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A b s t r a c t

The program package **Nuclear_refs_manager** is described. This is the manager of references to publications in nuclear physics. The package may be useful for the maintaining the collection of publications, i.e. articles, abstracts, private communications, etc., which have keywords satisfying to the format of the bibliographic database of Brookhaven National Laboratory. The grouping may be made for journals, years of publication, authors, themes, etc. The search is realised for journals, year of publication, authors, keywords and key numbers, words in abstracts, etc.

The **Nuclear_refs_manager** program package is written in C language and works under operational systems Linux(X Window), and MS Windows.

The work was performed at the Neutron Research Department, Laboratory of nuclear spectroscopy.

Introduction

The site www.nndc.bnl.gov of National Nuclear Data Center of Brookhaven National Laboratory is well known for physicists and engineers as a place where the most comprehensive data about nuclear structure and nuclear properties may be found. There are data about properties of nuclear levels and nuclear reactions in ENSDF and ENDF formats, program codes for the analysis of nuclear data, and the bibliographic database of publications in nuclear physics "Nuclear Science References" (NSR). This base is supported by nuclear data evaluators community and includes references for publications from the very beginning of nuclear physics (1896) up to now. Main feature of this database is an unique method of the systematization of publications by keynumbers. The database responds to requests for search of defined nuclide, reaction, journal, year of publication, and other parameters. Each reference has a short description in keywords concerning to the subject of the investigation. Publications by themselves because of copyright laws cannot be included into the BNL NSR database. This forces physicists and engineers to organize and maintain theirs local libraries with a lot of copies of articles in the paper or electronics devices, or, sometimes, in photographies. Such a copying (or replication of the data manually) for the personal use is not the violation of the law, look at various copymachines at libraries. As a result, an user keeps on the hard drive of his computer (or on another storage device) thousands of files with necessary information.

To maintain the collection of publications any bibliographic program packages may be used [1]. These packages may have well developed interface, support a bunch of file formats, and may be freeware or shareware. Tuning of such an universal librarian program for the physicist needs is the task for the user. Here the program package **Nuclear_refs_manager** [2] is presented. The package was developed for tasks in the field of nuclear physics. The great experience of NSR BNL bibliographic database usage is taken into account. The **Nuclear_refs_manager** package is based on the system of NSR keynumbers (or keynums; term from BNL). Keynums may be put into the correspondence to files with articles, abstracts, URLs and other information. Publications which haven't keynums may be included into user's library also.

The program package is developed under the GNU GPL 2.0 license and may be downloaded from the site http://georg.pnpi.spb.ru/russian/progs/. Package is distributed both in executable codes and source texts. All remarks and proposals will be accepted gratefully.

Installation and the first run of the program

The program package (compiled version is for MS Windows) is distributed as self-extracting archive georg-install-yyyy-mm-dd.exe, where yyyy-mm-dd is the date of the release. The archive may be downloaded from the developer's site http://georg.pnpi.spb.ru. The

downloaded file should be placed into any (by the user's choice) directory and executed. Conventional place for the unpacked package for MS WINDOWS is "Program Files (x86)".

After the unpacking the directory "georg" with some quantity of files appears in the chosen place. The main part of the package has the name NSR.exe. Now the **Nuclear_refs_manager** can be started using the icon at the WINDOWS desktop or by the command

```
NSR
  or
NSR library_file
```

The main window of the program will be opened (Fig. 1). If the **library file** isn't specified in the command it should be created or opened using the **File** menu. Recommended extension for this file is ".keynums". For the structure of the **library file** see **Appendix**.
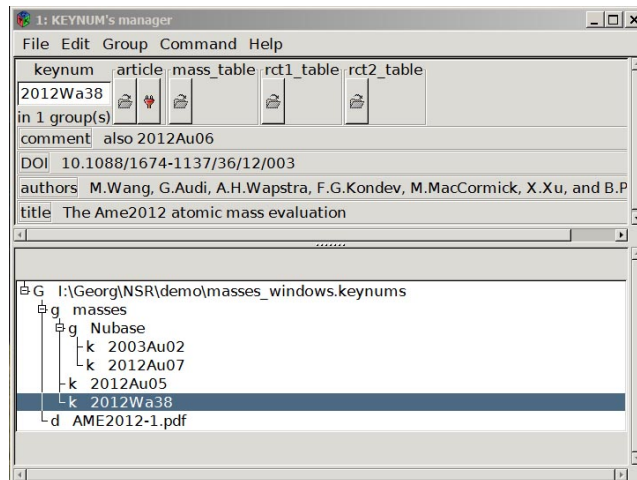

Fig. 1. Main window of the program.

Example of the main window of **Nuclear_refs_manager** is given at Fig.1. It describes a small library which contains 5 publications about atomic masses. **Library file** for this case is given in **Appendix**. Effects of buttons on Fig. 1 are:

📁 calls a plugin for viewing the publication;

🔌 calls an Internet browser for proper URL registered in the **library file**.

Let some quantity of files of publications and other items are situated on the hard disk of the user's computer and this is an user's local collection. It may be placed on any disk(s), in directories and subdirectories in which it may be grouped according to user's needs. Storage units in the user's collection are publications and related to them files of abstracts, lists of authors and other files with necessary information. To use advantages of the system of keynums which is the base of BNL NSR service in **Nuclear_refs_manager**, first 8 symbols of a filename should have the format YYYYAa&&. Here YYYY is the year of the publication, Aa are two symbols of the first author's name, and && are two symbols, numerical for primary publication, or alphabetic, for secondary ones. These symbols are assigned to the keynum when proper reference is registered in the BNL NSR database. Other symbols in the file name may be defined by an user and aren't analyzed by **Nuclear_refs_manager** program. Example: 2004Bl03-PhysRevC.69.015502.pdf.

If the publication hasn't a keynum, the name of its file should be unique but may be quite arbitrary. In the library these items are marked as documents.

For convenience, keynums and documents can be grouped according to an arbitrary user-defined theme. Groups can contain subgroups (hierarchical construction). Keynums and documents can be a parts of several groups. Group names may be not unique. For example, the name "Vol.1" can be used more than once, e. g., for different journals.

Keynums, documents, and groups in the library may have attributes for keeping the information about the publication: e.g. keywords, list of authors, abstract, URL, etc. Number of attributes is not limited. Here the term "attribute" means the combination of the name of the attribute ("key"), and the content of the attribute. Example of names for attributes: article, authors, title, DOI. For the detail description see the menu item **Edit/Edit**. Attributes are saved in the **library file** (see **Appendix**, example of the file).

Library file

For the **Nuclear_refs_manager** program keynums and documents are elements of the **library file** in which proper files of the user's collection are registered. The local library is described as an object which is a set of files placed in the accessible for the user storage area and is determined by proper **library file** (may be one or several).

