Your guide to

Echelon

Commercial Scoring and Grading System



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1. Background

1.1 Commercial Scoring and Processing Overview

This document outlines the core functionality of Echelon, Jaywing's new commercial scoring and grading product.

The processes involved with credit scoring and modelling are well-established in the personal lending space, where practitioners have the advantage of relatively high volumes of transactions generating sufficient data to create robust risk and PD scores, together with a large amount of external data which can be used to predict outcomes. However, for many commercial lenders, the ability to derive meaningful predictive scores is hampered by a lower volume of available data from applications, and a less meaningful set of commercially available data from organisations such as credit reference agencies.

Furthermore, the approaches offered by many system and suppliers could be considered to be a sledgehammer to crack a nut, since they are designed for high volume, low margin personal lending where the data collection and usage requirements are complex, and the ability to score and monitor customers is much more of an advanced science. Instead, the requirement for commercial lenders is for a relatively simple, yet robust, way of assessing commercial lending applications and periodic reviews, retaining an element of manual assessment, and a means of storing the decisions made against those applications alongside any documentation that has been provided by the applicant or captured from third party sources (e.g. Companies House).

Recent regulation has put the onus on commercial lenders to collect this application information in a standardised and auditable way, so that it can be reviewed for consistency, satisfies the General Data Protection Regulations (GDPR) and becomes the basis of IFRS 9 related reporting.

Jaywing has therefore developed Echelon, a product that will:

- Enable lenders to collect consistent information using a simple interface
- Enable the assessment of risk using consistent criteria, which can be adjusted over time as the profile of the customer base changes
- Enable periodic re-assessment of existing lending decisions
- Maintain client data in a robust, hosted system which is accessible to a wide range of users with clear distinctions between different user roles

2. Commercial Scoring with Echelon

Echelon adopts an approach known as 'slotting' to deploy a consistent means of assessing risk within commercial lending through the available data.

This involves collecting data in a questionnaire-type format and applying a series of weightings and scores to each response, thereby creating a rudimentary scorecard. Starting from a position of expert judgment, the scores are designed to calculate a 'Probability of Default' score and optionally other scores such as 'Loss Given Default'. These scores are then converted into bands reflecting similar risk profiles. This series of profiles builds over time to generate sufficient data to determine changes in the way these scores are calculated, which can then be recalibrated periodically.

As new data sources become available, these can also be incorporated within the scores, making the assessment as robust as possible.

The scores and bands generated by the slotting process feed into downstream processes, and give you a basis for IFRS 9 reporting.

Echelon enables you to deploy consistent assessment processes across your organisation, and gives you the flexibility to amend scores and product mixes as needed, reflecting the needs of different departments, teams and application processes.

This document is primarily a user guide outlining the steps that each different user type will undertake in order to set up applications.

2.1 System overview

Echelon is a hosted application with a simple, intuitive web-based interface.

From the lender's perspective, there are three types of user:

- Underwriters who can set up new lending applications and key relevant data into the system for both new and existing commercial clients
- **Supervisors** who have the ability to review and edit the work of underwriters, as well as search for and review clients' records from any of the underwriters in the same business unit
- Administrators who set up the rules, scorecards and bands, as well as adding new users to the system, creating new business units and user groups and determining the types of product that each business unit is able to process.

Any user can be assigned any of the above three privileges, subject to business need.

The system also enables users to exist within a particular lender group – essentially a team within the organisation which is able to process specific types of applications. This might be a group of specialists with responsibility for a particular set of products, or it might be an outsourced team who can only process one type of application. The system is flexible enough to enable users to sit within one team or several, and have responsibility for one or more processes.

Jaywing's users also have access to enable the set-up of new users and offer support and troubleshooting capabilities. Optionally, Jaywing consultants can be included in your 'admin' users to assist with set-up.

2.2 Benefits of Echelon

Using Echelon gives you a number of benefits:

- Storage of historical applications, so you have a full audit trail
 of previous applications for each client, and the scores and
 bands that were assigned to them at a time
- Create a history of periodic account reviews, ensuring you have the latest assessment of the company's levels of risk whenever needed.
- The ability to upload and store supporting documentation, such as company reports, which can be downloaded and reviewed in future
- The ability to print, or download PDFs, of existing application records, facilitating an easier review process
- Consistency of approach enforced across multiple areas of the bank
- Ability to access the website from any agreed location (these are typically locked down by IP address to prevent access from unauthorised locations)
- Ability to duplicate or edit existing applications
- A robust data store, for use in downstream analytical processes such as scorecard builds
- Hosted and easy to access, requiring no onerous IT changes to get started – just an up to date browser.
- Ability to receive data extracts in a variety of formats to facilitate the onward use of the application data (e.g. uploading scores into downstream reporting systems)

3. The Application Process

Applications can be processed by users with 'underwriter' privileges. In order to set up new applications, an administrator must have set up some products for your lender group, along with some associated scorecards.

