

Flamingo User Guide

V 0.5 January 2017



Introduction

Oasis

The Oasis Platform can be described as follows:

Oasis is a calculation engine used to process Monte Carlo simulations of insurance companies' exposures to catastrophic risk against synthetic event sets provided by model providers. In brief:

- Model providers build synthetic event sets to represent many years (100,000 years plus) of catastrophic events (say hurricanes) in a particular geography (say the East coast of the USA). This is necessary because the actual data that exists on historic events (~100 years) is too small to be statistically relevant and usable in estimating the probability of a particular event in the next year. These events are represented in the “hazard module” of oasis by storing the event and its severity in a particular area cell in tabular form. So, for example, they might say that a particular event (Event 2,465 say) has a severity of 90mph in area cell 1,456 (which is a 1km square on the coast of Florida in Dade County)
- Model providers also represent the “vulnerability” of categories of properties to particular severities. So, they might say that a 2 story, wood framed building in Florida when hit with a 90mph wind has vulnerability category 289 and will suffer 44% damage. (Note that this is vastly simplified and in reality, there will be a damage distribution rather than a point value and there would be many more parameters that drive the vulnerability – roof fixings, window type, foundations, local geography, etc.)
- Insurers then represent their exposures according to their location (i.e. which area cell is the property in) and their vulnerability category (i.e. 289 in the example above) and Oasis applies the damage quotient to the total value of the property (say 44% x \$250,000 = \$111,000). In reality, the distribution will be some variation around 44% to represent the secondary uncertainty and Oasis allows you to sample from that distribution to get a range of losses.

The Oasis platform has a four-tier architecture:

1. **Flamingo user interface:** Provides a reference user interface for modelling workflows. Extensible implementation using R-shiny framework. Runs in browser and no client-side installation required.
2. **Flamingo server:** Provides configurable business logic for modelling workflows. Provides an extensible exposure store based on a canonical data model, along with tools to transform exposure data from other common formats such as EDM and Cede. Implemented using Python (Flask), SQL server and embedded .NET.
3. **Mid-tier:** Provides a web service API for managing model data, running analyses and retrieving results. Implemented using Python (Flask).
4. **Calculation backend (ktools):** Calculation components implemented in C++. High performance, multi-threaded model execution and analytics. Provides a set of reference components for model execution.

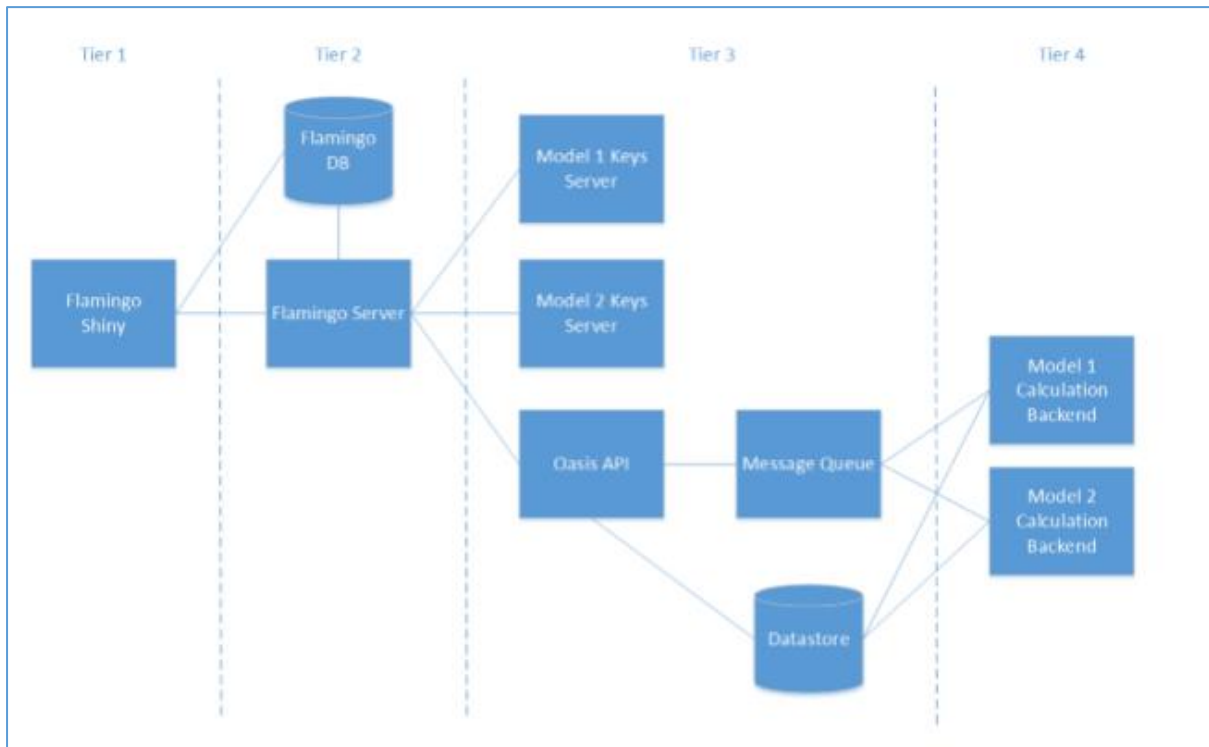


Figure 1 - Oasis Architecture

Flamingo

Flamingo is a business front end to Oasis and it has two main functions:

1. **Exposure management and transformations:** It allows a user to transform their exposure data into the formats required by both model providers in order to map the exposures into their particular area and vulnerability categorisations, and also to transform their data into the Oasis format required to run the oasis calculations.
2. **Running processes into the Oasis API layer and handling the outputs:** It provides a front end to the API interface with Oasis whereby you can present exposure data (pre-transformed into the correct format as above), choose your analysis settings (number of samples, output aggregation options, etc.), request an analysis, monitor the run and manage the output files.

Exposure Management

Flamingo is designed to accept exposure data in many different formats and convert that data into a canonical data model format that is perfectly generic. This data can then be converted back out into many other data formats as required. The system utilises XSD and XSLT files to validate and transform the source exposure data into and out of the canonical data model. The three core conversions that Flamingo undertakes are:

1. Conversion from source to canonical format – this transformation takes data from a source format and converts into a cleansed version of that data ahead of loading into the canonical

data model. This cleansing might include replacing empty values with a default value or filtering out data that is known not to be required in the modelling process (non-modelled building codes or geographies for example).

2. Conversion from canonical to model specific format – this conversion is used to get data into the format required by the model provider in order to assign the oasis keys specific to that model in an exterior lookup service.
3. Conversion from canonical to oasis format – this conversion takes the canonical exposure data, combines it with the model specific oasis keys that are returned from the lookup service and generates the abstract data files that are required to run models in oasis

The data conversions are all done within SQL Server using XSDs for data validation and XSLTs for transformation. These are files that define the underlying data schemas in the files (XSD) and the transformation rules to be applied (XSLT)

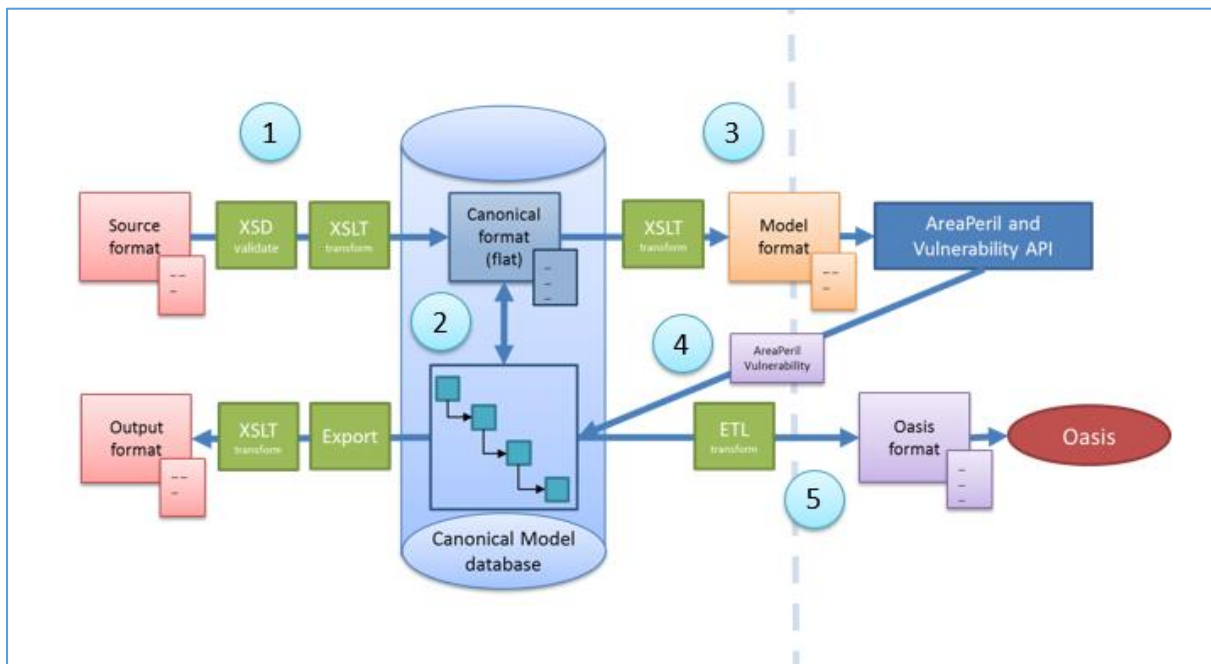


Figure 2 – Data Transformations

Figure 1 illustrates the steps are taken when converting data in Flamingo via the following steps

- 1) Source Location and Contract data files conversion to Canonical Location and Contract data files
- 2) Canonical Location and Contract data files to Canonical Data Model
- 3) Canonical Location file to Model Location file conversion
- 4) Model specific oasis key files (matching and non-matching location files)
- 5) Canonical data model to Oasis file format

Canonical Data Model

The canonical data model is Flamingo’s way of storing exposure data. It is a generic data model that uses a general hierarchy and “key value pairs” in combinations with “profiles” to define the data formats. The hierarchy uses generalised terms to describe the relationships between levels in any class of business, with the mapping to those levels being specific to the class. Each level in the hierarchy then has a related values table which stores the key value pairs, and a profile to describe the meta data associated with the keys.

