INDC International Nuclear Data Committee

CD-ROMs Produced and Distributed by the IAEA Nuclear Data Section: Standard Procedures and Inputs

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Abstract

The contents of this paper are intended to define the recommendations/rules for the organization and placement of data, information and tools on CD-ROMs produced and distributed by the IAEA Nuclear Data Section. Since the information contained on CD-ROMs should be compatible with standard and/or home made software, these recommendations also include details of the organization of the products on the CD-ROM (data, Web pages, software packages, databases, etc.) such as system of programming, installation, user's platforms and environment, etc. This paper also contains notes that summarize authors' experience in these areas.

November 2007

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1. Types of CD-ROMs produced and distributed by NDS

1) CD with data:
- contains results of a Coordinated Research Project (CRP), other types of IAEA project or data produced by an external organization (group or single author);
- may contain some software, e.g. to display data;
- intended for wide public distribution.

2) CD with programs:
- utilities, e.g. ENDF and EXFOR utilities for checking, (re)formatting and processing;
- may contain source code and executables for different platforms;
- intended for distribution among professional users.

3) CD with software package(s) and database:
- usually large integrated systems;
- depending on the designed purpose, can have several differing parts (programs, data files, system components, etc.), which can be used separately and together (e.g. database retrieval system with variety of functions, with graphic interface, search engine, processing codes, plotting, etc.);
- distributed as package for wide public consumption, as well as for professionals.

2. General principles and minimal requirements

Contents: first look at the CD-ROM should give the user a very clear indication of what is on the CD-ROM, and what to do to access the contents in a simple manner (does not require any platform-dependent or complex applications).

Platforms: product on CD-ROM should work on Windows (obligatory in most cases), on Linux (if possible), and be platform-independent (desirable). Compatibility with earlier versions of Windows (98, 95, etc.) is not generally required.

Documentation needed to use the CD should be placed on the CD:
- Instructions for start up (set-up and installation) should be extremely easy to find.
- Programs should have built-in help (prompt functions) that allow the user to avoid reading long documents.
- Description of the product version on the CD, new features, changes, and historic developments are also desirable.

Installation (listed from the most desirable recommendations):
- Ideally, the system placed on the CD should work from the CD without any need for additional installation and/or copying; if some files need to be written during the course of the work, they should be placed in the working directory of the user.
- If possible, installation should be avoided - replace by a simple copy, or unzip on a Hard Drive.

If installation is unavoidable:
- Installation should be as simple as possible.
- "Uninstall" function should be implemented.
- Installation should not require any high privileges from the user on the computer system - for example, avoid writing to the Windows registry.

Top level of CD-ROM (upper directory) should have:
- file labeled "**readme.txt**" in simple text format (ASCII-7);

- minimum of files and subdirectories – if keeping a number of files in this directory is unavoidable, the read-me file should have the name "AAAREADME.TXT" (so as to be located at the top of the contents list);
- self explanatory names of all files and directories.
- "**readme.txt**" file should contain:

1. information about the originating organization (IAEA-NDS),
2. short list of the product(s),
3. brief descriptions of the CD contents (very basic),
4. how to start if simple, or link to "**setup.txt**" if complex, describing technical requirements, initiation on different platforms, installation, etc.,
5. internet links to main NDS Web site and other sites if appropriate,
6. disclaimer and copyright (if applicable),
7. fit all of the above information on a single page.

If the CD-ROM contains a software package, "**runme.bat**" and "**setup.exe**" or "**install.bat**" (".sh" for Linux) files should be included.

Auto-run procedure has been used in the past, but has been rejected because:
- not common - works in Windows only.
- can be switched off by instruction in the OS parameters or by user's preferences.
- can annoy users - whenever you eject the CD, the program is initiated.

3. Requirements, rules and recommendations for every type of CD

3.1. CD-ROMs with data

If the data result from a CRP, or another type of IAEA project that had formulated Web pages when on-going, CD-ROM can contain these pages, but not as the main (starting) page. The main starting page (recommended in "readme.txt" file) must present access to the final results (data) and method (when appropriate). If the main page of the project is placed on the CD, the starting page of the CD should have link to this page. If the data and/or documentation are to be displayed by public software, the CD-ROM should possess a link to the product on the Web (e.g. Adobe-Acrobat Reader).

If the data can be displayed by particular software (e.g. interactive plotting program), the CD-ROM should have executable(s) for the most popular platforms, with instructions for installation if required and a link to the last version on the Web. Any product placed on the CD-ROM should allow display by means of public software without the installation of any specific programs. For example, Web pages should not only contain links to ZVView, but GIF pictures with links to ZVView. Also, the Web pages have to be designed in such a way as to allow the running of an external viewer if pages are located on both the CD and Web server (this requirement should be taken into account on the planning stage of development).

