

Clinical Structure Naming Tool

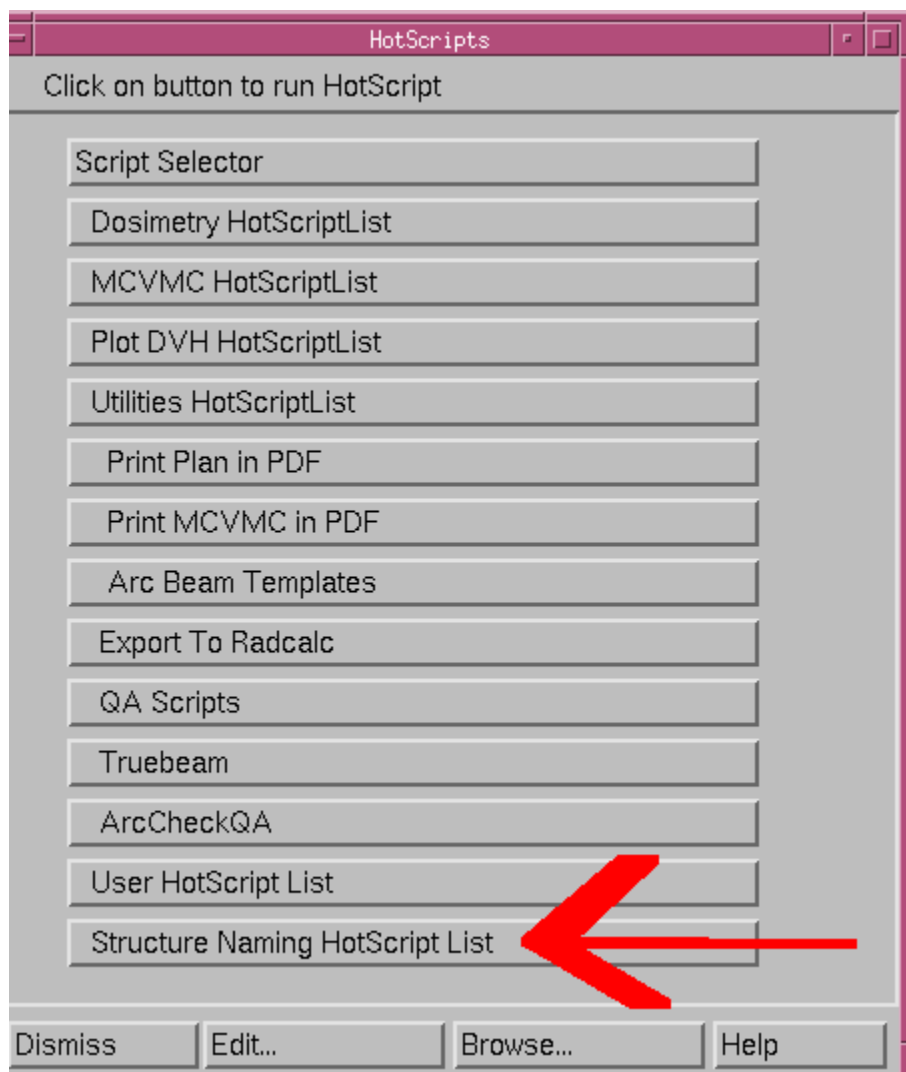
Description

A series of scripts have been written to assist the creation of structures in Pinnacle and conform to the AAPM TG-263 naming conventions. This system should also remove some of manual work required to add multiple structures in the Pinnacle Treatment Planning System.