Users are identified by a unique email address. The email address is used for the password reset process, but for organisations who don't issue email addresses to employees, a made-up address can be used as long as it follows the correct format.

3.1 Login, Logout and Password Reset

Go to the Echelon login screen, which is at echelon.jaywing.com/login.

Enter your assigned user name (email address) and your password.

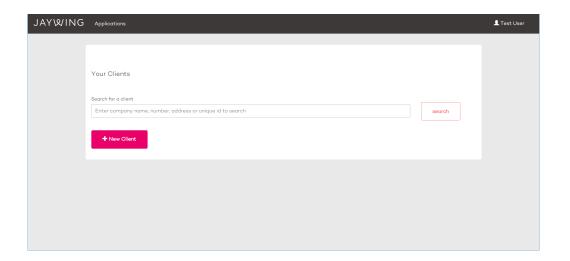
If you have forgotten your password, or to re-set it (e.g. at first use), click the 'forgotten password' link, and then follow the link in the email that is sent to you.

Users who don't have functioning email addresses will need to have forgotten passwords reset by an administrator.

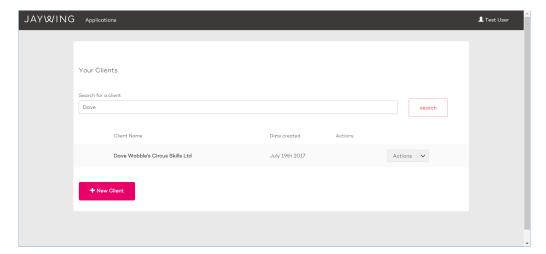
Once you've finished using Echelon, click on your user name in the menu bar and select 'log out'.

3.2 Underwriter search

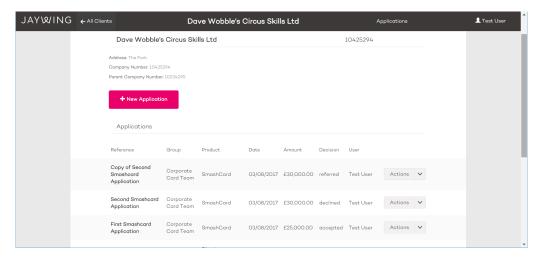
Once you have logged in, you are taken to a search screen. From here, you can search for existing clients within your own lender group. Enter a company name or number, the address, or a unique identifier and then hit the 'search' button. Alternatively, you can click the 'new client' button to set up an entity from scratch.



In the example below, the user has searched for a company using part of their name, generating a list of possible matches. The user can then click into the matched record to review the details, including any previous applications.

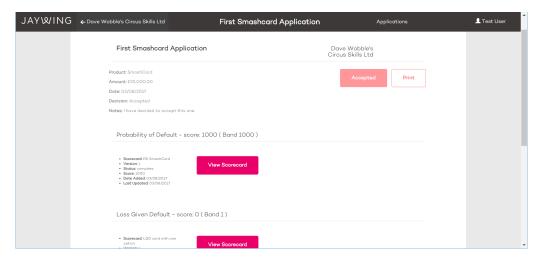


3.3 Review existing client



Clicking on the client name brings up the existing client details, including the address and company number. This existing client has three existing applications – any of which can be reviewed or copied (using the 'actions' dropdown on the right hand side) – or the user can create a new application for them.

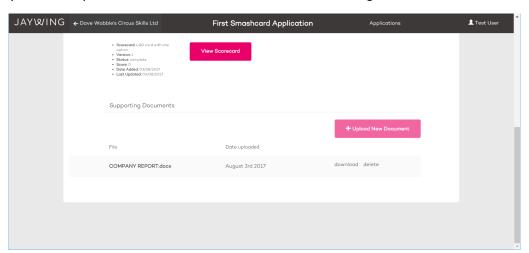
3.4 Review existing application



Click through on one of the previous applications. You can now see the details of the previous application: the product type and requested amount, the date, any decision that has been made (which could be pending, referred, accepted or declined), and the notes that were recorded against the application at the time it was processed.

