

Input File Formats

Atoti Market Risk

6.0

Table of Contents

Table of Contents	2
Input file formats	4
Overview of input files	4
File name patterns	5
Note on AsOfDate	6
Key and optional fields	6
Scalar and vectorized sensitivities	6
Labels and dates for pillars	6
Trade Attributes	7
Cube Adjustments	9
Scenarios	10
Market data	10
Backwards compatibility	11
Correlation market data	11
Cube market data	12
Curve market data	12
FX rate market data	13
Market data	14
Market shifts for Taylor VaR	16
Spot market data	17
Surface market data	18
Profit & loss	19
PLCube	19
Profit & Loss with Product Control fields	20
Profit & Loss without Product Control fields	22
Profit & Loss without Product Control summary fields	23
Reference data	25
Book Parent Child	25
Counterparties	25

Counterparty Parent Child	26
Countries	26
Legal Entity Parent Child	27
VaR-ES calculations	27
Summary VaR fields	28
Trade PnL	29
VaR-ES Cube	31
Sensitivities	33
Cross Sensitivities	34
Cross Sensitivities (vectorized)	37
Dividend	41
Dynamic Maturities	42
DynamicMoneyness	42
DynamicTenors	43
Ladder Definition	43
Risk Factors Catalog	44
Sensitivities	45
Sensitivities (vectorized)	48
Sensitivity Cube	52
Split Ratio	59
Summary Sensitivity	60

Input file formats

Out of the box, Atoti Market Risk will work with a predefined file format, CSV. If you produce your data in this format, you can load and use Atoti Market Risk with no customizations needed. However, you can of course edit and configure Atoti Market Risk to work with any format or file, database source, etc. that Atoti is compatible with.

Sample CSV input files are included in the source distribution. These files are loaded during testing of the MR application and provide examples of each of the file types.

Overview of input files

The input files for Atoti Market Risk comprise the following set:

Relevant for	Input file name
Trade attributes	<i>Trade Attributes</i>
VaR / ES calculations	<i>Trade PnLs</i>
	<i>VaR-ES Cube</i>
Scenario names	<i>Scenarios</i>
	<i>Market data</i>
	<i>Market shifts for Taylor VaR</i>
	<i>Cube market data</i>
	<i>Curve market data</i>
	<i>FX rate market data</i>
	<i>Spot market data</i>
Reference data - Portfolio and hierarchy configuration	<i>Surface market data</i>
	<i>Legal Entity Parent Child</i>
	<i>Book Parent Child</i>
Reference data	<i>Counterparty Parent Child</i>
	<i>Counterparties</i>

Relevant for	Input file name
Sensitivities	<i>Countries</i>
	<i>Cross Sensitivities</i>
	<i>Dividend</i>
	<i>Ladder Definition</i>
	<i>Risk Factors Catalog</i>
	<i>Sensitivities</i>
	<i>Sensitivity Cube</i>
	<i>Split Ratio</i>
	<i>Dynamic Tenors</i>
	<i>Dynamic Maturities</i>
PL Actual	<i>Dynamic Moneyiness</i>
	<i>Summary Sensitivity</i>
	<i>Profit & Loss</i>
	<i>Profit & Loss Product Control</i>
	<i>Profit & Loss without Product Control</i>
Cube-level Adjustments	<i>Profit & Loss without Product Control Summary</i>
	<i>PL Cube</i>
	<i>Cube Adjustments</i>

File name patterns

Atoti Market Risk uses glob patterns with the (*) asterisk wildcard character to identify the relevant file names for each category of input file. So you can add characters before and after the listed names, such as timestamps or ID numbers.

For example, the pattern `**/TradePnLs*.csv` matches all CSV files with names beginning with the string "TradePnL" in any subdirectory.

In this guide, the file pattern section for each of the input files specifies the glob pattern used. However, the glob prefix is omitted as it is now injected automatically.

You can customize the glob patterns by setting the appropriate file-pattern property in the `application.yaml` file.

Note on AsOfDate

The files in this document that contain an AsOfDate column will rely on that AsOfDate when loaded into the Atoti Server datastores. For the files that do not specify this column (whether described in this document or not), the AsOfDate is taken from the directory structure – these files should reside in the appropriate folder (usually `./data/20xx-yy-zz/ .../*.csv`).

Key and optional fields

For each input file, the key and optional fields are indicated in the **Key** and **Null** columns respectively.

Scalar and vectorized sensitivities

Sensitivities are modeled in the `Trade Sensitivities store` as scalar values. In other words, each row contains a single sensitivity value corresponding to a given set of tenor, maturity, and moneyness. You can load data in this same format as specified by the *Sensitivities input file format page*. However, you can also load sensitivity data in a *vectorized format*. In this case, each row of the input file contains an array of sensitivity values along with corresponding arrays of tenors, maturities, and moneyness values. With the default Atoti Market Risk configuration, these two formats can be used interchangeably. Atoti Market Risk includes a `ScalarSensiTradeStoreTuplePublisher` that will convert vectorized to scalar sensitivities.

We recommend loading scalar sensitivities as the best option in most cases.

Labels and dates for pillars

For the pillar information (Tenors and Maturities), both a label and date field are available, to allow any combination of source data:

- Pillars as labels, with no equivalent dates available in the source system
- Pillars as dates, with no equivalent labels available in the source system
- Pillars as both labels and dates

The dynamic re-bucketing converts the pillar information into a number of days, this is the basis on which the destination bucket is calculated. The primary cube level upon which this conversion is performed can be configured. Atoti Market Risk will attempt to use the configured converter to transform the value of the primary level into a number of days, only using the secondary level if the primary has no value.

To allow the slicing and dicing of input data on source pillars, both fields are selected as levels in the cube.

Examples

Source Label	Source Date	Configured Primary Level	As Of Date	Converted Number Of Days	Destination Buckets (M=30)
2M	-	Dates	2019-09-05	60	2M
2M	-	Labels	2019-09-05	60	2M
-	2019-11-05	Dates	2019-09-05	61	2M & 3M
-	2019-11-05	Labels	2019-09-05	61	2M & 3M
2M	2019-11-05	Dates	2019-09-05	61	2M & 3M
2M	2019-11-05	Labels	2019-09-05	60	2M

All pillar fields are keys. Therefore 2M,N/A will be a separate fact from 2M,2019-11-05.