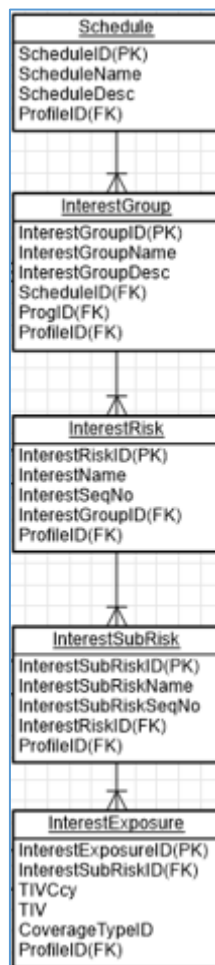


Figure 3 – General Hierarchy

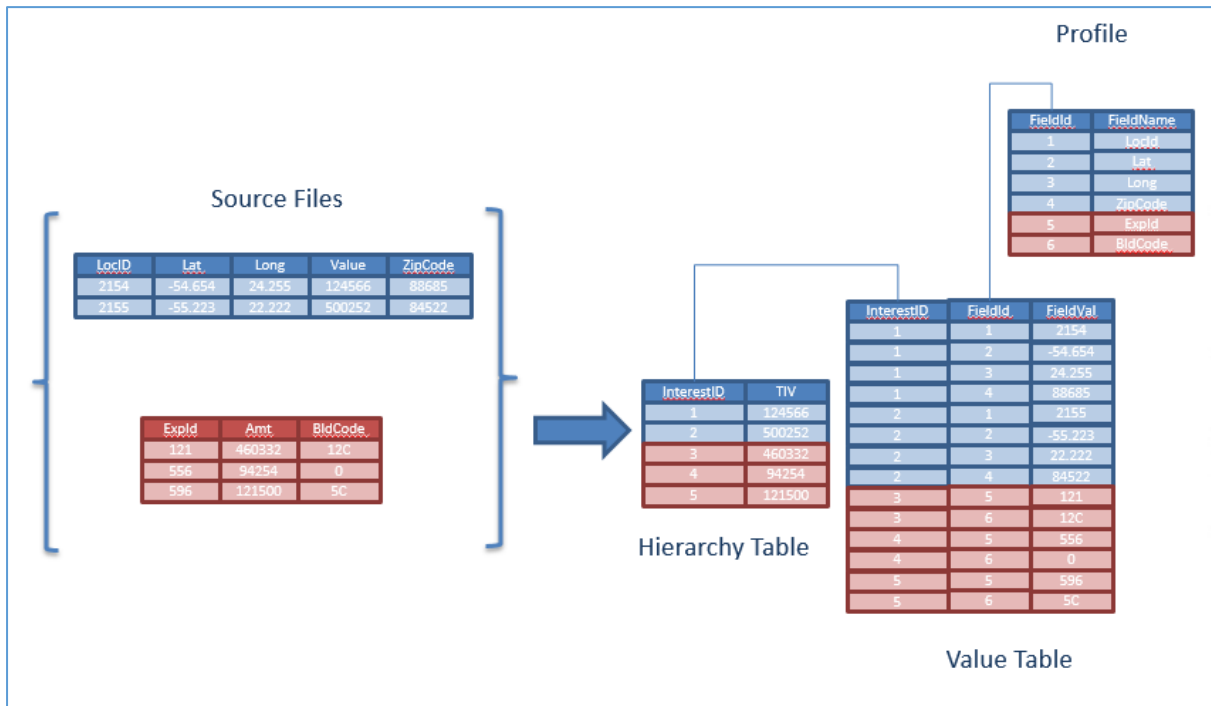


Figure 4 - Key Value Pairs

Processes

Processes in Flamingo are ordered lists of API instructions to the Oasis mid-tier.

There are 4 basic API calls that are executed in any one process, and these are:

- 1) Post Exposures – this sends up the exposure files as generated in the exposure management in Flamingo and receives confirmation of the location of the exposure files in the Oaiss data store
- 2) Post Analysis – this sends up a reference to the location of the exposures and the requested analysis settings – i.e. which analyses are required. It receives back a queue resource form the Oasis mid-tier.
- 3) Get analysis status – here Flamingo polls the Oasis mid-tier with the queue resource request and receives back the status of that analysis: either in progress, failed or completed. Once the analysis is completed, the Oasis mid-tier also returns the location of the output files that have been generated
- 4) Get outputs – this call passes the output location and receives back the files themselves from the oasis data store

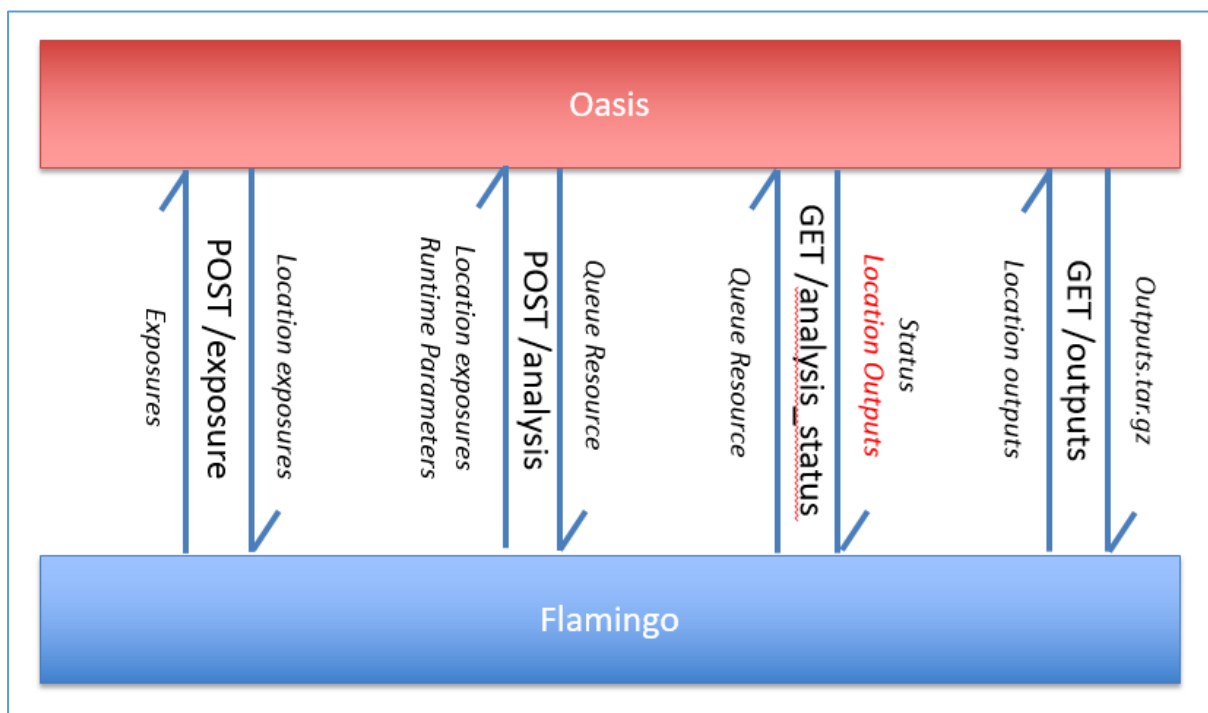
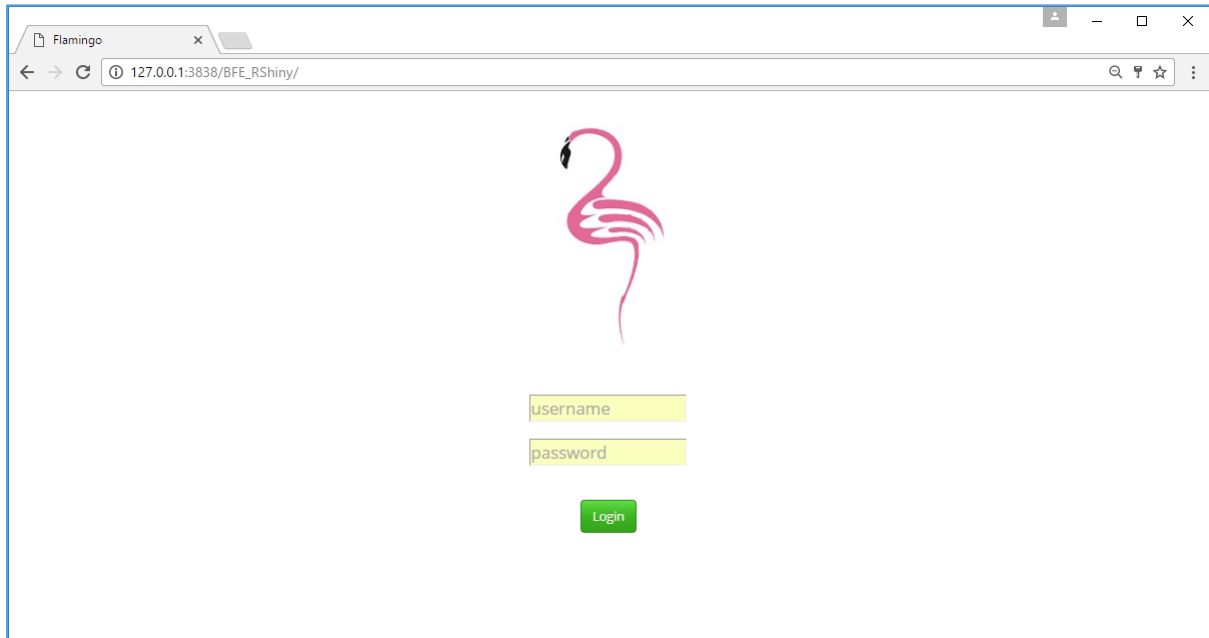


