Collaboration in PSNext 3.0

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A -Introduction

PSNext has had the ability to manage documents and issues since its inception. PSNext 3.0 improves the ability to manage documents and issues, and allows users to track the progress and state of these objects through user defined work flows.

Users are now able to define custom forms with built-in and user defined fields, allowing them to associate more information with documents and issues than the handful of built-in fields that existed in previous versions. Documents and Issues can now be managed in editable spreadsheet views. To control these new features, PSNext 3.0 adds additional permission capabilities to fine-tune the access to documents and issues, particularly when using work flows.

This document offers a quick review of collaboration essentials in previous versions and presents PSNext 3.0's new features for collaboration.

B -Collaboration in previous versions

The original three "core" Collaboration types were Files, Issues, and Topics. Each of these collaboration items are linked by default to a PSNext object owner such as a Project, Task, Work package or Organization branch.

1 -Files

File management in previous versions enabled users to add files, open and save local copies and keep record of different versions .

PSNext 3.0 introduces the new term “Document” for the previous “File” term in Collaboration. The term “File” is still used when referring to an actual file you can save or upload to a server.

2 -Issues

An Issue is an event or reminder that concerns a particular Project, Work package, Task or branch of the Organization. It is assigned to a Responsible person, and has a due date. In order to track the Issue state a Status field flags it as Open or Closed (if it hasn't been resolved on time).

Like topics, issues accept message posts and replies.

3 -Permissions

Since collaboration items (files, issues & topics) are directly linked to an owner (Project, Work package or Organization branch), permissions should be defined at the owner level.

Here is a summary of the 4 different permissions that can be given to an owner to manage its Collaboration items.

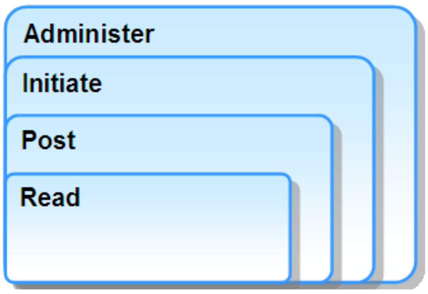

Fig 1. Permissions on Collaboration are progressive

	Granted access on Issues	Granted access on Files
Read collaboration	View and search Issues	View and search files Open temporary file copies Obtain local copies (save as) View the previous versions of a file.
Post collaboration	Post new messages to existing issues. Edit and delete your own posts.	Check-in and out existing files
Initiate collaboration	Create new Issues Delete your own issues Edit but not delete anyone else's Issues Link/unlink your own Issues to tasks	Create new files Rollback to old versions of your own files Delete versions of your own files Link/unlink your own files to tasks
Administer collaboration	Delete anybody's Issues Link/unlink any Issue to a task	Rollback any file to a previous version Delete any file and its previous versions Link/unlink any file to a task

Fig 2. Granted actions per permission level

A user with Global Access permission (Projects or Organization collaboration) will automatically get the "Administer Collaboration" permission on any Project or Organization.

C -Collaboration in PSNext 3.0

1 - Types

Collaboration “Types” were already introduced for Issues in previous versions. The “Type” property has now been extended to Document management. Each type can now define a group of settings for each Document or Issue marked to the type.

Each type's definition includes three main settings:

- The Form used to display items of that type (optional).
- The work flow that defines which states the item might pass through (optional).
- The permission Access control list (ACL) to apply to items of that type.

These three characteristics will be mentioned in detail in the following sections of this paper.

Any Document or Issue can get a Type at its creation. Defining types is optional for Documents but still required for Issues.

Document and Issue types are critical since they provide the basis for enabling these new features.

Examples of document types are:

- Proposal.
- Meeting agenda.
- Meeting minutes.
- Progress Report.