Trade Attributes

To perform the mapping between the parent/child relationship and market data, Atoti Market Risk expects a minimum number of trade attributes.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	

Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	“IR_IRSWAP_LIBOR 3M”, “EQ_12345677”, etc.
Book	N	Y	String	Book to map the trade to (must match the node in the Book Hierarchy).	
LegalEntity	N	Y	String	Legal Entity to map the trade to (must match the node in the Legal Entity Hierarchy). See <i>Legal Entity Parent Child Input File Format</i>	
CounterpartyId	N	Y	String	Counterparty to map the trade to (must match the node in the Counterparty Hierarchy). See <i>Counterparty Parent Child File Format</i>	
Notional	N	Y	Double	Notional of the trade/position.	
NotionalCcy	N	Y	String	Currency of the notional trade.	
Trader	N	Y	String	Trader who performed the trade.	
Sales	N	Y	String	Salesperson who performed the sale of the trade (if applicable).	
InstrumentClass	N	Y	String	Highest level of instrument classification.	“Equity”, “Rates”, “Forex”
InstrumentType	N	Y	String	Main instrument classification.	“IRSWAP”, “Loan”, “Bond”

InstrumentSubType	N	Y	String	Sub-level of instrument classification.	"XCCY-BASIS", "Overnight", "Gilt"
TradeDate	N	Y	String with format 'YYYY-MM-DD'	Date the trade was made.	
TradeMaturityDate	N	Y	String with format 'YYYY-MM-DD'	Maturity date of the trade.	
VaRInclusionType	N	Y	String	Defines on what basis to include the VaR of this trade: • 'R' for repricing • 'S' for sensitivity,	"R", "S"

Cube Adjustments

Contains data representing the definition of cube-level adjustments. This file is generated when data is exported after the sign-off process for a sign-off process instance is completed.

Field	Key	Null	FieldType	Description	Example
Id	Y	N	String	Id that corresponds to the value of the source field in the base store for the adjustment	PNL_ADD_ON_0
TaskId	N	N	String	The name of the task for which the adjustment was created	Sensis Bonds
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	The as-of date for which the adjustment was created	2020-08-03
PivotId	N	N	String	The name of the cube for which the adjustment was created	Sensitivities Cube

Currency	N	N	String	The currency used to express the value of the adjustment	EUR
Measure	N	N	String	The name of the measure to adjust	Delta
Value	N	N	Double	The add-on value used for the adjusted measure	1000.0

Scenarios

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
ScenarioSet	Y	N	String	Name of the set of scenarios.	"Historical", "Stress"
Index	N	N	Integer	Pointer to position in the PnL[] vector for that Scenario. Values range from 0 to the total number of scenarios in the given scenario set. Note: The index must start at 0 for each ScenarioSet.	0 to 499 for a PnL[] vector of 500 values of historical scenarios
Scenario	Y	N	String	Name of the scenario for that Index. For historical scenarios, this could be the date. For stress simulations, it could be the name of the particular event.	"Black Monday 2007"
Liquidity Horizon	N	Y	Integer	The Liquidity Horizon in days. This field is optional.	10, 20, 40, 60, 120

Market data

The following market data input files are available for Atoti Market Risk:

- *Correlation market data*
- *Cube market data*
- *Curve market data*
- *FX rate market data*
- *Market data*
- *Market shifts for Taylor VaR*
- *Spot market data*
- *Surface market data*

Backwards compatibility

Atoti Market Risk offers backwards-compatible data loading for market data. To learn more, see [Market data API data loading](#).

Correlation market data

Correlation market data

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	2018-09-28
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
RiskFactorId	Y	N	String	Identifier of the first risk factor. Must match risk factor identifier in the sensitivities files	BMW_Spot price
RiskFactorId2	Y	N	String	Identifier of the second risk factor. Must match risk factor identifier in the sensitivities files	Ford_Spot price
Quote			Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	0.91

Cube market data

The file is used to provide three-axis market prices for the greek-based PL calculations, through the CubeMarketData topic.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date	2019-01-01
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
Cubeld	Y	N	String	Identifier of the cube. Must match risk factor identifier in the sensitivities files	USD.OIS
Tenor	Y	N	String	A tenor, such as 3M, 5Y, and so on.	1Y
Moneyness	Y	N	String	A moneyness value	45p
UnderlyingMaturity	Y	N	String	An underlying maturity for volatility cubes.	0.5Y
Quote			Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	2453.1

Curve market data

The file is used to provide single-axis market prices for the greek-based PL calculations, through the CurveMarketData topic.

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date	2019-01-01
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
CurveId	Y	N	String	Identifier of the curve. Must match risk factor identifier in the sensitivities files	USD.OIS
Tenor	Y	N	String	A tenor, such as 3M, 5Y, and so on.	1Y
Quote			Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	2453.1

FX rate market data

The file is used to provide FX quotes, through the `FxRateMarketData` topic.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
MarketDataSet	Y	N	String	String defining the market data set	'Official EOD' or 'Stressed'
BaseCcy	Y	N	String	The left side of the currency pair.	
CounterCcy	Y	N	String	The right side of the currency pair.	
Quote	N	N	Double	Forex rate between the two currencies.	

Market data

The file is used to provide market prices for the greek-based PL calculations.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date	2019-01-01
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
RiskFactorId	Y	N	String	Identifier of the risk factor. Must match risk factor identifier in the sensitivities files	USD.OIS

			Market data quote(s) to be used by the greek-based calculation. For example, stock price, swap rates or implied rates, implied volatility levels.		
Quote			Can be a single value or list of values: Single value for a sensitivity without tenor/moneyness/underlying swap structure. List of values, corresponding to different tenors, swap maturities, moneyness for a sensitivity with corresponding axes.		
	Double or list of doubles (delimited by semicolons)		1568.2 ;4568.2 ;16.2 ;2453.1		
			For example, a sensitivity to four tenors and two underlying swap instruments will be published as a list of eight values, the first four corresponding to different tenors and the first underlying maturity and the second four corresponding to tenors and the second underlying maturity. Must correspond to sensitivities to the same risk factor.		

TenorLabels	N	Y	Array (delimited by semicolons)	List of tenor labels, such as 3M, 5Y, and so on, if applicable.	1Y;3Y;5Y;10Y
MaturityLabels	N	Y	Array (delimited by semicolons)	List of underlying maturities for volatility cubes, if applicable.	0.5Y;1Y;3Y;5Y;10Y
MoneynessLabels	N	N	Array (delimited by semicolons)	List of moneyness labels, if applicable	45p;ATM;45c

TenorDates	N	N	Array (delimited by semicolons)	List of explicit tenor dates, which are used to sort tenors and to re- bucket sensitivities (if supported)	2019-03-16; 2019- 04-27; 2019-10-27; 2020-10-27
MaturityDates	N	N	Array (delimited by semicolons)	List of explicit maturity dates, which are used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16; 2019- 04-27; 2019-10-27; 2020-10-27
Nominal	N	N	Double	Nominal value of this risk factor if applicable. For further explanation, see Market Data APIs	

 WARNING

This file has been deprecated. The following input files should be used whenever possible:

- Correlation_Market_Data.csv
- Cube_Market_Data.csv
- Curve_Market_Data.csv
- Spot_Market_Data.csv
- Surface_Market_Data.csv

For information on how the labels and dates fields are used for the pillars (tenors and maturities), please see [Labels and dates for pillars](#).