Figure 5 - Oasis APIs

User Guide

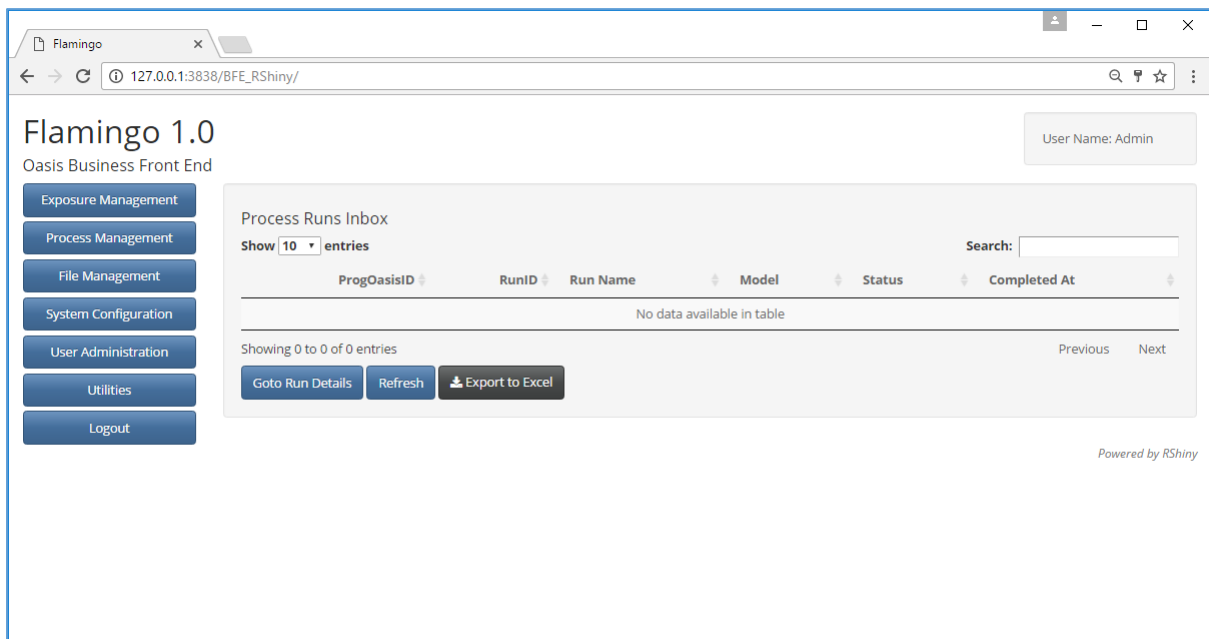
Login

The login screen is where you should enter your Flamingo username and password



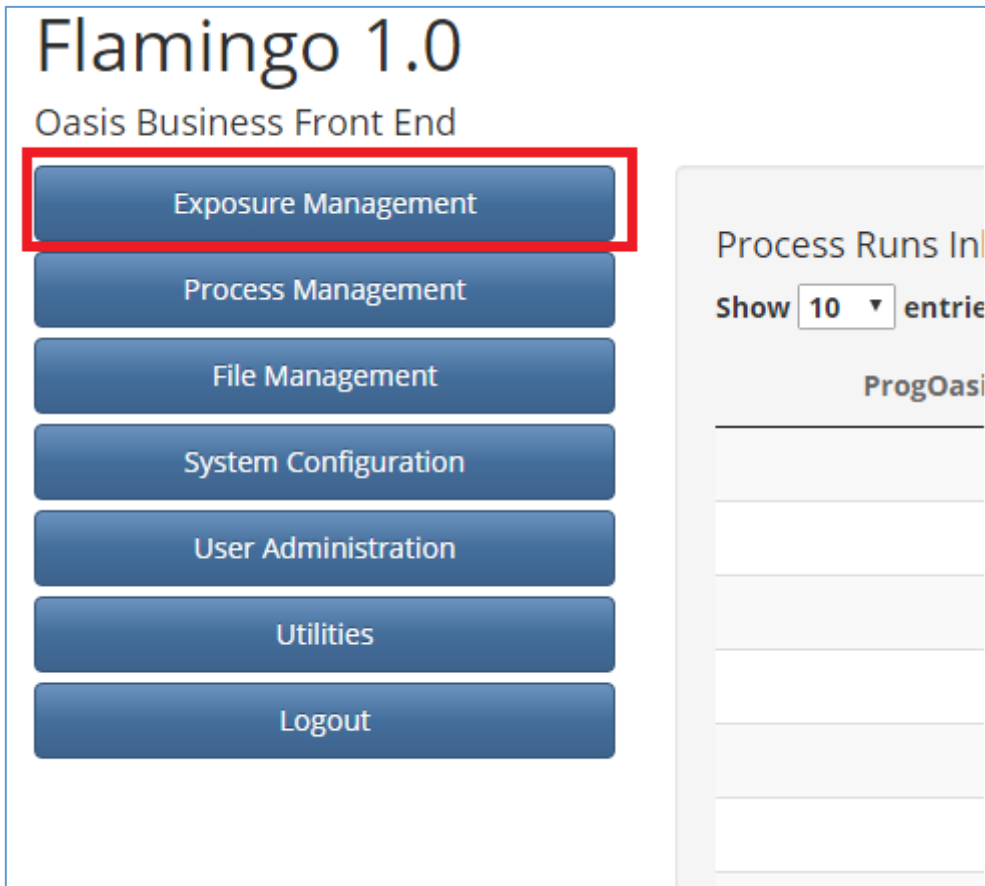
Landing Page

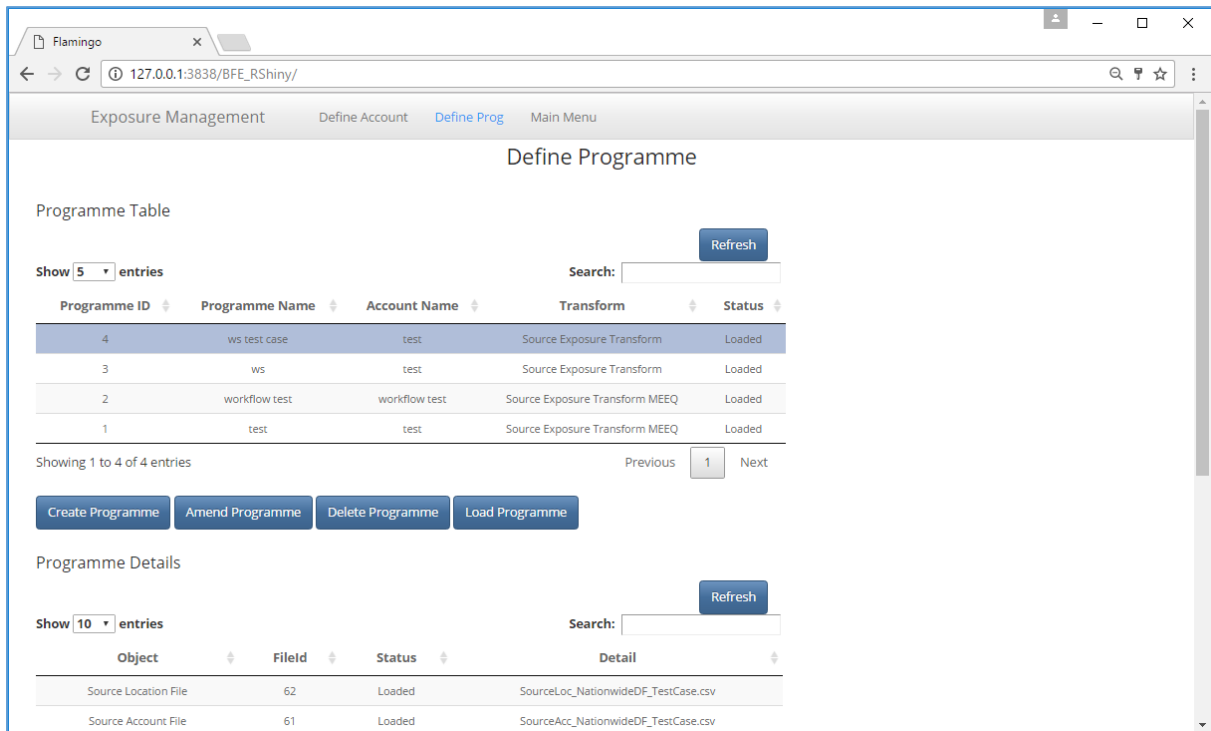
The Landing page displays a number of areas of Flamingo functionality on the left hand side and a list of previously requested processes in the main section with the current status.



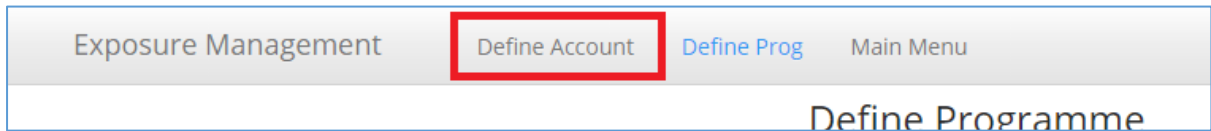
Exposure Management

Once you're logged in navigate to "Exposure Management" on the top left

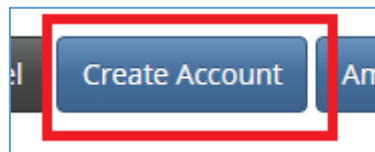




Click on "Define Account" on the top menu bar



Click on "Create Account"



Name the Account and click on "Submit"

Create/Amend Account

Account Name

Demo Account

Submit Cancel

Click "OK" on the pop up box that appears

10.1.0.131:3838 says:

"Account Demo Account created."

Prevent this page from creating additional dialogs.

OK

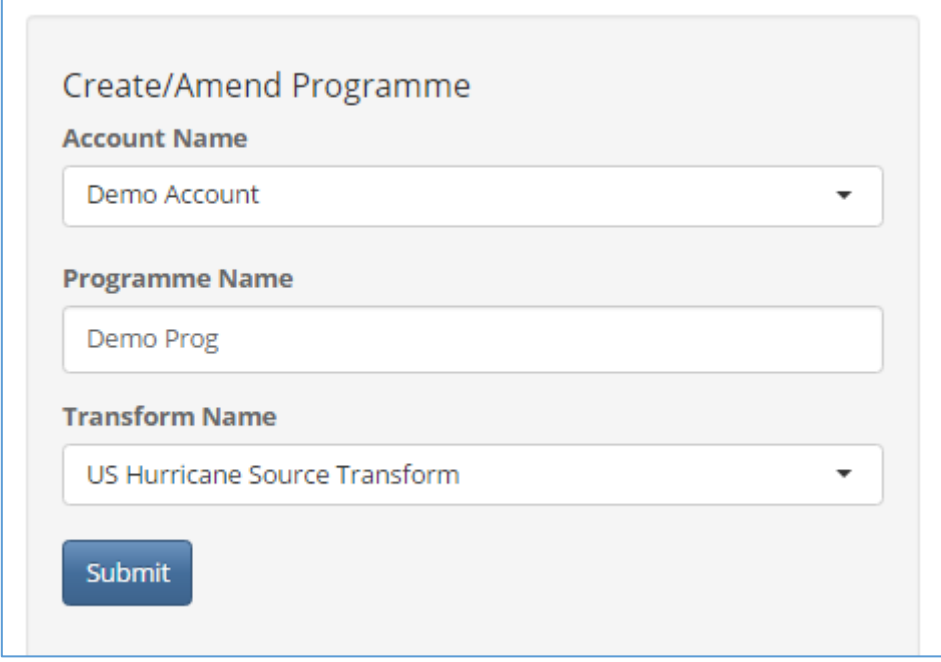
Navigate to "Define Prog" on the menu bar at the top

Exposure Management Define Account Define Prog Main Menu

Click on "Create Programme"

Create Programme Amend

Select your account, name the programme and select a transform, then click "submit"