When Web browsers can not work effectively (e.g. with large arrays in JavaScript codes), a specific browser is required on the CD. Such cases have to be prepared and tested by the page/program developer.

3.2. CD-ROMs with programs

CD-ROMs with programs are usually distributed among professionals (data centre staff), but not to the wider public. The amounts of such CDs are limited and the same software is almost always available on the NDS Web site.

Utility programs are usually distributed as source codes and ready-to-run executables for one or several platforms. The recommendation is to supply a source code (see Section 3.4) with

"make" file(s) and/or scripts (bat and shell) that allow the user to (re)compile the program for in a new environment. Allocations of source codes and executables are determined by the author.

3.3. CD-ROMs with software packages and database

All general rules for "installation" are valid for interactive programs working with a Graphical User's Interface (GUI). Systems of programming (like Access/Basic, Delphi) have a built-in installation subsystem where various components should be written into "sensitive" places of the operating system (e.g. ".dll" files into windows/system32 directory). This approach should be avoided (where it is possible) because such a procedure can easily conflict with the other software installed on the user's PC (especially in the future). For example, the installation system of Access-97 Runtime had various conflicts: initially with Spanish MS-Access installed on the user's PC, then with Windows 2000 components and subsequently with MS-Access-2000.

Java is the recommended language for GUI applications. The compiled application should be placed on the CD together with Java Run-time Environment (JRE) and scripts for start up ("batch" for Windows and "shell" for Linux), allowing the user to avoid the installation of Java and preserving compatibility with future versions of Java. For example, the CD-ROM "EXFOR-CINDA for Windows" contains two files:
- "**runme.bat**" to run an interactive retrieval system from the CD (all preconfigured by default)
- "**setup.bat**" to make an optional installation on a hard drive, uses local Java, creates Icon on user's desktop, etc.

The documentation should contain an instruction on how to reconfigure (replace) components in case of any incompatibility with the user's operating system.

Recommended Databases:
Currently, database retrieval systems distributed on CD-ROMs use two database management systems: MS-Access and MySQL (JDataStore/Borland had previously been adopted, but has now been set aside):
- MS-Access databases working through Java applications do not need any installation (drivers or other components) – supported automatically by Microsoft (e.g. user's PC does not need MS-Access to be installed).
  - Limitation: works on Windows only.
  - Problem: the supporting system is not documented, and not backward compatible (e.g., does not work on Windows-98).
- MySQL database is available for Java application when MySQL server is operational and the driver is available and properly configured.
  - All problems were solved under Linux and Windows.
  - Works under low versions of Windows (-ME, -98).
  - Possible problem: user has to give permission to run server on the PC - might prove to be restricted in the future.

3.4. Organizational matters

- The product on the CD (or any part of the product: data, codes, documents) should be used with proper acknowledgment to the IAEA-NDS; a clear statement requesting this acknowledgment (or citation) should be given in appropriate places with suitable emphasis (e.g. in the file "readme.txt" in capital letters).
- The product on the CD often contains software/Web pages with code – require a general declaration to regulate software development, maintenance and distribution (major requirement would be to contact the author(s) in order to update the product).
- Interactions and communications during the planning stage of product development are essential in order to achieve a high-quality product.

- Prior to incorporation into the published document, an initial version of the proposed CD-ROM should be internally tested within NDS (as done for Web pages), especially if the platform requirements are accepted (see Section 2).
- If the CD-ROM contains source codes that can be used inside other products, further use and distribution should be regulated by a license agreement. A license agreement for the source code is usually defined by the author (author's organization).
One of the "standard" license definitions should be appropriate:
http://www.opensource.org/licenses/;
MIT-license is recommended:
http://www.opensource.org/licenses/mit-license.php

4. Recommendations for CD-ROM cover page

A hardcopy information cover should be prepared. This cover should normally consist of two pages, and contain:

1. name of the product on the actual CD,
2. name and address of the IAEA,
3. date, version, number of issue (CD#),
4. platform on which the product was tested,
5. important features,
6. how to set-up and run the main product(s),
7. link to IAEA-NDS Web site and, if applicable, to the product on the Web (containing the latest information: version, news, updates),
8. legal statement, if appropriate (copyright, acknowledgment, etc.).

Covers for different products should be easily distinguishable (e.g. different background colour).