The **library file** has the plain text format and may be edited using any text editor, if necessary. Conventional way is to use built-in editor, see the menu **Edit**. The **library file** contains the information about the placement of the files of publications, additional information, connected with given publication, such as preferable viewer, the title of the article, list of authors, abstract, DOI, etc. These data may be saved in proper records in the **library file** (as a plain text), or in separate additional files. In this case necessary references to

additional files should be presented in the **library file**. The **library file** may contain URLs of the Internet pages related to publications (main web page of a publisher, web page of a journal, etc.).

The **library file** contains all links to files in the user's collection. Generally these files contain publications and associated files: errata, addenda, corrigenda, addons; (also there may be table files, illustrations, etc.), with full paths to them, as well as information about the user defined structure of the library (thematic groups and subgroups). Therefore, it is suitable for work only with the collection for which this **library file** was created. When an user completes or modifies his collection of publications, the **library file** must be changed accordingly. If it appears necessary to transfer the collection to another placement, the **library file** must be created anew (see **Command/Scan directory**) or adjusted (see **Command/Scan directory**, **File/Rebase** and **File/Preferences/miscellaneous/aliases editor**).

Library files which are opened by the **Nuclear_refs_manager** in different windows may be opened in the read-only mode (all ones or some of them):

```
NSR [[-r|--read-only] file_name_1] [[-r|--read-only] file_name_2] ...
```

After the start the **Nuclear_refs_manager** checks what viewers are presented in the operational system and makes some other necessary tuning; it may take some seconds.

Menu **File**

Items of this menu are intended for operations with **library files**. There are:
New
Open
Close
Save
and some other special items, see below.

The local library described by a **library file** will be shown as a tree, example see at Fig. 1.

There are next designations (flags) for elements of the tree:

g (or **G**, see **File/Subfile declare**) indicates a group which may contain keynums, documents and subgroups;

k - this publication has a keynumber;

d - this publication hasn't a keynumber; it is registered as a document.

File/New

This item creates a new (empty) **library file**. Items **Command/Scan directory**, **Edit/Cut**, **Edit/Copy**, **Edit/Paste, Group/Add group**, **Group/Add keynum**, **Group/Add document**, may be used for completing this file (see below, in menus **Command**, **Edit**, and **Group**).

File/Open

This item opens the **library file**, one or more concecutively. The data from these files will be shown in separate windows. Items **Command/Scan directory**, **Edit/Cut**, **Edit/Copy**, **Edit/Paste**, **Group/Add group**, **Group/Add keynum**, **Group/Add document**, may be used for editing these files (full list of available operations see below, in menus **Command**, **Edit**, and **Group**).
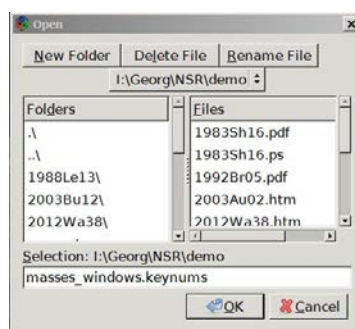
Fig. 2. **File/Open** window

File/Recent files

This item opens the list of recent opened **library files** (up to 10).

File/Addon import

This item opens the submenu **File/Addon import**. Using this item, the data for a publication obtained from BNL NSR database may be registered in the opened **library file**.

File/Addon import/General

This item is used for updating the information about an article by data from the BNL NSR bibliographic base or from other sources. The site http://www.nndc.bnl.gov/nsr provides additional data about the publication, such as journal, year of publication, list of authors, etc., which may be useful for the local library.
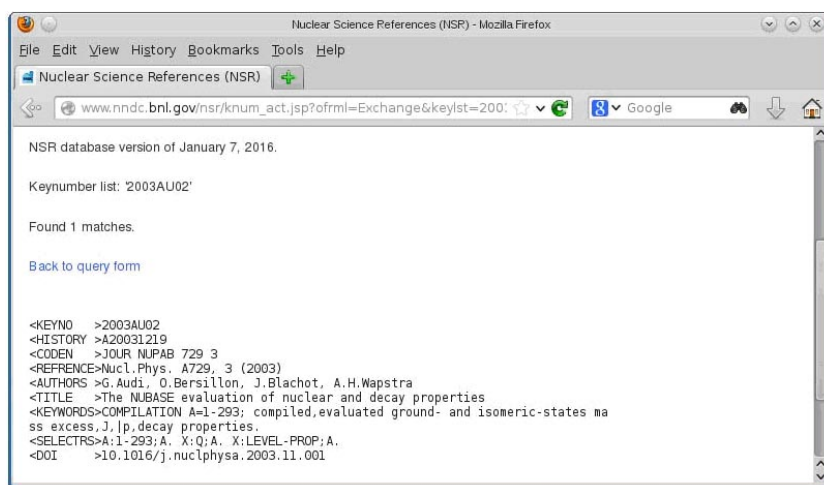

Fig.3. **File/Addon import/General** window; here it is for the Mozilla Firefox browser

The BNL NSR bibliographic base has an user-friendly interface and supports next search queries: "Quick Search", "Text Search", "Indexed Search", "Keynumber Search", "Combine View", "Resent References". The program **Nuclear_refs_manager** uses the Exchange format. Data in this format may be obtained through queries "Text Search", "Indexed Search", "Keynumber Search", see Fig. 3 where the result of search on the request "2003Au02" is presented.

Detail description of the terms and formats for coding the data for BNL NSR bibliographic base may be found in NNDC BNL website [3].

The requested web page should be saved under a user defined name, for this example, it may be 2003Au02.htm ("addon" file). The menu item **File/Addon/import/General** will ask to insert the data from this file to the current **library file**.
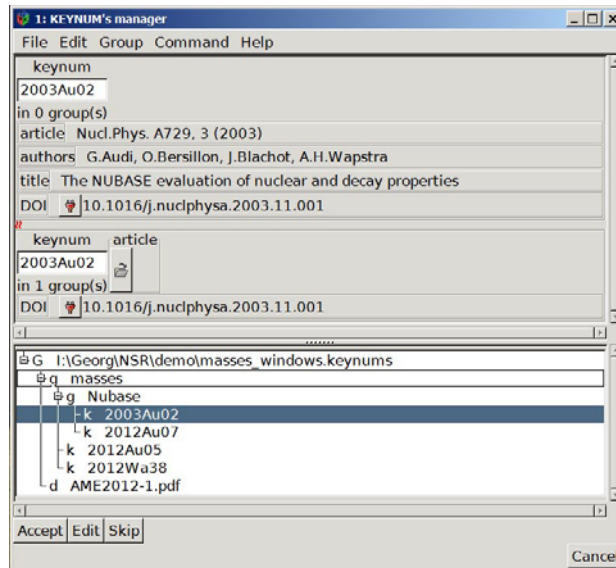
Fig. 4. Window for the filling the **library file** by the information
obtained from the BNL NSR database.