Create/Amend Programme

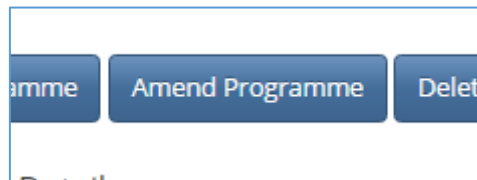
Account Name
Demo Account ▼

Programme Name
Demo Prog

Transform Name
US Hurricane Source Transform ▼

Submit

Select the programme that you have just created and click on “Amend Programme”



Select the “Upload New File” Option for the Source Location File

Source Location File

Select Option

Upload New File

Upload New File

Select existing file

Upload File

Source Account File

Select Option

Select

Cancel

Click “Choose File” and select your source location file form your file system

Select Option

Upload New File

Choose a file to upload:

Choose File No file chosen

Upload File

Once the upload bar is complete, click on “Upload File”

Source Location File

Select Option

Upload New File

Choose a file to upload:

Choose File US_Nationwid...ocation.csv

Upload complete

Upload File

Source Account File

Select Option

Repeat Source Location File steps for Source Account File

Once both files are uploaded you should see the files listed in the “Programme Details” Table

Programme Details

Show 10 entries

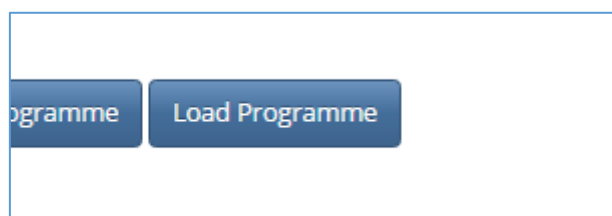
Search: Refresh

Object	FileId	Status	Detail
Source Location File	309	Loaded	US_Nationwide_DF_Location.csv
Source Account File	310	Loaded	US_Nationwide_DF_Account.csv
Canonical Location File		Not Loaded	
Canonical Account File		Not Loaded	
Canonical Model		Not Loaded	

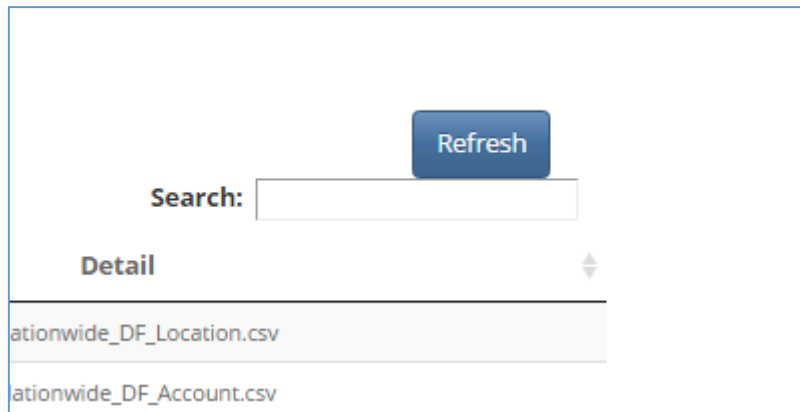
Showing 1 to 5 of 5 entries

Previous 1 Next

Now click on the “Load Programme” button



Click on the “Refresh” button above the “Programme Details” table to refresh the details



You should now see the Programme Details table is complete

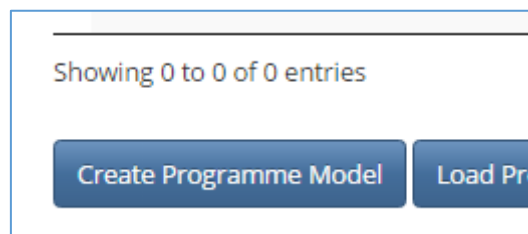
Programme Details

Show **10** entries Search: [Refresh](#)

Object	FileId	Status	Detail
Source Location File	309	Loaded	US_Nationwide_DF_Location.csv
Source Account File	310	Loaded	US_Nationwide_DF_Account.csv
Canonical Location File	311	Loaded	CanLocProg7_20161102_162339.csv
Canonical Account File	312	Loaded	CanAccProg7_20161102_162339.csv
Canonical Model		Loaded	InterestGroupId: 12

Showing 1 to 5 of 5 entries Previous **1** Next

Scroll down and click on “Create Programme Model” button



Select the Programme, Model and Transform that you want to use from the drop-down menus and click on “Create”

Create Programme Model

Programme:

Demo Prog
▼

Model:

US Hurricane
▼

Transform Name

US Hurricane Model Transform
▼

Create

Cancel

You should see a row created in the Programme Model Table

Programme Model Table

Show **5** entries

Refresh

ProgOasisId	ProgName	ModelName	TransformName	SourceFileId	FileID	Status	API1aDateTime	API1bDateTime	API1cDateTime	SessionId
8	Demo Prog	US Hurricane	US Hurricane Model Transform							

Showing 1 to 1 of 1 entries Previous **1** Next

Create Programme Model
Load Programme Model
Go to Process Run

Select the row and you should see some details appear below in the Programme Model Details Table

Show **5** entries Refresh

ProgOasisId	ProgName	ModelName	TransformName	SourceFileId	FileID	Status	API1aDateTime	API1bDateTime	API1cDateTime	SessionId
8	Demo Prog	US Hurricane	US Hurricane Model Transform							

Showing 1 to 1 of 1 entries Previous **1** Next

[Create Programme Model](#)
[Load Programme Model](#)
[Go to Process Run](#)

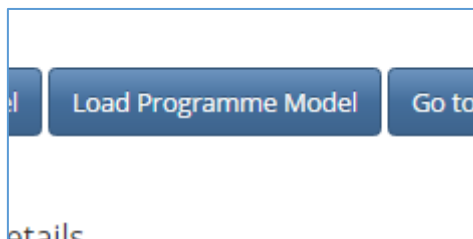
Programme Model Details

Show **20** entries Refresh

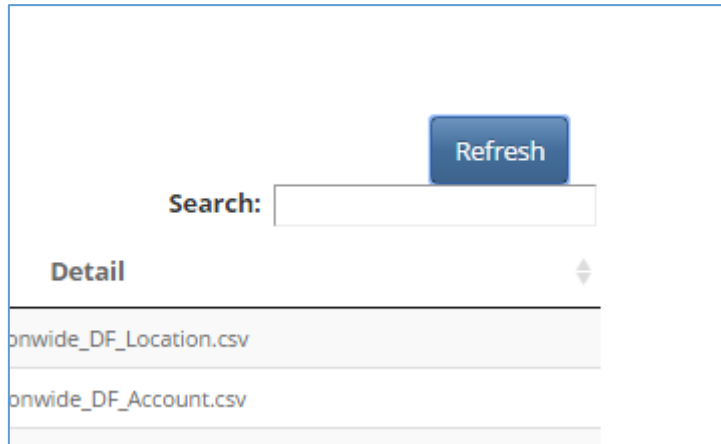
Object	FileId	Status	Detail
Source Location File	309	Loaded	US_Nationwide_DF_Location.csv
Source Account File	310	Loaded	US_Nationwide_DF_Account.csv
Canonical Location File	311	Loaded	CanLocProg7_20161102_162339.csv
Canonical Account File	312	Loaded	CanAccProg7_20161102_162339.csv
Canonical Model		Loaded	InterestGroupId: 12
Model Format Location Lookup File		Not Loaded	
Lookup Service Return File		Not Loaded	
Lookup Service Return Error File		Not Loaded	
Oasis Items File		Not Loaded	
Oasis Coverages File		Not Loaded	
Oasis Item Dictionary File		Not Loaded	
Oasis FM Programme File		Not Loaded	
Oasis FM Policy TC File		Not Loaded	
Oasis FM Profile File		Not Loaded	
Oasis FM XRef File		Not Loaded	
Oasis FM Dict File		Not Loaded	

Showing 1 to 16 of 16 entries Previous **1** Next

Click on the “Load Programme Model” Button. This step converts the data to the model lookup required format (say csv or upx), fires off the API lookup service, consumes the response and generates the Oasis files so can take a little while



Click the “Refresh” button above the table to monitor the progress



Once the process is complete, all rows should be populated for the table

Programme Model Details

Show **20** entries Search: [Refresh](#)

Object	Field	Status	Detail
Source Location File	152	Loaded	EuropeanWindstorm_Location.csv
Source Account File	153	Loaded	EuropeanWindstorm_Account.csv
Canonical Location File	154	Loaded	CanLocProg4_20161017_105741.csv
Canonical Account File	155	Loaded	CanAccProg4_20161017_105741.csv
Canonical Model		Loaded	InterestGroupId: 6
Model Format Location Lookup File	156	Loaded	ModelLocProgOasis5_20161017_110011.csv
Lookup Service Return File	157	Loaded	ExposureKeys_20161017_110016.csv
Lookup Service Return Error File	158	Loaded	ExposureKeysError_20161017_110016.csv
Oasis Items File	159	Loaded	items.csv
Oasis Coverages File	160	Loaded	coverages.csv
Oasis Item Dictionary File	161	Loaded	ItemDict.csv
Oasis FM Programme File	162	Loaded	fm_programme.csv
Oasis FM Policy TC File	163	Loaded	fm_policytc.csv
Oasis FM Profile File	164	Loaded	fm_profile.csv
Oasis FM XRef File	165	Loaded	fm_xref.csv
Oasis FM Dict File	166	Loaded	FMDict.csv