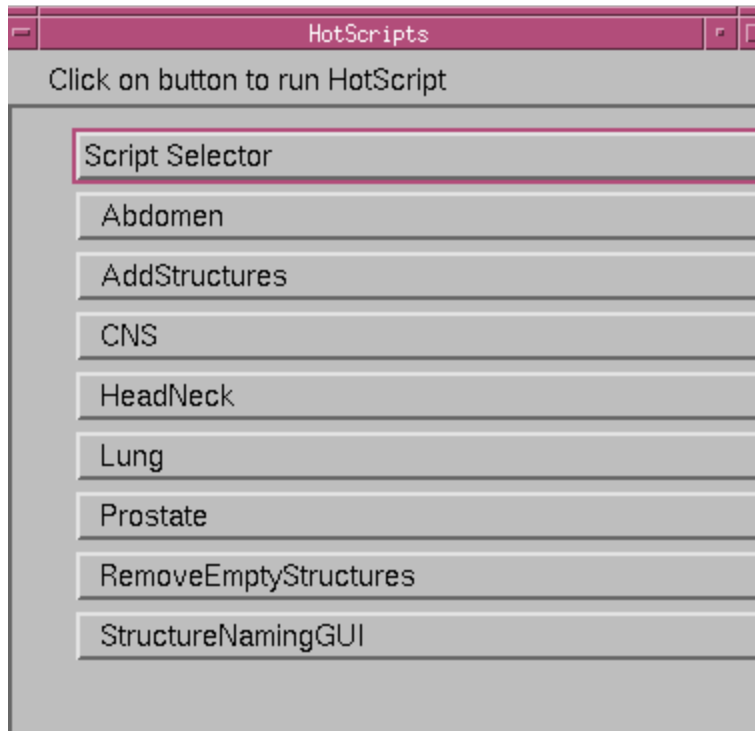
User Guide

Pinnacle Scripts

A number of scripts here created to assist the process of adding structures in Pinnacle. These scripts are accessible through the main



After selecting the **Structure Naming HotScript List** you will get this list:



AddStructures: Loads recently saved list of structures as specified in the Structure Naming GUI tool. This loads the last saved structures from the current session and allows for multiple people to use this system at the same time.

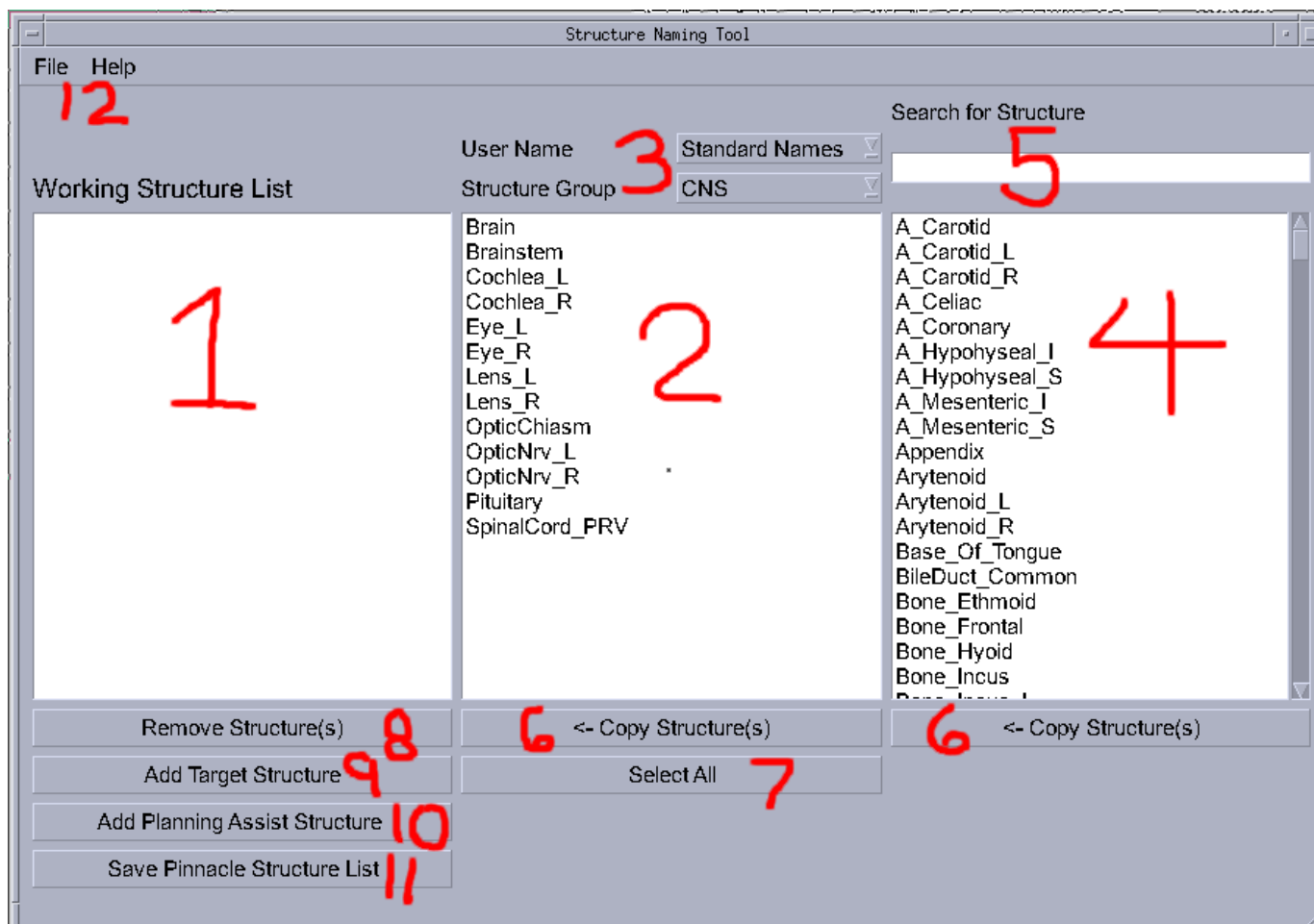
RemoveEmptyStructures: This script will remove from the Pinnacle ROI list all structures that no curves (non-contoured structures). The user can load all of the structures from a specific site, contour only a few and have this script remove all of the extra ones that were not used with one click.