It is desirable, that regularly issued CD-ROMs (like EXFOR-CINDA) would be approved by the IAEA Publications Committee, and would replace any reference to "Working materials…" with a dedicated text. If the CD-ROM accompanies published materials (e.g. IAEA Technical Reports Series, or TECDOC), somewhere at the beginning of the book a statement should be clearly made that instructs the reader on how to deal with the CD.

For example, the bottom of the first inside page could contain the frame with text:

Note for the use of the accompanying CD-ROM

A CD-ROM is supplied inside the back cover of this book that contains the IRDF-2002 data in ENDFB-6 format, documentation, plots comparing with other evaluated libraries and experimental data.

Please read the "readme.txt" file in the root directory of the CD-ROM for detailed instructions on data access.

Example of CD-ROM covering pages:

International Atomic Energy Agency
Wagramer Strasse 5, P.O.Box 100, A-1400 Vienna, Austria
Tel:(+43 1) 2600-21714; Fax:(+43 1) 26007

EXFOR-CINDA
Database and Retrieval System
- for Windows -

Using CD-ROM:
I. Run from CD-ROM:
        - execute "runme.bat"
II. Setup on a Hard Drive:
        - execute "setup.bat"

See for information:
How to setup: setup.txt
CD-ROM contents: x4c-cd/contents.html
IAEA Nuclear Data Services: http://www-nds.iaea.org/
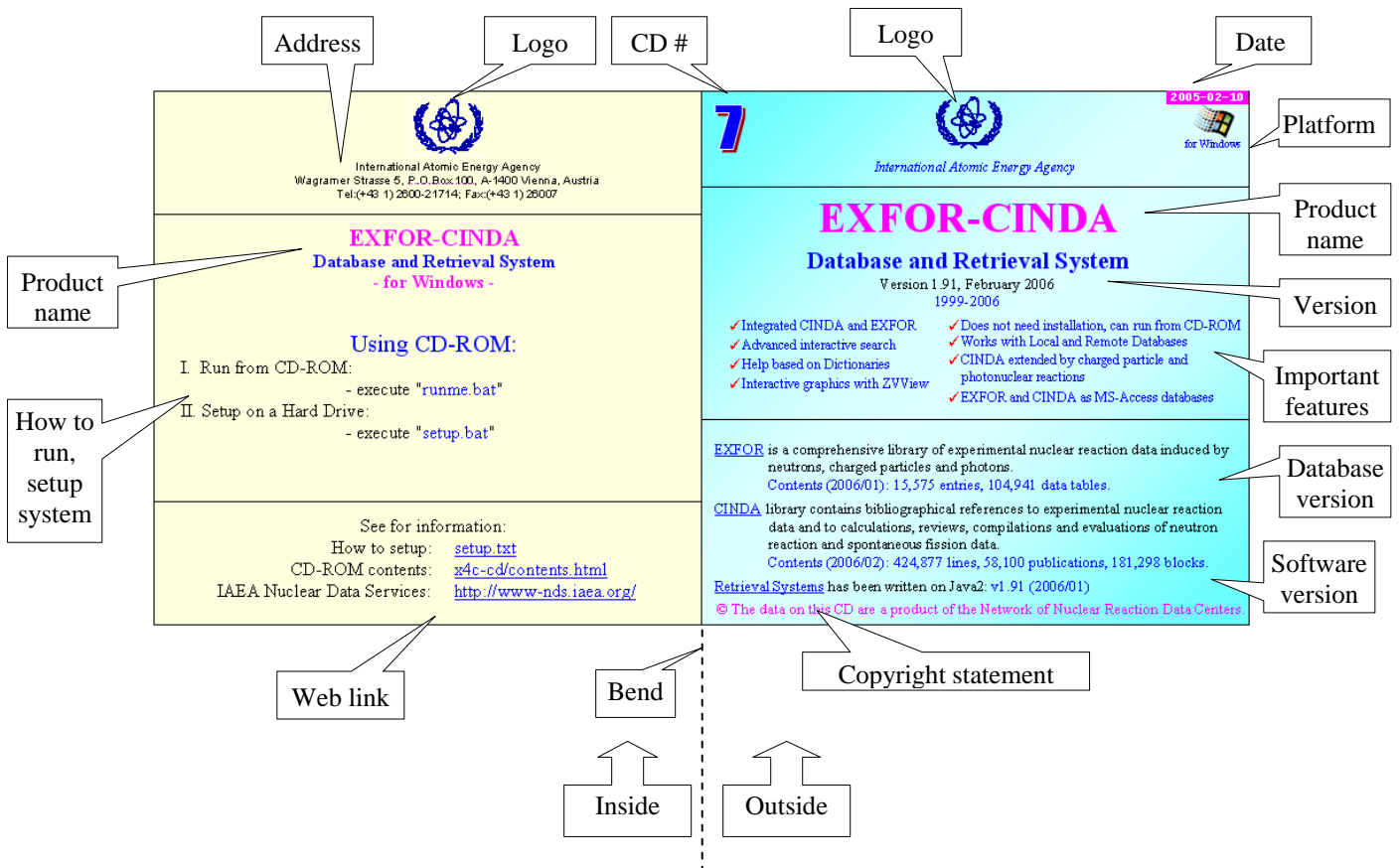
International Atomic Energy Agency