Market shifts for Taylor VaR

The file is used to provide market prices for the Taylor VaR calculations.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01

RiskFactorId	Y	N	String	Identifier of the risk factor. Must match risk factor identifier in the sensitivities files.	USD.OIS
ScenarioSet	Y	N	String	String defining the market data set, for example “Trader marks” or “Official EOD”	Official EOD
Tenor	N	Y	String	Tenor label, such as 3M, 5Y, and so on, if applicable	1Y
Maturity	N	N	String	Underlying maturity for volatility cubes, if applicable.	0.5Y
Moneyness	N	N	String	Moneyness label, if applicable	ATM
Values	N	N	Double array (delimited by semicolons)	Market data shifts to be used by the Taylor VaR calculation. This is always an array. The length of the array corresponds to the number of scenarios used to compute the PnL data from sensitivities.	1568.2

i NOTE

For the market data shift inputs, labels are only supported for tenors, maturities and moneyness. Dates are not currently supported.

For information on how the labels and dates fields are used for the pillars (tenors and maturities), please see [Labels and dates for pillars](#).

Spot market data

The file is used to provide per-instrument market prices for the greek-based PL calculations, through the SpotMarketData topic.

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date	2019-01-01
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
InstrumentId	Y	N	String	Identifier of the instrument. Must match risk factor identifier in the sensitivities files	USD.OIS
Quote			Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	2453.1

Surface market data

The file is used to provide two-axis market prices for the greek-based PL calculations, through the SurfaceMarketData topic.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date	2019-01-01
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
SurfaceId	Y	N	String	Identifier of the surface. Must match risk factor identifier in the sensitivities files	USD.OIS
Tenor	Y	N	String	A tenor, such as 3M, 5Y, and so on.	1Y
Moneyness	Y	N	String	A moneyness value	45p

Quote	Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	2453.1
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Profit & loss

The following P&L input files are available for Atoti Market Risk:

- *PLCube*
- *Profit & Loss with Product Control fields*
- *Profit & Loss without Product Control fields*
- *Profit & Loss without Product Control summary fields*

PLCube

This is the input file for the PL Summary Cube

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01
TradeID	Y	N	String	If TradeID comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the TradeID could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The TradeID should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LIBOR 3M", "EQ_12345677", etc.
Type	Y	N	String	Type of P&L	'Actual PL'
PLDriver	N	Y	String	Driver for the P&L value	'Market moves'

IsFullReval	N	Y	String	Flag to indicate whether the P&L comes from a full revaluation in the risk engine. 'Y' or 'N'.	
Ccy	N	N	String	Currency of the P&L value	
MarketDataSet	Y	N	String	The market data set that should be used when retrieving rates for FX conversion.	Official EOD
Bucket	N	Y	String	Placeholder for FRTB bucket of the risk factor.	
Desk	N	Y	String	Set to "Y" to identify this node as a desk, otherwise left empty.	
Book	N	Y	String	Book to map the trade to (must match the node in the Book Hierarchy).	

Profit & Loss with Product Control fields

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01

TradeID	Y	N	String	If TradeID comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the TradeID could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The TradeID should contain this information clearly (ADDON or ADJ).	“IR_IRSWAP_LIB OR3M”, “EQ_12345677”, etc.
Daily	N	N	Double	P&L	
Monthly	N	N	Double	Monthly (MTD) P&L	
Yearly	N	N	Double	Yearly (YTD) P&L	
Lifetime	N	N	Double	Lifetime (LTD) P&L	
Type	Y	N	String	Type of P&L	‘Actual PL’
PLDriver	N	Y	String	Driver for the P&L value	‘Market moves’
IsFullReval	N	Y	String	Flag to indicate whether the P&L comes from a full revaluation in the risk engine. ‘Y’ or ‘N’.	
Ccy	N	N	String	Currency of the P&L value	
MarketDataSet	Y	N	String	The market data set that should be used when retrieving rates for FX conversion.	Official EOD
Bucket	N	Y	String	Placeholder for FRTB bucket of the risk factor.	

SignOffAdjustmentSource	N	Y	String	Optional input for the source of a sign-off adjustment. Only available when using the enable-signoff profile.
SignOffAdjustmentInputType	N	Y	String	Optional input for the input type of a sign-off adjustment. Only available when using the enable-signoff profile.
LegId	Y	Y	String	Optional input to send in trades that will have multiple legs under a single TradeId. Only available when the property <code>mr.pnl.enable.leg-id</code> is set to true.

Profit & Loss without Product Control fields

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01

TradeID	Y	N	String	If TradeID comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the TradeID could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The TradeID should contain this information clearly (ADDON or ADJ). "IR_IRSWAP_LIBOR 3M", "EQ_12345677", etc.
Daily	N	N	Double	P&L
Type	Y	N	String	Type of P&L 'Actual PL'
PLDriver	N	Y	String	Driver for the P&L value 'Market moves'
IsFullReval	N	Y	String	Flag to indicate whether the P&L comes from a full revaluation in the risk engine. 'Y' or 'N'.
Ccy	N	N	String	Currency of the P&L value
Bucket	N	Y	String	Placeholder for FRTB bucket of the risk factor.
LegId	Y	Y	String	Optional input to send in trades that will have multiple legs under a single TradeID. Only available when the property <code>mr.pnl.enable.leg-id</code> is set to true.

Profit & Loss without Product Control summary fields

This file is intended to load PnL data at book level for trend analysis.

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01
Book	N	Y	String	Book to map the trade to (must match the node in the Book Hierarchy).	CM_OILGAS
Daily	N	N	Double	P&L	
Monthly	N	N	Double	Monthly (MTD) P&L.	
Yearly	N	N	Double	Yearly (YTD) P&L.	
Lifetime	N	N	Double	Lifetime (LTD) P&L.	
Type	Y	N	String	Type of P&L.	'Actual PL'
PLDriver	N	Y	String	Driver for the P&L value.	'Market moves'
IsFullReval	N	Y	String	Flag to indicate whether the P&L comes from a full revaluation in the risk engine. 'Y' or 'N'.	
Ccy	N	N	String	Currency of the P&L value.	EUR
MarketDataSet	Y	N	String	The market data set that should be used when retrieving rates for FX conversion.	Official EOD
VaR inclusion type	Y	Y	String	Defines if a trade is included in the VaR by repricing (R) from the VaR-ES cube or by sensitivity (S) from the Taylor VaR formula.	
Adjustment Source	Y	Y	String	Sign-off adjustment source tagging.	
Input type	Y	Y	String	The type of input for the row (e.g Data load, User input).	

Reference data

The following reference data input files are available for Atoti Market Risk:

- *Book Parent Child*
- *Counterparties*
- *Counterparty Parent Child*
- *Countries*
- *Legal Entity Parent Child*

Book Parent Child

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Child	Y	N	String	Name of the node in the Book/Desk hierarchy	
Parent	N	N	String	Name of the parent node (or null if there is no parent).	
Desk	N	Y	String	Set to "Y" to identify this node as a desk, otherwise left empty.	

