

Perceptive Reflect

Getting Started Guide

Version: 2.3.x



perceptivesoftware

Written by: Product Documentation, R&D
Date: November 2012

© 2012 Lexmark International Technology SA. All rights reserved

Perceptive Reflect is a trademark of Lexmark International Technology SA, registered in the U.S. and other countries. Perceptive Software is a stand-alone business unit within Lexmark International Technology SA. All other brands and product names mentioned in this document are trademarks or registered trademarks of their respective owners. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or any other media embodiments now known or hereafter to become known, without the prior written permission of Perceptive Software.

Table of Contents

Overview	5
What is Perceptive Reflect?	5
Perceptive Reflect users	5
What is a dataset?	5
Connect to Perceptive Reflect	6
<i>Disconnect from Perceptive Reflect</i>	6
Create a new process	6
Create the ImageNow dataset.....	6
Import dataset information.....	7
Manage existing processes.....	8
<i>Organize processes</i>	8
Create new user.....	9
Define access rights to a process or folder	9
Set user privileges	9
Overview functionality	11
Overview pane elements.....	11
Overview toolbar options	12
Evaluate dataset elements and attributes.....	13
Mine functionality	14
Mining methods and elements	14
Mine toolbar options	15
Mine a process model.....	15
Quality of thorough mined models	17
Change the mined model display	18
<i>View additional mined model information</i>	18
Save and export a model	18
Change performance settings	18
Work with filters	20
Add filtered items.....	20
Refine filtered cases.....	21
View events associated with cases	21
Customize display performance metrics	21
Modify the mine attribute settings	22

- Implement performance metrics..... 22
- Edit existing metrics..... 22
- Delete metrics..... 23
- Metrics overview..... 23
- Animation functionality 25**
 - Create an animation..... 25
 - Save and export an animation..... 26
 - Change the settings..... 26
- About charting 27**
 - Create a chart..... 27
 - Save and download charts..... 27
 - Define the X-axis..... 28
 - Change the default configuration of the X-axis 28*
 - Change sort options..... 28*
 - Change Range options..... 29*
 - Define the data series 30
 - Display additional data series..... 31*
 - Define the chart options..... 31
- Modify the attribute settings..... 33**
- Appendix A: INTool commands 34**
- Index 35**

Overview

This guide introduces Perceptive Reflect and explains how to use this product. The following sections guide you through the procedure of loading data into Perceptive Reflect, mining each process, filtering on datasets, and creating graphic representations of your data.

Note If you have Perceptive Reflect installed on your machine but want to upgrade, you must uninstall the existing version and reinstall the latest version. You can uninstall the product without losing any data. Contact your administrator before upgrading your version of Perceptive Reflect.

What is Perceptive Reflect?

Perceptive Reflect is a web-based, process-mining tool that allows you to analyze business processes within your organization based on historical data. You can create a visual representation of the data that offers an accurate and objective view of the inner workings and dynamics of your operation.

Perceptive Reflect mines your workflow data. The mining functionality lets you manage the level of detail in your process models using filtering options. This allows you to visualize the interactions within your business environment, pinpoint bottlenecks, evaluate the flow of information, and assess the effectiveness of people, departments, and process designs throughout your organization.

The advantages of process mining include analysis of processes and procedures, identification of critical resources, workload distribution, and historical information about your processes.

Perceptive Reflect users

Perceptive Reflect users are individuals who are involved in any aspect of business processing. The database management settings allow you extract workflow data and import that information into Perceptive Reflect. Once the data is available, you can access it and begin the mining process.

Perceptive Reflect provides more than one way for you to import your data. The type of user you are determines the format in which you import the data.

- **Standalone.** In a standalone environment, you do not need to authenticate through a specified server. You import data using multiple file formats, such comma-separated value (CSV) files, and database files.
- **Standard.** A standard user imports workflow data from ImageNow Server in Perceptive Reflect ImageNow (PRI) format. You can take existing data, stored on the server, and import it to Perceptive Reflect. From there, you can mine the information and analyze the results.
- **Enterprise.** An enterprise user can authenticate through ImageNow Server or use a standalone environment. The user has the advantage of importing data in multiple file formats, including PRI, CSV, and database files.

What is a dataset?

Before you start working with a dataset, you need to understand some basic concepts about Perceptive Reflect. The term “process” means a dataset that contains the business process and the analysis derived from the dataset, such as process models and charts.

After you create a process, you can import a dataset into that process. Each process can contain only one dataset. When you import the data, you can indicate how to interpret each field or column in your dataset. The quality of your analytical results depends on the correct interpretation of the fields in your

dataset. For more information about datasets, refer to the “Importing dataset information” section in this document.

Each dataset you import into Perceptive Reflect contains historical execution data about a business process. When you analyze this dataset, you can store the results in Perceptive Reflect together with the dataset.


Note Before you import a dataset into Perceptive Reflect, you must create a process.

Connect to Perceptive Reflect

Perceptive Reflect is installed as a Windows Service that starts automatically. Perceptive Reflect uses the LocalService user account and the standard HTTP port (80). Use the Windows Service Manager to start, stop, and restart the Perceptive Reflect service.


1. In the Windows **Start** menu, select **Perceptive Reflect > Open Perceptive Reflect**.
2. In the **Log into Perceptive Reflect** dialog box, in the **Username** field, type a valid user account name. In the **Password** field, type the password associated with your user account.
3. Click **Remember username** if you want the system to populate the field the next time you log in.
4. Click **Log in**.

Disconnect from Perceptive Reflect

To disconnect from Perceptive Reflect, click the **Logout** button  in the toolbar. This action disconnects you from the application and returns you to the login dialog box.

Create a new process

You can set up a new process that you can use to mine the information.

1. Click the **Create a new process**  button in the left pane.
2. In the **Add process** dialog box, in the **Name** field, enter a process name that defines the procedure or data you want to mine.
3. In the **Folders** list, select the location where you want to store the new process. Use the **Folders** toolbar buttons to add, rename, move, delete, or assign folder privileges.
4. Click **OK**. The newly created process displays in the repository.

Create the ImageNow dataset

If the user imports data from ImageNow, you must create a dataset that the user can import to Perceptive Reflect. Log into the machine that hosts the server and use the create-reflect-dataset INTool command to extract workflow history data into a Perceptive Reflect ImageNow (PRI) dataset.

By default, the system stores the generated file or dataset in the `[drive:]\inserver6\logs\reflect` directory.

To extract data from ImageNow, complete the following steps.

1. On the **Windows** task bar, click **Start > Run**.
2. In the **Run** dialog box, type `cmd` and click **OK**.
3. At the command prompt, change to the `[drive:]\inserver6\bin` directory.

4. Enter the following command to create a PRI file of the selected process, where *<process name>* is the name of an existing workflow process. This is a required parameter.

```
intool -cmd create-reflect-dataset -process <process name>
```

For information about the create Reflect INTOol command and filtering parameters, refer to “Appendix A: INTOol command.”

Import dataset information

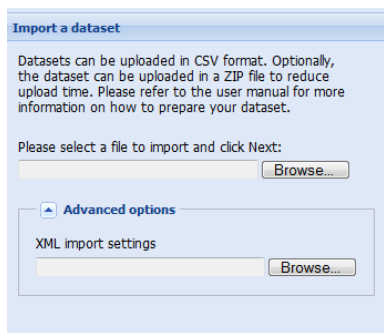
Perceptive Reflect mines data through history tables. Using Perceptive Reflect, the application process data files dynamically show existing process activity. Perceptive Reflect uses data that is already available on a server to identify breakdowns and bottlenecks in a business cycle.


The information in the data file that the system exports includes at least the case ID, the activity, and the time of completion of that activity. Additional data, such as the name of the individual executing the action, its start time, or any other custom property, may be included as well.