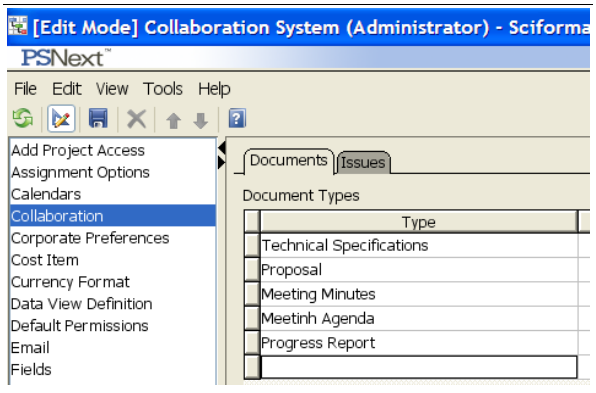

Fig 3. An example of Document Types

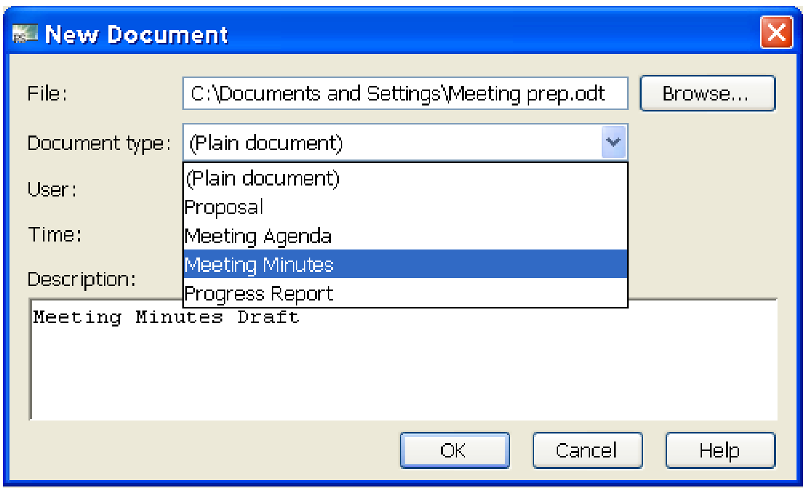

Fig 4. A Type is given to a document or Issue when it is created

2 - Collaboration Fields

Categories represent the primary types of objects we can work with in PSNext. Built-in categories include Projects, Tasks, and Resources. Documents and Issues* now exist as categories to which formulas, fields and filters can be added. PSNext 3.0 also allows users to set field's permissions and formatting options for Documents and Issues.

The Issues category already existed in previous versions, however UDF (User defined fields) of this category could not be used.

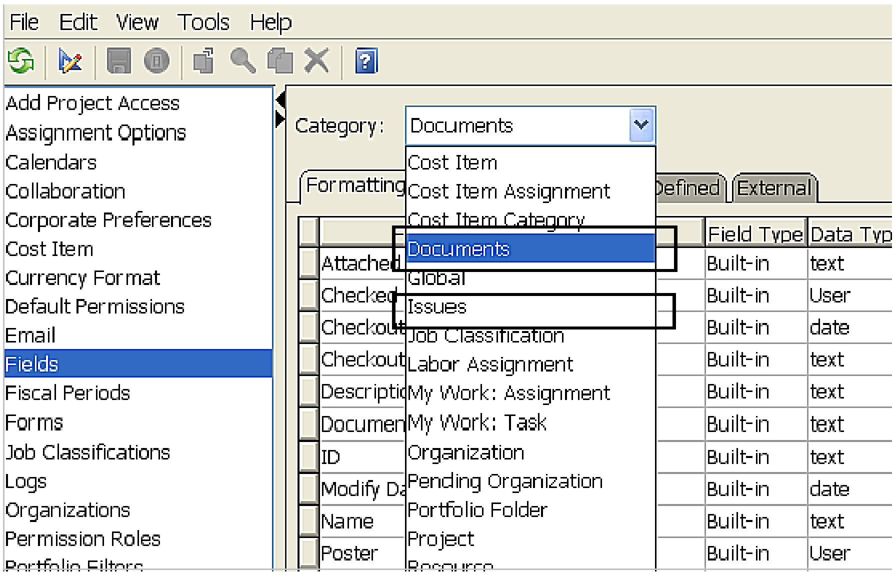

Fig 5. Document and Issue categories in System/Fields

3 - Collaboration Forms

Forms facilitate user interaction with PSNext Objects. Users can now read and edit Collaboration fields' values more easily by using forms. In PSNext 3.0 it is possible to create user defined forms for Documents and Issues similar to the “Task form” or the “Project Control” screens.

Two Collaboration-oriented form types, one for Documents and one for Issues, are available in the “Forms” view in the “System” component.