A little further down the screen, you can see summary information about the scorecards that were assigned to the product that was applied for. Applications will usually have two scorecards; sometimes they may only have one.

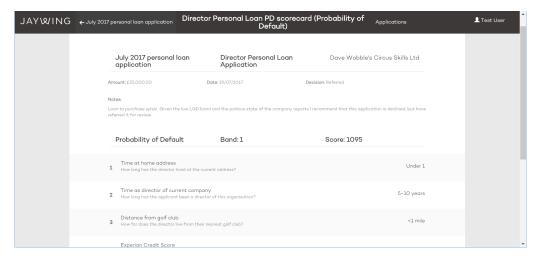
Additionally you can download any company documents that were submitted and stored as part of the application. If necessary, you can upload additional documents for storage here, too.



Should you need to print the summary of the application, the 'print' button at the top of the screen produces a view of the application in your browser, including scorecard entries, which can then be printed out directly or stored as a PDF if your browser supports that functionality. Stored company reports would need to be downloaded and printed separately: they are not included within the summary print.

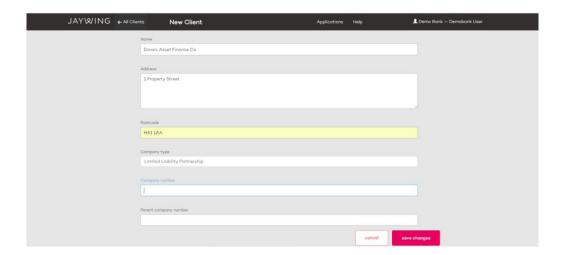
3.5 View previous scores

By clicking into the assigned scorecards, you can review the information that was keyed into the application. It shows the overall score and score band that was generated, along with the responses given to each of the questions.



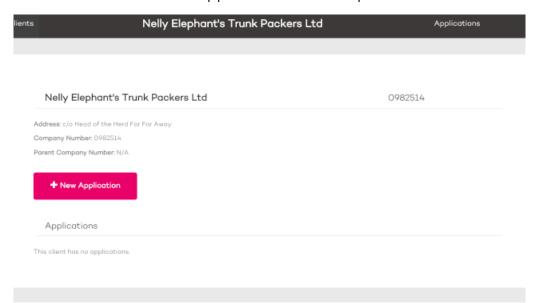
3.6 Create a new client

Back on the search screen, click the 'new client' button to set up a new entity. Key in the company name, address and postcode, and the company type (Sole Trader, Partnership, Limited Liability Partnership or Limited Company). For limited companies or LLPs, enter the company number (i.e. the Companies House identifier) and a parent company number if applicable. Then click on the 'save changes' button.

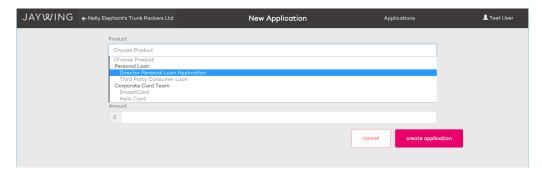


3.7 Add a new application

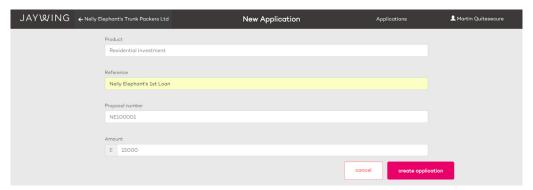
The new client is set up and the existing details are displayed on screen. Click on 'new application' to add a product.



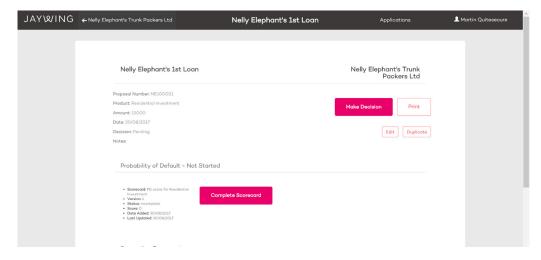
An entry screen is displayed. Select the type of product being applied for from the range available to you in the pre-configured list, which could vary depending on which lender group you are in.



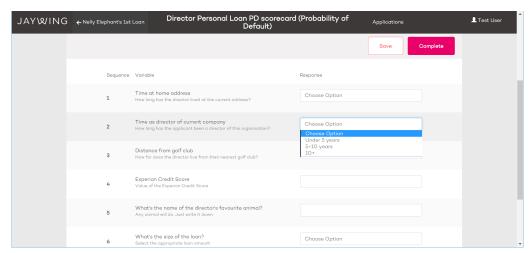
Then add a reference to describe the application, provide a unique proposal number if required by your organisation, and specify the loan amount before clicking on 'create application'.