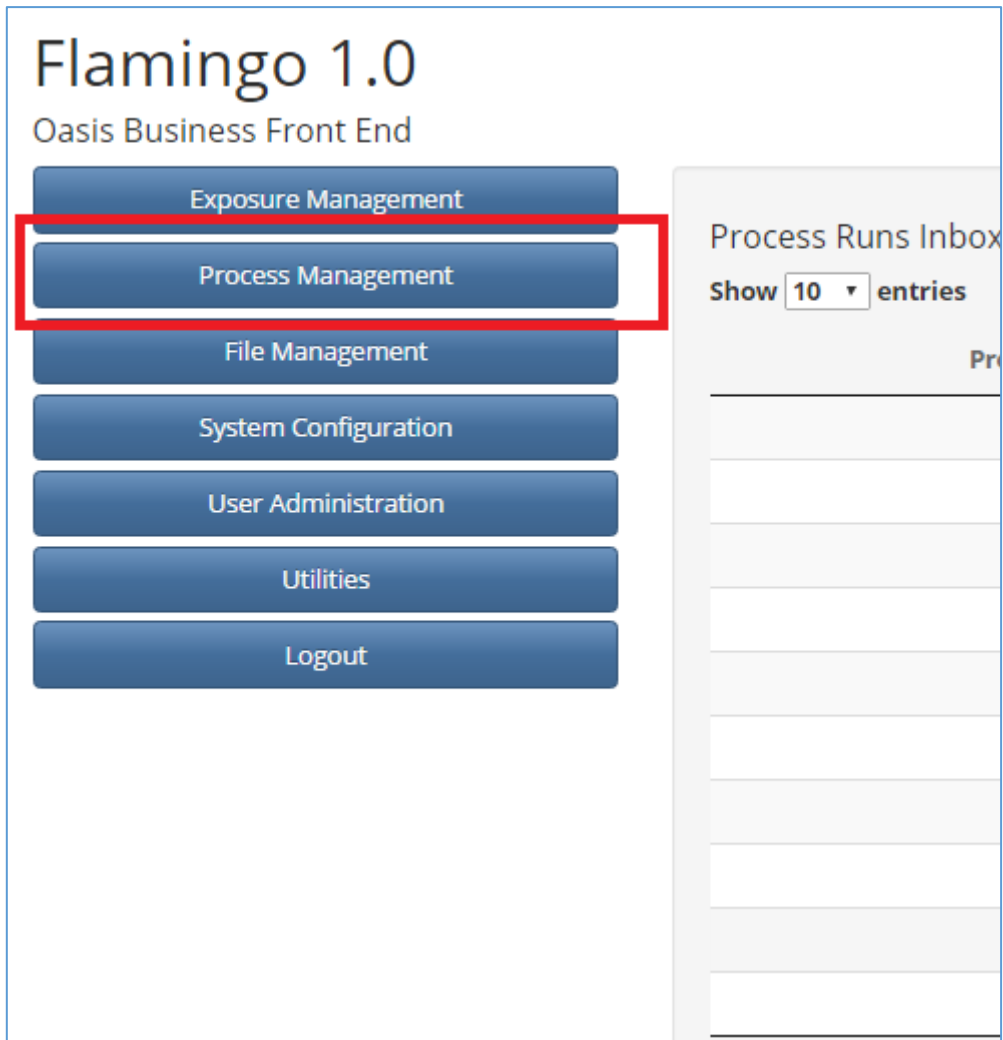
Showing 1 to 16 of 16 entries Previous **1** Next

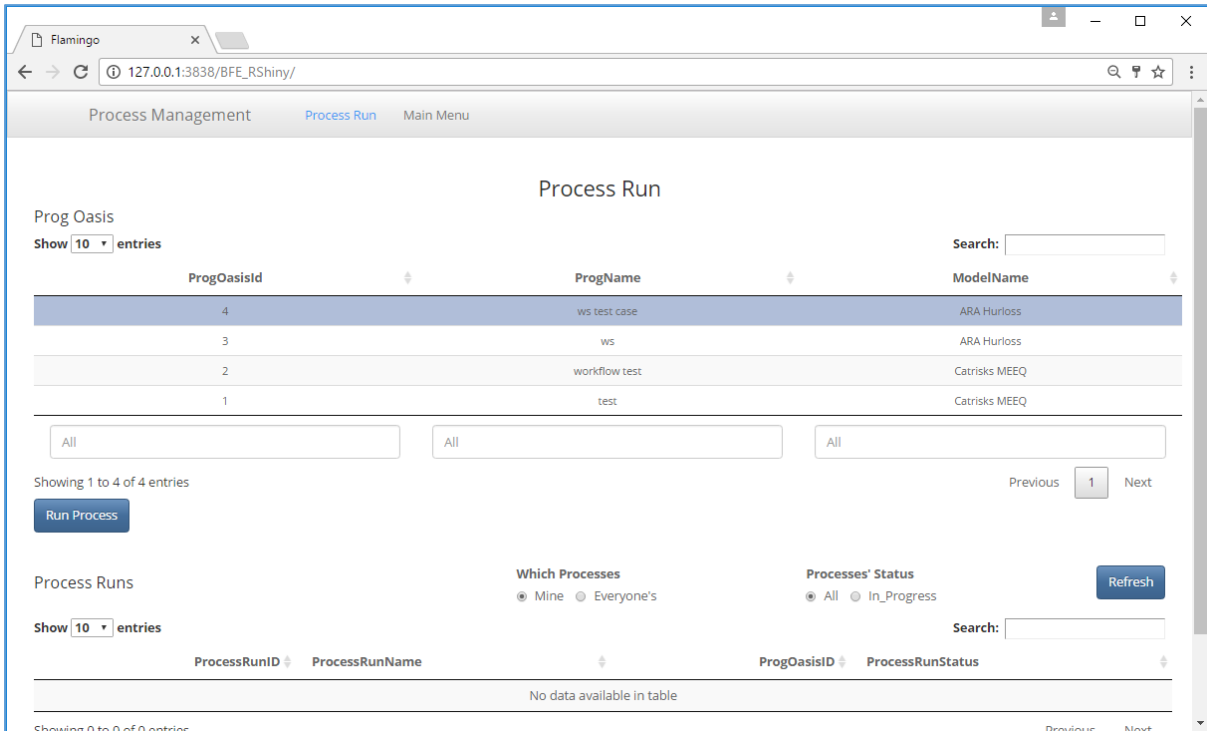
Navigate back to the main menu from the top menu bar



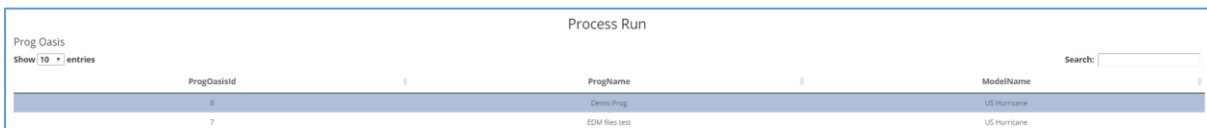
Process Management

Select "Process Management" From the menu bar on the left of the screen

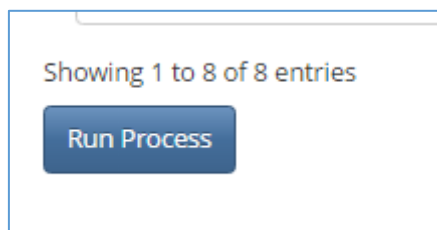




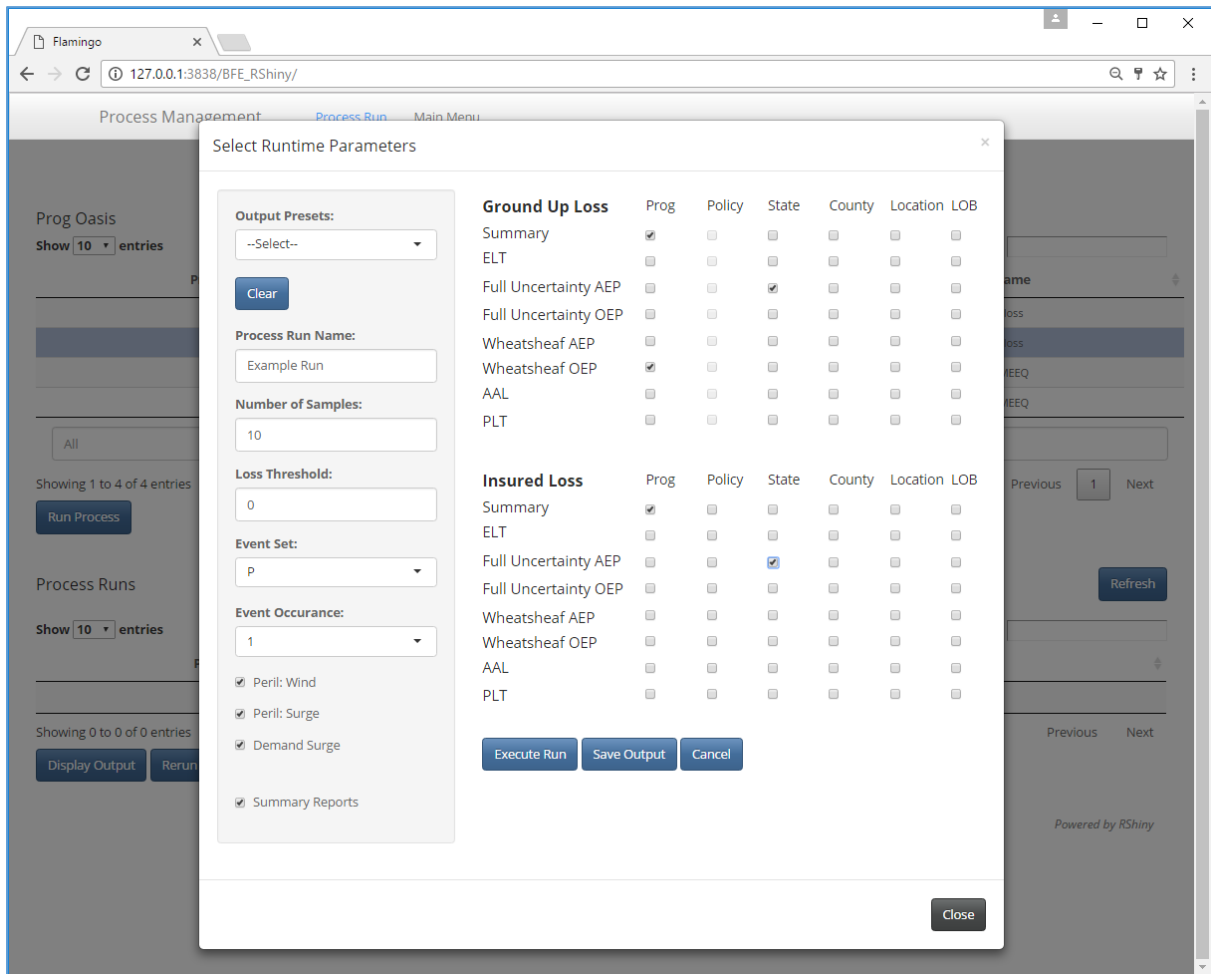
Select the Prog Oasis that you have just created from the Table on the screen



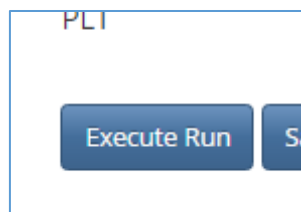
Click on “Run Process” Button



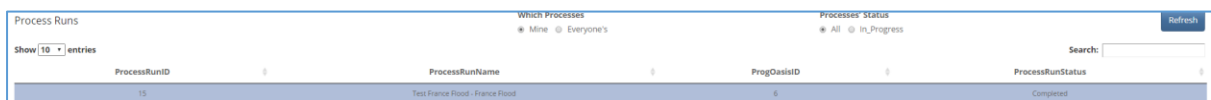
The following pop up screen should appear for you



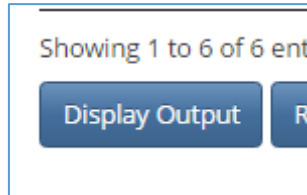
Here you can select the run time parameters that you would like to use and the output option that you would like to be returned. Once you have made your selections, click on the “Execute Run” button



Your process will now be running. You can monitor the progress by refreshing the “Process Runs” Table for the selected ProgOasis. This will tell you if the process run is “In Progress”, “Failed” or “Completed”.