It is shown at the Fig. 4, what the information about the publication is obtained from the NSR BNL database (at upper part of the window) and what the information is registered in the **library file** (lower part of the window). These parts of the window are separated by the indicator sign (see below). In the given example it is proposed to add the value "Nucl.Phys. A729, 3 (2003)" to the "article" attribute and to add attributes "authors", "title" with corresponding values. Actually, some other attributes, which are not shown in windows and in the BNL NSR search results but presented in the Exchange format output, namely, CODEN, HISTORY, KEYWORDS, and SELECTORS will be added to the **library file** too. List of these "hidden" attributes is determined by the variable /Misc/addon_import_hidden_keywords in the **configuration file** (see **Appendix**). New information will be added into the **library file** when the button "Accept" is pressed.

If the html file which was obtained as the result of query to BNL NSR database contains more than one keynum, the consequential processing for each keynum will be done.

Variants are:

a) This keynum is found in the **library file**. By pressing the button "Accept" the user's information will be completed or changed by the information obtained from the "addon" file;

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b) This keynum is absent in the **library file**. If the file of the article is presented in the local library, but is not registered as the keynum in the **library file** (that is, it is decribed as a document), it may be selected by left button of the mouse and then the usage of the "Accept" button leads to the registration of the publication as the keynum with all attributes in the **library file**. If there is no file of article, the template for the given keynum with all attributes from the "addon" file will be created. It may be used when proper text of the article will be obtained. If the group is selected (using the left button of the mouse) the pressing the "Accept" button leads to the registration of the given keynum with attributes in a given group. The button "Edit" calls the menu item **Edit/Edit**. See the menu **Edit** and the item **Edit/Edit**.

The button "Skip" is used for the skip of the current keynum.

The button "Cancel" interrupts the processing the "addon" file.

The window is separated to two fields by symbols named "indicators": □, □, □, and □ , see Fig. 4. Upper field presents an information obtained from the outer source, e.g., BNL NSR; lower field, separated from the upper one by the indicator, contains an information from the **library file**.

‖ means that all information in outer source and in local **library file** (upper and lower parts of the window) is identical (usually, if the given keynum had already got attributes from BNL NSR).

⚡ means that keynums are identical, but attributes are different. In that case the "Accept" button will add absent attributes for given keynum and change the content of other ones to attributes from the outer source.

⬇ means that the button "Accept" will add the given keynum with all attributes to the selected group.

❓ here an user should select the file of publication (document); all attributes will be attached to this article. If a group will be selected, the article will be registered in the selected group as a document.

File/Addon import/Only keynums

This is a simplified variant of the previous item. Information from the outer source will be added to the opened **library file** for all coincident outer/local keynums. If there is no correspondence found between local and outer lists of keynums, this item will be ignored.

File/Addon import/Single keynum

The same as for previous item but for the single selected keynum only.

File/Addon import/Patches

This item is developed for the correction of fields in the local NSR base if a misprint is found. Most often this item is used to correct wrong DOIs but may be used for the correction other fields too. For this purpose a special patch file should be created, see **Appendix**.

File/Save

Saves the current information in the current **library file**.

File/Save as

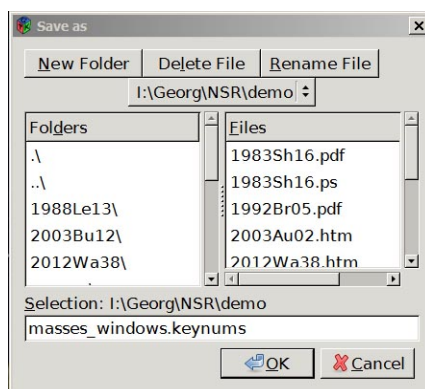Saves the current information in the user defined **library file**.

Fig. 5. **File/Save as** window.

File/Subfile declare

If the user's collection consist of large number of publications (may be thousands and more; the BNL NDS bibliographic database contains more than 200,000 references) it becomes inconvenient to have the huge single **library file** for whole collection. It would be more reasonable to describe the library in several **library files**: for example, one for Physical Review C, another for Nuclear Physics A, the third for European Physical Journal A, for years, nuclides, etc., by user's choice.

The **File/Subfile declare** menu item allows user to keep a defined group of publications in the separate **library file**.

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In the example shown at Fig. 6 the special **library file** is organized for the group "Nubase". Here the **g** (group) flag is changed to **G** (Group). This indicates that information about all the keynums/documents belonging to the given group is saved in the separate **library file**. In this demo the **library file** called "Masses.keynums" is used. So, applying this menu item and saving the **library file** the user has two **library files**, with names "Masses.keynums" and "Masses_Nubase.keynums". When the user opens the file "Masses.keynums" the file "Masses_Nubase.keynums" will be included automatically to the corresponding place by the command "$include" in the main **library file** (here it is "Masses.keynums"), see **Appendix**.
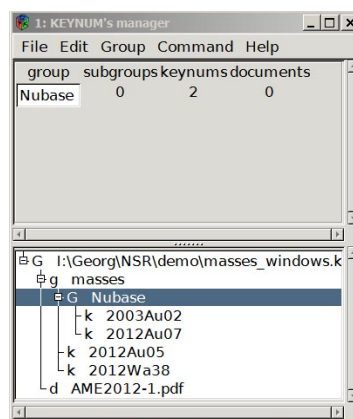
Fig.6. Main window after applying the **File/Subfile declare** menu item.
Flag "**g**" is changed to "**G**".

File/Rebase

Sometimes the path to the files of user's collection may be changed. It may be a result of upgrade of the computer or of user's requirement. These changes should be marked in the **library file**. The item **File/Rebase** makes this task easier, see Fig. 7.
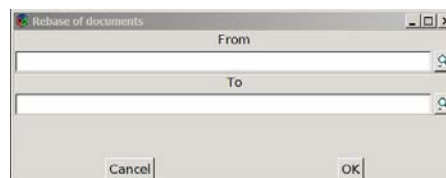

Fig. 7. **File/Rebase** window

File/Preferences

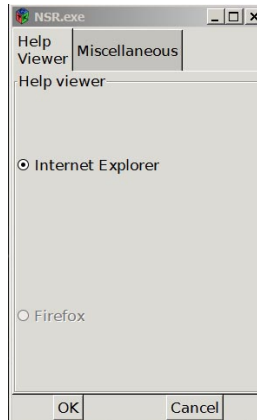Using this item the user can make the fine tuning the program.

Fig. 8. **File/Preferences** window; here the html files wiever
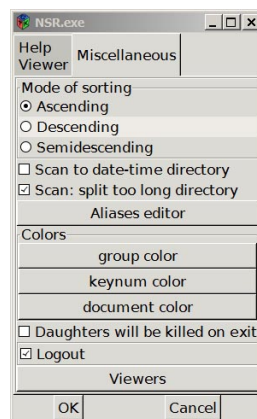(for the **Help/Help** menu item) may be chosen.

Fig. 9. **File/Preferences** window; bookmark "Miscellaneous"

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The mode of sorting keynums/documents in the tree of publication in a window may be changed. Groups are upward in any case; keynums/documents are shown as alphabetic "Ascending" or "Descending", or "Semidescending", that means downward by years (that is first four symbols in the keynum) and upward by the alphabet for each year.