The application screen appears. The application details you've just entered are shown on screen and an 'edit' button enables you to go back and correct them if required. The application may have one or several scorecards to complete. Select the 'complete scorecard' button in each case and complete the responses to the questions in the scorecards.



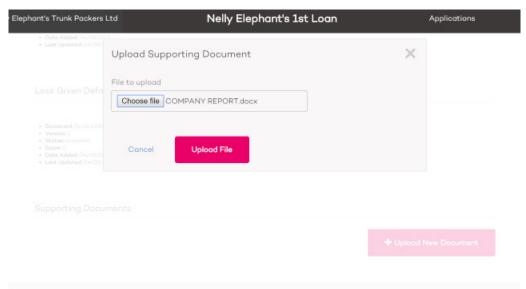
Completion is via a simple combination of drop-down options (usually). There may also be some free-format fields, which require information to be keyed in.



If you need to save the application without completing it, click the 'save' button. Once all of the responses have been entered and you are happy that they are accurate, click the 'Complete' button. The system will flag up error messages if any of the fields are missing or not completed. If all is well, Echelon will calculate the score and score band and return you to the application summary screen. Repeat this process for other scorecards required within the application.

3.7.1 Add supporting documents

The next step is to add any supporting documents, such as company reports or scanned files. This step is optional. Click the 'Upload New Document' button and a box will pop up inviting you to upload a file.



Use the 'choose file' button to navigate to the correct file on your network or local file location, and then upload the document into the application.

Any file type can be uploaded to the system, however there are some restrictions on file size, so you should make sure that any scanned documents are as small as possible.

3.7.2 Finalise decision

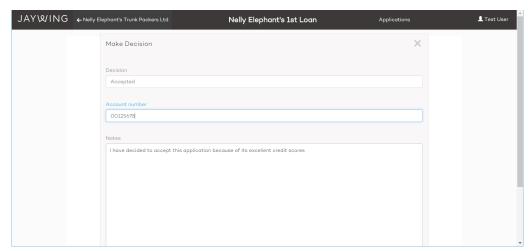
Now that you have completed all of the scorecards and uploaded any documents, you can proceed to making a decision on the application.

After you click on the 'make decision' button at the top of the screen, a new window appears. Choose the decision from the drop down list – accepted, declined, referred or pending. New applications always start out at pending.

If the account is going to be accepted, you will need to type in the unique account number that this account will be assigned by your account systems. This may mean that you need to leave the application as a 'pending' or 'referred' application until this number is assigned. The account number will be used in downstream processes to uniquely identify the product and tie it up with other systems.

Add some notes to document the decision you have made. These notes should be full enough for a supervisor to understand the rationale for an accept or decline decision, especially if it goes against your company policy.

Choose your decision carefully – you cannot amend an accept or decline decision; any amendments would need to be made by someone with supervisor privileges, or a new application would need to be set up.



Note that you can decline or refer a decision without completing the scorecards. This information can be added subsequently. This is a deliberate design decision to maximise flexibility, for instance if you want to step outside of normal lending criteria for any reason, or assess lending bands at a later date. Any decision not to complete scorecards should be documented within the comments; best practice is always to complete all the assigned scorecards before making a decision on the application. All scorecards must be completed before an application can be accepted.

3.8 Copy previous application

You can create a copy of a previous application from the application screen. Click the 'duplicate' button for the application you wish to copy. This will create a copy of the original application, where you can immediately edit details or complete the scorecard(s) as required.

The copied application will inherit the scorecard responses from the original application, however it is likely you will want to review / amend these, and you will then need to click the 'complete' option in order to calculate scores and bands.

Note that you should make any required changes to the application descriptions etc. before finalising the decision.

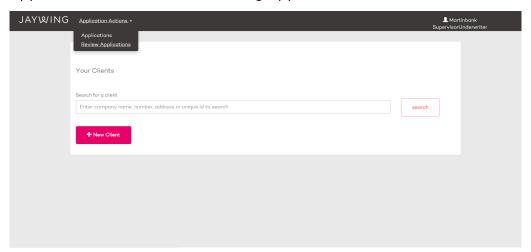
3.9 Completing the process

Once you have completed your applications, you can return to the search screen or log out of the system. Pending applications can be returned to later for completion. You can go back to the client summary page by clicking on the navigation link in the menu bar, or return to the search page by clicking on the 'Jaywing' logo.

