SAM Model Documentation Requirements

**(Section Name)**

Dd Mmmm yyyy

**Author Name**Author Position  
Author Capacity (If Applicable)  
Author Qualifications

**For Internal Use Only**

|  |  |
| --- | --- |
| **Model Name** |  |
| **Model ID** |  |
| **Radar Live Model Version** |  |
| **Model Materiality** |  |
|  |  |
| **Model Owner** |  |
| **Model Validator** |  |
| **Model Approval Authority** |  |

Contents

[1 Introduction 3](#_Toc132641158)

[2 Worksheets 3](#_Toc132641159)

[3 Input Tables 4](#_Toc132641160)

[4 Field Definitions 5](#_Toc132641161)

[4.1 base\_inputs 5](#_Toc132641162)

[4.2 counterparty 6](#_Toc132641163)

# Introduction

This document provides an overview of the data requirements for the SAM Python model (“the SAM model”). This SAM model is designed to performed an automated calculation of the SAM capital requirements as detailed in the Financial Soundness Standards for Insurers (“FSI”. To do this the model requires inputs to be in a standardized format – otherwise the model will fail to run – or calculate results incorrectly.

At present the inputs are contained in an Excel workbook. However, this is a temporary solution. Ultimately it would be best practice to store the inputs in a database where one can ensure proper referential integrity.

The inputs are described in three stages:

1. **Worksheet:** The worksheet that contains the different input tables. A worksheet can contain multiple input tables.
2. **Input Tables:** The different input tables within a worksheet.
3. **Fields:** The different fields that make up an input table.

# Worksheets

|  |  |  |
| --- | --- | --- |
| Worksheet | Input Tables | Purpose |
| base\_inputs | 4 | This worksheets contains basic configuration information about the SCR run. It further contains a table to populate man-made events at a gross license level. |
| counterparty | 1 | Contains information about the various counterparties used within the model and their credit rating, collateral, etc. |
| division\_product | 1 | Contains information relating to the different divisions/products. It includes the profitability, tax rates, etc |
| reinsurance\_programme | 1 | Contains the different reinsurance structures that should be applied within the model. Each structure is made up of various reinsurance contracts. |
| reinsurance | 1 | Contians the detailed information of each reinsurance contract that forms part of the overall reinsurance programme. |
| reinsurance\_share | 1 | Contains the share of each counterparty in the different reinsurance contracts. |
| man\_made\_cat |  | Blank for now, still need to build man-made cat. |
| asset\_data | 1 | Contains all of the details of the different assets held for the entity. |
| nat\_cat | 1 | Contains sums insured by division/product, reinsurance structure, postal code and type of exposure. |
| prem\_res | 1 | Contains the premium and reserve information used in the calculation of premium and reserve risk as well as operational risk. |
| tech\_prov\_cashflow |  | Currently still under development. |

# Input Tables

Within each worksheet there are various input tables. Some worksheets have multiple tables to reduce the number of worksheets. In a database environment this would not be the case.

|  |  |  |
| --- | --- | --- |
| Worksheet | Input Table | Description |
| base\_inputs | base\_inputs | Various high level ‘configuration’ inputs that are used in the model and apply to the overall SCR calculation. |
| base\_inputs | man\_made | Contains the man-made catastrophe events (and reinsurance structures) that apply at an overall level. |
| base\_inputs | division | Contain the different divisions to be used within the model. Either division or product should be populated. |
| base\_inputs | product | Contain the different divisions to be used within the model.  Either the division or product should be populated. |
| counterparty | counterparty | Contains the information for the different counterparties used within the model. The populated data should reflect the reinsurers and the counterparties for the different assets held. |
| division\_product | division\_product | It is possible that tax rates and the loss absorbing capacity of deferred taxes (LACDT) will differ for each division/product. This information is captured here. |
| reinsurance\_programme | reinsurance\_programme | In this table the columsn reflect the different reinsurance structures within the reinsurance programme. The rows contain the different reinsurance contracts. The values in the table detail the ‘order’ in which the contracts are applied. |
| reinsurance | reinsurance | This contains the details of the different reinsurance contract. This includes the excess, layer size, reinstatements, etc |
| man\_made\_cat | man\_made\_cat | Still to be developed. |
| reinsurance\_share | reinsurance\_share | Details the share of each counterparty in each reinsurance contract. |
| asset\_data | asset\_data | Detailed information for each individual asset. |
| nat\_cat | nat\_cat | Detailed sums insured by division/product, postal code, reinsurance structure and type of exposure. |
| prem\_res | prem\_res | This table contains all of the premium and reserve information to calculate premium and reserve information as well as the operational risk charges. |
| tech\_prov\_cashflow | tech\_prov\_cashflow | Not currently used. |
|  |  |  |
|  |  |  |

# Field Definitions

The section below details the various field definitions used in the various input tables. The information is provided for each worksheet.