File/Preferences/Miscellaneous/Aliases editor

Alias is the pair which consists of elements coupled by equivalence relation: a logical name and a directory in the operational system fie structure. Editor of aliases allows to determine this relation. In the program **Nuclear_refs_manager** usage of aliases makes easier operations for transfer of the user's collection to other place on the given computer or to other computer. Example: let the logical name "nucl_phys" corresponds to the directory Z:\evaluation\NSR\nuclear_physics\. Logical name is registered in the **library file** in braces: {nucl_phys}. Being started, the program **Nuclear_refs_manager** analyses all the opened **library files** and changes logical names "nucl_phys" to the path to the corresponding directory. The same is made for other aliases. Thus, if the library or part of the library should be transferred to other place, an user may, instead of the correction of each path to each publication, to edit aliases using the menu item **File/Preferences/Miscellaneous/aliases editor** (Fig. 9, 10). Aliases are saved automatically in the **configuration file** (see **Appendix, Structure of the configuration file, Structure of library file**).
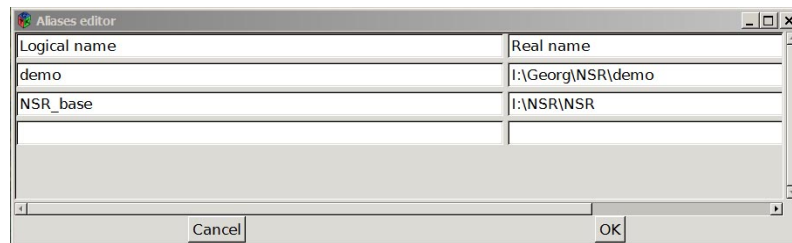
Aliases editor	_ □ x
Logical name	Real name
demo	I:\Georg\NSR\demo
NSR_base	I:\NSR\NSR
Cancel	OK

Fig. 10. **File/Preferences/miscellaneous/Aliases editor** window

The "aliases editor" button (Fig. 9) opens a pop-up panel for entering and editing pairs "logical name", "physical directory" (Fig. 10). Each session an user can add one pair (to an empty string; it appears at the start of the session of the **Aliases editor**). Cleaning the logical name field deletes this pair. By pressing the button □ (Fig. 10) an user can select a directory instead typing it from the keyboard.

Buttons File/Preferences/Colors (group color, keynum color, document color) may be used for choice of the color of names of group, keynums, documents it other menus (Fig. 11).
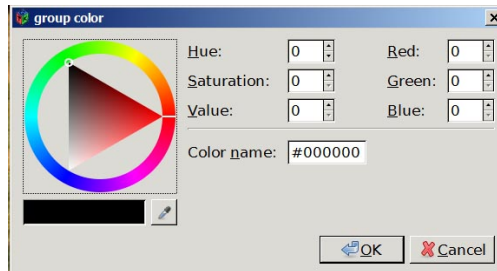
Fig. 11. **File/Preferences/Color (group color)** window

The switch "Daughters will be killed on exit" (Fig. 9) allows/forbids the work of viewers after stop of the main program;

"Logout" (Fig. 9): this button is reserved for further versions.

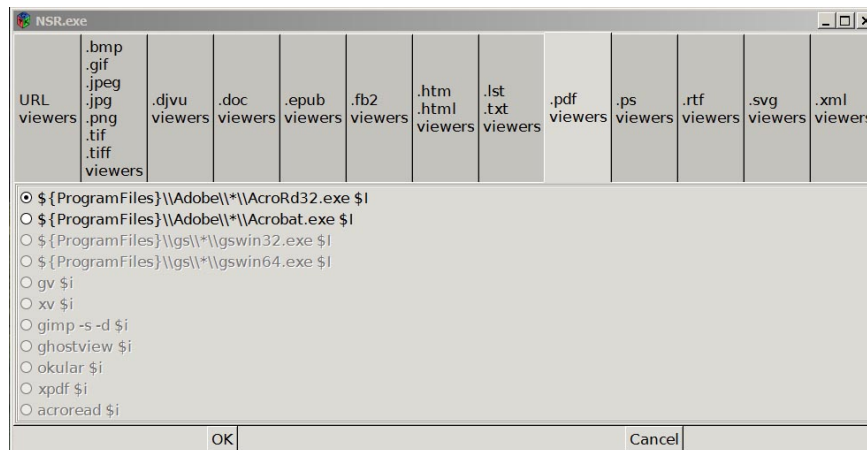"Viewers" (Fig. 9): this button calls the bookmark panel for a choice of viewers for files.

Fig.12. **File/Preferences/Viewers** window, bookmark for *.pdf viewers

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Here (Fig. 12) a preferable viewer for publications may be defined. For example, the pdf format files may be opened by one of 7 different viewers, by choice of the user. If a file has a non-standard extension, suitable viewer may be assigned, see **Edit/Edit** menu item.

For reading the content of the publications **Nuclear_refs_manager** uses external plugins. If a new format or a new viewer appears it may be included into the list of viewers; see the description of variable "viewers" in the [Viewers] section in the **configuration file** (see **Appendix, Structure of the configuration file**).

"Ok" (Fig. 12) closes the **File/Preferences** window and saves changes of preferences.

"Cancel" (Fig. 12) closes the window without saving changes of preferences.

File/Close

Closes the window and corresponding **library file**. If the **library file** was changed, it may be saved. If it was the last window, the program is terminated.
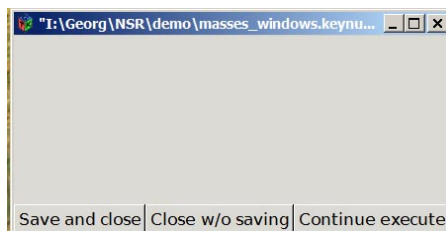

Fig. 13. **File/Close** window

File/Quit

Closes all windows and all corresponding **library files**. If a **library file** was changed, it may be saved. Then the program is terminated. It may take some times.

Menu **Edit**

Edit/Edit
This is the main tool for the editing the data for the selected keynum, document, or group. Here an user can insert or edit all necessary attributes. Number of attributes is not limited. Every attribute consists of the name ("key"), and fields "value", "file", and "URL".
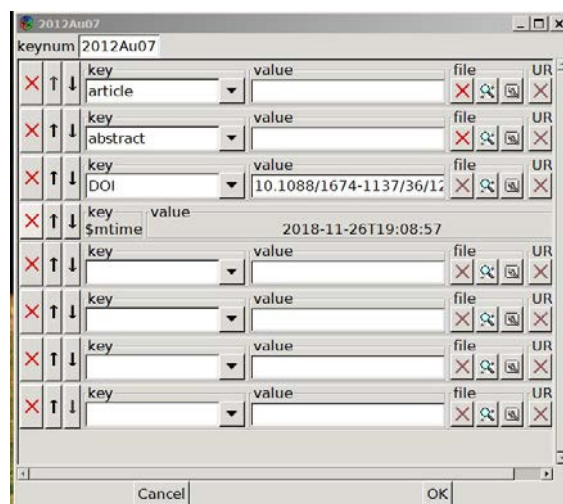
Fig. 14. **Edit/Edit** window

The "key" field allows an user to select one of the most requested types of an attribute ("key" means a name of an attribute) for the description (article, abstract, authors, title, comment, DOI) or enter his own (for example: comment, table, level scheme; also ISBN, PURL, PII, AN, ...). In this example (Fig. 14), "mass table", "rct1 table", "rct2 table" are added to access the files associated with this publication (tables of atomic masses and other quantities).