EXFOR-CINDA
Database and Retrieval System
Version 1.91, February 2006
1999-2006

✓ Integrated CINDA and EXFOR
✓ Advanced interactive search
✓ Help based on Dictionaries
✓ Interactive graphics with ZVView

✓ Does not need installation, can run from CD-ROM
✓ Works with Local and Remote Databases
✓ CINDA extended by charged particle and photonuclear reactions
✓ EXFOR and CINDA as MS-Access databases

EXFOR is a comprehensive library of experimental nuclear reaction data induced by neutrons, charged particles and photons.
Contents (2006/01): 15,575 entries, 104,941 data tables.

CINDA library contains bibliographical references to experimental nuclear reaction data and to calculations, reviews, compilations and evaluations of neutron reaction and spontaneous fission data.
Contents (2006/02): 424,877 lines, 58,100 publications, 181,298 blocks.

Retrieval Systems has been written on Java2: v1.91 (2006/01)
© The data on this CD are a product of the Network of Nuclear Reaction Data Centers.

2005-02-10
for Windows

Labels: Address, Logo, CD #, Logo, Date, Platform, Product name, Version, Important features, Database version, Software version, Product name, How to run, setup system, Web link, Bend, Copyright statement, Inside, Outside

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2006-02-10

EXFOR-CINDA for Applications

Databases and Retrieval Systems
on Linux and Windows
Version 1.91, February 2006

✓ Integrated CINDA and EXFOR
✓ Advanced interactive search
✓ Help based on Dictionaries
✓ Interactive graphics with ZVView

✓ Does not need installation, can run from CD-ROM
✓ Works with Local and Remote Databases
✓ Includes Non-Interactive EXFOR retrievals
✓ CINDA with charged particle and photonuclear reactions

EXFOR is a comprehensive library of experimental nuclear reaction data induced by neutrons, charged particles and photons.
Contents (2006/01): 15,575 entries, 104,941 data tables.

CINDA library contains bibliographical references to experimental nuclear reaction data and to calculations, reviews, compilations and evaluations of neutron reaction and spontaneous fission data.
Contents (2006/02): 424,877 lines, 58,100 publications, 181,298 blocks.

Retrieval Systems has been written on Java2: v1.91 (2006/01)

© The data on this CD are a product of the Network of Nuclear Reaction Data Centers.

Nuclear Data Section
International Atomic Energy Agency
Wagramer Strasse 5, P.O.Box 100, A-1400 Vienna, Austria
Tel.(+43 1) 2600-21714, Fax(+43 1) 26007

EXFOR-CINDA for Applications
Databases and Retrieval Systems
on Linux and Windows
Using MySQL

Run Retrieval Systems from CD-ROM (or from copy on Hard Disk):

	To do	on Linux:	on Windows:
1	Run Interactive Retrieval System	run_x4cd.sh	run_x4cd.bat
2	Run Non-interactive Retrieval Program	cd app_example ./xrun.sh	cd app_example xrun.bat
3	Copy to Hard Drive	install.sh or install.sh $HOME/x4app	install.bat or install.bat c:\x4app

General description:
How to use and setup:
CD-ROM contents:
IAEA Nuclear Data Services:

See for information:
readme.txt
setup.txt
x4cd/contents.html
http://www-nds.iaea.org/