StructureNamingGUI: This script loads the graphical interface for selecting structures names to be loaded in Pinnacle.

Treatment Site Scripts: The remaining scripts will load the default site specific (as specified by the Department) in Pinnacle with no additional user input.

Structure Naming Tool

After clicking on the **StructureNamingGUI** script, you will see this window:



The original screenshot has been marked as described below:

1: Working Structure List

The working structure list shows all of the structures that are intended to be loaded in Pinnacle. This list will be empty when the program is first loaded as no structures have been selected.

2: Structure Group List

To make the process of adding structures quicker, users can select from a predesignated list of structures using the pull-down boxes shown in Item 3 below.

3: Selection of User Name and Structure Groups

The default **User Name** is the one called **Standard Names** which is a group of structures for treatment sites as specified by people in the Department. In addition to the **Standard Names**, specific users can have their own group of structures. For this example only two other users exist in the system: fsleeman, jdoe. If you want your own slot of custom structure groups please contact Ford Sleeman. Below are a few screenshots showing the user and structure group selection:

User Name	Standard Names
Structure Group	Standard Names
Brain	jdoe
Brainstem	fsleeman
Cochlea_L	
Cochlea_R	
Eye_L	
Eye_R	
Lens_L	
Lens_R	
OpticChiasm	
OpticNrv_L	

User Selection

User Name	Structure Group
fsleeman	head
Cerebellum	Jan2016z
Cerebrum	test2
Cochlea	heads
	zzz
	test6
	head
	sss
	123
	group1
	group3

Structure Group Selection for user fsleeman

4: Master AAPM TG-263 Structure List

Not all of the default site specific structure lists will have all of the names that might need to be used. To solve that problem a master list of structures as specified in AAPM TG-263 has been added. These structures can be added to the working list of structures that will be loaded in Pinnacle.

5: Search Tool

The list of structures that might be useful from the AAPM TG-263 list is in the hundreds which can make it difficult to find a specific name in the master list. To make this process easier there is search box above the master structure list. Typing into the search list will automatically filter the master list. The search text is not case sensitive and will filter the master list for any structure that contains the search text anywhere in the structure name. See an example below.