Counterparties

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
CounterpartyId	Y	N	String	Counterparty identifier. Used as a foreign key when counterparty is referenced.	"HSBC Group", "EBRD"

CounterpartyName	N	Y	String	Full counterparty name.	“HSBC Holdings PLC”, “European Bank for Reconstruction and Development”
Rating	N	Y	String	Rating of the counterparty.	“AAA”, “BB”
Sector	N	Y	String	Sector of the counterparty.	
CountryOfAddress	N	Y	String	Country where the counterparty is located, in the form of a unique three-letter country identifier code.	
CountryOfRisk	N	Y	String	Country the risk of counterparty can be attributed to, in the form of a unique three-letter country identifier code.	

Counterparty Parent Child

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format ‘YYYY-MM-DD’	Indicates the date of the file. See Note on AsOfDate .	
Child	Y	N	String	Identifier of the node in the Counterparty hierarchy.	
Parent	N	N	String	Identifier of the parent node (or null if there is no parent).	

Countries

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
CountryCode	Y	N	String	Unique three-letter country identifier code.	"GBR", "FRA"
Region	N	Y	String	The region in which the country is located.	
SubRegion	N	Y	String	The sub-region in which the country is located.	
Country	N	Y	String	Name of the country.	
Latitude	N	Y	Double	The latitude of the country in the decimal degrees format.	"51.514451"
Longitude	N	Y	Double	The longitude of the country in the decimal degrees format.	"0.127723"

Legal Entity Parent Child

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Child	Y	N	String	Name of the Legal Entity.	
Parent	N	N	String	Name of the parent Legal Entity (or null if there is no parent).	

VaR-ES calculations

The following VaR/ES calculation input files are available for Atoti Market Risk:

- *Summary VaR fields*

- *Trade PnL*
- *VaR-ES Cube*

Summary VaR fields

Summary data for the calculation of VaR and similar measures (Marginal VaR, Expected Shortfall) form the backbone of the Market Risk Accelerator. Input data consists of book level vectors of PnL simulations. The reference data model proposes a breakdown by risk factor – which may or may not be used – and a single set of PnLs per trade.

Field	Key	Null	FieldType	RiskClass	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'		Indicates the date of the file. See Note on AsOfDate .	
ScenarioSet	Y	N	String		Name of the scenario set for the PnL vector.	"Historical", "Stress"
CalculationId	Y	N	String		Name of the PnL vector calculation run. There may be several runs per AsOfDate.	1
MarketDataSet	Y	N	String		The market data set that should be used when retrieving rates for FX conversion.	Official EOD
RiskFactor	Y	N	String		Underlying risk factor (may be more than one) of the risk class. It is expected that the risk factor name encompasses the definition of the risk factor per the FRTB specification (paragraphs 59–66) or remains as close as possible to this regulation. This field is mandatory.	BHP Billiton_Cred it spread

RiskClass	N	N	String	Defines the risk class that the PnL vector is computed for.	CSR non-Sec
Ccy	N	N	String	Currency in which the PnL values are expressed.	EUR
Book	N	Y	String	Book to map the trade to (must match the node in the Book Hierarchy).	CM_OILGAS
VaR inclusion type	Y	Y	String	Defines if a trade is included in the VaR by repricing (R) from the VaR-ES cube or by sensitivity (S) from the Taylor VaR formula.	
Adjustment Source	Y	Y	String	Sign-off adjustment source tagging.	
Input type	Y	Y	String	The type of input for the row (e.g Data load, User input).	
MTM	N	Y	Double	Mark-to-market value of the trade.	1245.89
PnL[]	N	N	Double Array, separated by semicolons	Vector of profit and loss values.	

Trade PnL

The calculation of VaR and similar measures (Marginal VaR, Expected Shortfall) form the backbone of Atoti Market Risk. Input data consists of trade-level/position-level vectors of PnL simulations. The reference data model proposes a breakdown by risk factor - which may or may not be used - and a single set of PnLs per trade.

Field	Key	Null	FieldType	RiskClass	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LIBOR3M", "EQ_1234567", etc.
ScenarioSet	Y	N	String	Name of the scenario set for the PnL vector.	"Historical", "Stress"
CalculationId	Y	N	String	Name of the PnL vector calculation run. There may be several runs per AsOfDate.	1
MarketDataSet	Y	N	String	The market data set that should be used when retrieving rates for FX conversion.	Official EOD

				Underlying risk factor (may be more than one) of the risk class. It is expected that the risk factor name encompasses the definition of the risk factor per the FRTB specification (paragraphs 59-66) or remains as close as possible to this regulation. This field is mandatory.	
RiskFactor	Y	N	String		BHP Billiton_Cred it spread
RiskClass	N	N	String	Defines the risk class that the PnL vector is computed for.	CSR non-Sec
SensitivityName	N	Y	String	Name of the sensitivity that the PnL is attributed to.	"Delta"
Ccy	N	N	String	Currency in which the PnL values are expressed.	EUR
MTM	N	Y	Double	Mark-to-market value of the trade.	1245.89
PnL[]	N	N	Double Array, separated by semicolons	Vector of profit and loss values.	

VaR-ES Cube

This is the input file for the VaR-ES Summary Cube

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01
CalculationId	Y	N	String	Name of the PnL vector calculation run. There may be several runs per AsOfDate.	
RiskClass	N	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
MarketDataSet	Y	N	String	The market data set that should be used when retrieving rates for FX conversion.	Official EOD
RiskFactor	N	N	String	Underlying risk factor (may be more than one) of the risk class. It is expected that the risk factor name encompasses the definition of the risk factor per the FRTB specification (paragraphs 59-66) or remains as close as possible to this regulation. This field is mandatory.	
Scenario Set	Y	N	String	Name of the set of scenarios.	"Historical", "Stress"
RiskFactorType	N	Y	String or list of strings	Type of underlying risk factor.	"implied rate", "repo margin", "currency pair", "skew parameter", "correlation parameter", "recovery rate"
RiskFactorCcy	N	Y	String	Three-letter ISO currency code that represents the currency of the risk factor	EUR

CurveType	N	Y	String	Only populated if the risk class is a rates curve, otherwise left blank. Specifies the type of the curve. For example, "Interest rate", "Tenor basis" or "Inflation"	EUR 3 Months
Qualifier	N	Y	String	Identifier of a risk factor's set.	Reference instrument identifier, curve identifier, vol surface identifier, etc.
Ccy	N	N	String	Currency of the sensi value	
Desk	N	Y	String	Set to "Y" to identify this node as a desk, otherwise left empty.	
Book	N	Y	String	Book to map the trade to (must match the node in the Book Hierarchy).	
Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LIBOR 3M", "EQ_12345677", etc.