Field "value" is the text string; length of the string isn't limited. This field allows to add the list of authors, title, DOI, or other text information to the publication attributes. For example, the key=comment at Fig. 14 has value=also 2012Au06. Attribute with the name "authors" contains the list of authors, "title" is for the title of the article and so on. The text may be written in any national language, which is supported by the operational system, example: "authors (Japanese)", "title (Korean)".

The "file" and "URL" fields describe where the publication is disposed. For the "file" field, the full name of the file of publication in user's collection should be given. Viewer for the file of publication by default is determined by the file extension. The "URL" field may contain the Internet information about the publication; e.g., website of journal or publisher, or the full Internet address of the publication, etc. If the button ✕ in these fields has red color, proper information is presented in the **library file**, dark red color indicates the absence of these data.

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Groups of publications can also have attributes, for example, a common comment for all articles, or an URL of the journal website, if the group is assembled for keeping articles from the given journal.

Buttons and theirs functions are:

Left ✖ deletes an attribute,

✖ on right panels removes a correspondence to a file or an URL,

⚒ opens the file selection window,

🔍 opens a window for entering the URL,

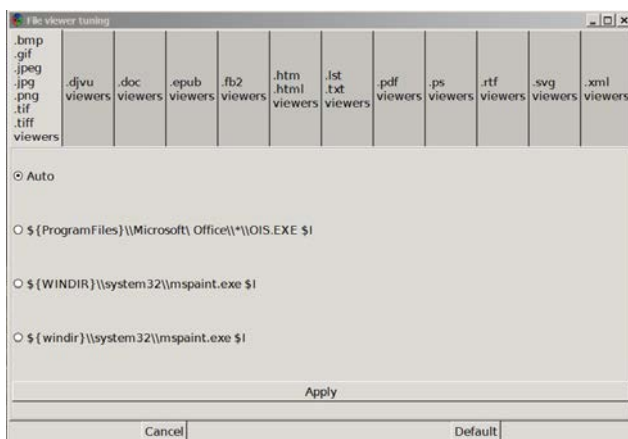🔍 is used for the tuning viewers for a file with a non-standard extension (Fig. 15).

Fig. 15. Example of tuning **Nuclear_refs_manager** for a file with a non-standard extension

If a non-standard extension is used in the file name, the viewer for this file must be specified. For this setting the button 🔍 should be used. In the example (Fig. 14): files mass.mas12, rct1.mas12, rct2.mas12 have a non-standard extension ".mas12", but these files are plain text files in ASCII encoding. Pressing the button 🔍 opens the configuration window Fig. 15, in which for this case user should select the ".txt viewers" bookmark and use the "Apply" button to associate the text viewer with the given file.

The up and down arrows ↑↓ at Fig. 14 move the attributes up/down. This operation changes the order in which the attributes are displayed in the main window (Fig. 1).

Some attributes, such as "$mtime", shown at Fig. 14 on the grey background, are service ones and cannot be edited in the menu **Edit/Edit**. See **Appendix, Structure of library file**.

Edit/Cut

This item does not lead to immediate cutting the keynum, document or group but sets the label of readiness (symbol **M** or **m** between the label **g**, **k** or **d** and name of the element, see Fig. 16) for marked element to be cut. The **Edit/Cut** menu item in combination with the item **Edit/Paste** allows to move a group or a keynum/document to another position in the **library file** or to another **library file**, and, accordingly, in the tree of publications (see Fig. 1). If more than one element is marked, this operation is applied to all marked elements. The symbol **M** in upper case means that the marked group is the head element for the moving and will be moved with all sub-elements (subgroups, keynums, documents) which will be marked by the symbol **m** in lover case automatically.
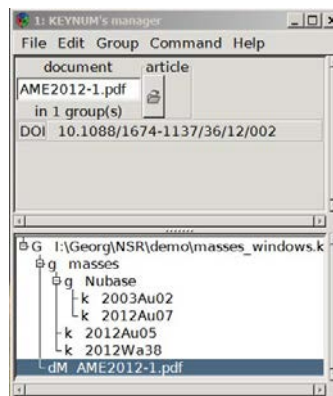
Fig. 16. Here the document (not the file!) AME2012-1.pdf is ready to be moved

Edit/Copy

This item does not lead to immediate copying the keynum, document, or group but sets the mark of readiness (symbol **C or c** between the labels **g**, **k** or **d** and the name of a publication or a group). In combination with the menu item **Edit/Paste**, an user can make a copy of the group or keynum to other position in the **library file** or to another **library file**. If several elements are marked, copying is applied to all marked elements. See upward, the **Edit/Cut** menu item.

Edit/Paste

This item moves and/or copies all the marked elements (to which **Edit/Cut**, **Edit/Copy** was applied, that is, marked by **M**, **m**, **C**, and **c** labels), from all open windows (if several ones are opened) to the selected group.

Menu items **Edit/Uncut/Uncopy in window, Edit/Uncut/Uncopy selected** delete marks **M**, **m, C, c,** for groups/keynums/documents; see below.

Edit/Delete

The selected group or keynum/document will be deleted from the **library file**. If several elements are selected, all these elements will be deleted.

Edit/Uncut/Uncopy in window

The marks of readiness for copying/moving will be removed from all elements (groups/keynums/documents) of the current window.

Edit/Uncut/Uncopy selected

The marks of readiness for copying/moving will be removed from all selected elements (groups/keynums/documents) of the current window.

Edit/Unselect in window

Removes the label of selection (indicated by the color of background) from all selected elements (groups/keynums/documents) in the current window.

Menu **Group**

Group/Add group

A subgroup will be created in the selected group. As the example given at Fig. 1, there are subgroups "Nubase" and "masses" are created in the root group "Masses".

Group/Add keynum

This item allows an user to create a new keynum in the selected group and to fill attributes for this keynum. (See also the menu item **Edit/Edit**). The value entered in the

"keynum" field must match the format adopted for BNL NSR (see above). For convenience, the "autocomplete" mode for the "keynum" field may be used, that is, if the field "key" has the value "article" and a file of the article has in first 8 characters of the name something which looks like a keynum, these characters will be substituted automatically.

Group/Add document

This item allows an user to create and to fill attributes for the new document in the selected group. The name of the document, is quite arbitrary. The document attributes can be edited likewise keynum attributes. See also the menu item **Edit/Edit**.

Group/Rename group

User is prompted to enter a new name for the selected group.