Search for Structure

Ca

A_Carotid
A_Carotid_L
A_Carotid_R
Hippocampus
Hippocampus_L
Hippocampus_R
Nasal_Cavity
Oral_Cavity

<- Copy Structure(s)

6: Copy Structures

Structures must be copied from the **Structure Group List** or the **Master AAPM TG-263 List** to the **Working Structure List** before they can be loaded in Pinnacle. This can be done by manually selecting on structures of interested in either the Structure Group List or the **Master AAPM TG-263 List**. You can either CTRL-click to select multiple items one by one or Shift-click to selecting a group of contiguous items, the same way you would in popular program like Excel. Once items are selected, you can press the **<- Copy Structure(s)** buttons to copy to **Working Structure List** on the left of the window. If the structure name is already in the **Working Structure List**, the selected item will be ignored to prevent duplicates.

7: Select All

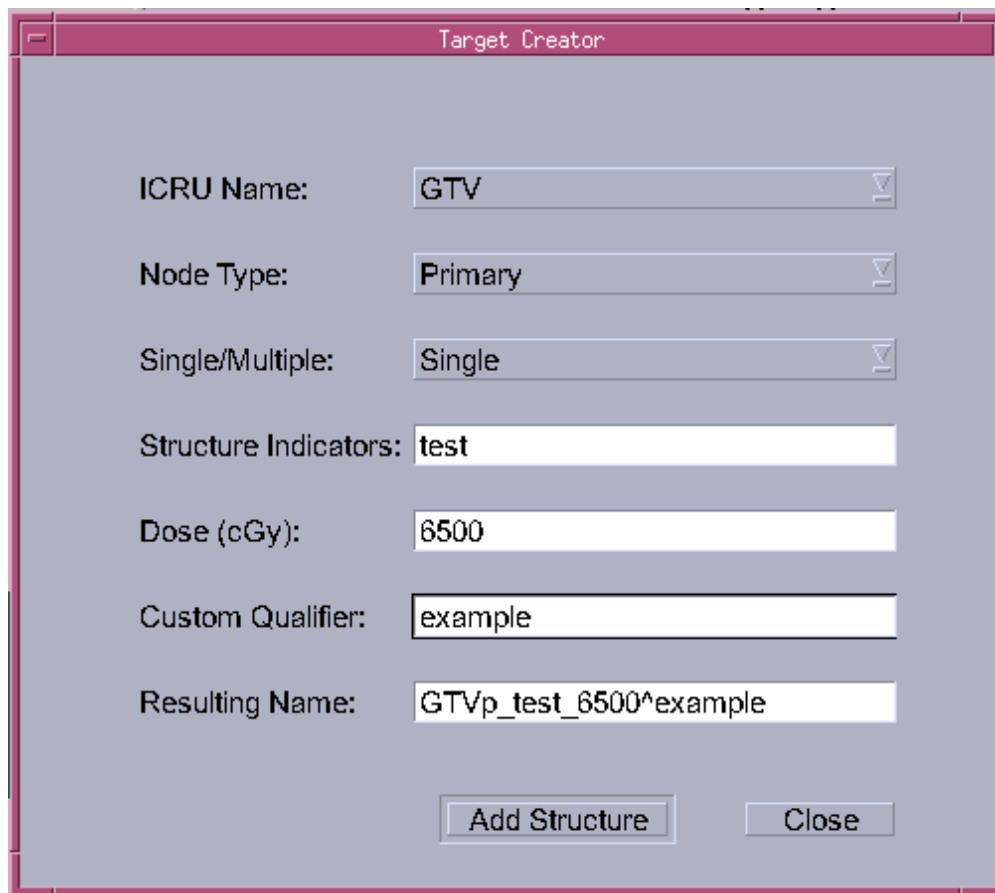
This selects all structures in the **Structure Group** list so they can be copied to the **Working Structure List**.

8: Remove Structures

If there are structure names you no longer want in the **Working Structure List** they can be removed using the **Remove Structure(s)** button. Multiple items can be selected in the same manner as in the **Master AAPM TG-263 List** and **Working Structure List**. Removing these items has no impact on the **Master AAPM TG-263 List** and **Working Structure Lists**.