Once Completed, you can select the process run and click on the “Display Outputs” button



This will display the output files table(s) including a list of output files, the contents of a selected file (note, you must select a file from the list before viewing it in the file contents tab)

Output Files Refresh

File List | File Contents | Summary Graph | Summary Table

Show 10 entries Search:

FileID	File Name	Description	Location	File Type	Owner	Source	Resource Table	Resource Key
218	gtd_summarycalc.csv	Output Portfolio Level GUL Samples	D:\FlamingoTest\OasisFiles\Prog\Oasis_8\ProcessRun_15_20161017123009\output	Oasis Output File	System	Sys	ProcessRun	15

Showing 1 to 1 of 1 entries Previous 1 Next

Output Files Refresh

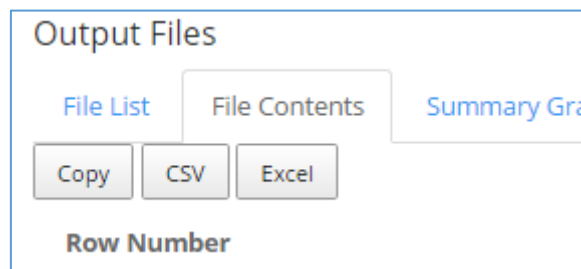
File List | File Contents | Summary Graph | Summary Table

Copy CSV Excel Search:

Row Number	event_id	summary_id	sid	loss
1	5	1	-1	0
2	5	1	2	0
3	7	1	-1	0.1
4	14	1	-1	113508.2
5	14	1	2	0
6	14	1	3	100000
7	14	1	4	100000
8	14	1	5	200000
9	14	1	6	100000
10	14	1	7	100000

Showing 1 to 10 of 83 entries Previous 1 2 3 4 5 ... 9 Next

The files can be exported with the following options



File Management

Flamingo x

127.0.0.1:3838/BFE_RShiny/

File Management [File Viewer](#) [Main Menu](#)

File Viewer

Table File Map

File List

Show 20 entries

Search:

FileID	File Name	Description	Location	File Type	Owner	Source	Resource Table	Resource Key
74	ExposureKeys_20160525_170702.csv	Model Lookup Return File	D:\Docker\sqlserver\Files\APIOutput	Lookup Return Key File	System	Sys	ProgOasis	4
73	FMDict.csv	FM Dict File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis FM Dictionary File	System	Sys	ProgOasis	4
72	fm_xref.csv	FM XRef File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis FM X Ref File	System	Sys	ProgOasis	4
71	fm_profile.csv	FM Profile File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis FM Policy Profile File	System	Sys	ProgOasis	4
70	fm_policytc.csv	FM Policy TC File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis FM Policy TC File	System	Sys	ProgOasis	4
69	fm_programme.csv	FM Programme File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis FM Programme File	System	Sys	ProgOasis	4
68	ItemDict.csv	Item Dictionary File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis Item Dictionary File	System	Sys	ProgOasis	4
67	coverages.csv	Coverages File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis Coverages File	System	Sys	ProgOasis	4
66	items.csv	Items File ProgOasis 4	D:\Docker\sqlserver\Files\OasisFiles\ProgOasis_4	Oasis Items File	System	Sys	ProgOasis	4
65	ModelLocProgOasis4_20161208_124035.upx	Model Lookup File: ProgOasis 4	D:\Docker\sqlserver\Files\APIInput	Lookup Location File	System	Sys	ProgOasis	4
64	CanAccProg4_20161208_124008.csv	Canonical AccFile: Prog 4	D:\Docker\sqlserver\Files\Exposures	Source Account File	System	Sys	Prog	4
63	CanLocProg4_20161208_124008.csv	Canonical LocFile: Prog 4	D:\Docker\sqlserver\Files\Exposures	Source Location File	System	Sys	Prog	4
62	SourceLoc_NationwideDF_TestCase.csv	Source Loc File	D:\Docker\sqlserver\Files\Exposures	Source Location File	System	Sys	Prog	4
61	SourceAcc_NationwideDF_TestCase.csv	Source Acc File	D:\Docker\sqlserver\Files\Exposures	Source Account File	System	Sys	Prog	4
60	SourceLoc_NationwideDF_TestCase.csv	Source Acc File	D:\Docker\sqlserver\Files\Exposures	Source Account File	System	Sys	Prog	4

Flamingo x

127.0.0.1:3838/BFE_RShiny/

File Management File Viewer Main Menu

File Viewer

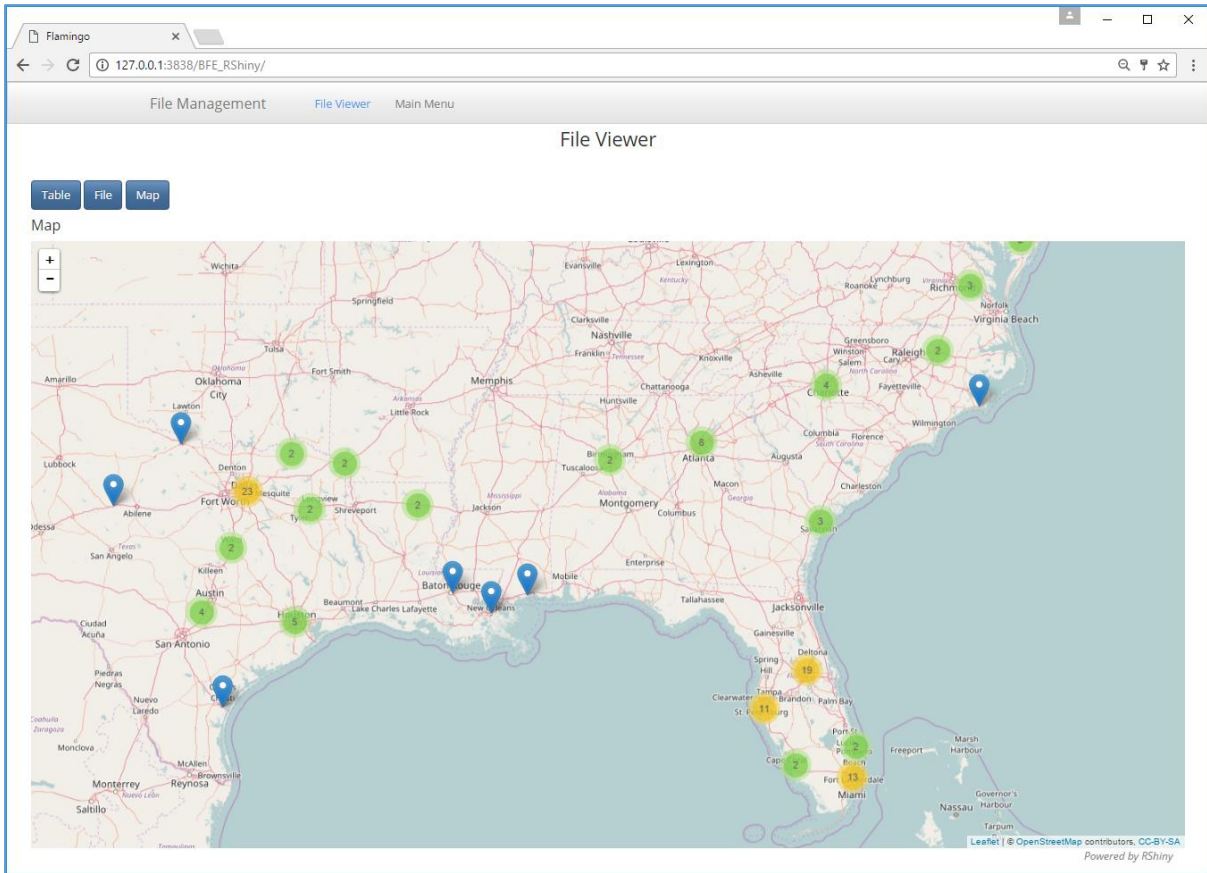
Table File Map

File Contents

Show 20 entries Search:

LOCNUM	ACCNTNUM	SOURCELOC	POSTALCODE	STATECODE	COUNTYCODE	LATITUDE	LONGITUDE	BLDGScheme	BLDGCLASS	OCCSCHEME	OCTYPE	YEAR
1	11111	3	85335	AZ	0	0	0	RMS	0	ATC	5	
2	11111	4	85301	AZ	0	0	0	RMS	1	ATC	2	
3	11111	5	85301	AZ	0	0	0	RMS	1	ATC	2	
4	11111	6	85210	AZ	0	0	0	RMS	1	ATC	2	
5	11111	7	85022	AZ	0	0	0	RMS	1	ATC	2	1
6	11111	8	85032	AZ	0	0	0	RMS	1	ATC	2	
7	11111	9	85259	AZ	0	0	0	RMS	1	ATC	2	
8	11111	10	85253	AZ	0	0	0	RMS	0	ATC	8	
9	11111	11	71854	AZ	0	0	0	RMS	1	ATC	3	2
10	11111	13	95008	CA	0	0	0	RMS	1	ATC	3	2
11	11111	14	95630	CA	0	0	0	RMS	1	ATC	3	1
12	11111	15	94544	CA	0	0	0	RMS	6	ATC	8	2
13	11111	16	90064	CA	0	0	0	FIRE	6	ATC	8	1
14	11111	17	93546	CA	0	0	0	RMS	1	ATC	8	2
15	11111	18	93546	CA	0	0	0	RMS	1B1	ATC	10	1
16	11111	19	93546	CA	0	0	0	RMS	2	ATC	10	1
17	11111	20	93546	CA	0	0	0	RMS	2	ATC	10	1
18	11111	21	93546	CA	0	0	0	RMS	2	ATC	10	1
19	11111	22	93529	CA	0	0	0	RMS	1	ATC	10	
20	11111	23	93546	CA	0	0	0	RMS	1	ATC	10	1

Showing 1 to 20 of 447 entries Previous 1 2 3 4 5 ... 23 Next



Outputs

Flamingo enables the user to generate multiple output reports for several summary levels and perspectives in a single process run. Reports are delivered as csv files which can be viewed through the user interface, download or launched in Microsoft Excel.

The Oasis kernel is a Monte-Carlo simulation engine allowing users to specify the number of samples to run. There are two types of statistical outputs, and both types will generally be delivered in the final report if more than 1 sample is run.