## base\_inputs

The section below provides the various field definitions for the ‘base\_inputs’ worksheet. In this worksheet we have 4 different input tables bring base\_inputs, man\_made, division and product.

|  |  |  |
| --- | --- | --- |
| Input Table | Field | Description |
| base\_inputs | valuation\_date | The effective date at which the SCR calculation is being performed. |
| base\_inputs | company\_name | The name of the company (licensed entity) for which the SCR calculation is being performed. |
| base\_inputs | diversification\_level | The field that should be used for the calculation of the diversification. I.e. division or product. |
| base\_inputs | calculation\_level | This determines the type of diversification calculation that should be performed. I.e. individual, overall or diversification. |
| base\_inputs | tax\_percent | This is the tax percentage that should be used for the overall entity calculation. The LACDT that is recognized will be limited by ‘max\_lacdt’ as defined below. |
| base\_inputs | max\_lacdt | This is the maximum LACDT asset that can be recognized at an entity level. |
| man\_made | mm\_motor | For all of the man-made catastrophe events we captured two fields being the ‘gross\_event’ and the ‘ri\_structure’.  The ‘gross\_event’ is the total impact of the event which must be manually capture.  ‘ri\_structure’ details which reinsurance structure should be applied to man-made event. A structure will consist of various reinsurance contracts. |
|  | mm\_fire\_property |
|  | mm\_marine |
|  | mm\_aviation |
|  | mm\_liability |
|  | mm\_credit\_guarantee |
|  | mm\_terrorism |
|  | mm\_accident\_health |
|  | np\_property |
|  | np\_credit\_guarantee |
|  |  |  |
| division | division | These are the different divisions within the calculation. At least one division should be provided. If you do not wish to make use of divisions, a single ‘dummy’ division can be supplied of your choosing. |
| product | product | These are the different products within the calculation. As with the ‘division’ input table a single product must be provided. |

## counterparty

In the counterparty worksheet we have a single input table being counterparty.

|  |  |
| --- | --- |
| Field | Description |
| id | This is a primary key of the table. This must be unique for each counterparty. |
| counterparty\_name | The name of the counterparty. This should be descriptive name of the counterparty – and should also be unique. |
| counterparty\_cqs | The credit quality step (CQS) of the counterparty. This should be the CQS of the counterparty assessed on an individual basis. |
| counterparty\_equivalent | This should reflect if the counterparty is considered an equivalent jurisdiction. Currently not used within the model. This would require further development. |
| counterparty\_group | This is the group of companies to which the counterparty belongs. This should be the id of the parent company – and be contained in the ‘id’ column of this table. |
| counterparty\_group\_cqs | This is the CQS that should be applied for a group of companies. If this not supplied, the CQS for the group will be calculation in the Python calculation based on the exposures to each counterparty within the group. |
| counterparty\_collateral | This is the collateral help for a specific counterparty. Importantly collateral is ring-fenced at a counterparty level – and cannot be used for other counterparties within a group of companies. |

## division\_product

In the ‘division\_product’ worksheet we have a single input table being ‘division\_product’.

|  |  |
| --- | --- |
| Field | Description |
| division | Either division or product must be populated. Which field is populated must match to the ‘diversification\_level’ as completed in the base\_inputs table. |
| product |
| tax\_percent | This should be the tax rate that is used in the calculation of the LACDT for the division/product. |
| max\_lacdt | This is the maximum LACDT that can be recognized for the division/product. |

## reinsurance\_programme

In the ‘reinsurance\_programme’ worksheet we have a single input table being ‘reinsurance\_programme’. This is a two-dimensional matrix with:

* The rows representing the different reinsurance contracts.
* The columns represent the different reinsurance structures that can be applied to the different catastrophe events.

The matrix values reflect the order in which the reinsurance contracts are applied in each

|  |  |
| --- | --- |
| Field | Description |
| division | Either division or product must be populated. Which field is populated must match to the ‘diversification\_level’ as completed in the base\_inputs table. |
| product |
| tax\_percent | This should be the tax rate that is used in the calculation of the LACDT for the division/product. |
| max\_lacdt | This is the maximum LACDT that can be recognized for the division/product. |

## reinsurance

* In the ‘reinsurance’ worksheet we have a single input table being ‘reinsurance’.

|  |  |
| --- | --- |
| Field | Description |
| division | Either division or product must be populated. Which field is populated must match to the ‘diversification\_level’ as completed in the base\_inputs table. |
| product |
| tax\_percent | This should be the tax rate that is used in the calculation of the LACDT for the division/product. |
| max\_lacdt | This is the maximum LACDT that can be recognized for the division/product. |