After you create a process, you need to import your existing data into Perceptive Reflect. From the Home page, you can select the manner in which you import your data. Choose the option that works best for you.

1. In the **Actions** pane, select one of the following options.
 - **CSV import.**
 1. Select **CSV import** and click **Browse** to locate your data file. You can import the data in a ZIP file to reduce the amount of time required to import the file.

2. Click **Next**.



- **Database Import**
 1. Select **Database import** and select from one of the available options.
 - **Do not use a data import template.** Manually enter the table or query you want to use to import the data.
 - **Use a pre-defined template.** Select a template from the list.
 2. Click **Add**  to upload a new template. Click **Browse** to locate the template and then click **Add**.
 3. Click **Next**.
 4. In the **Connection Settings** pane, enter the required information in the appropriate fields. Click **Next**.


- **ImageNow Import**

1. Select **ImageNow Import** and click **Browse** to locate a PRI dataset.
2. Click **Next**.




For more information on importing data from ImageNow, refer to "Appendix A: INTool commands."

Manage existing processes

The actions available from the upper left pane of the main window include:



- **Switch processes.** If you have more than one process in your account, click the **Switch**  button and chose an option from the list.

Note The name of the currently selected process displays in the title of the left pane of the main window.

- **Create a new process.** Create a new process and add it to your list.
- **Rename the current project.** Click the  button to rename or move an existing process.
- **Update dataset from database.** Click the  button to import a dataset from a database.
- **Apply and/or manage analysis templates.** Click the  button to add or delete an analysis you want to use to format the data you import.

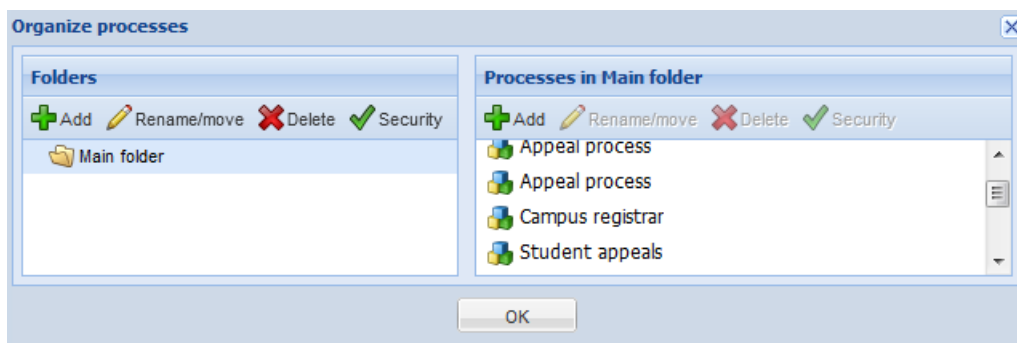
Organize processes

You can organize the order in which existing process folders display.

1. Click the **Switch**  button and select **Organize**  from the list.
2. In the **Organize processes** dialog box, select a folder from the **Folders** list.
3. Use the buttons to add, rename, move, and delete processes, and to assign security privileges to a process.


Note For additional information on security privileges, refer to "Set access rights to a process."

4. Click **OK**.






Create new user

To create a new user, complete the following steps.

1. Log in using your admin account.
2. Click the **Settings**  button in the top-right corner of the window.
3. Click **New**.
4. In the **Create new user** pane, enter a **Username** and **Email** address.
5. Verify that **Enable User Account** is selected.
6. Click **Save**.
7. Document the password that displays in the pop-up window.

Define access rights to a process or folder

When organizing your processes and folders, you can assign access rights that let you determine the file system permissions for a process or folder. You define the rights for specific users and groups.

1. Click the **Switch**  button and select **Organize**  from the list.
2. In the **Organize processes** dialog box, select a folder or process from the appropriate list.
3. Click the **Security**  button to edit the access rights to the selected folder.
4. In the **Access Rights** dialog box, in the **Users/Groups** pane, select the user or group for which you want to assign rights.
5. In the **Assigned Rights** pane, assign the authorization rights using the following options. You can define authorization rights for folders, processes, and process objects.
 - **Override effective right.** Override an existing authorization on the selected process. The existing authorization rights for the user or group display at the bottom of the list.
 - **Unspecified.** The rights of the group to which the user belongs are assigned or the access rights are resolved using the rights inherited by the user from the groups he/she is a member of or, in the case where these are also unspecified, from the parent folder of the current process or folder.
 - **No access.** Restrict access to the process.
 - **Read-only access.** Allow a user only to view a process.
 - **Full-access.** Allow a user to view and mine a process.
6. Click **Save Rights** and close the dialog box. Click **OK**.

Set user privileges


You can define user and group privileges for a process or folder. You can also define the authorization rights for a group and import templates.

To define access rights for a user, complete the following steps.

1. From the **Perceptive Reflect** toolbar, select **Settings**.
2. In the **Settings** pane, click the **Users** tab.

3. In the **Username** and **Email** fields, enter the appropriate information.
4. Select the authorization controls to which you want the user to have access.
 - **Template Management.** Allows the user to import available templates.
 - **Enable User Account.** Enables the account and creates an active user.
 - **User Administration.** Allows you to grant the user administrator privileges.
5. Optional. To set a password for the user, click **Set password** and enter the appropriate information in the **Set password** dialog box. Click **OK**.
6. Click **Save**.
7. In the **Member of** group, click **Default access rights** and define the default rights for the user.
 - **Unspecified.** The rights of the group to which the user belongs are assigned or the access rights are inherited from the parent folder of the current process or folder.
 - **No access.** Restrict access to the process.
 - **Read-only access.** Allow a user only to view a process.
 - **Full access.** Allow a user to view and mine a process.
8. Click **Save Rights** and close the dialog box.

To create a group and define privileges, complete the following steps.

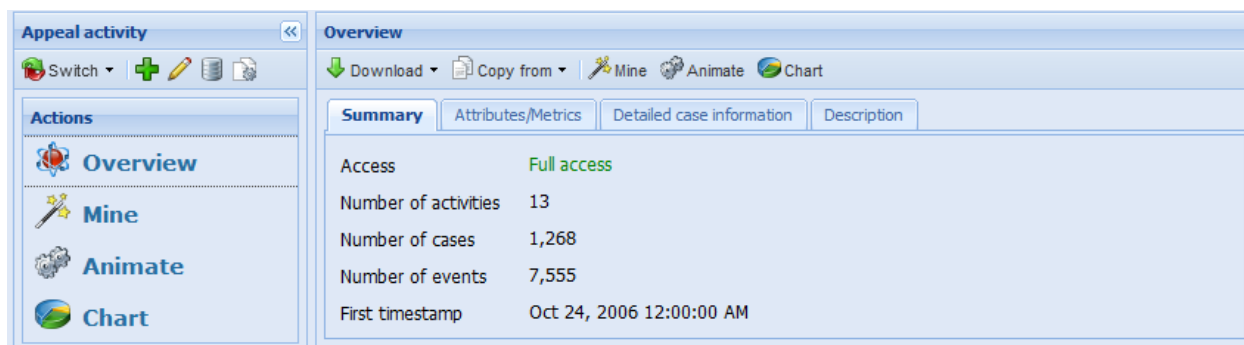
1. In the **Settings** pane, click the **Groups** tab and click the **Add**  button.
2. In the **Create new group** dialog box, enter a name for the group. Click **OK**.
3. In the **Group Member** pane, click **Add**.
4. In the **Add new member to group**, click on the group you want to add and click **Select**. For an ImageNow user, enter the group name in the **ImageNow user** field and click **Select**.
5. Close the dialog box.
6. In the **Group Default Rights**, select the access privileges for the group.
7. Click **Save Rights** and close the dialog box.

To select a template for the user or group to use to analyze data, complete the following steps.