4. Supervisor Activities

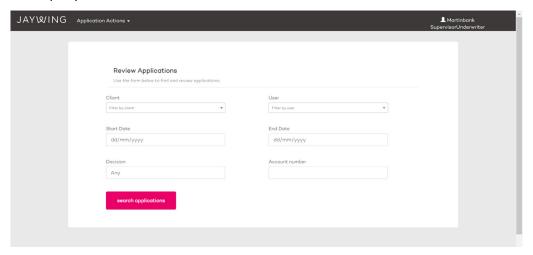
Users with supervisor privileges can undertake some additional tasks to review applications made by teams within the lender groups they belong to.

As a supervisor, you have an additional dropdown menu in the menu bar, enabling you to select applications (i.e. to make new applications) or to review existing applications.



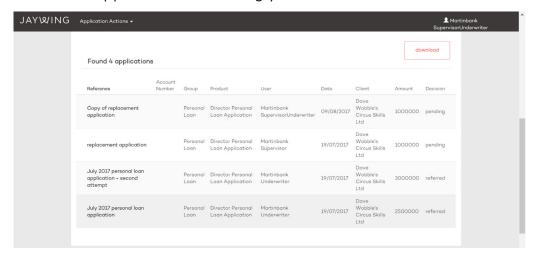
4.1 Search function

Select the 'Review Applications' option and a new search screen is displayed:



You can now filter all the applications in the system by client, date range, decision, user name or account number. You can do this for the lender groups you are assigned to. Drop down selectors show the first few matching entries, but typing the name you are searching for narrows down the selection if required. Make the selection you want to search for and then click on 'search applications'.

The list of applications matching your criteria is shown:



4.1.1 Review and edit applications

You can then click into the selected application to review and edit it, as an underwriter would.

Unlike an underwriter, your permissions enable you to edit applications that already have a finalised status. So, for instance, you can change a decision from decline to accept, editing the associated comments accordingly.

4.1.2 Download application data

The other task that can be undertaken from this screen is a download of the summary application data for the accounts that are in your selection list. This is just to provide an easy way of creating account lists for review. Click on the download button, and a file will be generated. This file is in Comma-Separated Variable file, and can be viewed in Excel or a similar viewer.

The file contains the following data:

- Date
- Group
- Client Name
- Reference number
- User name
- Amount
- Decision
- PD Score
- PD Band
- Other Score
- Other Band

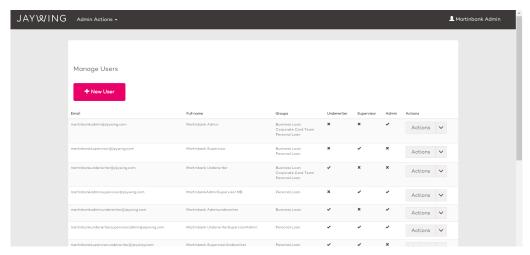
5. Admin Functions

As an administrator you can also be assigned rights to perform supervisory and underwriting tasks, however there are three particular admin functions: manage users, products and lending groups.

5.1 Manage Users

Log in to the system. If you only have admin rights, you will be taken straight to the 'manage users' screen. Otherwise, you will be taken to the regular search screen; from the menu bar, click on 'Admin Actions' and select 'Manage Users'.

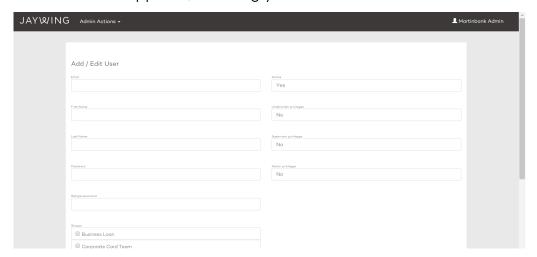
The system presents a list of existing users, showing their email address, full name, the groups they are in, and their privilege levels.



5.1.1 Set up a new user

Click on the 'new user' button.

A new window appears, enabling you to add the new user:



Add the user's email address (a real one is preferable, otherwise use a standard email format to create a unique identifier for the user). Then, complete their First Name, Last Name, and a password (the user can change this later using the 'forgotten password' link on the login page and then following the link that is emailed through to them).

Select the Lender Groups that the user can access. This will determine the accounts they can see and the products they can process. NB these groups need to be set up before you can use them, although users can have new groups added to their access subsequently.