Sensitivities

The following sensitivities input files are available for Atoti Market Risk:

- *Cross Sensitivities*
- *Cross Sensitivities (vectorized)*

- Dividend
- Dynamic Maturities
- DynamicMoneyness
- DynamicTenors
- Ladder Definition
- Risk Factors Catalog
- Sensitivities
- Sensitivities (vectorized)
- Sensitivity Cube
- Split Ratio
- Summary Sensitivity

Cross Sensitivities

This file is used to store the sensitivities of a trade relative to two risk factors.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LIBOR3M", "EQ_1234567", etc.
SensitivityName	Y	N	String	Name of sensitivity (cube measure). Currently only the values "Delta", "Gamma" and "Vega" are supported.	

RiskClass	N	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
MarketDataSet	Y	N	String	The market data set that was used when the sensitivity was calculated. This will be used to retrieve appropriate market data values for PnL Explain and Taylor VaR computations.	Official EOD
RiskFactor	Y	N	String	Internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier	USD_3v6_b asis
RiskFactor2	Y	N	String	Second risk factor for the cross sensitivity.	UniCredit_S pot price
TenorLabel	N	Y	String	Tenor label corresponding to the vertex of the risk factor, such as 3M, 5Y, and so on.	1Y
TenorDate	N	Y	String with format 'YYYY-MM-DD'	Explicit tenor date which is used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16
MaturityLabel	N	Y	Array (delimited by semicolons)	Underlying maturity for volatility cubes	0.5Y
MaturityDate	N	Y	String with format 'YYYY-MM-DD'	Explicit maturity date which is used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16

Moneyiness	N	Y	String	Label corresponding to different ways of stating moneyiness. Supported formats: - moneyiness in percent - delta-moneyiness	(moneyiness in percent): 80 (delta moneyiness) : "25p"
Value	N	Y	Double	Single value for a sensitivity tenor/maturity/moneyiness combination. Null values are interpreted as "N/A".	1568.2
Ladder	N	Y	List of doubles (delimited by semicolons)	Flattened list of values, with a subvector corresponding to each double in the Values field. Only relevant for sensitivities configured to use first-order ladders, e.g. Delta. Indexes correspond to the values, with an extra ladder scale dimension: for a 3-dimensional sensitivity array as described above (TMm), the ladder indexing becomes TMm*L.	For a single value sensitivity, and a ladder scale of size 3:90.0;100.0;110.0 For a multi-value sensitivity of size 3 and a ladder scale of size 3:90.0;100.0;110.0;85.0;100.0;115.0;110.0;115.0;120.0
Ccy	N	N	String		USD
SignOffAdjustmentSource	N	Y	String	Optional input for the source of a sign-off adjustment. Only available when using the enable-signoff profile.	

SignOffAdjustmentInputType	N	Y	String	Optional input for the input type of a sign-off adjustment. Only available when using the enable-signoff profile.
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For details on the cross sensitivity calculation, see [Cross sensitivity](#).

For information on how the labels and dates fields are used for the pillars (tenors and maturities), please see [Labels and dates for pillars](#).

Cross Sensitivities (vectorized)

This file is used to store the sensitivities of a trade relative to two risk factors. The recommended format for loading sensitivities is as *cross-sensitivities* values. However, in some cases it can be preferable to load vectors of sensitivities as described by this format. With the default Atoti Market Risk configuration, these two formats can be used interchangeably. Atoti Market Risk includes a `ScalarSensiTradeStoreTuplePublisher` that will convert vectorized to scalar sensitivities.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LI BOR3M", "EQ_12345677" , etc.

SensitivityName	Y	N	String	Name of sensitivity (cube measure). Currently only the values “Delta”, “Gamma” and “Vega” are supported.	
RiskClass	N	N	String	Risk factor’s asset class: “Interest rate”, “Credit spread”, “Foreign exchange”, “Equity”, “Commodity”, “Hybrid”.	Equity
MarketDataSet	Y	N	String	The market data set that was used when the sensitivity was calculated. This will be used to retrieve appropriate market data values for PnL Explain and Taylor VaR computations.	Official EOD
RiskFactor	Y	N	String	Internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier	USD_3v6_basis
RiskFactor2	Y	N	String	Second risk factor for the cross sensitivity.	UniCredit_Spot price
TenorLabels	N	Y	Array (delimited by semicolons)	List of tenor labels, corresponding to the vertex of the risk factor, such as 3M, 5Y, and so on.	1Y;3Y;5Y;10Y
TenorDates	N	Y	Array (delimited by semicolons)	List of explicit tenor dates, which are used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16; 2019-04-27; 2019-10-27; 2020-10-27
MaturityLabels	N	Y	Array (delimited by semicolons)	List of underlying maturities for volatility cubes	0.5Y;1Y;3Y;5Y;10Y

MaturityDates	N	Y	Array (delimited by semicolons)	List of explicit maturity dates, which are used to sort tenors and to re- bucket sensitivities (if supported)	2019-03-16; 2019-04-27; 2019-10-27; 2020-10-27
Moneyness	N	Y	Array (delimited by semicolons)	List of labels corresponding to different ways of stating moneyness. Supported formats: - moneyness in percent - delta-moneyness	(moneyness in percent): 80;100;120; (delta moneyness): "25p;ATM ;25c"

				Single value or list of values:
				- single value for a sensitivity without tenor structure/underlying maturities
				- list of values, corresponding to tenors, for a sensitivity with only a term structure
				- list of values, corresponding to tenors and underlying maturities for interest rate volatilities:
Values	N	Y	Double or list of doubles (delimited by semicolons)	For example, a sensitivity along four tenors and two underlying maturities will be published as a list of eight values, the first four corresponding to different tenors and the first underlying maturity and the second four corresponding to tenors and the second underlying maturity.
				1568.2 ;4568.2 ;16.2 ;2453.1(money ness vector) 0;0.34;1.345;24 251.0;0;0;12.4;4 53.23
				If the Moneyness is a vector, then the list is interpreted as a 3-dimensional array with the TenorLabels index changing first and Moneyness changing last. Null values are interpreted as "N/A".

Ladder	N	Y	List of doubles (delimited by semicolons)	Flattened list of values, with a subvector corresponding to each double in the Values field.	For a single value sensitivity, and a ladder scale of size 3:90.0;100.0;110.0
				Only relevant for sensitivities configured to use first-order ladders, e.g. Delta.	For a multi-value sensitivity of size 3 and a ladder scale of size 3:90.0;100.0;110.0;85.0;100.0;115.0;110.0;115.0;120.0
Ccy	N	N	String		USD
SignOffAdjustmentSource	N	Y	String	Optional input for the source of a sign-off adjustment. Only available when using the enable-signoff profile.	
SignOffAdjustmentInputType	N	Y	String	Optional input for the input type of a sign-off adjustment. Only available when using the enable-signoff profile.	