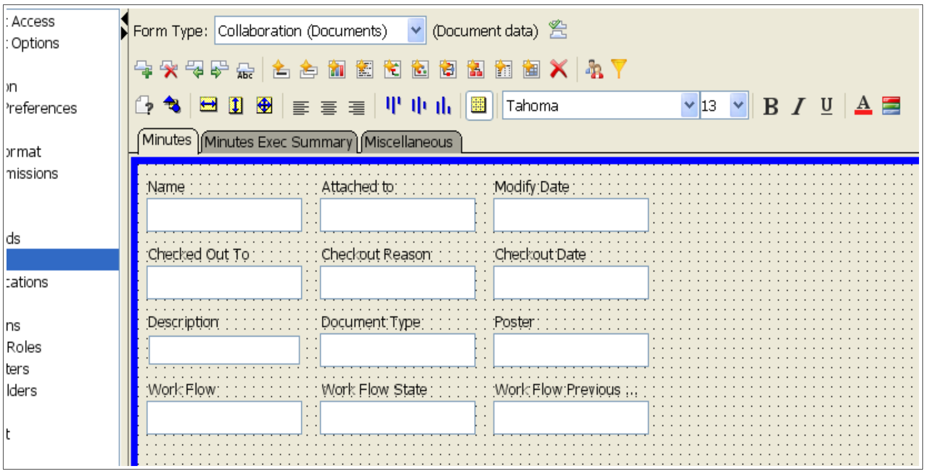

Fig 6. Document forms can be fully customized

The form set at the type level is shown when displaying any Document or Issue of that type, if the work flow or state does not override the form. You can currently specify a single form (represented by one tab). To have the form change as the state of the document or issue changes, set the form at the work flow level (see next section.)

Users must have the “Post Collaboration” permission to be able to edit the fields displayed within a form. Changes to a field's value are automatically saved to the database.

4 - Workflows

Another optional property of a Document or Issue type is its workflow.

A workflow defines the multiple “states” that a Document or Issue might be in, and the actions linking these states together. It is possible to associate a form with each state, and with the workflow itself at a general level.

It is also possible to define permissions at either the state or the workflow level, which determines who can edit the document or issue at any given state and who has the ability to “perform” the actions that would make the state to change. These permissions determine which users are “Responsible” for the document or issue at any given time.

4.1 - Creating a workflow

Under the “workflows” view of the System component, two new tabs allow users to create and manage the workflows for both Documents and Issues.

4.2 - Workflow details

We will focus first on the“Workflow details” tab.

On this tab the different states of the workflow can be defined using a flow chart interface. States are linked to each other by arrows that describe the path an item may follow. Double direction arrows represent the possibility to go back and forth between two states.

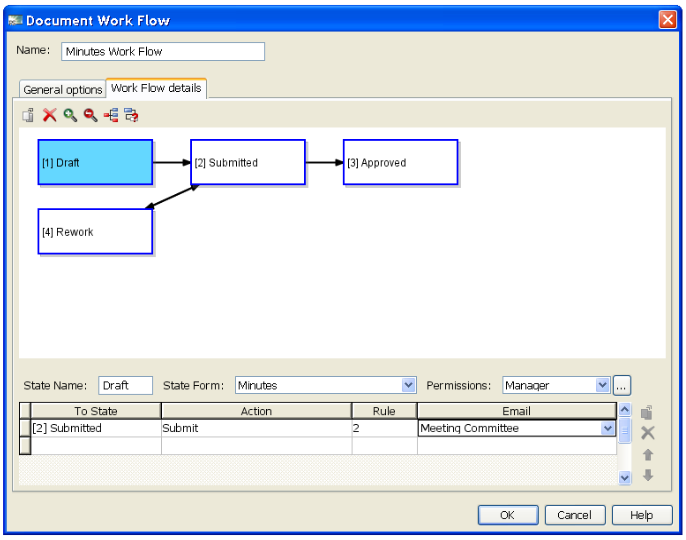

Fig 7. Editing a workflow's details.

4.2.a -State properties

The lower section of the tab displays the properties of the selected state. Among them we can find:

- **State name:** Text name of the state
- **State form:** Form to be shown when the Document or Issue is in this state.
- **State permissions:** Permission set controlling access to the Document or Issue while it is in this state.

The four collaboration permissions (read, post, initiate, administer) can be defined for the Document or Issue while it is in a specific state. In addition, a new permission is introduced with workflow management, called the "perform actions" permission. This permission is required to change the current state of a Document or Issue. Users who have this new "perform actions" permission are considered "Responsible" for the document or issue as long as they have the permission.

For example, a document may have restricted access when it is in a "Draft" state and become readable by everybody only when its state changes to "Approved". Also the Project Manager may have the "perform actions" permission while the document is in the "draft" state (so the Project Manager can submit it) but the Project Manager will lose this permission once the document is "submitted" (otherwise the Project Manager would be able to "Approve" their own document).