Menu **Command**

Command/Scan directory

This item makes the scan of the specified directory (and all subdirectories) for the search of files that can be identified as keynums or documents. Files with extensions specified by the `scan_dir_exts` variable (see the `[Misc]` section of the **configuration file**) will be found. Default is *.pdf, but it can be specified more, such as .txt, .doc, .rtf, .djv, etc. Files which are found are registered in the selected group. It may be a new group, created by **Group/Add group** menu item, or an existing group. If first 8 characters of the file name are valid as keynum, then these files are registered as keynum, other files are registered as documents. In the **library file** documents will be registered with the same names as the file names in the user's directories. It is assumed that all these files contain publications. If it appears later that files designated as documents have a certain keynums in the BNL NSR bibliographic database, names of these documents in the **library file** may be changed to keynums. See menu item **Command/document→keynum**.

Some articles have supplements which are named in journals as comment, addendum, erratum, etc. For that case, if files are saved with names as

    YYYYLLDD-erratum...pdf
    YYYYLLDD-errata...pdf
    YYYYLLDD-addendum...pdf
    YYYYLLDD-addenda...pdf
    YYYYLLDD-corrigendum...pdf
    YYYYLLDD-publishers_note...pdf

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YYYYLLDD-comment...pdf
YYYYLLDD-comments...pdf
YYYYLLDD-suppliment...pdf
YYYYLLDD-abstract...pdf

where the YYYYLLDD combination is valid as keynum format, then these publications obtain attributes as key=erratum etc., instead key=article. See **Edit/Edit** menu item.

Command/document→keynum

This item changes the name of the selected document to the keynum.

Command/keynum/document search

This item realizes the search of keynums or documents in the **library file** (see Fig. 17). The given example demonstrates a query for search of the document or keynum which has the expression "2012" in a keynum or document name which is registered in the current **library file**. Here the term "key" means a name of an attribute, see the menu item **Edit/Edit**.
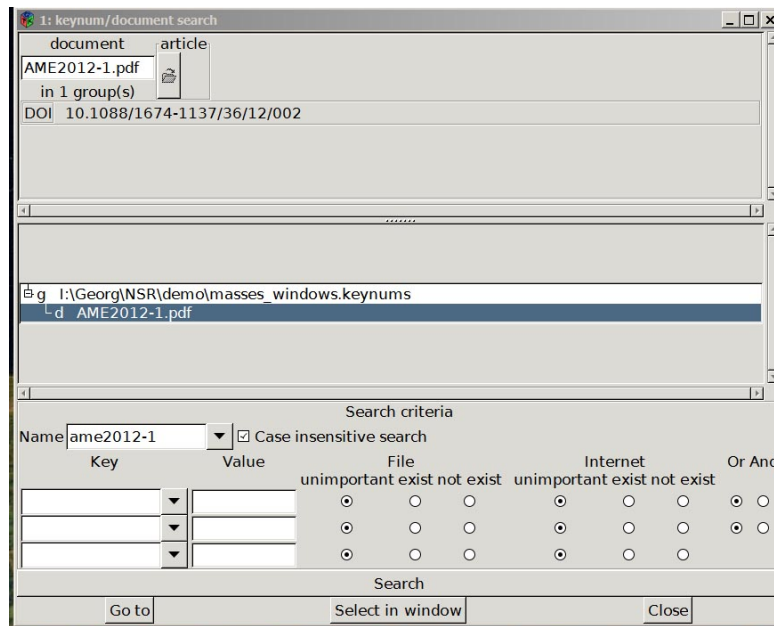
Fig.17. **Command/keynum/document search** window

In the given example all keynums and documents with the combination "ame2012-1" in the name will be found, and it may be checked that the file of a publication exists and is registered in the current **library file** (defined by switch "file" in the position "exist"), and it isn't important that these keynums/documents have an URLs in the **library file** (defined by switch "Internet" in the position "not importance"). It may be combined with the logical switch AND/OR up to 3 search criteria. Regular expressions [4] (see **Appendix**) may be used for search in all text fields.

Next example: let the field "Name" (that is, the keynum or the name of document) is blank and the "File" switch is in the position "not exist", but the attribute ("key") has the name "article". In that case all keynums/documents will be found which do not have a file of publication defined by proper **library file**.

One or more keynums/documents may be selected at the tree of publications presented at the window of search results shown on the Fig.17. If only one publication is selected, the "Go to" and "Select in window" buttons become active. The "Go to" button closes the search window and this article will be selected in the main window. All other selections,

which were made in the main window before, will be cancelled. After that user can view the publication or edit the information for this article in the **library file**.

If several articles are selected, the "Select in window" button becomes active. The button "Select in window" does not close the search window and does not remove the selection marks in the main window. Thus, an user can select results of several searches, then close the search window using the "Close" button. Then the user can apply **Edit/Copy**, **Edit/Cut** for filling the **library file**.

Command/Read only

Here the user can disable for the given window operations which can lead to changes in the **library file**. If the attribute "Read only" was assigned to the **library file** at the start of the program, this status cannot be changed.

Command/Show hidden attribute

There is the button which allows/disables display of hidden attributes, such as HISTORY, CODEN, SELECTRS, KEYWORDS presented in the EXCHANGE format output from NSR BNL database. The list of hidden attributes is defined by the variable `addon_import_hidden_keywords` in the **configuration file**.

Command/Recent viewed

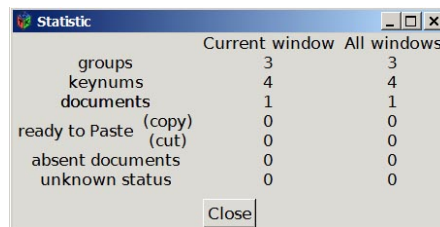This command may be used for viewing up to 10 recently opened articles.

Help menu

Help/About

Fig. 18. **Help/About** window

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Help/Help

Displays the "Help" window.

Help/Statistic

Fig. 19. **Help/Statistic** window

Displays information about the number of groups, keynums and documents in the current window and the amount of ones in all open windows (if only one window is open, then these columns are the same). The line "unknown status" displays the process of analysis of correspondence of physical existence of publications in the user's collection to registered ones (number of not found yet publications). Analysis runs in the background and may take some time. After the end of checking the value "unknown status" should be equal to zero.
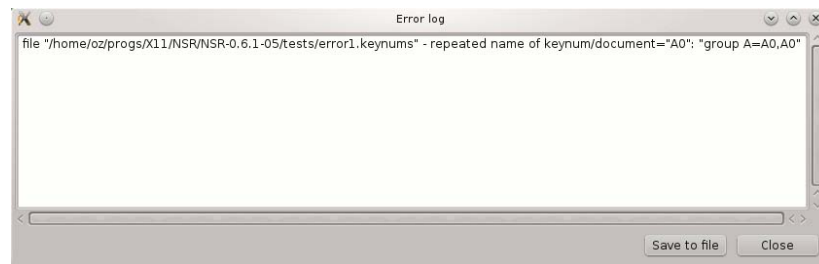
Help/Error log

Fig. 20. **Help/Error log** window

Appendix

Library files, **patch files** and **configuration files** may contain long lines. There is no way to show these long lines at the printed page. The symbol "⬚" is used to indicate such unbroken records, that is, the next line in the file is continuation of the upper line (lines). The symbol "▫" as well as the combination "▫▫" mean single blank.