1. In the **Settings** pane, click the **Templates** tab.
2. Click **Add** and select a template to import.
3. Click **Apply this template now** and close the dialog box.

Overview functionality

The Overview functionality provides a summary view of the main characteristics of your dataset. Each tab in the Overview pane displays detailed information about the currently selected dataset.



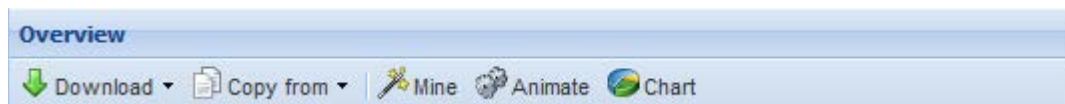
Overview pane elements

The Overview pane contains the following tabs that provide information about your process data.

Tab	Description
Summary	Shows the current access mode for this dataset (restricted or full access), the number of activities, cases and events in the log, as well as a timestamp value.
Attributes/Metrics	Provides a list of all the fields (attributes) and metrics in the dataset. The view consists of the case ID, the activity, and the name of the individual executing the action. When imported into Reflect, a start and complete time for a process is included, as well as the data type, number of unique values in the dataset, and the minimum and maximum values in the dataset. Toolbar buttons allow you to add, edit, and delete metrics.
Detailed case information	Provides a list of all cases in the dataset. The Select attributes button allows you to select the columns that display in the list.
Description	Allows you to add detailed information about the dataset, such as a description, purpose, or intended use for the data. Click Edit to access the Description pane.

Overview toolbar options

In addition to the tabs, several actions are available through the Overview toolbar buttons.



The following table provides information about the toolbar options.

Toolbar Element	Description
Download	Downloads the dataset file. If any filters are active, the system downloads the filtered dataset. Any metrics you define are included in the dataset you download.
Copy from	<p>Copies results (mined models, animations, charts, dashboards, filters, and metrics) from another process into your open process.</p> <p>Note Copy from only works if the system can map the set of attributes or metrics from the source process to the process to which the system is copying the results.</p> <p>Use this feature to perform the following tasks:</p> <ul style="list-style-type: none"> Upload a new dataset using results obtained in a previous dataset. You can perform this action if a dataset contains extra or different data, but has the same or similar structure (for example, from the same data source but from a different time period). You can copy all the results from a previous dataset into the new process and automatically re-compute all models, animations, and charts for the new dataset. All charts and objects that you copy into a new process using the Copy from feature update automatically with the data from the new process. The only exceptions to this are models that use the Thorough miner option.
Mine	Opens the Mine main pane and the Options pane. Use the Options pane to define elements for the dataset. After you click the Mine button, the model displays in the main pane. You can also use the Filter pane to affect the results of the mined model.
Animate	Opens the Animate pane and the Parameters pane. Use the Parameters pane to choose which model to animate. After you click the Generate Animation button, the animated model displays in the main pane. You can also use the Filter pane to affect the results of the animated model.
Charting	Opens the Charting pane and Settings pane. Use the Settings pane to define elements you want included in the resulting chart. After you click the Update button, the chart displays in the Charting pane.

Evaluate dataset elements and attributes

You can use the Overview tab options to view information in your dataset. The following steps explain how to view and interpret information in an existing dataset.

1. In the **Actions** pane, click **Overview**.
2. View the information contained in the **Summary** tab.
 - **Access.** The **Restricted access** option is an evaluation mode in which the user can see only a fraction of cases in a dataset. This mode is only applicable for a standalone user and only with certain licensing options. The **Full access** option grants you complete access to all cases in a dataset.
 - **Number of activities.** This feature shows the number of actual activities that occur in the imported dataset.
 - **Number of cases.** This feature provides the total number of cases contained in the dataset.
 - **Number of events.** This number specifies where the document passes through in the workflow process.
 - **Timestamp.** This feature documents when a step in a case is complete. In the summary, you can see the first and last timestamp for all case events.
3. To view the attributes associated with your dataset, select the **Attributes/Metrics** tab.
4. To add, edit, or delete a metric, click a table entry and select an option from the toolbar. The **Metric** toolbar is enabled only for those metrics that you can modify.
5. To view the values of the attributes of any case, select the **Detailed case information** tab.
 1. To see the events associated with a case, the attributes and the timestamp, select a case. By default only the case identifiers, activity, and timestamp for the events appear selected.
 2. To choose the attributes that display in this list, click the **Select attributes** button. The information selected in the **Select attributes to show** dialog box determines the information that displays in the **Detailed case information** pane.
 3. From the **Select attributes to show** dialog box, select the **Case attributes** and **Event attributes** you want to include in your dataset.
 4. To include all case or event attributes, check **Case attributes** or **Event attributes**.
 5. Click **OK**.
6. Select the **Description** tab and click **Edit description**.
 1. Enter information about your dataset.
 2. Click **Save description**.

Mine functionality

The Mine functionality discovers the process model that best describes the behavior of the cases in your dataset. The miner supports the discovery of process models that contain sequences, parallelism, choices and loops.

To start the mining process, you must set the Target Percentage (or Target Completeness Percentage) parameter. This parameter guides the mining of the model. The target percentage indicates to the mining algorithm which percentage of cases to consider during the discovery of the process model. For example, if you set this parameter to 10, the mining process focuses on finding the simplest model that represents 10 percent of the cases.

1. Set the target percentage to any value between 0 and 100.
2. Click the **Mine** button to start the actual mining process.

Reflect then searches for the best process model to describe the target percentage of the cases in your dataset.

Mining methods and elements

Two mining methods are available for extracting your information.







- **Fast.** The mining process is fast but does not mine parallel execution of data.
- **Thorough.** The process take a little longer since parallelism of data is included in the processing. The miner works iteratively and continuously tries to find better process models that describe the cases in the dataset. While mining, Perceptive Reflect continues to update the process model. The mining process continues until you click Stop Miner, or until you select one of the other functionalities.

The following table provides information about the elements that display in a mined model.

Element	Description
Rectangles	<p>These elements represent tasks. The mined model clearly differentiates start or finish tasks.</p> <ul style="list-style-type: none"> • Start tasks. Rectangles that represent start tasks contain two small green squares in the top-left corners. • End tasks. Rectangles for end tasks contain two small red squares in the bottom-left corners.
Arcs and Arrows	These elements indicate the flow between tasks.

Mine toolbar options

You can select a mined model from the Objects pane to review. The graphical representation displays in the main pane. Perceptive Reflect provides the following functionality for all models in the Mine toolbar.

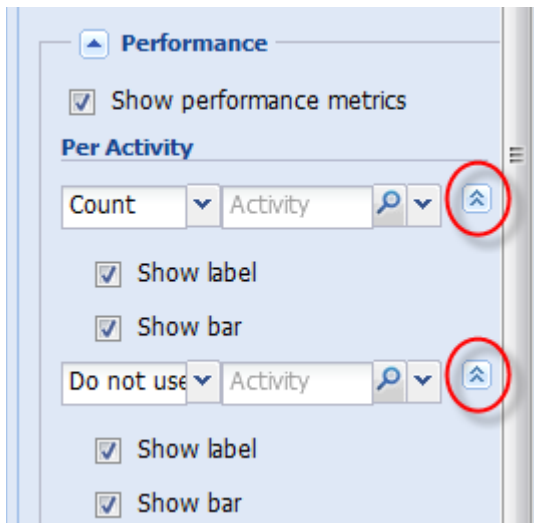
Toolbar	Toolbar Icon	Description
Rename		Renames the process model.
Delete		Removes the process model from the currently selected process.
Download		Saves the model as Adobe Flash file (SWF), a Protos or BPMOne file (PAL), or a Microsoft Visio file (VXD).
Compare with		Visually compares the process model with another process model by showing them side-by-side.
Animate		Creates an animation of the currently shown model. For more information on animation, refer to “Animation Functionality” section in this document.
Edit		<p>Opens a saved model. You can then update the model options from the Options pane.</p> <p>Note This action works with all mined models (both Fast and Thorough). It does not work with imported models.</p>

Mine a process model

You must import dataset information prior to performing this procedure.