Fig 8. Read access forbidden to the selected document

Users with the "perform action" permission on a collaboration item are considered "Responsible" for the item. When using workflows, the Responsible field of the Document or Issue will be "read" only and will contain the list of users who currently have the "perform actions" permission.

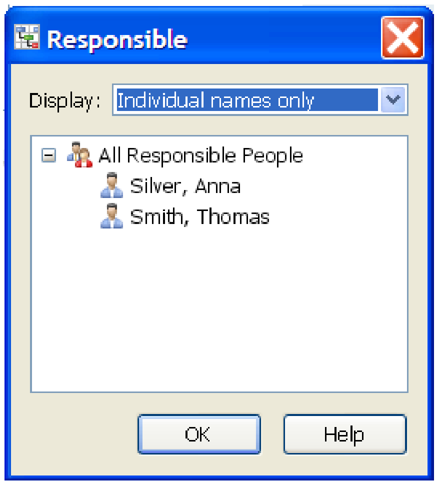

Fig 9. Responsible users of a Document in the current state.

Since permissions may change from one state to another, the “Responsible users” of a Document or Issue might evolve too.

4.2.b -Action spreadsheet

The action spreadsheet contains the possible states that an item on the selected state may go to next. The content of the list is based on the arrows that were drawn on the chart on top.

For each action you can define three settings: the destination state, the name shown to users (Action Name), a Rule that determines how many users are required to trigger the action, and an optional email.

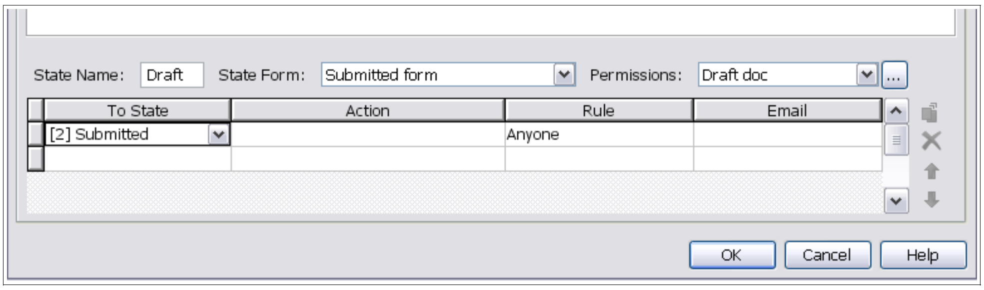

Fig 10. The Action spreadsheet lists every possible States the item could go next

4.2.c -Action name («Action» column)

To change the state of a document or issue requires a specific action to be performed.

Responsible users for this state will see a button in the description of the Document or Issue (see screen shot above). The label of the button for the state to change corresponds to the text entered into the “Action” column.

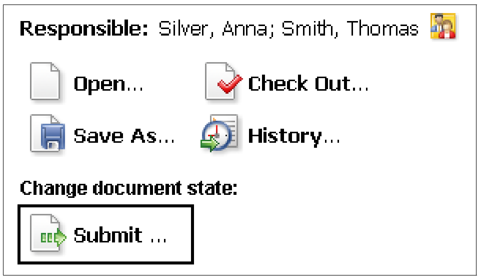

Fig 11. The appropriate "Action" buttons are displayed to Responsible users.

4.2.d -Rules

The rule specifies how many users among the “Responsible” users should “perform the action” in order for the state to change. The rule value lets you pick Everyone, Anyone, or a number from 2 to 30.

- **Anyone**: any responsible user is able to change the state by clicking on the action button.
- **Everyone**: all the Responsible users must “perform the action” for the state to change.
- **2-30:** the number of Responsible users that must “perform the action” in order for the state to change.

When using either of the last two rules, the state will not automatically change until all of the required Responsible users “perform the action”. The action will be considered as a “state change request”.

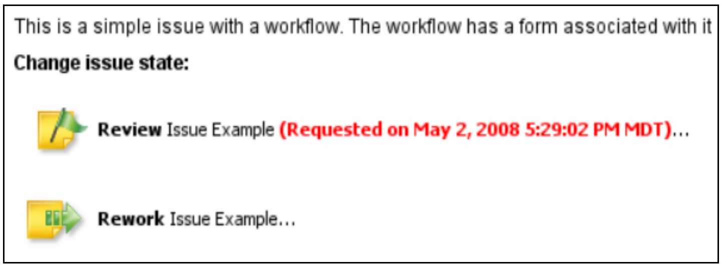

Fig 12. Status change waiting for another Responsible

For example, a workflow may require two people to specify “Approve” and only one to specify “Rework”. In this case, two individual users would have to choose to “Approve” the document before its state actually changes to “Approved”. However, any individual user could choose the Rework action to immediately change the document state to “Working”.