Structure of the configuration file

The text below is a part of a **configuration file** located in the ~/.gnome directory for Unix/Linux; for MS Windows in the "Z:\Documents and Settings\User\.gnome". The file is created automatically at the first run of the program. It is intended for the keeping options for the program.

The part of the **configuration file** which is given here demonstrates how the program **Nuclear_Refs_Manager** can be configured quite flexibly.

```
[Help]
helper=2
helpers=⬚
   Netscape;DETACH+ANCHOR;netscape\\⬚file://localhost;index.html⬚
  ▫▫Mozilla;DETACH+ANCHOR;mozilla\\⬚file://localhost;index.html⬚
  ▫▫Firefox;DETACH+ANCHOR;firefox\\⬚file://localhost;index.html⬚
  ▫▫Opera;DETACH+ANCHOR;opera\\⬚file://localhost;index.html⬚
  ▫▫Konqueror;DETACH+ANCHOR;konqueror\\⬚file://localhost;index.html⬚
  ▫▫w3m;DETACH+ANCHOR;w3m\\⬚-v\\⬚file://localhos⬚t;index.html⬚
  ▫▫lynx;ANCHOR;lynx\\⬚-restrictions=all\\⬚;index.html⬚
  ▫▫links;ANCHOR;links\\⬚-g\\⬚;index.html⬚
  ▫▫less;;less\\⬚;readme

[Viewers]
viewers==url_viewers⬚.htm=html_viewers⬚.html=html_viewers⬚.doc⬚
=msword_viewers⬚.pdf=pdf_viewers
url_viewer=0
url_viewers=netscape\\⬚$i⬚
 ▫▫mozilla\\⬚$i⬚
 ▫▫firefox\\⬚$i⬚
 ▫▫opera\\⬚$i⬚
 ▫▫konqueror\\⬚$i
html_viewer=0
```

```
html_viewers=netscape\\□$i□
□□mozilla\\□$i□
□□firefox\\□$i□
□□opera\\□$i□
□□konqueror\\□$i
msword_viewer=0
msword_viewers=abiword\\□--nosplash\\□$i□
□□libreoffice\\□--nologo\\□--quickstart\\□--view\\□$i□
□□ooffice\\□$i
pdf_viewer=0
pdf_viewers=gv\\□$i□
□□xv\\□$i□
□□gimp\\□-s\\□-d\\□$i□
□□ghostview\\□$i□
□□okular\\□$i□
□□xpdf\\□$i□
□□acroread\\□$i

[Misc]
daughters_will_be_killed_on_exit=false
sort_mode=0
scan_dir_exts=.pdf□.PDF
scan_to_date_time_dir=false
scan_split_long_dir=true
aliases=rel_base=demo□abs_base=/archive/ensdf/NSR
group_color=#000000000000
keynum_color=#400040004000
document_color=#400040004000
```

Section `[Help]` defines a list of accessible browsers (helpers) for viewing help files and the number of the used browser (helper). The variable "`helpers`" consists of several fields, separated by spaces. Each field describes the browser. The description of the browser consists of 4 subfields, separated by the symbol "`;`". The 1-st subfield contains the name of browser that appears at "Help Viewer" bookmark in the **File/Preferences** menu item (Fig. 8). 2-nd subfield defines flags. It can either be empty, or contain one or two of next words: `DETACH`, `ANCHOR`. If both words are used, they must be separated by the symbol "`+`". The word `ANCHOR` indicates that this browser is able to show files not always from the beginning, but from a certain place (that is browser supports the HTML format in which the <A NAME> tag is defined). The word `DETACH` indicates that the browser does not need a parent window to display information (usually it is the X-terminal window from which the program is running).

In this example the browser Firefox is described (`helper=2`; the numbering starts from 0):

```
Firefox;DETACH+ANCHOR;firefox\\□file:□
```

```
//localhost;index.html
```

Here the Firefox browser has a proper separate display window (`DETACH`) and supports an arbitrary position in HTML files in this window (`ANCHOR`).

The variable "`viewers`" in the `[Viewers]` section describes pairs `extension=viewers`, that is, accessible viewers for the given format of the file with this extension. Each extension should have a group of viewers. Several extensions can use the same group of viewers. For each group of viewers two variables "`xxx_viewers`", "`xxx_viewer`" should be given. The first describes known viewers, the second one indicates a specific viewer which should be used by default. The variable "`xxx_viewer`" may be changed through the menu item **File/Preferences**. To add support for other extensions any text editor may be used. Here "`$i`" means the file name in Unix notation, and "`$I`" is for MS Windows notation.

In the `[Misc]` section additional parameters are described. See **File/Preferences**, Fig. 9-12.

Variables "`group_color`", "`keynum_color`", "`document_color`" indicate colors of the text for corresponding elements in windows. In the given example groups of publications are displayed in black (`# 000000000000`), and others elements are of dark gray (`# 400040004000`). These settings may be changed using the menu item **File/Preferences**.

The variable `Scan_dir_exts` in the given example has the value equal to `.pdf□.PDF`. This means that when processing the menu item **Command/Scan directory** files with corresponding extensions will be searched. User can expand the search area and to add here, for example, `.doc`, `.rtf`, or assign an user extension.

The `aliases` variable in the `[Misc]` section allows the usage of logical file names in the database. Example:

```
aliases=rel_base=demo□abs_base=/home/ensdf/NSR
```

In this case two aliases are described; the first, `rel_base=demo` links the logical name `rel_base` with directory `demo` in the current directory of **Nuclear_refs_manager.** The second expression, `abs_base=/home/ensdf/NSR` links the logical name `abs_base` with the user's directory, here it is `/home/ensdf/NSR`. So, the file name "`${abs_base}/1983Sh16.pdf`" is treated as "`/home/ensdf/NSR/1983Sh16.pdf`". Example for MS WINDOWS: if `abs_base=Z:\evaluation\NSR` then this file name will be treated as "`Z:\evaluation\NSR\1983Sh16.pdf`".

After completing the **Command/Scan directory** operation the lot of files which look as publications appear registered in the **library file**. It would be better if these newly found files are preliminary sorted, at least by the date of the scan. It may be defined by the `scan_to_date_time_dir` variable which enables or disables registration of the files which

were found by the **Command/Scan directory** menu item to a special group of the scanned directory named "Scan YYYY-mm-dd HH: MM: SS" (date and time). This variable can be changed from the **File/Preferences** menu item.

The `scan_split_long_dir` variable allows/disables the files added by the **Command/Scan directory** menu item to a special subgroups named "00000-00049", "00050-00099", "00100-00149", ... if the number of keynums/documents exceeds 50. This variable can be changed from the **File/Preferences** menu item.