Active should be left at 'Yes'; this is only set to 'No' in order to disable a user, e.g. if they have moved roles or left the company.

Set the supervisor / administrator / underwriter privileges to 'yes' if the user is to have these options.

Click on the 'save changes' button to create the new ID. You will be returned to the account list with the new user now listed.

5.1.2 Edit existing user

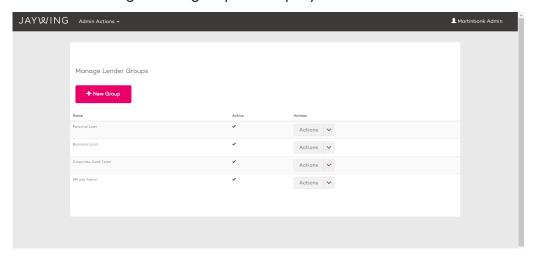
Click on the name of a user to be edited. You can change any of the fields to reflect changes in privilege or access rights, or change the 'Active' setting to no to prevent further access by the named person.

Passwords can be reset via this method, although it is better practice for the user to use the 'reset password' link on the login screen wherever possible.

5.2 Manage Lender Groups

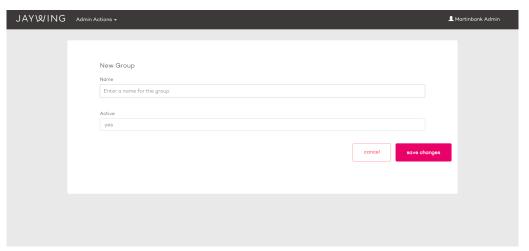
Lender groups are used to manage different teams of users, for instance to separate underwriters who deal with different product types so they can only manage selected account application types. Your organisation must have at least one lender group.

In the 'Admin Actions' dropdown, click on 'manage groups'. A list of existing lender groups is displayed.



5.2.1 Create New Lender Group

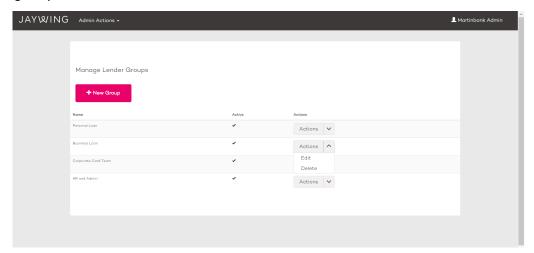
Click on the 'New Group' button. A new window appears:



Add a name for the lender group, set the group to 'active' and then save changes. The lender group is now set up.

5.2.2 Edit / delete lender groups

On the menu screen, click on the 'actions' dropdown for the lender group that is of interest.

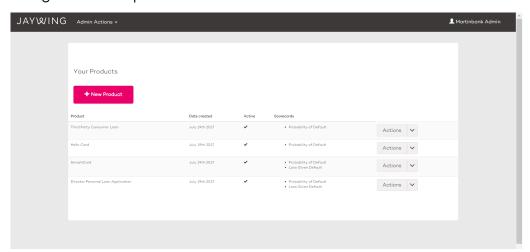


Select whether you want to edit or delete the group. Note that groups cannot be deleted when they have applications associated with them, as this would cause data mismatches within the application data. However, you can edit them and set them to inactive, which will prevent further access by underwriters.

5.3 Manage Products

The final option for administrators is in the management of products, i.e. the types of applications for which individual lender groups are able to create records.

Select the 'manage products' option from the dropdown menu. A list of existing products is shown, along with the creation date, whether they are active, and the scorecards that have been assigned to the product.



5.3.1 Create a new product

Click the 'new product' button and then select a lender group, a product name, and a product description. Products can only be assigned to one lender group, however such groups can be set up as needed to make them available to multiple users.

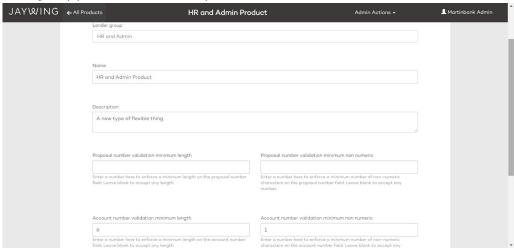
There are then four validation field requirements that are used to check that the format of the proposal number and the account number for open accounts is valid.

The first field is the minimum length of the proposal number – if left blank, then any length of proposal number is accepted.

The second field reflects the number of non-numeric characters that must exist within the proposal number. This should be left blank where the proposal reference consists solely of numbers.

These two fields are repeated to set validation for the account number.