9: Add Target Structure

Target structures are not listed in the **Master AAPM TG-263 List** and **Group Structure List** but can be manually added. Clicking on the **Add Target Structure** button will open this window:



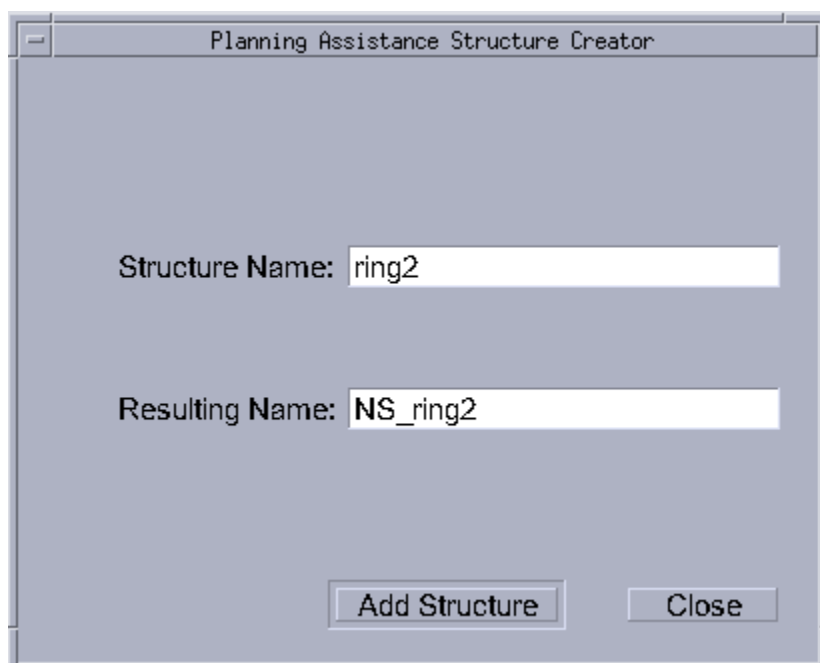
The Target Creator dialog box is a window with a title bar that says "Target Creator". It contains several input fields and two buttons at the bottom. The fields are: "ICRU Name:" with a dropdown menu showing "GTV"; "Node Type:" with a dropdown menu showing "Primary"; "Single/Multiple:" with a dropdown menu showing "Single"; "Structure Indicators:" with a text field containing "test"; "Dose (cGy):" with a text field containing "6500"; "Custom Qualifier:" with a text field containing "example"; and "Resulting Name:" with a text field containing "GTVp_test_6500^example". The buttons are "Add Structure" and "Close".

ICRU Name:	GTV
Node Type:	Primary
Single/Multiple:	Single
Structure Indicators:	test
Dose (cGy):	6500
Custom Qualifier:	example
Resulting Name:	GTVp_test_6500^example

This window contains several pull down boxes and text fields that can be filled or left blank. The **Resulting Name** is dynamically generated based on the values in the fields above according to the target nomenclature of TG-263. Clicking on **Add Structure** will add the resulting name to the Working Structure List. The form will be cleared so it could be filled again if there is another structure to be added.

10: Add Planning Assist Structure

Structures like rings are not in the lists used in the program but the **Add Planning Assist Structure** button will open a new window that allows user specified planning structures.



The Planning Assistance Structure Creator dialog box is a window with a title bar that says "Planning Assistance Structure Creator". It contains two input fields and two buttons at the bottom. The fields are: "Structure Name:" with a text field containing "ring2"; and "Resulting Name:" with a text field containing "NS_ring2". The buttons are "Add Structure" and "Close".

Structure Name:	ring2
Resulting Name:	NS_ring2

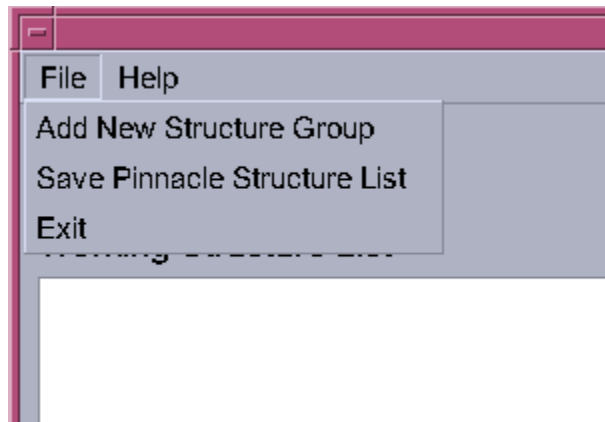
These structure names will be appended with **NS_**. Adding these structures to the **Working Structure List** is the same as with the targets.

