CERES Software Bulletin 96-01

Porting CERES Software from "thunder" to the DAAC

The CERES Configuration Management Team

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1.0 Summary

The purpose of this bulletin is to identify the activities involved in and leading to the migration of the CERES Release 1 Software from the SCF, "thunder," to the Langley DAAC and to identify roles and responsibilities of those involved, particularly the subsystem teams, the Configuration Management (CM) Team, and the DAAC personnel. The two steps described in this bulletin are preparing and porting the subsystem *delivery package* to the DAAC and verifying the delivery to DAAC, i.e. "getting it there and proving we did it right." Specific activities associated with each of these steps are enumerated below.

2.0 Prepare and port the subsystem *delivery package* to the DAAC

The Release 1 *delivery package* at a minimum should include the following items.

1. **Subsystem production software**.

2. **Supporting data required to execute the software**. This includes primary input data, ancillary input data, and external data that will not otherwise be available at the DAAC.

3. **Validation software and data.** For example, expected output results that will be required at the DAAC to verify the results of testing at the DAAC.

4. **Subsystem Delivery Memo**. An example of a (draft) Delivery Memo for Subsystems 4.5 and 4.6 was distributed to all subsystem leads along with a Delivery Memo template that was provided by the DAAC.

5. **Subsystem Test Plan**. This document should describe the Release 1 software and supporting data files that are being delivered to the DAAC. It should also explain how to install the software, how to test the software, and how to evaluate the results of this testing.

    A draft Test Plan for Subsystems 4.5 and 4.6 was distributed to all subsystem leads and may serve as an example and template for preparing this document.

The particular activities required to prepare and provide the delivery package to the Langley DAAC are discussed below.

2.1   The **Science Software Integration and Test (SSI&T) Procedures Document (SPD)** requests that the DAAC Instrument Team (IT) representative be notified of each delivery a minimum of 30 calendar days prior to the anticipated delivery date. This action in a sense is satisfied through the distribution of the CERES DMS Milestone chart to the DAAC IT representative. Our goal is to provide a Delivery Memo and Test Plan to the DAAC at least **two weeks** prior to the subsystem delivery date[1]. The subsystem team is responsible for preparing these two documents and for providing them to the CM Team. For Release 1, the DAAC is requesting that these documents be in either postscript or plain text. The CM Team will provide the **Delivery Memo** to the DAAC by e-mail with the formal subsystem **delivery notification** (see **Appendix A.1**). The DAAC IT representative will acknowledge receipt of the Delivery Memo and provide whatever other responses may be necessary, such as the establishment of computer accounts at the DAAC (see **Appendix A.2**).

2.2   Following the successful completion of CERES Data Management Milestones 1 through 4, each subsystem team should generate the necessary data sets required for migration verification at the DAAC. Following this activity, the subsystem should "freeze" their Release 1 software and supporting data files. **Appendix B** contains an illustration of the anticipated directory structure at the DAAC. This same directory structure should be replicated on "thunder." A tar file(s) containing all software and data files on "thunder" under the working group directory structure expected by the DAAC should be created. Typically, these tar files should be compressed using the UNIX "compress" utility.

2.3   Prior to submitting an initial software/data release or a subsequent configuration change to the Configuration Management Team, a **Software Configuration Change Request (SCCR)** form must be completed and submitted. Consequently, for the Release 1 delivery, each subsystem team must prepare and submit an SCCR using an interactive program provided by the CM Team. To access this software, the CERES Analyst Configuration Management program, log into the appropriate working group account for your subsystem on saisun00 and run the C-shell script **acm.csh**. This will execute an Informix 4GL application which will prompt the user for information in order to create, edit, submit, or view an SCCR. The following information is necessary in order to submit an SCCR: subsystem name, a description of the change, the reason for the change, and the name and e-mail address of the originator of the SCCR. For more information, see the CERES Data Management System Configuration Management Plan and **Appendix C** in this document.

2.4   **One week** prior to the Release 1 due date[1] at the DAAC, the subsystem team should copy the appropriate tar file(s) from their working group file space on "thunder" to the "move" directory on "thunder" (the "move" directory is a CM area that is accessible to all working groups). For example, the following command was used to copy the compressed ERBE-like tar file to the CERES CM directory:

"cp erbelike.tar.Z /CERES/CERES_CM/cm_move".