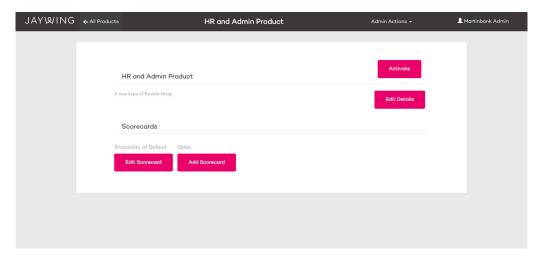
NB this validation does not completely eradicate the wrong values being supplied, but should prevent basic errors.



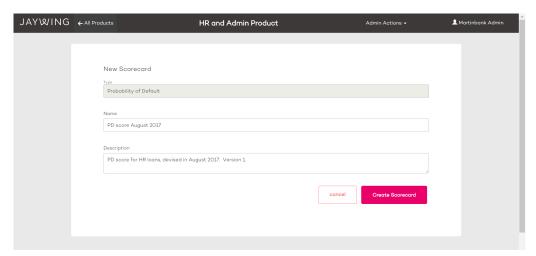
Click on the 'save changes' button. You are then asked to configure up to two scorecards that are applicable to the product.

5.4 Configure scorecards

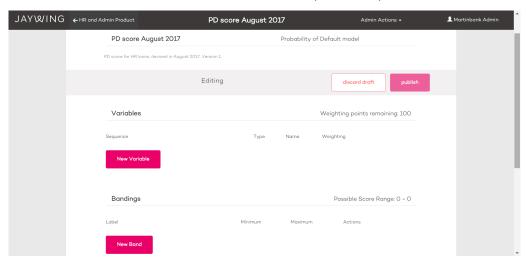
Click on the 'add scorecard' button for the PD or Other score. Other scores might include concepts such as a Loss Given Default scorecard.



You will be taken to a configuration screen, where basic descriptive information is added:



Complete the name and description information and then click on the 'create scorecard' button to set up the required details.



Scorecards are set up by specifying a series of questions and responses, of varying types. Each question has a weighting and a series of values associated with each response; weightings must add up to 100.

Echelon also enables you to incorporate ad-hoc text and numerical inputs as part of the scorecard that don't contribute to the overall score. This can be useful to record additional information about the application where required, and gives you maximum flexibility without having to reconfigure the system.

Click the 'new variable' button to bring up the variable editor.



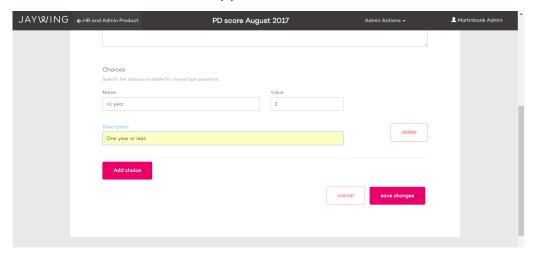
Select the variable type. 'Choice (weighted)' variables contribute to the score and consist of a multiple choice selection of responses. Text, Integer and Float are different options for free-format entry: these types do not contribute to the score but are used to capture data that might feature in a future scorecard or which are used to gather additional application data.

Choose a name for the variable along with a description of what it is or how it should be selected. Both the name and the description will appear in the underwriter's application process.

For 'choice' fields, select the weighting for the variable. The weighting is essentially a multiplier of the score value. Weightings across the scorecard as a whole need to sum to 100.

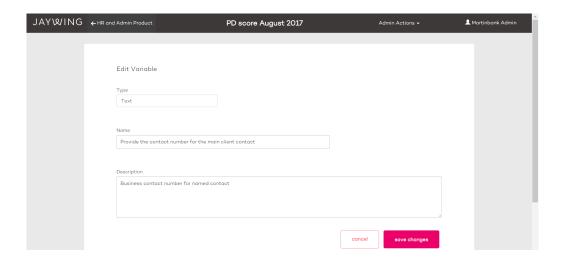
5.4.1 Choice (weighted) variables

Click on the 'add choice' button to define the permitted values for the field. Additional fields appear on screen:



In the name field, type in the choice that should appear in the dropdown list when the scorecard is being completed. Optionally, use the description field to expand on the circumstances in which the choice should be selected - this will appear underneath the selection when a choice is made by the underwriter. Type in the number of points that should be allocated to the current choice.