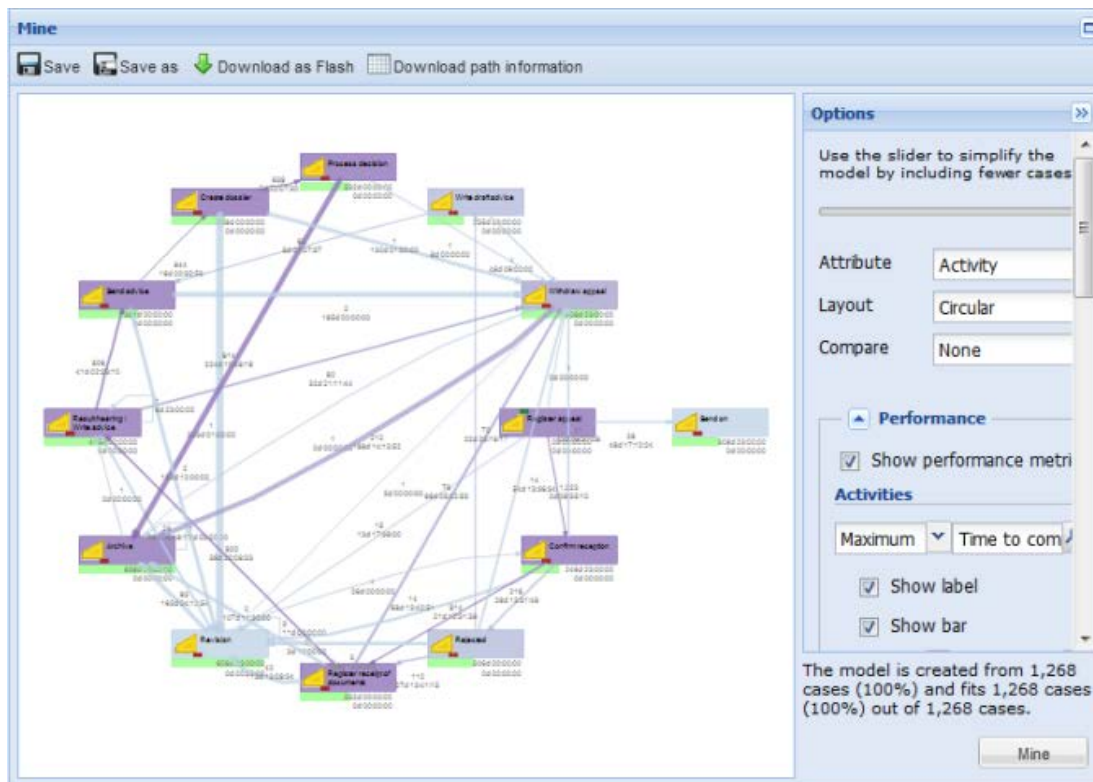
1. In the **Actions** pane, click **Mine**.
2. In the **Options** pane, move the slider to the location you want. The percentage of cases included in the mined process displays to the right of the slider.
3. Click the **Attribute** list and select an attribute. For information on changing attribute settings, refer to the “Modify the mine attribute settings” section of this document.

4. Click the **Layout** list and select the manner in which you want the model to appear.
 - **Process Model**. Provides a top-down view of the model.
 - **Social Network**. Provides a circular view of the model.
5. Optional. To compare the mined model to another model, click **Compare**.
 1. Select a mined model from the list and click **Mine**.
 2. The **Mine** pane displays your current model. The comparison model displays in a separate color.
6. To display the metric options, click the **Performance** arrow.
 - To display the filtered information in the mined model, select the **Show Performance metrics** check box.
 - Select the **Activities** filter options you want to use. The available options are dependent upon the information contained in your dataset.
 - To expand the list and select a different activity, click the arrows next to the **Activities** list.
 - To display the **Activities** information in the mined model pane, select the **Show label** and **Show bar** check boxes.



7. Select the **Arcs** filter option you want to use. The available options are dependent upon the information contained in your dataset.
 - To expand the pane, click the arrows next to the **Arcs** list.
 - To display the information in the mined model pane, check **Show label** and **Show bar**.
8. Click the **Miner** arrow and select a miner type.
9. Click the **Description** arrow and click **Edit**.
 - In the **Description** pane, enter information about the model.
 - To exit the **Description** pane, click **OK** to accept the information, or click **Cancel**.

10. Click **Mine**. The mined model displays in the **Mine** pane.



Quality of thorough mined models

The information that displays in the bottom-left corner of the mining pane indicates the quality of a Thorough mined model. The percentage for a Fast mined model displays above the Mine button. The completeness factor indicates whether the currently displayed mined model captures the desired target percentage. The completeness value represents the percentage of completed cases in your dataset that the mined model captures. You can consider the quality of the mined model good when the completeness value is equal to or higher than the provided target percentage.

In some situations, the completeness percentage might be higher than the target (completeness) percentage that you set. This difference means that many activities in your dataset behave the same in terms of the execution order of tasks. Therefore, discovering the best and simplest model that covers 10 percent of the cases implies that other cases in your dataset also fit this model.

Note When you select the Thorough mine option, Perceptive Reflect continues to keep mining even after reaching the target percentage. The application is trying to find a simpler model that captures the same number of cases. The process does not stop until you click Stop mining to end the task.

Change the mined model display

In the Mine pane, right-click an element in the mined model to access the following options:

- **Zoom in.** Increases the current size of the process model.
- **Zoom out.** Decreases the current size of the process model.
- **Show all.** Displays the entire model in one screen.
- **Quality.** Defines the resolution of the graphical representation of the model.

You can also use the scroll wheel in the bottom-right corner to zoom in and out on a model.

View additional mined model information

You can click elements in a mined model to view additional information about a mined model.

1. In the **Mine** pane, click a rectangle (activity) or arc, and view information about your selection in the **Activity** or **Arc** dialog box.
2. Optional. To drill down on the selection, click **Add Filter**.
 1. In the **Filtering** pane, select a filter from the **Activity** list.
 2. Check any filter you want to add.
 3. Click the **Selection** list and choose from the available filter options.

Note For activities, an added filter only includes cases in which this activity occurs at least once. For arcs, an added filter only includes cases in which the selected arc is followed.
3. To update the model, click **Mine**.

Save and export a model

After mining a model, you have several options for saving and exporting information.

- **Save** or **Save as** menu option. Saves the currently mined model. The mined model displays in the **Objects** pane list. Click **Save** to overwrite an existing model.
- **Download as flash.** Saves the current mined model as an Adobe Flash SWF file.
- **Download path information.** Creates an Excel file that contains statistical information regarding the paths in the discovered model.

Change performance settings

The following procedure provides steps for changing settings in your mined model.

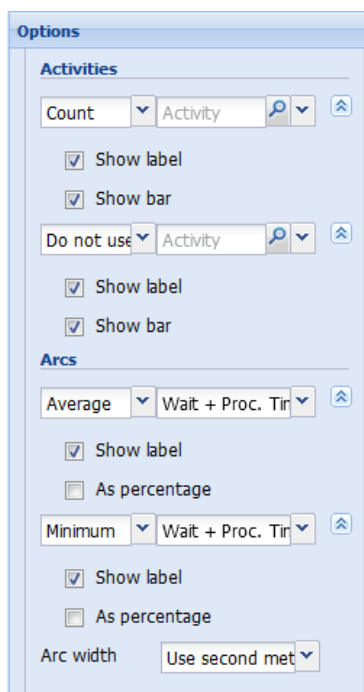
1. From the **Mine** toolbar, click **Edit**.
2. In the **Settings** pane, click **Performance** to display the **Show performance metrics**. If you do not enable this setting, the performance information does not display in the model.
3. Select the **Per Activity** option. Using the lists, you can configure up to two metrics on which to mine performance.
 - **Do not use.** Do not use this metric.
 - **Count.** The number of times that the system executes the activity.