Structure of the library file

The structure the **library file** is as follows (the example shown at Fig. 1 is presented; here two separate **library files** "Masses.keynums", "Masses_Nubase.keynums" are opened):

```
#
#□□□Demo file:□Masses.keynums
#
$format_version□0.3.0
$program□NSR
$program_version□0.6.1-03
$include□"${demo}/Masses_Nubase.keynums"
keynum□2012Au05□
□□article:file="${demo}/masses/AMDC/AME_2012/AME2012-1.pdf"□
□□DOI:value="10.1088/1674-1137/36/12/002"
keynum□2012Wa38□
□□article:file="${demo}/masses/AMDC/AME_2012/AME2012-2.pdf",□
url="http://amdc.impcas.ac.cn/evaluation/data2012/ame.html"□
□□comment:value="also 2012Au06"□
□□mass_table:file="${demo}/masses/AMDC/AME_2012/mass.mas12"=□
text_viewers□
□□rct1_table:file="${demo}/masses/AMDC/AME_2012/rct1.mas12"=□
text_viewers□
□□rct2_table:file="${demo}/masses/AMDC/AME_2012/rct2.mas12"=□
text_viewers□
□□□DOI:value="10.1088/1674-1137/36/12/003"□
□authors:value="M.Wang,□G.Audi,□A.H.Wapstra,□F.G.Kondev,□
□M.MacCormick,□X.Xu,□and B.Pfeiffer"□
□□title:value="The□Ame2012□atomic□mass□evaluation"
group□masses=2012Au05,2012Wa38
document□"AME2012-1.pdf"□
□□article:file="${demo}/masses/AMDC/AME_2012/AME2012-1.pdf"□
□□DOI:value="10.1088/1674-1137/36/12/002"
$group□Masses=Nubase,masses,"AME2012-1.pdf"
```

```
#
#□□□□Demo file:□Masses_Nubase.keynums
#
#□subfile□of□"/home/ensdf/progs/X11/NSR/□
NSR-0.6.1-03/demo/Masses.keynums"
$format_version□0.3.0
$program□NSR
$program_version□0.6.1-03
keynum□2003Au02□
□□article:file="${demo}/Nubase/Docs2003/a-nubase03.pdf"□
□□DOI:value="10.1016/j.nuclphysa.2003.11.001",□
url="http://www.sciencedirect.com/science/article/pii/□
S0375947403018074"
keynum□2012Au07□
□□article:file="${demo}/Nubase/Nubase2012/NUBASE2012.pdf"□
□□table:file="${demo}/Nubase/Nubase2012/nubase.mas12"=text_viewers□
□□DOI:value="10.1088/1674-1137/36/12/001"
$group□Nubase=2003Au02,2012Au07□"$mtime":value=□
"2017-10-15T02:28:41"
```

The **library file** consists of lines. The length of lines is not limited.

`#` - it is the line of comments.

First word indicates the type of the line:

`keynum` - means that the article has a keynum assigned by BNL NSR;

`document` - means that the article hasn't an assigned keynum;

`group` - means that the line contains a list of keynums/documents and (sub)groups.

This first word is followed by a space (spaces), keynumber or a name of a document or a group. If this is a keynum, it should satisfy the specific format of keynum [4]. For a document and a group, the name may be almost arbitrary (including spaces, but symbols "\" and "/" are forbidden). If the name contains characters other than the letters of the Latin alphabet, Arabic numerals and the symbol "_", then the name is enclosed in double quotes.

Following are the descriptions of attributes (see Fig. 14, **Edit/Edit** window) separated by spaces. They consist of the name of the attribute (key, in the example: article, DOI, table, comment; in fact it can be almost arbitrary, see **Edit/Edit** menu item, Fig. 14), and further, after the symbol ":", subfields, separated by commas: `value`, `file`, `url`, followed by the symbol "=".

Thus, the description of the attribute has the structure

```
key:[value="..."][,file="..."][,URL="..."]
```

where

`value` - is the text which should be indicated at the screen;

`file` - is the full name of the file in user's collection;

`URL` - is the universal resource locator. It is an address in the Internet which contain additional information about the publication. It may be web site of publisher, web page of the journal, etc.

In the path to the file, a substitution of the form `${name}`, which is performed on the basis of the aliases variable of the `[Misc]` section of the program **configuration file** (see above), may be used.

There are several service words that begin with the "`$`" character. The words "`$format_version`", "`$program`", "`$program_version`" are just information ones, an user can not pay attention to them.

Attributes "`$ctime`", "`$mtime`", "`$atime`" are service ones and can not be edited in the menu **Edit/Edit**.

The line starting with the word "`$group`" is similar to the lines designated by word "`group`". Such a line may be used only once at the end of the **library file** and specify the name of the root group.

The line beginning with the word "`$include`" indicates the **library subfile**. The content of this subfile is inserted at the current location of the main **library file**.

The structure of the **patch file**

The **patch file** may be used for correction in the **library file** those misprints which were found in the BNL NSR database during the work upon the user's library. See the **File/Addon import/Patches** menu item.

The structure of the records of the file is

```
Keynum□YYYYccdd□<search_field>□<replace_field_1>□□
 [<replace_field_2>□...]
```

Here, `<search_field>` is the search field, `<replace_field_n>` is information for the replacement. The logic is as follows: look for keynum YYYYccdd, then look for `<search_field>` (for example, `DOI: value = "..."`). This field will be deleted and the `<replace_field_1>` field will be inserted into this place.

Examples:

```
keynum□1998Hw02□
□DOI:value="10.1088/0954-3899/24/5/009"□
□"erroneous DOI":value="10.1088/0954-3899/24/5/009 - DOI for another article"
keynum□2003Li35□
□DOI:value="10.1140/dpja/i2002-10183-8"□
□DOI:value="10.1140/epja/i2002-10183-8",□
□url="http://dx.doi.org/10.1140/epja/i2002-10183-8"
keynum□2015Vo14□
□article:value="JETP Lett. 105, 203 (2015)"□
□article:value="JETP Lett. 102, 203 (2015)"
```

The first line indicates the keynum with an error in the NSR database, which is indicated by the DOI of another article. In this case, the incorrect DOI value ("10.1088/0954-3899/24/5/009") will be replaced by the text "10.1088/0954-3899/24/5/009 - DOI for another article". The key "DOI" will change to "erroneous DOI".

For the second keynum, the incorrect DOI is corrected (wrong "dpja" is replaced with the correct "epja"), and the correct URL is specified for the article.

For the third keynum, the wrong volume number (105) is replaced by the correct one (102).

There is a special case of <search_field> in the form of a single character "-": in this case, the subsequent <replace_field_1>, ... will be added the end of the keynum/document/group description.

References:

1. https://www.capterra.com/library-automation-software/;
ICE book reader http://www.ice-graphics.com/IndexE.html
2. G.I Shuliak, A.A. Rodionov; Certificate №2016612088 of State registration of program Nuclear_refs_manager.
3. http://www.nndc.bnl.gov/nndcscr/documents/ensdf/nsr.pdf
4. Friedl, Jeffrey E. F. (2002). Mastering Regular Expressions. O'Reilly. ISBN 0-596-00289-0.