4.2.e -Email

The Email column allows the selection and creation of the email alert that should be sent when an item changes its state.

Email recipients could be nominative or generic users (of the owner or the item itself). The email's body can contain rich text as well as field values and a URL pointing to the collaboration item itself.

New email features in PSNext 3.0 are further detailed in a separate white paper.

4.2.f -General Options

In this tab it is possible to set global settings for the Work flow such as its default form and permissions.

Form: Optional name of the form that will be displayed for a Document or Issue using the workflow (if it is not overridden by a particular state form)

Permissions: Optional set of permissions ACL that will be applied to the Documents or Issue (if they are not overridden by a particular state ACL)

Initial state: Only one state can be considered as an initial state. When adding a new Document or Issue it is possible to set its type and this way define its work flow. Only users with the "Initiate collaboration" permission at the initial state are able to create new elements of that type (otherwise the type will not be proposed at all to the user when creating a new Document or Issue).

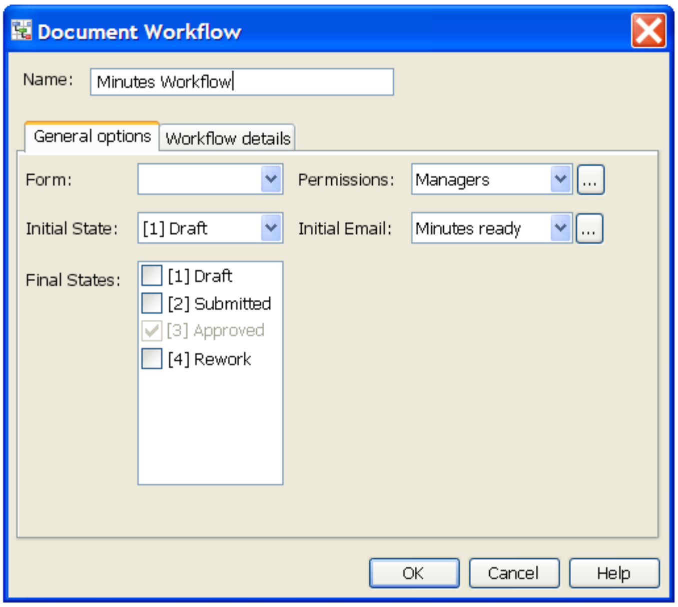

Fig 13. General options of a workflow

Initial Email: Sets the email to be sent as soon a new Document or Issue enters into the workflow.

Final states: List of the states that should be considered as final states. When managing Issues it is important to know if their current state is "final" or not since this will be used to determine its status. Issues will be further discussed later in this document.

4.3 -Permissions

In PSNext 3.0, permissions on Issues and Documents can be defined at multiple levels. Each type, work flow or state can fine-tune access to a Document or Issue. These permissions allow finer control over documents and issues than those set at the owner level (Project, Work Package and Organization)

4.3.a -Content permissions

Permissions to access each Issue or Document can be managed through the four permissions you are already familiar with.

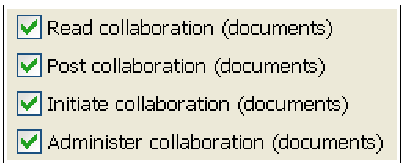

Fig 14. Access permissions to a Document

4.3.b - Workflow permissions

Besides permissions used to define access to the Document or Issue, there is a new permission defining how users can act on a workflow, the "perform actions" permission.

This permission can not be defined at the owner level; it must be specified at the workflow or object type level. It is required to change the state of a Document or Issue and determines who is "Responsible" for the document or issue.

4.3.c - Permissions priority

A user must have the Read Collaboration permission at the owner level to work with its collaboration items.

Besides setting permissions on owners, in PSNext 3.0 permissions can be fine tuned at different levels (types, workflows and workflow states). It is important to understand how PSNext determines the ACL to apply to a given Document or Issue among the multiple ACLs it might inherit from.

A Document or Issue could get a permission definition from any of the following levels:

- Its Owner (Project, Work package, Organization)
- Its Type
- The Work flow it is in
- Its current State

To figure out the permissions to give to a user on a given Document or Issue, PSNext will look level by level for a permission definition (ACL). See the next figure.