- **Count unique.** Counts the number of unique values of the other attribute. For example, if you are mining a process model based on the **Activity** attribute, and you configure a metric to show the unique count of the **Executor** attribute, then the number that displays at every activity in the process model shows how many different executors have implemented each activity

Note Only event-level attributes are counted as unique values.

- **Average/Sum/Minimum/Maximum.** Select an attribute from the second attribute list. This metric then computes the average, sum, minimum, or maximum of that other attribute. For example, if you configure a metric to show the Average of the Process time attribute, then the number under each activity shows the average processing time.

Note This type of metric uses only numeric data types.



4. Optional. Click the arrow next to the **Activities** list to expand the pane.

- To display the metric value on the bottom of the model rectangles, click **Show label**.
- To display green bars on the model rectangles that reflect the impact of a particular metric, click **Show bar**.

Note You can configure up to two metrics for the **Arcs** sub-option as well. The first list contains the same options as the **Activity** metrics. The following options are available for the second list. You can also use aggregations of case attributes.


- To display the waiting time that is spent between finishing one activity and starting the next, click **Wait Time**. This option is only available if you have activity start times in your dataset.
- To show the amount of time between finishing one activity and finishing the next one, click **Wait + Proc time**. This is the sum of the waiting time and the processing time.

5. Optional. Click the arrows next to the **Arcs** list to expand the pane.
 - Click **Show label** to display a label adjacent to the metric it represents.
 - Click **As percentage** to display the value of the metrics as a percentage.
6. Optional. **Arc width**. Select one of the following options to display arcs in a model.
 - **Always the same**. The width of all arcs is equal.
 - **Use the first metric**. The value of the first arc metric determines the width of the arc.
 - **Use the second metric**. The value of the second arc metric determines the width of the arc.

Note Thicker arcs represent higher values.

Work with filters

The filtering feature allows you to modify your search criteria by manipulating filter settings in the Filtering pane. The filtering options allow you to exclude some records from the mining process so you can focus on specific aspects of a process.

1. In the **Filtering** pane, click the **Add filter item** button and select an option from the list.
2. In the **Selection** list, check the options on which you want to filter.
3. Click the **Selection**  drop-down menu and choose from one of the following options.
 - **All**. Selects all options in the list.
 - **None**. De-selects all options in the list.
 - **Invert**. Reverses the selected and unselected options.
4. Select **Show filtered cases** to view a list of records in your selected criteria.
5. In the **Filtered cases** pane, click a record to view details about events for that record. Click **OK** to close the **Events for case** pane.
6. Click **OK** to close the **Filtered cases** pane.



Add filtered items

You can include more than one filter in your mining process. Repeat the process defined in “Working with filters” section in this document or use the following steps.

1. Click the **Add filter item** button. Do not click the drop-down list.
2. In the **Add filter item** dialog box, select a filter type and click **Next**. The following filter types are available.
 - **Attribute filter**. Filter cases or events based on their attribute values.
 - **Unique paths filter**. Filter exceptional cases, which deviate from the most frequent path.
 - **Incomplete cases**. Filter cases that start and end with certain activities.

Refine filtered cases

After you select the filters on which to mine a process, you can refine your search parameters and extract a distilled model based on additional information.

1. In the **Filtering** pane, select **Show filtered cases**.
2. In the **Filtered cases** dialog box, click the **Select attributes**  pane.
3. In the **Select attributes** to show dialog box, select the attributes you want to display in your mined model. Deselect the attributes you do not want to display.
 - **Case attributes.** Check the **Case attributes** box to select all case attributes.
 - **Event attributes.** Check the **Events attributes** box to select all event situations.
4. Click **OK**, and then click **OK** in the **Filtered cases** dialog box.
5. To download the dataset, click the **Download**  option and select a filtered dataset option.
6. In the **Download file** dialog box, click to download the file.

View events associated with cases

When you filter on a mined model, you can view events associated with each case.

1. In the **Filtering** pane, select **Show filtered cases**.
2. In the **Filtered cases** dialog box, click **Case ID**.
3. The resulting dialog box shows case attributes and event attributes associated with that case.

Note The events that display are based on attributes you select from the **Filtered cases** dialog box.

Customize display performance metrics

You can change the performance settings to augment the analytical information shown in your mined model elements.

1. To display the performance information, in the **Options** pane, click the **Performance** arrow and check the **Show performance metrics** option. If this setting is not enabled, no performance information displays in the model.
2. Select the **Activity** option. Using the lists, you can configure a maximum of two metrics on which to mine performance.
3. Optional. To expand the **Activity** pane, click the arrow next to the **Activities** list.
 - To display the metric value on the bottom of the model rectangles, click **Show label**.
 - To display green bars on the model rectangles that reflect the impact of a particular metric, click **Show bar**.
4. Optional. To expand the **Arcs** pane, click the arrows next to the **Arcs** list.
 - To display a label adjacent to the metric it presents, click **Show label**.
 - To display the value of the metrics as a percentage, click **As percentage**.

5. Optional. Select one of the options in the **Arc** width list to display arcs in your model.
Note Thicker arcs have higher values.
 - **Sequence filter.** Filter cases or events based on the occurrence of two subsequent events in a case.
 - **Separation of Duties violations.** Check whether the executors of two (sets of) activities are different.
6. Based on the filter type you select, continue through the process of defining the attribute on which you want to filter.
7. Click **Mine** to view the updated process based on the newly selected attributes.

Modify the mine attribute settings

You can modify the attribute settings for a mined document.

1. In the **Objects** pane, select a mined model.
2. In the **Options** pane, click the **Attribute** arrow and select an attribute type.
3. To display the **Metrics** dialog box, click the magnifying glass next to the attribute type.
4. To access the **Select metric type** wizard, click the **Add Metric** button.
5. In the **Select metric type** wizard, select a metric from the **Available** metrics list and click **Next**. A brief description of each metric displays in the right pane of the wizard.
6. Select the attribute you want to associate with the metric and click **Next**.
7. Continue through the wizard, setting options to modify the attribute.
8. In the **Metrics** dialog box, click **Close**.

Implement performance metrics

Metrics are calculated from case or event attributes, also referred to as base attributes. Metrics provide analytical information in the form of numeric values or text to cases or events.

To create a new metric, complete the following steps. Set up a new metric to display analytical information shown in your mined model elements.

1. In the **Overview** pane, click the **Attribute/Metrics** tab.
2. Click the **Create new metric** button.
3. Select the **Metric** type and click **Next**.
4. Follow the **Wizard** step.
5. Click **OK**. The metric displays in the **Metrics** list.

Edit existing metrics

You can edit an existing metric. Note that you cannot edit a base metric.

1. In the **Overview** pane, click the **Attributes/Metrics** tab.
2. In the **Metrics** list, select the **Metric** and click the **Edit Metric** button.

3. Follow the **Wizard** steps.
4. Click **OK**.

Delete metrics

You can delete a metric. Note that you cannot delete a base metric.

1. In the **Overview** pane, click the **Attributes/Metrics** tab.
2. In the **Metrics** list, select the **Metric** and click the **Delete Metric** button

Metrics overview

The table below lists all available metrics.