Example of "readme.txt"

```
Nuclear Data Section, Department of Nuclear Sciences and Applications,
                 International Atomic Energy Agency
          Wagramer Strasse 5, P.O.Box 100, A-1400 Vienna, Austria
                Tel: (+43 1) 2600-21717; Fax: (+43 1) 26007

            International Reactor Dosimetry File IRDF-2002
                 CD-ROM, IAEA-Nuclear Data Section (NDS)
                           01-June-2006
-------------------------------------------------------------------------
The International Reactor Dosimetry File IRDF-2002 is an evaluated, updated,
standardized and benchmarked cross-section library of neutron dosimetry
reactions with uncertainty information. This file has been assembled for use
in lifetime management assessments of nuclear power reactors and other
neutron metrology applications such as boron neutron capture therapy,
therapeutic use of medical isotopes, nuclear physics measurements, and
reactor safety applications.
-------------------------------------------------------------------------
Contents of IRDF-2002 CD-ROM:
This CD-ROM contains IRDF-2002 data and various related information.
The file "index.html" provides a general description of the contents of the
CD-ROM and links both the data and associated information:
1. Data files:
   - damage cross-sections,
   - decay data,
   - standard spectra,
   - dosimetry cross-sections in pointwise and groupwise ENDF-6 format,
   - codes for damage parameter and spectral adjustment calculations.
2. Plots that compare IRDF-2002 with other evaluated libraries and
   experimental data, including an interactive graphic package. Implemented
   via html, gif and pdf files - may need additional software.
3. Coordinated Research Project (CRP): general information, papers, reports
   and the final technical document.


-------------------------------------------------------------------------
 Access:
   Open "index.html" under any browser on your computer and follow the
   links.
   Type of computer: any (Windows, Linux, etc.).
   Type of Internet browser: any (Internet Explorer, Netscape, Opera, etc.).


-------------------------------------------------------------------------
 Links:
        IRDF-2002 on the Web:  http://www-nds.iaea.org/irdf2002/
        Nuclear Data Section:  http://www-nds.iaea.org/
        E-mail:  online@iaeand.iaea.org
-------------------------------------------------------------------------
                        Nuclear Data Section
                  International Atomic Energy Agency
                          Vienna, Austria

    ALL PRODUCTS ON THIS CD-ROM ARE PROVIDED IN GOOD FAITH AND WITHOUT
  WARRANTY OF ANY KIND.  THE PRODUCT (OR ANY PART OF THE PRODUCT) CAN BE
     USED WITH PROPER ACKNOWLEDGEMENT TO THE IAEA NUCLEAR DATA SECTION.
              NO   SUBSEQUENT   FEE   MAY   BE   CHARGED   FOR   THIS   PRODUCT.
```

Example of "readme.doc"

Nuclear Data Section (NDS), Department of Nuclear Sciences and Applications,
International Atomic Energy Agency (IAEA),
Wagramer Strasse 5, P.O.Box 100,
A-1400 Vienna, Austria
Tel: (+43 1) 2600-21717; Fax: (+43 1) 26007

International Reactor Dosimetry File IRDF-2002 (IAEA-NDS CD-ROM)

01-June-2006

The International Reactor Dosimetry File IRDF-2002 is an evaluated, updated, standardized and benchmarked cross-section library of neutron dosimetry reactions with uncertainty information. This file has been assembled for lifetime management assessments of nuclear power reactors and other neutron metrology applications, such as boron neutron capture therapy, therapeutic use of medical isotopes, nuclear physics measurements, and reactor safety applications.

Contents of IRDF-2002 CD-ROM:

This CD-ROM contains IRDF-2002 data and various related information.

The file "*index.html*" provides a general description of the contents of the CD-ROM, and links both the data and associated information:

1. Data files:

     - damage cross-sections,
     - decay data,
     - standard spectra,
     - dosimetry cross-sections in pointwise and groupwise ENDF-6 format,
     - codes for damaged parameter and spectral adjustment calculations.

2. Plots that compare IRDF-2002 with other evaluated libraries and experimental data, including an interactive graphics package. Implemented via *html*, *gif* and *pdf* files - may need additional software.

3. Coordinated Research Project (CRP): general information, papers, reports and the final technical document.

Access:

   Open "*index.html*" under any browser on your computer and follow the links.
   Type of computer: any (Windows, Linux, etc.).
   Type of Internet browser: any (Internet Explorer, Netscape, Opera, etc.).

Links:

   IRDF-2002 on the Web: http://www-nds.iaea.org/irdf2002/
   Nuclear Data Section: http://www-nds.iaea.org/
   E-mail: online@iaeand.iaea.org

ALL PRODUCTS ON THIS CD-ROM ARE PROVIDED IN GOOD FAITH AND WITHOUT A WARRANTY OF ANY KIND.

THE PRODUCT (OR ANY PART OF THE PRODUCT) CAN BE USED WITH PROPER ACKNOWLEDGEMENT TO THE IAEA NUCLEAR DATA SECTION.

NO SUBSEQUENT FEE MAY BE CHARGED FOR THESE PRODUCTS.