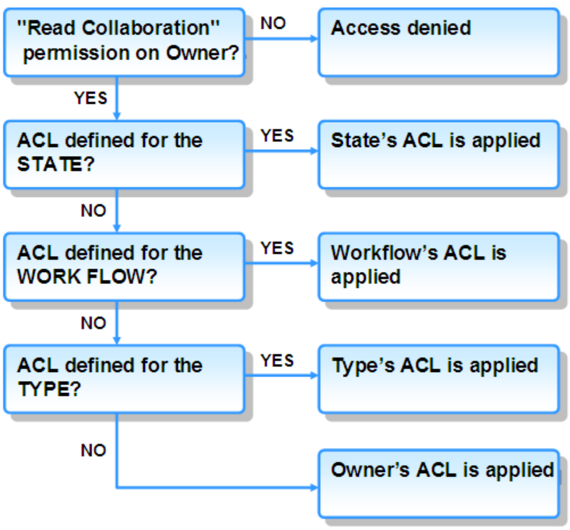

Fig 15. Determining the ACL to be applied

4.3.d - Permissions Summary

- The "Administer" permission at the owner level grants administer permission at all levels.
- Permission at the Type, Workflow or State prevails if owner permission is set to Read, Post, or Initiate.
- The "initiate collaboration" permission is required on the initial state of a type's work flow to be able to create items of this type.
- To work with collaboration items, users should at least get the "Read collaboration" permission on the owner. Read access to a given Document or Issue can be fine tuned at the type, work flow or state level. Objects cannot be completely hidden, however.
- Users with "Global Data Access" permissions will be considered to have "Administer collaboration" permissions at the owner level, although they are not considered to have the "Perform Actions" permission. (This must be explicitly granted.)

4.4 - Issues

When working with 3.0 workflows, Issues will undergo two main adjustments compared to those not using workflows:

1. The "Responsible person" field becomes read-only. Its content is dynamically updated with the list of users with the "perform actions" permission at the current state (see permissions.)
2. The "Status" field becomes read-only. Its value is controlled by the current state (whether or not it's a "final state") and the issue due date.

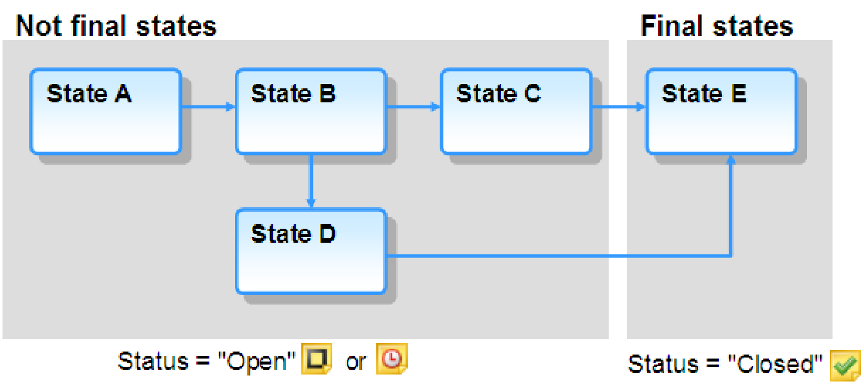

Fig. 16 Issues possible Status

4.5 - Organizing Documents & Issues

4.5.a - Folders

Documents and Issues are arranged in different tabs of the Collaboration Component.

The "Projects" and "Organizations" tabs existed in previous versions allowing users to see documents and issues linked to Projects or Organizations.

Fig 17. Tabs of the Collaboration component

Within these two tabs, documents and issues are contained in their own folders that are dynamically created when a new item is linked to a project, task or organization. (Issues have always been in their own folder, but starting in 3.0, Documents will be in their own folders as well.)

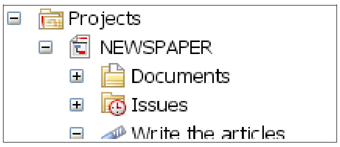

Fig 18. Documents and Issues are contained within a folder

4.5.b -Spreadsheets

The “Documents” and the “Issues” tabs are new in PSNext 3.0 and display documents and issues in a customizable manner. In these tabs items are displayed within a spreadsheet. Working with these spreadsheets is as easy as working with any PSNext spreadsheet. Their content is driven by a preference that can be activated from a combo box listing the available corporate and user preferences.

The "Documents" tab displays documents for Projects and Organizations in a spreadsheet.