Metric name	Type	Description	Remarks
Throughput time	Case	Time between the start of a case and the end of the case.	Events do not have to be continuous. Sometimes an event does not have a start time, but an event has always an end time.
Advanced throughput time	Case	Time between a configured start attribute and a configured end attribute.	As start time you can choose between a first and a last occurrence of, for instance, an activity or multiple activities. If you choose multiple activities, by default the first executed activity is selected as start time. As end time you choose between a first and a last occurrence of, for instance, an activity or multiple activities. If you choose multiple activities, by default the first executed activity is selected as end time.
Processing time	Event	The time between start time and end time of events, by event.	Can only be used if the start and end times of event are known. For each event, a value is calculated.
Idle time	Case	The total time between the end time and the start time of events in which there is no activity.	The sum of all periods of non-activity.
Time to complete	Event	The time that is needed to complete two successive activities.	This metric is used if there one activity has no known start time. The assumption is that an activity starts if the preceding activity ends.

Metric name	Type	Description	Remarks
Time period	Event	The time between two date/time attributes of each activity.	This metric is for instance, used for calculating the difference between the planned and the actual delivery time of a product.
Occurrences of value	Case	Calculates how many times a certain attribute is present in a case (not unique)	
Unique values	Case	Calculates how many times a certain attribute is present in a case (unique)	
Event attribute as case attribute	Case	Aggregates an event attribute to a case attribute.	For instance, the start time of a case is the minimum value of the Timestamp attribute.
Case attribute as event attribute	Event	A case attribute is copied to an event.	Example: a date on case level can be used in an event.
Unique path percentage	Case	The percentile of a case in the sort order of unique paths.	Frequently occurring paths have a low percentile; paths that rarely occur have a high percentile (from 0 to 100).
Unique path number	Case	The index of a case in the sort order of unique paths.	Frequently occurring paths have a low number; paths that rarely occur have a high number (from 1 to number of unique paths).
Change text values		Change the value of a text attribute.	You can change or the value of a text attribute to another value. Example: you can map two activities to one value to simplify a process.
Unroll loops	Case	Number of times an activity is executed	If activities are executed more than once in a process, it influences the mining results. This metric calculates the number of times an activity is executed.
Date/time	Event	Extracts different attributes from a date attribute.	

Animation functionality

The Animate functionality provides insights about the dynamics of the process in the dataset using visual representation. The information is based on dataset information in your process. This functionality animates a selected mined or imported model and shows the actual times when events occur in your dataset.


Activities are represented by balls that move through your mined model. The flow of balls through the model provides a graphical representation of waiting times and processing times of the activities in the dataset. For example, if your dataset contains start and end times for the activities, then the wait times are represented by the follow of balls in the arcs in your model. The animation shows the processing times by the amount of time a ball spends within an activity (or rectangle) in your model.

Create an animation

There are two ways to start the Animate functionality in Perceptive Reflect. You can use a menu item or you can select a process model and then click Animate in the Mine toolbar.

1. In the **Actions** pane, click **Animate** and select a model from the **Object** pane.
2. In the **Parameters** pane, click **Generate Animation**.

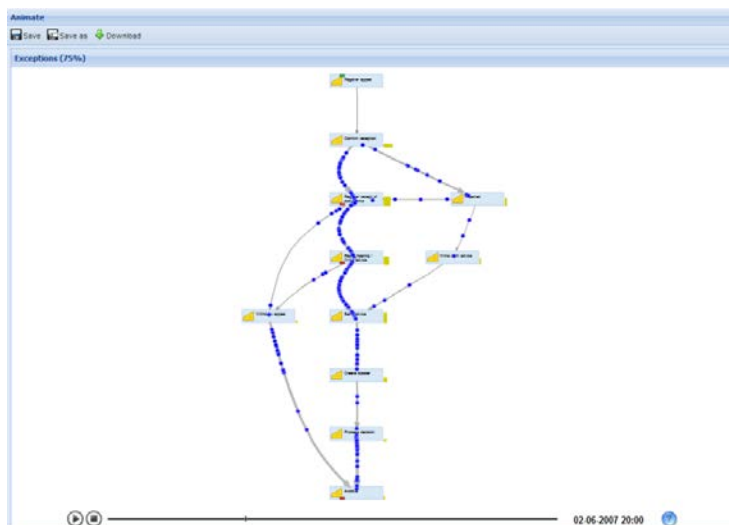
The process model displays in the **Animate** pane. The duration of the animation displays in the **Duration** field of the **Parameters** pane.

3. Optional. In the **Animation** pane, click the question mark  for an overview of the events occurring in the process model.

The flow of balls through the model provides a graphical representation of waiting times and processing times of the activities in the dataset.

For example, if your dataset contains starting and ending times for the activities, then the flow of the balls in the arcs represent the wait times in your model. The animation shows the processing times by the time a ball spends within an activity (or rectangle) in your model.

However, if the current view of your dataset does not distinguish between starting and ending times of activities, then the time a ball takes to flow from the top to the bottom of an incoming arc to a given activity represents the sum of the waiting time plus the process time for that activity.



Save and export an animation

You can save an animation to your process or you can export it as an Adobe Flash file.

To save the animation to a process, complete the following steps.

1. In the **Objects** pane, click **Animations**.
2. Click **Save** or **Save as** in repository menu option.
3. In the **Save** dialog box, enter a name for the animation and click **OK**.

To download an animation, complete the following steps.

1. In the **Objects** pane, click **Animations**.
2. Click **Download** from the **Animate** toolbar, and click the arrow or link in the **Download file** box.
3. In the **Download file** box, click **Open** to open the file, or click **Save** to save the file.

You can retrieve a saved animation by selecting **Animations** from the **Objects** pane.

Change the settings

When you first create an animation for a given model, Perceptive Reflect generates a 30-second movie without any distinction between cases (or process instances). This means that all balls in your animation have the same color and there are no animated charts on the right side of the animation. However, you can create longer (or shorter) animations and use powerful insights provided by the flow of the balls in the model that explicitly capture the difference between certain case aspects or attributes.

Use the Parameters pane to customize your animation.

- **Duration.** Sets the number of seconds for the animated movie.
- **Chart.** Assigns meanings to the colors of the balls flowing in your animation. These meanings are based on the attributes linked to the cases and activities in your dataset.
Note When you choose an event-level attribute for the chart option, then the colors of the balls change during the animation. The throughput time and frequency charts do not display. Instead, only a legend shows the value for each color.
- **Advanced Settings.** Indicates to Perceptive Reflect which attribute the rectangles in the model represent. This setting is only required for imported models that are not based on the Activity attribute. If this setting is incorrect, then no balls appear, because Perceptive Reflect cannot match the names of the activities in the process model to the values of the given attribute
- **Filtering.** You can also combine the Animate functionality with the Filtering functionality. The Filtering functionality allows you to customize the input data used to generate the animation.

About charting

The Chart feature allows you to create charts based on your dataset. You can create charts that display your data in a format that is easy to share with others.

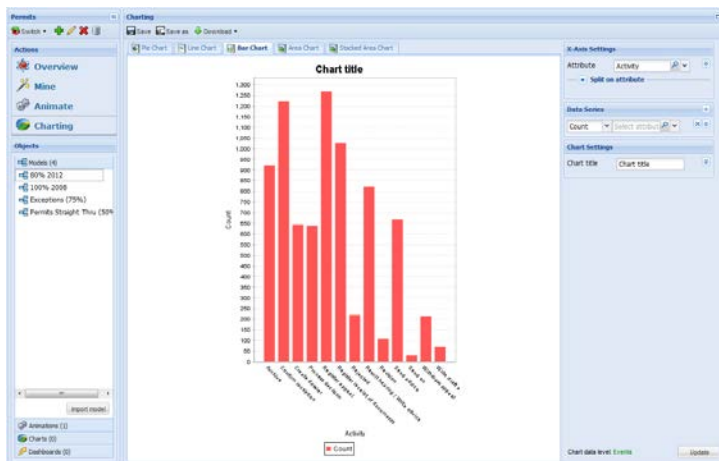
Perceptive Reflect supports pie, line, bar, area, and stacked area charts. The following sections define the steps to create, save, and download charts. Information about defining chart options and elements is also included.