- Numerically integrated (type 1) – meaning the loss statistic is calculated directly from the underlying probability distribution of loss by numerical integration.
- Sample statistic (type 2) – meaning the probability distributions of loss are sampled N times and the loss statistic is calculated from the samples.

The reports are abstract, containing kernel ids to identify dimensions of the data. These are;

- **summary_id** – A number identifying a particular group within a summary level grouping of exposures, such as an individual risk in location summary level, or a particular state code in state summary level.
- **event_id** – A number uniquely identifying an event in the model
- **period_no** – A number uniquely identifying a period of event occurrences in the model
- **sidx** – The sample index number.

The user will be interested to know what the summary_ids in the reports mean, for example that summary_id 1 means Florida and summary_id 2 means Texas for state summary level reports. Initially this will have to be looked up from the item dictionary associated with the Programme in File Management. In future, the reports will include the meaningful user and model data.

The list of available reports are as follows;

Reports

- Sampled losses
- Average annual loss and standard deviation
- Event loss tables
- Period loss tables
- Single loss exceedance curve (AEP/OEP)
- Multiple loss exceedance curve (AEP/OEP)

By Summary Level

- Location
- Line of business
- County
- State
- Programme (whole portfolio)
- Policy (insured loss only)

By Perspective

- Ground up
- Insured loss

Output file description and format

Sampled losses

This report contains sampled losses by summary level, event and sample index.

Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures
event_id	int	Model's unique event identifier
sidx	int	Kernel sample index
loss	float	Loss sample

sidx has values with special meanings as follows;

- 1 = numerically integrated mean
- 3 = total exposed value to event

Example

summary_id	event_id	sidx	loss
1	5	-1	3627.83
1	5	-3	90040000.00
1	5	6	1001.43
1	5	8	682.29
1	5	10	8795.99

All other reports outlined below are calculated from the sample loss output.

Average annual loss and standard deviation

Average annual loss is calculated by taking the sum of the mean aggregate losses by period and then dividing by the total number of periods, for each summary level. The standard deviation measures the spread of mean aggregate losses by period. The exposure value is the maximum exposed value across all periods.

Two types of AAL and standard deviation of loss are calculated; numerically integrated (type 1) and sample (type 2). If the analysis is run with zero samples, then only type 1 statistics are returned.

Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures
type	int	1 for numerically integrated statistics, 2 for sample statistics
mean	float	Average annual loss
standard_deviation	float	Standard deviation of loss
exposure_value	float	Maximum exposure value in any period

Example

summary_id	type	mean	standard_deviation	exposure_value
1	1	6927.54	7268.98	591599.63
1	2	6852.44	7165.04	591599.63
2	1	9852.43	4995.02	67536.58
2	2	9354.68	5112.30	67536.58
3	1	4331.58	3574.95	185136.03

Event Loss Tables

For each event and summary_id, representing a summary level grouping, the sample mean and standard deviation is calculated from the sampled losses. The exposure_value is the total exposure value to the event of the subset of exposures represented by each summary_id.

Both type 1 and type 2 loss statistics are reported, although type 1 standard deviation is not calculated and is set to zero.

When zero samples are run, only type 1 losses are output, and both type 1 and 2 are output when more than one sample is run.

Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures
type	int	1 for analytical mean, 2 for sample mean

Name	Type	Description
event_id	int	Model's unique event identifier
mean	float	Mean loss by event
standard_deviation	float	Sample standard deviation, or 0 for type 1
exposure_value	float	Exposure value for summary_id affected by the event

Example

summary_id	type	event_id	mean	standard_deviation	exposure_value
1	1	1	8812.15	0	215971.65
1	2	1	9289.46	4590.79	215971.65
1	1	2	2967.23	0	773622.84
2	2	2	3417.72	2265.98	773622.84
2	1	1	3343.97	0	202025.43

Period Loss Tables

These reports are similar to Event Loss Tables, except the sampled losses are first summed by period before the loss statistics are calculated. It also contains an event occurrence date in one of two formats.

A period can be any length of time and there can be 0, 1 or more event occurrences in each period, as specified in the model files. Typically, a period is one year.

The exact format depends on how the occurrence date is specified in the model which is either an occurrence date_id, or separate fields for occurrence year, month and day. The loss statistics will be the same regardless of which date format is used.

Only type 2 (sampled) loss statistics are provided in this report at present.

Format 1

Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures

Name	Type	Description
event_id	int	Model's unique event identifier
period_no	int	Identifies an abstract period of time, such as a year
mean	float	Mean loss
standard_deviation	float	Standard deviation of loss
exposure_value	float	Represents a summary level grouping of exposures
occ_date_id	int	The date_id of the event occurrence

Format 2

Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures
event_id	int	Model's unique event identifier
period_no	int	Identifies an abstract period of time, such as a year
mean	float	Mean loss
standard_deviation	float	Standard deviation of loss
exposure_value	float	Exposure value for summary_id affected by during the period

Name	Type	Description
occ_year	int	The year number of the event occurrence
occ_month	int	The month of the event occurrence
occ_day	int	The day of the event occurrence

Example

summary_id	event_id	period_no	mean	standard_deviation	exposure_value	occ_date_id
1	1	1	9932.43	1604.47	65809.55	693
1	1	102	7552.92	6876.1	654795.8	37459
1	2	56	1668.34	7151.88	217547.78	20636
1	2	89	6966.3	6074.69	404692.86	32801
1	2	104	9472.54	2361.71	96472.52	37982

summary_id	event_id	period_no	mean	standard_deviation	exposure_value	occ_year	occ_month	occ_day
1	1	1	9932.43	1604.47	65809.55	1901	11	23
1	1	102	7552.92	6876.1	654795.8	2002	7	22
1	2	56	1668.34	7151.88	217547.78	1956	6	30
1	2	89	6966.3	6074.69	404692.86	1989	10	20
1	2	104	9472.54	2361.71	96472.52	2003	12	27

Single loss exceedance curve (OEP/AEP)

Loss exceedance curves, also known as exceedance probability curves, are computed by a rank ordering a set of losses by period and computing the return period interval for each level of loss in any given period based on relative frequency. The reciprocal of the return period interval is termed the loss exceedance probability.

To calculate a loss exceedance curve, event losses are first assigned to periods by reference to the model’s occurrence file which contains the event occurrences in each period. Event losses are summed within each period for an aggregate loss exceedance curve, or the maximum of the event losses in each period is taken for an occurrence loss exceedance curve.

A single loss exceedance curve can be calculated from sampled results when every sample is treated as an additional set of period losses in an extended timeline. For example, if the model covers a 1000 year period and it is sampled 10 times, then 10,000 periods of loss are generated, which are then rank ordered as described above. This is also termed a ‘full uncertainty’ loss exceedance curve.

If the report is run with zero samples, then the curve generated is implicitly a type 1 curve: a mean-only loss exceedance curve based on the numerically integrated mean period loss.

The list of return periods for which losses are calculated is a setting in Flamingo, typically specified by the model provider.

Format

Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures
return_period	float	Return period interval
loss	float	Loss exceedance threshold for return period

Example

summary_id	return_period	loss
1	1000	62657.65
1	500	9305.84
1	250	1664.71
1	200	778.26
1	100	40.4

Multiple loss exceedance curves (OEP/AEP)

This report is also generated from the sampled results by relative frequency as described above, but this time each sample is used to generate a separate curve which when put together can be viewed as a fan or spaghetti chart. This type of exceedance probability curve is also termed a “Wheatsheaf”.

Unlike the single exceedance probability, which does not illustrate the amount of variability in sampled losses, this report can illustrate the spread in return period losses obtained by repeated sampling of the event set across the period timeline.

If the report is run with zero samples, then a curve is generated for sample index -1 only: a mean-only loss exceedance curve based on the numerically integrated mean period loss. This is an identical curve to the ‘type 1’ single loss exceedance curve report run with zero samples.

Format

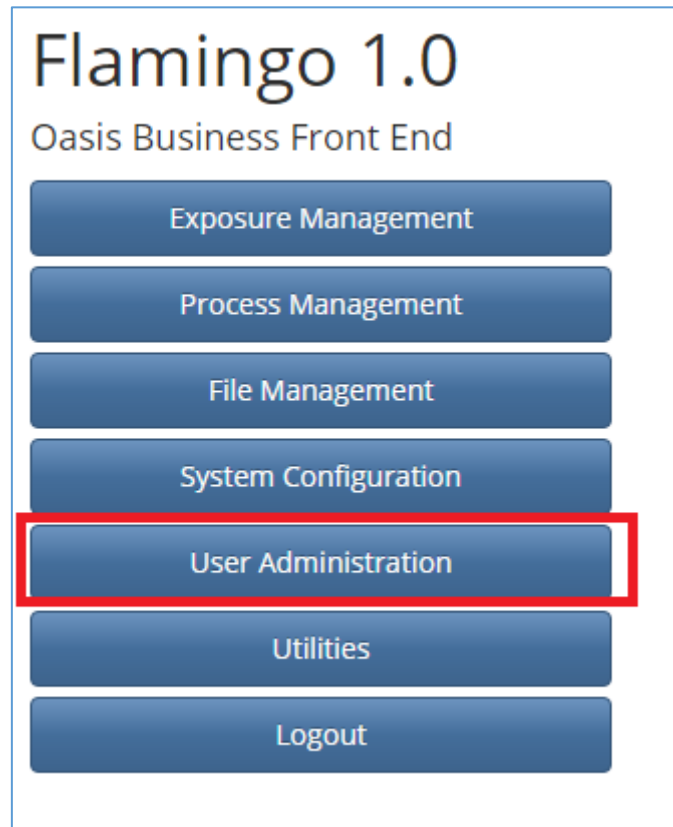
Name	Type	Description
summary_id	int	Represents a summary level grouping of exposures
sidx	int	Oasis sample index
return_period	float	Return period interval
loss	float	Loss exceedance threshold for return period

Example

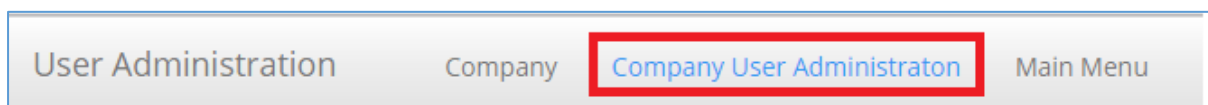
summary_id	sidx	return_period	loss
1	9	1000	52657.65
1	9	500	10305.84
1	9	250	1965.71
1	9	200	836.26
1	9	100	35.4