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1. Jim's February 13, 1996 e-mail (Release 1 Delivery Dates) gives target dates per subsystem for providing the Delivery Memo and Test Plan to the CM Team, copying the tar file(s) to the "cm_move" directory, and for the CM Team to "push" the tar file(s) to the DAAC.

2.5   The subsystem team may opt to take advantage of the **readiness verification service** provided by the DAAC. This readiness verification service is provided to allow the subsystem team to utilize the DAAC ECS standards checkers and compilers to verify that the software is ready for SSI&T to proceed. This option should be requested in the Delivery Memo (SPD, 2.3).

2.6   Before the subsystem tar file(s) are actually delivered to the DAAC, the CM Team moves a copy of the tarred files over to the CM evaluation and test directory on "thunder" where the files are untarred and inspected against provided documentation. If it is warranted, the CM Team may perform limited testing which will be based on the subsystem's Test Plan.

On the delivery date[1] agreed on by both CERES and the DAAC, the CM Team will **"push" the tar files** to the target directory on the DAAC as specified by the IT representative (SPD, 2.5.1). The DAAC IT representative will send an "Acceptance of Delivery" notification (SPD, 3.5) to the CERES CM Team to confirm the delivery.

2.7   The CM Team will run the CERES version control software following the successful migration of all the CERES software to the DAAC.

3.0 Verify delivery to DAAC

The purpose of this step is to ensure that the subsystem software has been properly ported to the DAAC. To verify the delivery, the subsystem software will be run on the DAAC computer and the results will be compared with the expected results that were generated on "thunder." The procedures to accomplish this testing should be described in the subsystem's Test Plan.

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1. Jim's February 13, 1996 e-mail (Release 1 Delivery Dates) gives target dates per subsystem for providing the Delivery Memo and Test Plan to the CM Team, copying the tar file(s) to the "cm_move" directory, and for the CM Team to "push" the tar file(s) to the DAAC.

APPENDIX A

A.1 The CERES CM Team e-mails the subsystem's delivery notification to the DAAC.

From nichele@saisun28.larc.nasa.gov Wed Feb 7 11:50:12 1996
Date: Wed, 7 Feb 1996 11:53:53 -0500
From: "Nichele C. McKoy" <nichele@saisun28.larc.nasa.gov>
To: D.J.TRAVERS@larc.nasa.gov
Subject: Delivery Memo for CERES Erbe-like Subsystems (SS2.0 & 3.0)
Cc: J.L.ROBBINS@larc.nasa.gov, l.chang@larc.nasa.gov
Content-Type: X-sun-attachment
Content-Length: 57071

DAAC Representative for CERES (Jill Travers):

The following attachment is the delivery memo for CERES's Subsystems 2.0 and 3.0. It is a
FrameMaker view-only document.

CERES Configuration Management Team

contact: Nichele C. McKoy

          n.c.mckoy@larc.nasa.gov
          827-4894

A.2 The DAAC acknowledges receipt of the CERES delivery notification.

From travers@sorcerer.larc.nasa.gov Wed Feb 7 13:52:26 1996
Date: Wed, 7 Feb 1996 13:50:43 -0500
From: Jill Travers <travers@sorcerer.larc.nasa.gov>
To: mckoy@sorcerer.larc.nasa.gov, j.f.kibler@larc.nasa.gov,
        c.j.tolson@larc.nasa.gov, j.l.robbins@larc.nasa.gov,
        l.chang@larc.nasa.gov

Subject: Delivery Notification for CERES ERBE-like Subsystems
Cc: msg@magician.larc.nasa.gov, l.l.lee@larc.nasa.gov,
        haldun@nephos.larc.nasa.gov, dipgst-ecs@magician.larc.nasa.gov,
        dipgst-esdis@magician.larc.nasa.gov
Content-Length: 808

This e-mail is an acknowledgment of receipt at the Langley DAAC of the delivery notification for the CERES ERBE-like Subsystems (Subsystems 2 and 3). The DAAC will confirm the requested delivery date of February 15, 1996, within five working days.

As specified in the SSI&T Procedures Document Between the Langley DAAC and the CERES Instrument Team, a copy of this message is being sent to ESDIS and ECS personnel for informational purposes only.

Will let you know when accounts are ready.