For details on the cross sensitivity calculation, see [Cross sensitivity](#).

For information on how the labels and dates fields are used for the pillars (tenors and maturities), please see [Labels and dates for pillars](#).

Dividend

Dividend market data

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	2018-09-28
MarketDataSet	Y	N	String	String defining the market data set, for example "Trader marks" or "Official EOD"	Official EOD
InstrumentId	Y	N	String	Identifier of the instrument. Must match risk factor identifier in the sensitivities files	USD.OIS
Quote			Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	1.25

Dynamic Maturities

Maturities and set used for dynamic bucketing feature

Field	Key	Null	FieldType	Description	Example
MaturityLabel	Y	N	String	Name for the bucketed group	0.5Y
NumberOfDays	N	N	String	Number of days to include in the bucketed group	180
SensitivityName	Y	N	String	Sensitivity for which the maturity label is used	
MaturitySet	Y	N	String	Specifies the label for the context value users can select at query time to apply this maturity.	REDUCED

Dynamic Moneyiness

Moneyiness and set used for dynamic bucketing feature

Field	Key	Null	FieldType	Description	Example
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MoneyinessLabel	Y	N	String	Name for the bucket of time points	
Shift	N	N	String	Shift from the moneyiness	-45
SensitivityName	Y	N	String	Sensitivity for which the tenor label is used	
MoneyinessSet	Y	N	String	Specifies the label for the context value that users can select at query time to apply this tenor.	NO_SMILE

DynamicTenors

Tenors and set used for dynamic bucketing feature

Field	Key	Null	FieldType	Description	Example
TenorLabel	Y	N	String	Name for the bucketed group	3Y
NumberOfDays	N	N	String	Number of days to include in the bucketed group	1080
SensitivityName	Y	N	String	Sensitivity for which the tenor label is used	
TenorSet	Y	N	String	Specifies the label for the context value that users can select at query time to apply this tenor.	DECADE

Ladder Definition

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	2018-09-28
RiskClass	Y	N	String	The risk class that the ladder scale is defined for.	Equity

ShiftType	N	N	String	The type of the scale ('A' for absolute, 'R' for relative).	A
Scale	N	N	List of doubles (delimited by semicolons)	The ladder scale for the risk class and as-of-date.	-0.5;-0.25;-0.1;0.0;0.1;0.25;0.5 (Relative, percentages)
				The ladder must include the zero-shift as 0.0.	or -47.6;-20.0;0.0;20.0;47.6 (Absolute shift values)

For more information, see [Sensitivity ladders](#)

Risk Factors Catalog

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
RiskFactorID	Y	N	String	Internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier	
RiskClass	N	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
Qualifier	N	Y	String	Identifier of a risk factor's set.	Reference instrument identifier, curve identifier, vol surface identifier, etc.

RiskFactorType	N	Y	String or list of strings	Type of underlying risk factor.	"implied rate", "repo margin", "currency pair", "skew parameter", "correlation parameter", "recovery rate"
RiskFactorCcy	N	Y	String	Three-letter ISO currency code that represents the currency of the risk factor	EUR
CurveType	N	Y	String	Only populated if the risk class is a rates curve, otherwise left blank. Specifies the type of the curve. For example, "Interest rate", "Tenor basis" or "Inflation"	EUR 3 Months

Sensitivities

This file is used to store the sensitivities of a trade relative to a risk factor.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	

Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LIBOR3M", "EQ_1234567", etc.
SensitivityName	Y	N	String	Name of sensitivity (cube measure).	
RiskClass	N	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
MarketDataSet	Y	N	String	The market data set that was used when the sensitivity was calculated. This will be used to retrieve appropriate market data values for PnL Explain and Taylor VaR computations.	Official EOD
RiskFactorId	Y	N	String	Internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier	USD_3v6_basis
TenorLabel	N	Y	String	Tenor label corresponding to the vertex of the risk factor, such as 3M, 5Y, and so on.	1Y

TenorDate	N	Y	String with format 'YYYY-MM-DD'	Explicit tenor date, which is used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16
MaturityLabel	N	Y	String	Underlying maturity for volatility cubes	0.5Y
MaturityDate	N	Y	String with format 'YYYY-MM-DD'	Explicit maturity date, which is used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16
Moneyiness	N	Y	String	Label corresponding to different ways of stating moneyiness. Supported formats: - moneyiness in percent - delta-moneyiness	(moneyiness in percent): 80 (delta moneyiness) : "25p"
Value	N	Y	Double	Single value for a sensitivity tenor/maturity/moneyiness combination. Null values are interpreted as "N/A".	1568.2

Ladder	N	Y	List of doubles (delimited by semicolons)	Flattened list of values, with a subvector corresponding to each double in the Values field.	For a single value sensitivity, and a ladder scale of size 3:90.0;100.0;110.0
				Only relevant for sensitivities configured to use first-order ladders, e.g. Delta.	For a multi-value sensitivity of size 3 and a ladder scale of size 3:90.0;100.0;110.0;85.0;100.0;115.0;120.0
				Indexes correspond to the values, with an extra ladder scale dimension: for a 3-dimensional sensitivity array as described above (TMm), the ladder indexing becomes TMm*L.	
Ccy	N	N	String		USD
SignOffAdjustmentSource	N	Y	String	Optional input for the source of a sign-off adjustment. Only available when using the enable-signoff profile.	
SignOffAdjustmentInputType	N	Y	String	Optional input for the input type of a sign-off adjustment. Only available when using the enable-signoff profile.	

For information on how the labels and dates fields are used for the pillars (tenors and maturities), please see [Labels and dates for pillars](#).

Sensitivities (vectorized)

This file is used to store the sensitivities of a trade relative to a risk factor. The recommended format for loading sensitivities is as *sensitivities* values. However, in some cases it can be preferable to load vectors of sensitivities as described by this format. With the default Atoti Market Risk configuration, these two formats can be used interchangeably. Atoti Market Risk includes a `ScalarSensiTradeStoreTuplePublisher` that will convert vectorized to scalar sensitivities.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Tradeld	Y	N	String	If Tradeld comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the Tradeld could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The Tradeld should contain this information clearly (ADDON or ADJ).	"IR_IRSWAP_LI BOR3M", "EQ_12345677", etc.
SensitivityName	Y	N	String	Name of sensitivity (cube measure).	
RiskClass	N	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
MarketDataSet	Y	N	String	The market data set that was used when the sensitivity was calculated. This will be used to retrieve appropriate market data values for PnL Explain and Taylor VaR computations.	Official EOD
RiskFactorId	Y	N	String	Internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier	USD_3v6_bas is