11: Save Pinnacle Structure List

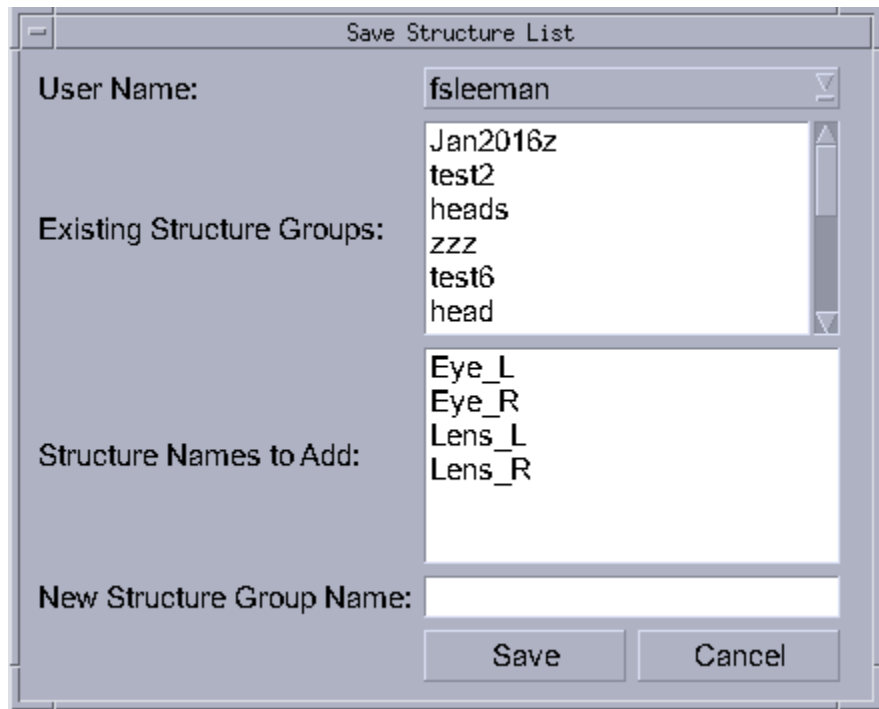
Once you are happy with the list of structures in the **Working Structure List** you can click on the **Save Pinnacle Structure List** button. This will create a session specific, temporary file that can be loaded using the **AddStructures** hotscript. Close the Structure Naming Tool and click on the **AddStructures** script in Pinnacle that the new names should populate the ROI list. The load script will exist structure names if they are presently in open plan's ROI list.

12: Main Menu

The top main menu of program is shown below and the has the following items:



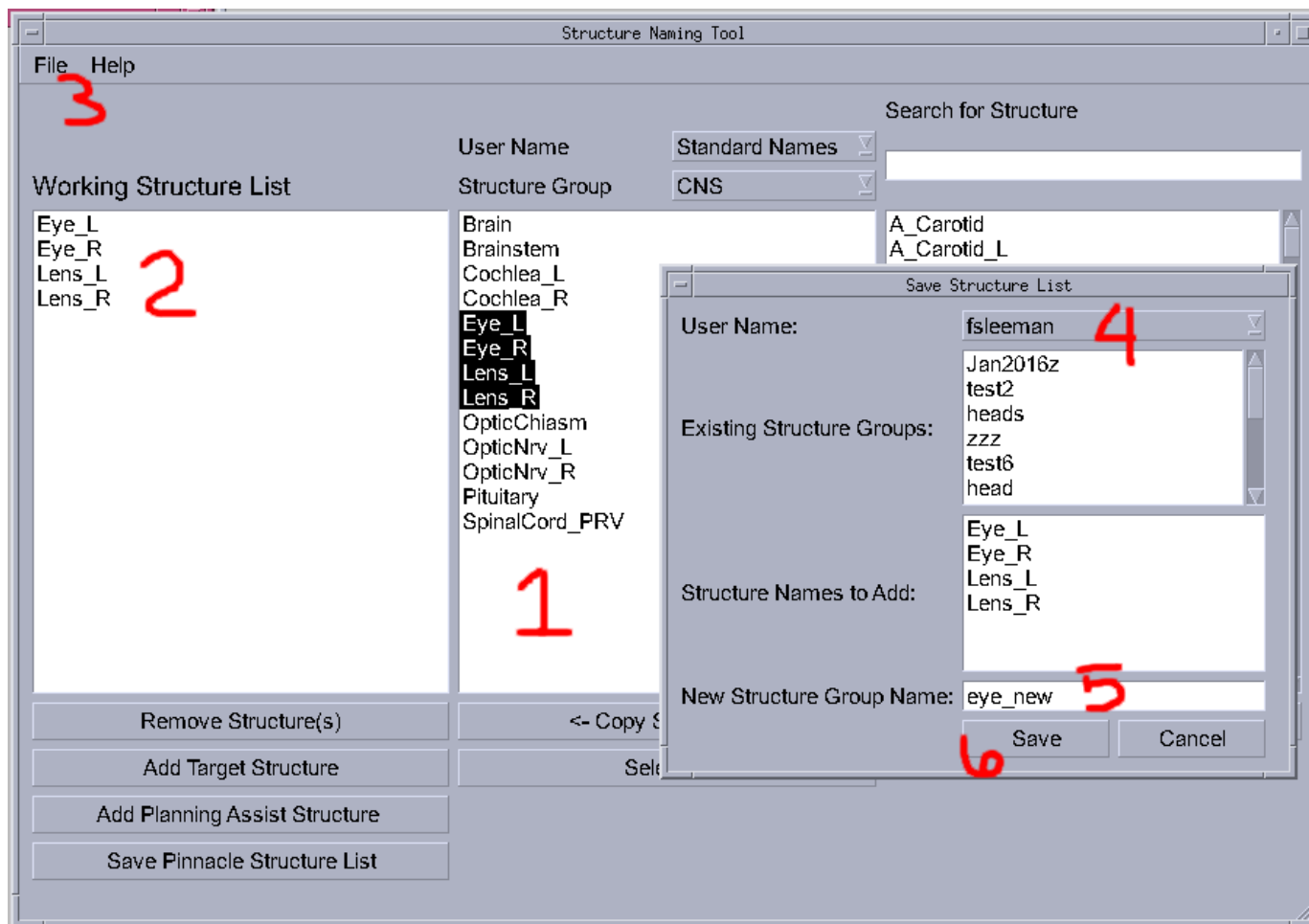
Add New Structure Group: Each user listed in the **User Name** list (see Item 3 above in this document) can have multiple, custom structure groupings. Clicking on the **Add New Structure Group** button will open this window which allows new groups to be added:



Save Pinnacle Structure List: Saves the **Working Structure List** to disk, same as item 11 above in this document.

Exit: Closes the program. Do this after saving the Pinnacle structure list you want to load in the planning system.

Adding New Structure Groups



You can add new user specific structure groups by:

1. Select structures you want to add to the group.
2. Copy desired structure names to the **Working Structure List**.
3. Open the **Add New Structure Group** window from the main menu.
4. Select the username, for this example it is fsleeman. After selecting the user you will see the list of existing structure groups for that user. Structure names from the **Working Structure List** will be shown in the **Structure Names to Add**. This list of structures will be used to create the new structure group.
5. Write in the name of the new structure group. The program will not allow a name that already exists.
6. Save the new structure group. This will now be available from the main window **Structure Group** drop down box.

Known Issues

While the Structure Naming Tool will allow the user to add structures with names including special characters, such as - and ^, the Pinnacle Treatment Planning System version 9.8 will refuse to add them. Right now the only work around is to use structure names that do not include those characters although that may exclude some structure names specified in the AAPM TG-263 list. Future versions of Pinnacle may allow the characters.