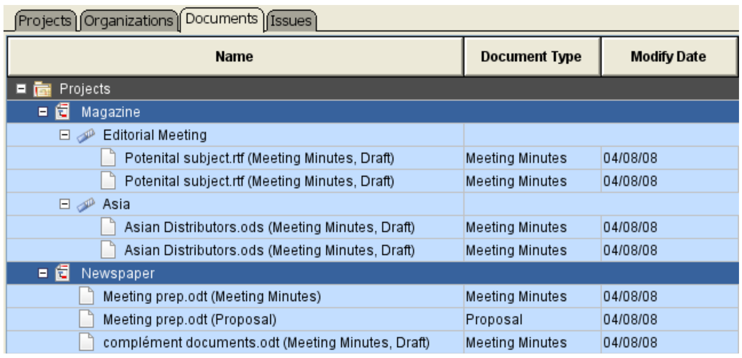

Fig 19 The "Documents" tab displays documents for Projects and Organizations in a spreadsheet.

The "Documents" tab has a set of preferences describing its content.

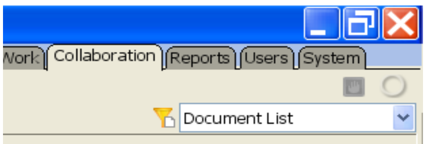

Fig 20. The "Documents" tab has a set of preferences describing its content.

The "Issues" tab has a set of preferences describing its content.

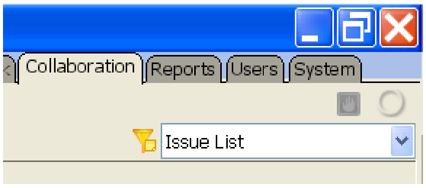

Fig 21. The "Issues" tab has a set of preferences describing its content.

You can then display additional fields (built-in or user defined) into the spreadsheet and easily edit their values. Preferences are managed through Tools/Options... or by double clicking any spreadsheet's column header.

Fields can only be edited within a spreadsheet by users with the “Post Collaboration” permission. Changes on a field's value are automatically saved into the database.

4.5.c - Filtering the spreadsheet's content

The displayed items in the spreadsheet can be filtered by setting a filtering criteria in the Preference of the spreadsheet.

Fig 22. Setting a filter to the Document's spreadsheet

Note that next to the combo box displaying the available spreadsheet preferences there is a shortcut leading to the filtering options. The icon will visually let you know when a filter is active for the current spreadsheet preference.

4.5.d - Sorting the spreadsheet's content

The content of the spreadsheet can be sorted a number of ways, based on the options specified in its preference definition. Users can pick as many fields as needed to custom the sorting order and priority among multiple fields.

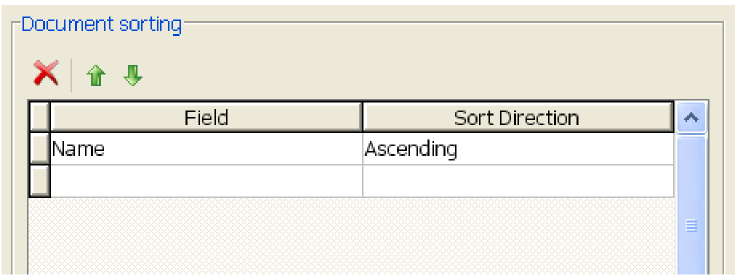

Fig 23. Setting sorting criteria for the spreadsheet.

To allow issues to be sorted against each other regardless of their owner, users can hide the Document or Issue owners by turning off the “Maintain outline order” option. This gives a “flat” sort of all documents or issues the user has access to, ideal for finding specific kinds of documents or issues that may be associated with any number of owner objects.

4.6 - Searching

Search capabilities for documents and issues have been enhanced to provide advanced searching features.

