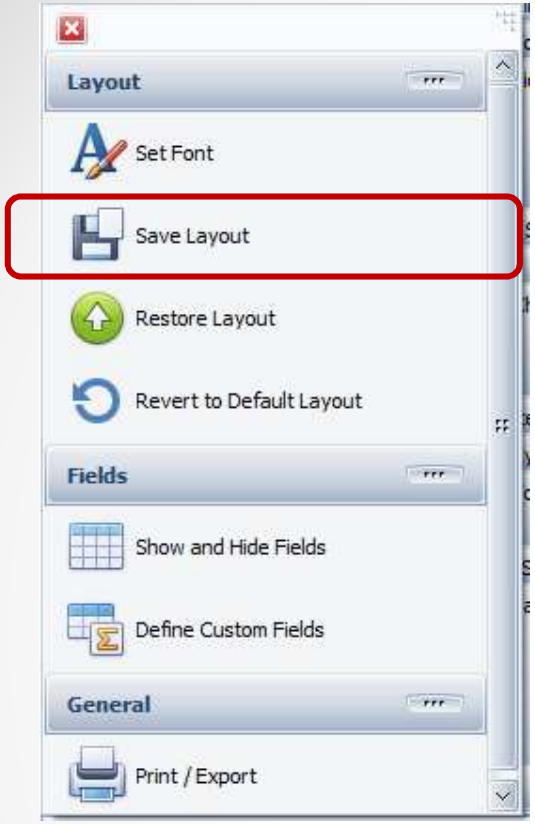


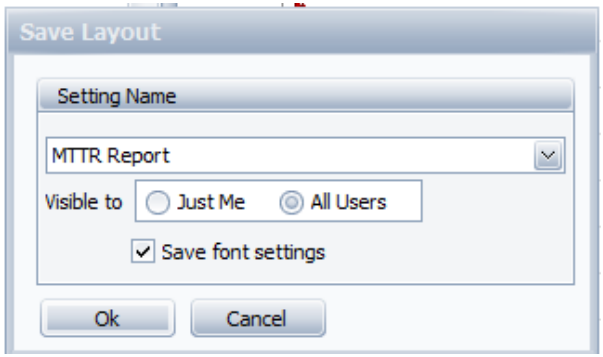
Graphing the Report

Create a trend graph by adding the start and end time.



Saving the Report





Select the "***Click here for Printing. . .***" options.

Click on the **Save Layout** button.

Enter a name for the report.

Select '**All Users**'.

Click the **OK** button.

You can call up the report by following the same process and select the **Restore Layout** button.