TenorLabels	N	Y	Array (delimited by semicolons)	List of tenor labels, corresponding to the vertex of the risk factor, such as 3M, 5Y, and so on.	1Y;3Y;5Y;10Y
TenorDates	N	Y	Array (delimited by semicolons)	List of explicit tenor dates, which are used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16; 2019-04-27; 2019-10-27; 2020-10-27
MaturityLabels	N	Y	Array (delimited by semicolons)	List of underlying maturities for volatility cubes	0.5Y;1Y;3Y;5Y;1 0Y
MaturityDates	N	Y	Array (delimited by semicolons)	List of explicit maturity dates, which are used to sort tenors and to re- bucket sensitivities (if supported)	2019-03-16; 2019-04-27; 2019-10-27; 2020-10-27
Moneyness	N	Y	Array (delimited by semicolons)	List of labels corresponding to different ways of stating moneyness. Supported formats: - moneyness in percent - delta-moneyness	(moneyness in percent): 80;100;120; (delta moneyness): "25p;ATM ;25c"

				Single value or list of values:
				- single value for a sensitivity without tenor structure/underlying maturities
				- list of values, corresponding to tenors, for a sensitivity with only a term structure
				- list of values, corresponding to tenors and underlying maturities
Values	N	Y	Double or list of doubles (delimited by semicolons)	for interest rate volatilities: 1568.2 ;4568.2 ;16.2
				For example, a sensitivity along four tenors and two underlying maturities will be published as a list of eight values. ;2453.1(money ness vector) 0;0.34;1.345;24 251.0;0;0;12.4;4 53.23
For a multi-dimensional array (with any number of dimensions), the indexing is in reverse order of dimensions; given four tenors, two maturities and three moneyness values (TMm), the index coordinates are:[T0M0m0, T0M0m1, ..., T2M0m2, T2M1m0, ..., T3M1m2]. Null values are interpreted as “N/A”.				

Ladder	N	Y	List of doubles (delimited by semicolons)	Flattened list of values, with a subvector corresponding to each double in the Values field.	For a single value sensitivity, and a ladder scale of size 3:90.0;100.0;110.0
				Only relevant for sensitivities configured to use first-order ladders, e.g. Delta.	For a multi-value sensitivity of size 3 and a ladder scale of size 3:90.0;100.0;110.0;85.0;100.0;115.0;110.0;115.0;120.0
				Indexes correspond to the values, with an extra ladder scale dimension: for a 3-dimensional sensitivity array as described above (TMm), the ladder indexing becomes TMm*L.	
Ccy	N	N	String		USD
SignOffAdjustmentSource	N	Y	String	Optional input for the source of a sign-off adjustment. Only available when using the enable-signoff profile.	
SignOffAdjustmentInputType	N	Y	String	Optional input for the input type of a sign-off adjustment. Only available when using the enable-signoff profile.	

For information on how the labels and dates fields are used for the pillars (tenors and maturities), please see [Labels and dates for pillars](#).

Sensitivity Cube

This is the input file for the Sensitivity Summary Cube

Field	Key	Null	FieldType	Description	Example
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AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates value date.	2019-01-01
TenorLabel	Y	N	String	Name for the bucketed group, if applicable.	3Y
TenorDate	Y	N	String with format 'YYYY-MM-DD'	Explicit tenor date, if applicable.	2019-03-16
MaturityLabel	Y	N	String	Name for the bucketed group, if applicable.	0.5Y
MaturityDate	Y	N	String	Explicit maturity date, if applicable.	2019-03-16
Moneyiness	Y	N	String	Moneyiness label, if applicable.	ATM
RiskClass	Y	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
MarketDataSet	Y	N	String	The market data set that was used when the sensitivity was calculated. This will be used to retrieve appropriate market data values for PnL Explain and Taylor VaR computations.	Official EOD
RiskFactorId	Y	N	String	Underlying risk factor (may be more than one) of the risk class.	
RiskFactorId2	Y	N	String	Underlying second risk factor of the risk class.	

RiskFactorType	Y	N	String or list of strings	Type of underlying risk factor.	"implied rate", "repo margin", "currency pair", "skew parameter", "correlation parameter", "recovery rate"
RiskFactorCcy	Y	N	String	Three-letter ISO currency code that represents the currency of the risk factor	EUR
CurveType	Y	N	String	Only populated if the risk class is a rates curve, otherwise left blank. Specifies the type of the curve. For example, "Interest rate", "Tenor basis" or "Inflation"	EUR 3 Months
Qualifier	Y	N	String	Identifier of a risk factor's set.	Reference instrument identifier, curve identifier, vol surface identifier, etc.
Ladder Available	Y	N	String	Is a ladder scale available for this sensitivity (Y or N)	N
Ccy	Y	N	String	Currency of the sensitivity value	
Desk	Y	N	String	Set to "Y" to identify this node as a desk, otherwise left empty.	

Book	Y	N	String	Book to map the trade to (must match the node in the Book Hierarchy).
TradeID	Y	N	String	If TradeID comes from multiple systems you may need to prepend source system to the ID for uniqueness. Note that in certain cases, the TradeID could be for adjustment purposes. In such cases we might only have one PnL vector per Book or desk. The TradeID should contain this information clearly (ADDON or ADJ). "IR_IRSWAP_LIBOR3M", "EQ_1234567", etc.
BookHierarchyLevelI	N	Y	String	Name of the member in the first level of the Book hierarchy. There are as many fields for BookHierarchyLevel as the value of the property <code>mr.parent-child.bookDepth</code> (that value is named N here)
BookHierarchyLevelK	N	Y	String	Name of the member in the Kth level of the Book hierarchy. There are as many fields for BookHierarchyLevel as the value of the property <code>mr.parent-child.bookDepth</code>
BookHierarchyLevelNth	Y	N	String	Name of the member in the Nth level of the Book hierarchy. There are as many fields for BookHierarchyLevel as the value of the property <code>mr.parent-child.bookDepth</code>

Legal EntityHierarchyLevelI	N	N	String	Name of the member in the first level of the Legal Entity hierarchy. There are as many fields for Legal EntityHierarchyLevel as the value of the property <code>mr.parent-child.legalEntityDepth</code> (that value is named M here)
Legal EntityHierarchyLevelK	N	N	String	Name of the member in the Kth level of the Legal Entity hierarchy. There are as many fields for Legal EntityHierarchyLevel as the value of the property <code>mr.parent-child.legalEntityDepth</code> (that value is named M here)
Legal EntityHierarchyLevelM	Y	N	String	Name of the member in the Mth level of the Legal Entity hierarchy. There are as many fields for Legal EntityHierarchyLevel as the value of the property <code>mr.parent-child.legalEntityDepth</code> (that value is named M here)
LegalEntity	Y	N	String	Legal Entity to map the trade to (must match the node in the Legal Entity Hierarchy). <i>See Legal Entity Parent Child Input File Format.</i>