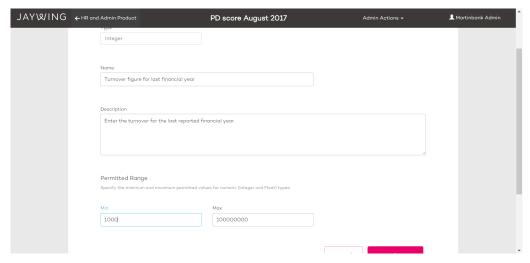
Click on 'add choice' again, as many times as are required to define all of the options for the current variable.



5.4.2 Text Variables

For text variables, simply provide the variable name and the description. These fields do not contribute to the overall score, and are used purely for data capture purposes.

5.4.3Integer and Float variables



As with text fields, supply the name and description, together with a permitted value range. These fields do not contribute to the overall score.

Repeat the specification of variables, of any of these types, until all of the required information is adequately captured and all weighting points are assigned.

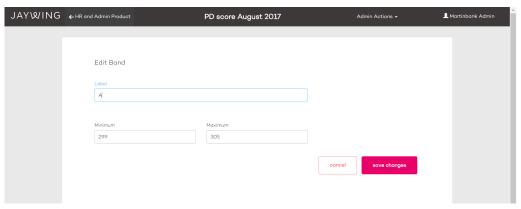
5.5 Configure Score Bands

The scorecard is now defined, and Echelon is able to determine its minimum and maximum value based on the range of scores and the multiples that are assigned to each variable.

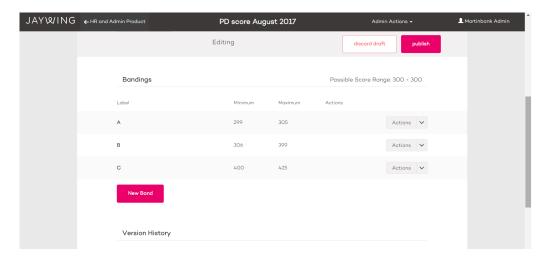
The final definition stage is to define score bands based on the score that is generated when the scorecard is completed.

On the scorecard definition page, click on the 'New Band' button. Choose a name for each band – it is advised to use simple sequential labels, such as the letters A-G, or a numerical range, making these different for PD and LGD scores.

Enter the minimum and maximum score range for the band, ensuring that the full score range is accounted for, and that bands do not overlap.



Click on save changes and repeat until all of the bands are in place. Echelon will sense check the bands to ensure that there is no duplication, overlap, or lack of coverage of possible score ranges.

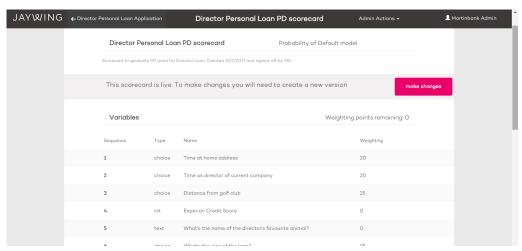


Once you are happy with the scorecard definition, and the bandings that are assigned, click on the 'publish' button. This makes the scorecard live, replacing any previously-live scorecard that was in use for the same product.

Repeat the exercise for the second scorecard for the selected product, if required.

5.6 Editing existing scorecards

When a product has been set up, the underlying values of the scorecards are locked down. You can view the weightings, which are listed alongside the characteristic names when you click into the scorecard definition. To view the underlying response-specific scores, or to make changes, you will need to create a new version of the scorecard (although this does not need to be published if you are only interested in reviewing the existing contents).

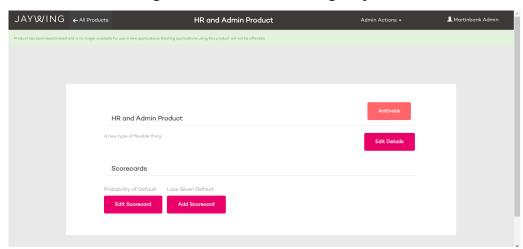


Click on the 'make changes' button from the scorecard definition screen.

After confirming that you want to edit the scorecard, the contents become editable, enabling you to use the 'action' dropdowns on the right hand side to change variables, weightings and underlying scores, to list them in a different order or to view the current settings for each of the variables.

Click on 'discard draft' to revert to the original scorecard, or 'publish' to update to the edited version.

5.7 Activating and deactivating a product



Once all scorecards are defined, click on the 'activate' button within the product definition page. This makes the product available to underwriters. The same screen can be used to deactivate existing live products.

Deactivating a product does not affect previous applications. Data submitted for existing applications will retain the structure of the original application, including all scorecard definitions.



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