User Administration

Navigate to the Landing Page and then into the “User Administration” area



Now navigate to the “Company User Administration” area from the top menu bar



To create a new user, click on the “Create” Button under the Company User List

User Administration Company Company User Administration Main Menu

Company User Administration

Company User List

Show **10** entries Search:

Company ID	Company Name	User ID	User Name	User Department
1	Admin	1	Admin	System

Showing 1 to 1 of 1 entries Previous 1 Next

[Export to Excel](#) **Create** [Update](#) [Delete](#)

[Add/Remove Security Group](#) [Add/Remove User License](#)

Powered by RShiny

And you will be presented with the following pop up screen

tration Company Company User Administration Main Menu

User Details

User Name

Company Name
Select Company

Department

Login

Password

[Submit](#) [Cancel](#)

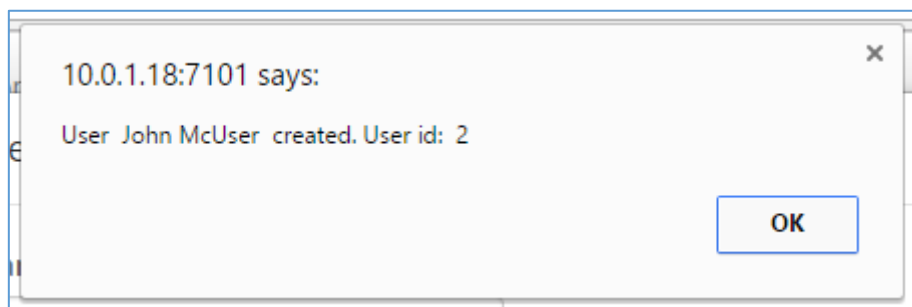
[Close](#)

Enter the Details for your new user in the boxes and click on "Submit"

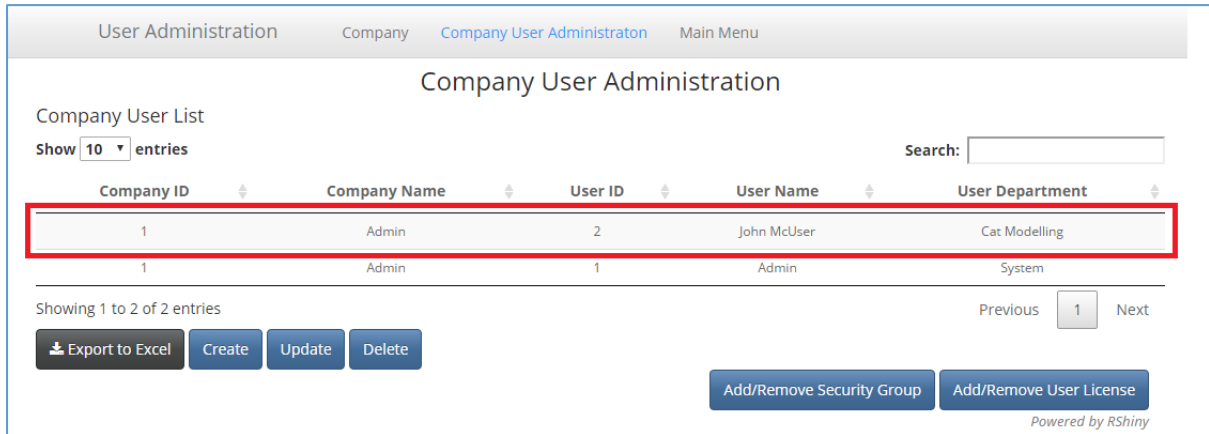
The screenshot shows a web application interface with a 'User Details' dialog box. The dialog has a title bar with a close button (X). It contains the following fields and controls:

- User Name:** Text input field containing 'John McUser'.
- Company Name:** Dropdown menu with 'Admin' selected.
- Department:** Text input field containing 'Cat Modelling'.
- Login:** Text input field containing 'jmcuser'.
- Password:** Password input field with masked characters '.....'.
- Buttons:** 'Submit' and 'Cancel' buttons are located at the bottom left. The 'Submit' button is highlighted with a red rectangular box.
- Close Button:** A 'Close' button is located at the bottom right of the dialog.

You should be presented with the following confirmation message



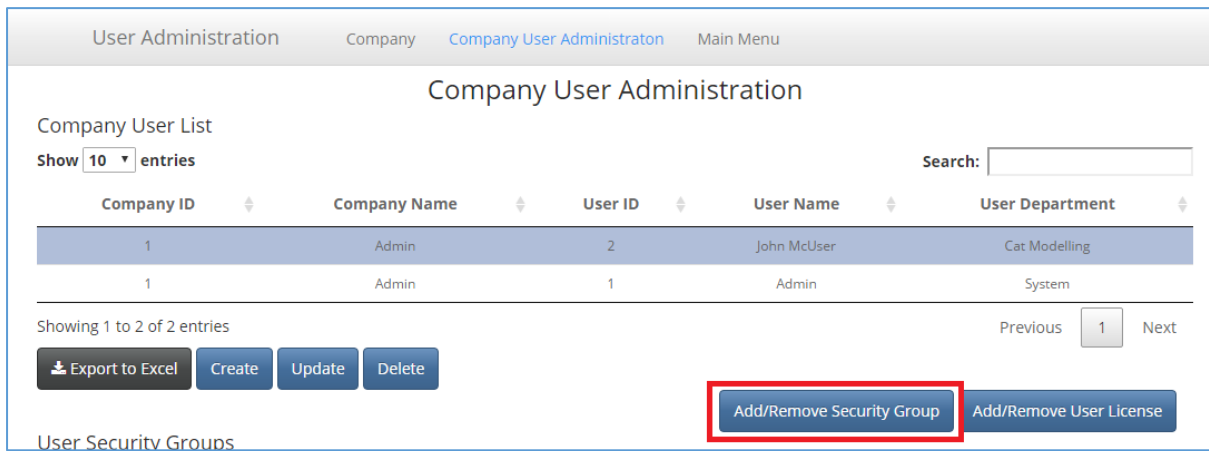
Click “ok” and you should be able to see the user that you have just set up in the Company User list



The screenshot shows the 'Company User Administration' page. At the top, there are navigation links: 'User Administration', 'Company', 'Company User Administration', and 'Main Menu'. The main heading is 'Company User Administration'. Below it, there's a 'Company User List' section with a 'Show 10 entries' dropdown and a search box. A table lists users with columns: 'Company ID', 'Company Name', 'User ID', 'User Name', and 'User Department'. The first row (Company ID: 1, Company Name: Admin, User ID: 2, User Name: John McUser, User Department: Cat Modelling) is highlighted with a red border. Below the table, it says 'Showing 1 to 2 of 2 entries' and has 'Previous' and 'Next' buttons. At the bottom, there are buttons for 'Export to Excel', 'Create', 'Update', 'Delete', 'Add/Remove Security Group', and 'Add/Remove User License'. The footer says 'Powered by RShiny'.

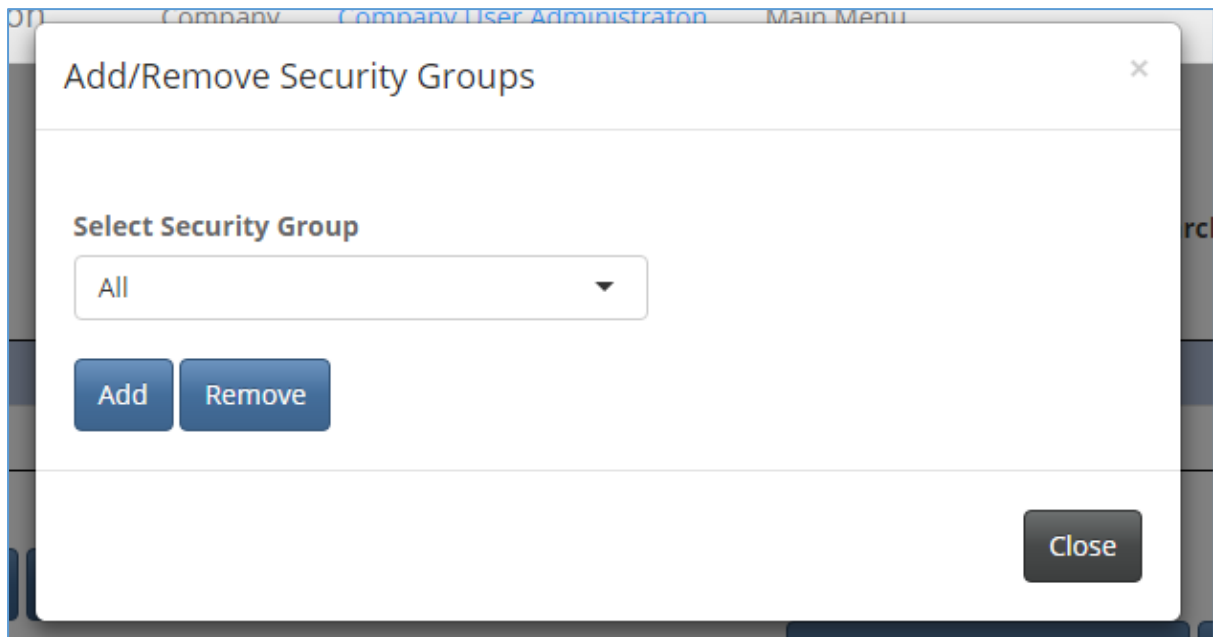
Company ID	Company Name	User ID	User Name	User Department
1	Admin	2	John McUser	Cat Modelling
1	Admin	1	Admin	System

Select the user that you have just created from the list and click on the “Add/Remove Security Group” button



This screenshot is identical to the previous one, but the 'Add/Remove Security Group' button at the bottom right is highlighted with a red box. The table content remains the same.

You should see the following pop up screen for you to add security privileges



You should choose the particular security groups that your new user and add them one at a time – or alternatively give access to “All” and then remove groups as appropriate – and then click “Add” to apply the changes. You should then see the security groups have been added to the user

User Administration Company **Company User Administration** Main Menu

Company User Administration

Company User List
 Show **10** entries Search:

Company ID	Company Name	User ID	User Name	User Department
1	Admin	2	John McUser	Cat Modelling
1	Admin	1	Admin	System

Showing 1 to 2 of 2 entries Previous 1 Next

User Security Groups

Show **10** entries Search:

Security Group ID	Security Group Name
4	Canonical Model
6	Enquiry
7	Exposures and Policies
3	File Administration
2	Systems Configuration
1	User Administration
10	User View
5	Utilities
8	Workflow
9	Workflow Management Admin

Showing 1 to 10 of 10 entries Previous 1 Next

You can now navigate back to the landing page by selecting “Main Menu” from the top menu and log out as the current user to test the new user credentials.