Create a chart

You can create a simple chart using the following chart settings.

1. In the **Actions** pane, click **Chart**.
2. Select **Bar Chart** from the available list of chart type tabs.
3. In the **Settings** pane, select an **Attribute** from the list.
4. Click **Update**.

Note Move your pointer over one of the bars to view the tool tip about the data.



Save and download charts

After you create a chart, you can use the buttons at the top of the charting area to save and download the chart.

- **Save.** Save the chart in the repository.
- **Download as an image.** Download an image of the chart in PNG format.
- **Download a Microsoft Excel file.** Download the chart and chart data in an Excel spreadsheet.

The following steps explain how to save a chart in the repository.

1. Click the **Save** or **Save as** button.
2. In the **Save** dialog box, enter a name for the chart and click **OK**.
3. To view a list of saved charts, in the **Objects** pane, click **Charts**.

4. To open the chart, click the chart name in the repository list.
5. To return to the **Chart** function, click the **Edit Chart** button. You can then change the chart settings.

Define the X-axis

When you create a chart, there are three main areas that you need to configure.

- **X-axis configuration options.** Determine what to show on the X-axis for a line, bar or area chart, or the slices represented in a pie chart.
- **Values for the X-axis.** Determine the values to show as the data series for each item on the X-axis or slices of pie charts. You define these values in the Define the Data Series section.
- **General options.** You supply options such as chart title and color scheme in the Define the Chart Options section. You can use these options to fine-tune the appearance of your chart.

Change the default configuration of the X-axis

Choose the attributes to display on the X-axis of your chart. Select a data attribute from the Settings pane. Your selection places each value of the data attribute on the X-axis. For example, choosing Activity shows each activity in the dataset on the X-axis.

Click the arrow next to the Attribute selection box to expand the X-axis settings. You can configure the following aspects.

- **Label.** Enter the label that displays under the X-axis in the chart. If you leave this box empty, the name of the selected attribute appears.
- **Sorting.** By default, the values on the X-axis sort alphabetically (or numerically) in increasing order. Use the Sorting options to change the sort order.
- **Range.** By default, all possible values of the chosen X-axis attributes appear. Use the range settings to limit the number of items shown on the X-axis.
- **Rounding.** For numerical or date/time attributes, you can divide the values in discrete ranges using these options.
- **Split on attribute.** You can subdivide your dataset into multiple series based on a data attribute. This advanced feature allows you to create a data series for each value of a given attribute automatically. This action effectively adds another dimension to the X-axis. For example, if you use the Activity attribute, then the system creates a separate data series for each activity.

Change sort options

The Sorting options appear on the X-Axis Setting pane. Click the arrow to display the sorting options.

- **Count.** Perceptive Reflect sorts the values on the X-axis by their frequency. For example, if Case type is the X-axis attribute, then the case types are sorted based on how many cases there are of each of these types.
- **Unique Values.** Perceptive Reflect sorts the values on the X-axis alphabetically or numerically, depending on the data type of the chosen attribute.
- **Average/Minimum/Maximum/Sum.** When you select one of these options, you can select another numerical data attribute in the **of attribute** field.

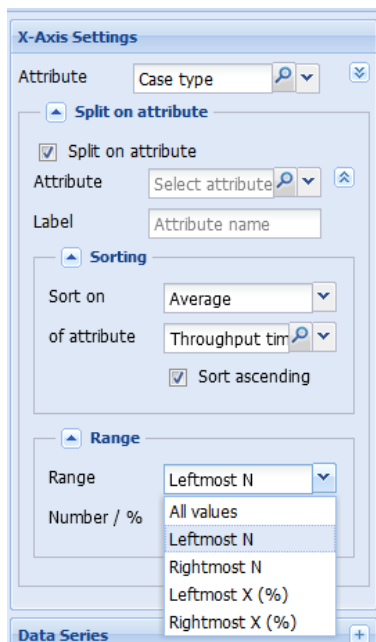
- **Count Unique Values.** When you select this option, you can select another text attribute in the **of attribute** field. In this case, the number of unique values is counted for the given data attribute. For example, if case type is the X-axis attribute and you select Count Unique Values of Executor, then for each case type, the total number of different executors involved is computed and used to sort the case types.
- **Sort ascending.** Select this check box to sort items on the X-axis in ascending order. Clear the check box to sort in descending order.

Change Range options

The Range settings allow you to limit the values that display on the X-axis in several ways. Click the arrow to display the range options.

- **All values.** This default setting does not limit the range of X-axis values.
- **Leftmost N / Rightmost N.** This setting allows you to specify the number of items that should display on the X-axis. You can enter this number in the Number / % field. Using Leftmost N shows the first N items, and Rightmost N shows the last N items.
- **Leftmost X (%) / Rightmost X (%).** This setting is similar to Leftmost N and Rightmost N, except that the number you specify in the Number / % is not interpreted as a percentage between 0 and 100. Perceptive Reflect computes the total number of items on the X-axis, and then takes the specified left or right percentage of that number.

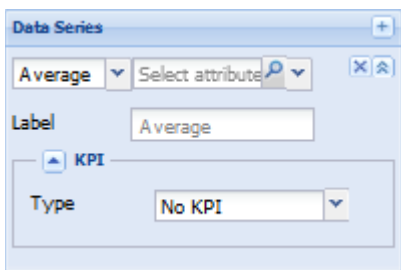
The selections you make using the Range setting occur after the values on the X-axis are sorted according to the Sorting settings. For example, if you make a chart that uses the case type attribute on the X-axis, sorted in ascending based on average throughput time, then using a range of Leftmost 10 shows the 10 case types with the lowest throughput time. Selecting Rightmost 10 shows the 10 case types with the highest throughput time.



Define the data series

This section covers options that are available for the data series. The basic setting for every data series is the function, or aggregator, for that data series, which defines the value that Perceptive Reflect computes for the data series.

1. In the **Data Series** pane, click the arrow to display the entire pane.

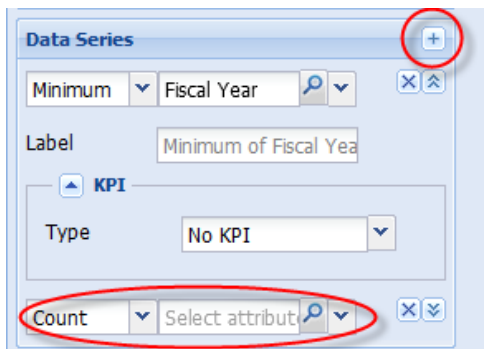


2. Click the first arrow and select a frequency for the data series values. The available options include:
 - **Count.** The data series shows the number of times each case type occurs in the dataset.
 - **Average / Minimum/ Maximum / Sum.** These options compute the average, minimum, maximum, or sum of the given attribute. Select an attribute from the list. Only numeric attributes are acceptable options.
 - **Count unique.** This option counts the number of unique values of the attribute selected in the attribute list. For example, if the X-axis is **Case type**, and you select Count unique of the Employee attribute, then the chart shows the number of different employees who were involved in each of the case types.
3. Select a metric that corresponds to the frequency selection. Click the magnifying glass to view the **Metric** pane and review the metric attributes.
4. In the **Label** field, enter a label for the chart legend. By default, the function and attribute name appear.
5. Click the **KPI** arrow to expand the options. You can define the key performance indicator (KPI) targets for the data series.

Note When you define a KPI target, extra lines appear in the chart that clearly indicate the target. Choose from the following types of KPIs:

- **No KPI.** Do not show any KPI targets in the chart. This is the default setting.
- **Constant.** Define a KPI that is a constant value. When choosing this option, you can enter a label for the KPI and enter the target value. This value is a single number. For example, a fixed target of 100 days for throughput time could be defined as a constant KPI with the 100d 0:00:00 for a data series based on Throughput times.
- **Percentage from series.** Perceptive Reflects computes the KPI target as a percentage of another data series. You enter the percentage as a value between 0 and 100, and you configure the function and attribute of the data series from which the percentage is taken. This data series is not drawn in the chart, but is only used to compute the KPI target values.