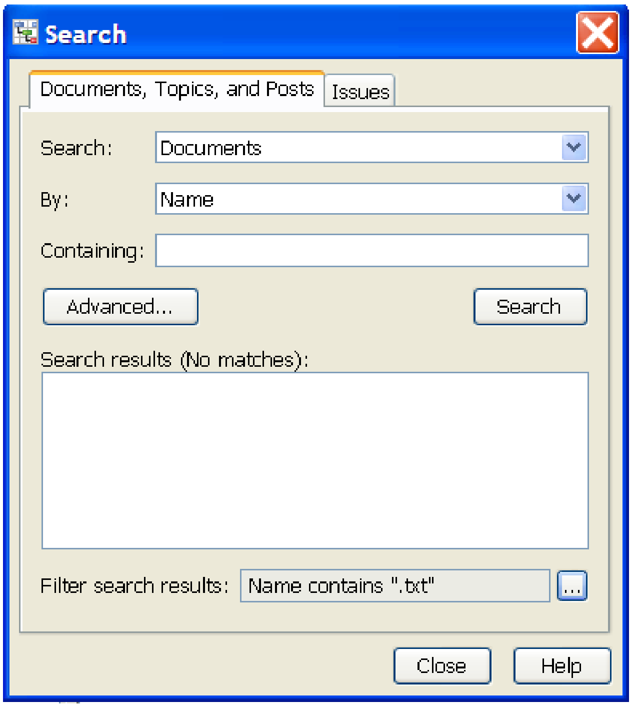

Fig 24 . Advanced searching can use Exposed fields

Advanced searching allows users to build their own search queries based on any exposed field of the document or issue categories.

Within the search dialog box there is an additional filter provided to filter the displayed results. This is useful when you want to limit your search results based on fields which cannot be searched normally or are not exposed.

4.7 - Access from other components

4.7.a - Reference fields

Reference fields allow users to create formulas that access data from related categories. For instance the Collaboration categories [Document] and [Issue] can get access to their related owners such as [Project], [Task] or [Organization]. Conversely, each owner can access its related collaboration items: [Documents] , [Issues] for non outlined owners and [All Documents], [Direct Documents], [All Issues], [Direct Issues] for outlined owners such as Organization and Task.

By using reference fields a project formula could consult the total number of documents that are linked to it: *SizeOfList([Document].Name)*

4.7.b - Grid controls

Grid controls are a new feature of PSNext's forms. This control allows users to display data from any category within a grid. The grid's content is filtered according to the context it is used in.

For instance a Task form could include a Grid control that would list all of the Documents related to the task. Each document will appear as an entry of the grid control within the Form allowing users to consult Document fields such as its workflow status directly from the Planner component. A link button can be shown in the grid, allowing a user to click to immediately switch to the Document in the Collaboration component.

4.7.c - Reports

Documents and Issues exist as built-in categories, and there are new loops available to report on them. Documents and Issues loops might be embedded within loops of a Collaboration owner object (Project, Task, Organization) to filter the displayed content according to the current owner.

4.8 - Administer Collaboration

4.8.a - Forcibly change the current workflow state

Users with an effective "Initiate Collaboration" permission on the Document or Issue have the power to forcibly change the current workflow state of a collaboration item. The "Workflow state" field displays the list of all the existing states of the workflow the item is associated with. Administrators are encouraged to restrict access to this permission, since it allows the user to change a collaboration item state directly, bypassing any rules specified in the workflow.

When a state is forcibly changed, there is no underlying action that is triggered, so rule or email alerts are not honored when a state change is forced. However, the state change is noted in the "Workflow History" of the object as a "forced state change".

4.8.b - Change the current Type

A collaboration item can be changed into another type by using the "Type" field listing all the available types. By changing an item's type, the permissions, forms and workflow settings will be updated to those set by the new type.

PSNext will try to migrate items within a current workflow state into the new workflow. If the new workflow contains a state with the same name of the current sate, then the item will be directly migrated into that state. Otherwise items will be considered to be in the initial state of the new workflow.

Only users with an effective "Administer Collaboration" permission on the Document or Issue are able to change the type of a Document or Issue.

4.8.c - Workflow updates

Deleting a state

When deleting a state we must define how will items in that state should react. When a state is to be deleted PSNext finds out if there is any item on that state. If items are found then the administrator must map the deleted state to an existing state so that the found items are moved to that state.

Type updates

A type's properties (form, permissions, and workflow) might evolve in time. Changes will be applied to all elements referring to that type. While form and permissions updates are easy to understand, when the workflow of a type is changed a migration process will take place. PSNext will try to map any existing item with a state of the new workflow. If the new workflow contains a state with exactly the same name as the current state, PSNext will migrate items into that new state. Otherwise items migrating to the new workflow will be reset to the workflow's initial state.

D -Summary

The Collaboration component in PSNext 3.0 provides a whole set of new features for users to manage Documents and Issues. The type associated with a Document or Issue is essential since it will define its default form and permissions as well as the workflow that its items should follow.

Collaboration workflows are a powerful way to customize the states a Document or Issue might be in as well as the actions to be performed for a state to change. Permissions and Forms can be fine tuned for each state providing a fully controlled adaptation to the item's current state.

The Reports and Planner components can get access to the related collaboration items providing users with a global overview of all the Documents and Issues related to projects and tasks from a single place.

Finally, PSNext provides administration tools that control workflow definition changes to avoid migration major problems when a workflow is already in use.