CounterpartyName	Y	N	String	Full counterparty name.	“HSBC Holdings PLC”, “European Bank for Reconstruction and Development”
CounterpartyId	Y	N	String	Counterparty identifier. Used as a foreign key when counterparty is referenced.	“HSBC Group”, “EBRD”
Rating	Y	N	String	Rating of the counterparty.	“AAA”, “BB”
Sector	Y	N	String	Sector of the counterparty.	
CountryOfAddress	Y	N	String	Country where the counterparty is located, in the form of a unique three-letter country identifier code.	
CountryOfRisk	Y	N	String	Country the risk of counterparty can be attributed to, in the form of a unique three-letter country identifier code.	
CounterpartyHierarchyLevel1	N	N	String	Name of the member in the first level of the Counterparty hierarchy. There are as many fields for Legal CounterpartyHierarchyLevel as the value of the property <code>mr.parent-child.counterpartyDepth</code> (that value is named L here)	

CounterpartyHierarchyLevelK	N	N	String	Name of the member in the Kth level of the Counterparty hierarchy. There are as many fields for Legal CounterpartyHierarchyLevel as the value of the property <code>mr.parent-child.counterpartyDepth</code> (that value is named L here)
CounterpartyHierarchyLevelL	Y	N	String	Name of the member in the Lth level of the Counterparty hierarchy. There are as many fields for Legal CounterpartyHierarchyLevel as the value of the property <code>mr.parent-child.counterpartyDepth</code> (that value is named L here)
SensitivityName	Y	N	String	Sensitivity for which the maturity label is used
Trader	Y	N	String	Trader who performed the trade.
Sales	Y	N	String	Salesperson who performed the sale of the trade (if applicable).
TradeMaturityDate	Y	N	String with format 'YYYY-MM-DD'	Maturity date of the trade.
NotionalCcy	Y	N	String	Currency of the notional trade.
TradeDate	Y	N	String with format 'YYYY-MM-DD'	Date the trade was made.

VaR inclusion type	Y	N	String	Defines if a trade is included in the VaR by repricing (R) from the VaR-ES cube or by sensitivity (S) from the Taylor VaR formula.	
InstrumentClass	Y	N	String	Highest level of instrument classification.	"Equity", "Rates", "Forex"
InstrumentType	Y	N	String	Main instrument classification.	"IRSWAP", "Loan", "Bond"
InstrumentSubType	Y	N	String	Sub-level of instrument classification.	"XCCY-BASIS", "Overnight", "Gilt"
Value	N	Y	Double	Value for a sensitivity.	1568.2

This file is loaded if these properties are defined with the following values:

- `mr.enable.cubes.sensi-summary=true`
- `mr.enable.data-model.aggregated=false`

Split Ratio

Split Ratio market data

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	2018-09-28
InstrumentId	Y	N	String	Identifier of the instrument. Must match risk factor identifier in the sensitivities files	BMW_Spot price

Quote	Double	Market data quote to be used by the greek-based calculation. Must correspond to sensitivities to the same risk factor.	1.25
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Summary Sensitivity

This file is used to store the sensitivities relative to a risk factor at the book level.

Field	Key	Null	FieldType	Description	Example
AsOfDate	Y	N	String with format 'YYYY-MM-DD'	Indicates the date of the file. See Note on AsOfDate .	
Book	N	Y	String	Book to map the trade to (must match the node in the Book Hierarchy).	CM_OILGAS
SensitivityName	Y	N	String	Name of sensitivity (cube measure). Currently only the values "Delta", "Gamma" and "Vega" are supported.	
RiskClass	N	N	String	Risk factor's asset class: "Interest rate", "Credit spread", "Foreign exchange", "Equity", "Commodity", "Hybrid".	Equity
MarketDataSet	Y	N	String	The market data set that was used when the sensitivity was calculated. This will be used to retrieve appropriate market data values for PnL Explain and Taylor VaR computations.	Official EOD
RiskFactor	Y	N	String	Internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier.	USD_3v6_basis

RiskFactor 2	Y	N	String	second internal risk factor/bucket identifier: instrument, curve, vol surface/cube identifier, if needed.	USD_3v6_basis
TenorLabels	N	Y	Array (delimited by semicolons)	List of tenor labels, corresponding to the vertex of the risk factor, such as 3M, 5Y, and so on.	1Y;3Y;5Y;10Y
TenorDates	N	Y	Array (delimited by semicolons)	List of explicit tenor dates, which are used to sort tenors and to re-bucket sensitivities (if supported).	2019-03-16; 2019-04-27; 2019-10-27; 2020-10-27
UnderlyingMaturities	N	Y	Array (delimited by semicolons)	List of underlying maturities for volatility cubes.	0.5Y;1Y;3Y;5Y;10Y
MaturityDates	N	Y	Array (delimited by semicolons)	List of explicit maturity dates, which are used to sort tenors and to re-bucket sensitivities (if supported)	2019-03-16; 2019-04-27; 2019-10-27; 2020-10-27
Moneyness	N	Y	Array (delimited by semicolons)	List of labels corresponding to different ways of stating moneyness. Supported formats: - moneyness in percent - delta-moneyness	(moneyness in percent): 80;100;120;(delta moneyness): "25p;ATM ;25c"
Ccy	N	N	String	Currency of the P&L value.	EUR
VaR inclusion type	Y	Y	String	Defines if a trade is included in the VaR by repricing (R) from the VaR-ES cube or by sensitivity (S) from the Taylor VaR formula.	
Adjustment Source	Y	Y	String	Sign-off adjustment source tagging.	

Input type	Y	Y	String	The type of input for the row (e.g Data load, User input).	
Values	N	Y	Double or list of doubles (delimited by semicolons)	Single value or list of values: - single value for a sensitivity without tenor structure/underlying maturities - list of values, corresponding to tenors, for a sensitivity with only a term structure - list of values, corresponding to tenors and underlying maturities for interest rate volatilities: For example, a sensitivity along four tenors and two underlying maturities will be published as a list of eight values.	1568.2 ;4568.2 ;16.2 ;2453.1(moneyne ss vector) 0;0.34;1.345;24251.0;0;0;12.4;453.23
				For a multi-dimensional array (with any number of dimensions), the indexing is in reverse order of dimensions; given four tenors, two maturities and three moneyness values (TMm), the index coordinates are:[T0M0m0, T0M0m1, ..., T2M0m2, T2M1m0, ..., T3M1m2]. Null values are interpreted as "N/A".	

Ladder	N	Y	List of doubles (delimited by semicolons)	Flattened list of values, with a subvector corresponding to each double in the Values field.	For a single value sensitivity, and a ladder scale of size 3:90.0;100.0;110.0F or a multi-value sensitivity of size 3 and a ladder scale of size 3:90.0;100.0;110.0;8 5.0;100.0;115.0;110.0 ;115.0;120.0
				Only relevant for sensitivities configured to use first-order ladders, e.g. Delta. Indexes correspond to the values, with an extra ladder scale dimension: for a 3-dimensional sensitivity array as described above (TMm), the ladder indexing becomes TMm*L.	