- Optional. Add a data series. Click the plus icon in the **Data Series** header pane to expand the data series entries.



- Click the **Count** drop-down arrow and select a frequency for the X-axis values.

Note Click the plus button next to a data series to remove the data series from the list.

Display additional data series

Perceptive Reflect shows every data series in a chart. How the information displays depends on the type of chart.

- Pie chart.** If you select Pie chart per data series, each data series appears as a separate pie chart. Each data series appears as a separate slice in a pie chart if you do not select Pie chart per data series.
- Line chart / Bar chart.** A separate line or bar appears for each series.
- Area chart / Stacked area chart.** A separate area appears for each series. In an Area chart, the areas overlap. In a stacked area chart, the areas stack on top of each other. The order of the data series defines which area appears on top.

Define the chart options

Additional settings for defining a chart are grouped under the **Chart Settings** heading.

- In the **Chart title** field, enter a title for your chart, which displays above the chart. This is the name given to the chart when saved in the repository.
- Click the arrow to display additional chart options.
- In the **Width** field, enter the width of the chart in pixels. The default is to use the preview window dimensions when viewing the chart. The default size is 800 x 600 pixels.
- Set the **Color Scheme** for the chart using the slices, bars, lines, and areas for the data series.
- The following options are subsets of the **Color Scheme** option.
 - Reverse colors.** Click **Reverse colors** to reverse the chosen color scheme. For example, if you select the Red/Green color scheme, then the first data series appears in red and the second one appears in green. If you reverse the colors, the color order reverses.
 - Show labels.** Show or hide the text labels next to the X and Y-axes or for the pie chart slices.
 - Show legend.** Show or hide the legend of the data series under the chart.

- **Show tooltips.** Show or hide the tool tips when hovering over a slice, line, bar, or area with the mouse.
- **Pie chart per series.** This option only affects pie charts with more than one series. This option controls whether or not a separate pie chart appears for each series, where every X-axis attribute value becomes a slice in the pie charts (when checked), or whether or not a separate pie chart is drawn for each value of the X-axis attribute, where each data series becomes a slice in the pie chart (when not checked).
- **Percentage in charts.**

- **Do not convert.** Do not use percentages.

- **% per X value.** When you have multiple data series, the values for the data series shown in the chart convert to a percentage by comparing the value of a data series for a certain X-axis value to the total for that X-axis value of all data series. This only makes sense when you have multiple data series.


For example, if **Activity** is the X-axis attribute and the average processing time and the average waiting time are the two data series, then using % per X value shows the processing time and waiting time as a percentage of the sum of the process and waiting time. Therefore, if the activity **Archive** has a waiting time of 10 days and a processing time of 5 days, then the sum is 15 days. The waiting time is 66 percent and the processing time is 33 percent.

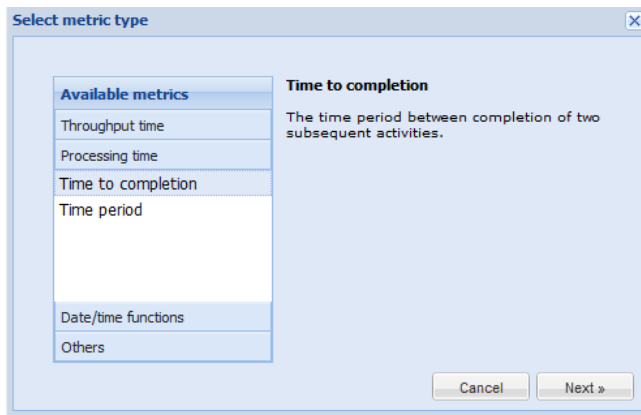
- **% within series.** When you have only one data series, the values for the data series are shown as percentages compared to the sum of all the values of the data series.

For example, if **Activity** is the X-axis attribute and you select the total processing time as the data series, then all total processing times appear as percentages of the sum of all processing times. Therefore, if the total processing time of all activities is 10,000 days, and the **Archive** activity has a total processing time of 500 days, the percentage for **Archive** is 5 percent.

Modify the attribute settings

You can modify the attribute settings for a mined dataset.

1. To view a list of attributes associated with the current model, click the **Attribute** arrow.
2. To display the **Metrics** dialog box, click the magnifying glass  icon.
3. To access the **Select metric type** wizard, click the **Add Metric** button.
4. In the **Select metric type** wizard, select a metric from the **Available metrics** list and click **Next**. A brief description of each metric displays in the right pane of the wizard.



5. Select the **Attribute** you want to associate with the metric and click **Next**.
6. Continue through the wizard, selecting options to modify the attribute setting.
7. In the **Metrics** dialog box, click **Close**.

Appendix A: INTool commands

The following table provides details about the create Reflect INTool command with filtering parameters.

Parameter	Definition	Example
--file	The file name you want to specify. If you leave this parameter blank, the file name defaults to Reflect_YYYY-MM-DD-THHMMSSZ.zip	intool --cmd create-reflect-dataset --file "My 2012 Reflect Report"--process "AP Workflow"
--process	The name of the workflow process. You can specify multiple processes by using commas to separate the processes. This parameter is required.	intool --cmd create-reflect-dataset --process"AP Workflow, HR Workflow, AR Workflow"
--start	The earliest date to include. If you leave this parameter blank, the report uses the first date for which data is available.	intool --cmd create-reflect-dataset --process"AP Workflow" --start"2012-01-01"
--end	The latest date to include. If you leave this parameter blank, the report includes all data up to the current date.	intool --cmd create-reflect-dataset --process"AP Workflow" --file"My 2012 Reflect Report" --start"2012-01-01" --end"2012-30-06"
--duration	The relative interval to include in place of a static start and end date. You must enter an integer and one of the following interval codes <ul style="list-style-type: none"> • D for days • W for weeks • M for months 	intool --cmd create-reflect-dataset --process"AP Workflow" --duration 6M
--max-rows	The maximum number of records to include	intool --cmd create-reflect-dataset --process "AP Workflow" --duration 6M --max-rows 5000
--brief	Generate a file that excludes the case-level attributes.	intool --cmd create-reflect-dataset --process"AP Workflow" --duration 6M --max-rows 5000 --brief
--process-delimiter	The character to use when separating the workflow processes, useful in instances where your process names include comma characters. If you leave this parameter blank, a comma appears.	intool --cmd create-reflect-dataset --process"AP Workflow, HR Workflow, AR Workflow" --process delimiter ^

Index

access rights	
folders	9
processes	9
animation	25
creating.....	25
exporting	26
saving	26
settings.....	26
attribute settings	
mined dataset.....	33
charts	
change X-axis configuration.....	28
creating.....	27
data series	30
defining X axis	28
downloading	27
range options.....	29
saving	27
settings.....	31
sort options.....	28
Create ImageNow dataset	
INTool command	
create new user.....	9
data series	
defining.....	30
datasets	5
importing information from.....	5
viewing elements	13
filters	
adding elements	20
working with	20
groups	
add	10
INTool commands.....	34
metric type.....	23
metrics	
deleting	23
editing	22
implementing.....	22
mine functionality.....	14
elements	14
methods.....	14
mined model display, change	18
mined models, thorough.....	17
process model.....	15
save and export model	18
toolbar options	15
model	
export.....	18
performance settings.....	18
save	18
overview functionality.....	11
elements	11
toolbar.....	12
processes	
organizing	8
set user privileges	
add groups.....	10
add users	9
templates	10
templates.....	10
X-axis	
change configuration.....	28
define	28
range options	29
sort options	28