Jill Travers
CERES DAAC Representative

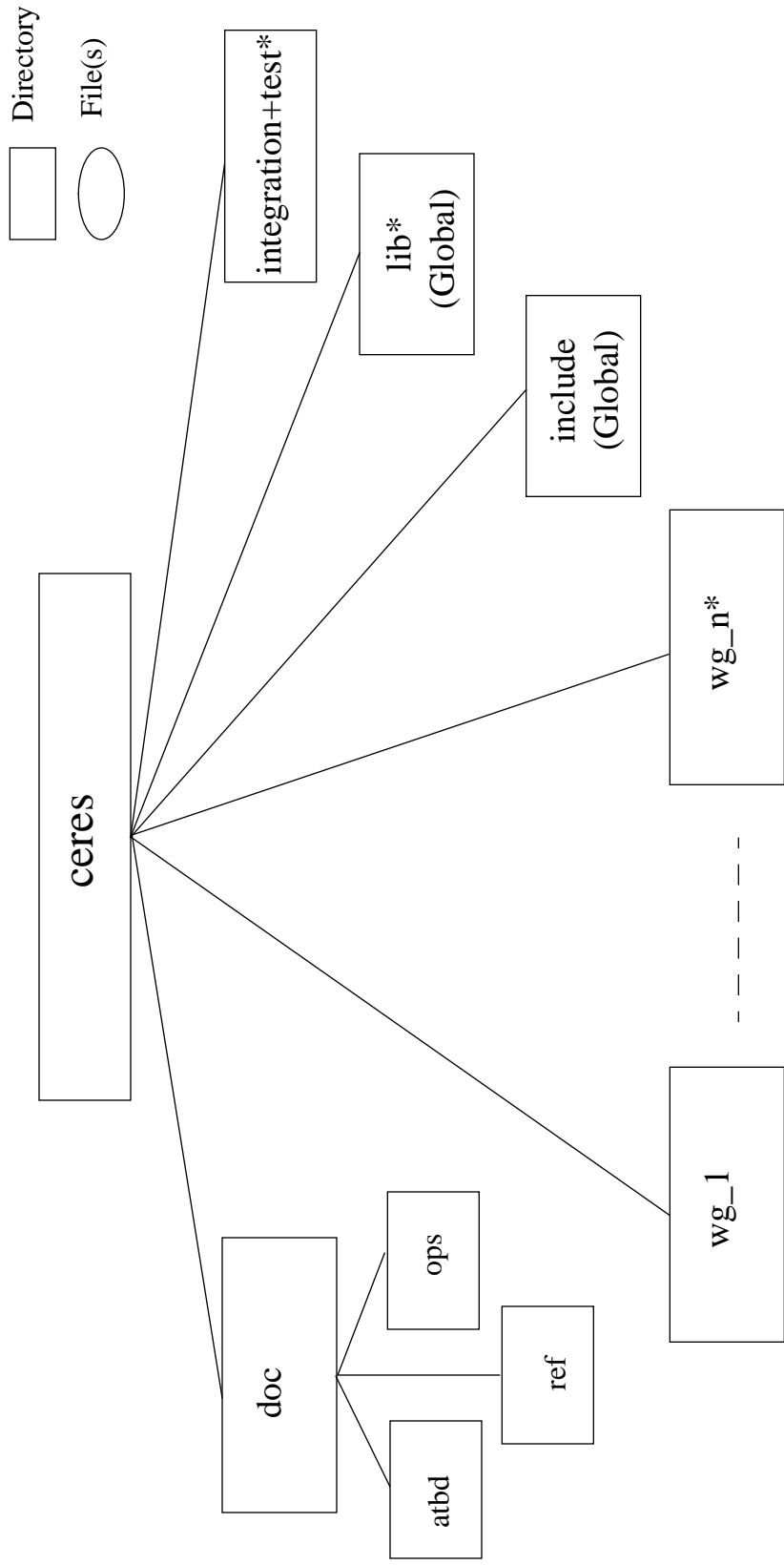   Jill Travers
                    CSC/LaRC DAAC Mission Support Group
                    d.j.travers@larc.nasa.gov
                    Voice (804) 864-9429
                    Fax   (804) 864-8807

APPENDIX B

Figure 1 contains the CERES Delivery Directory Structure.

CERES Delivery Directory Structure

Directory ▭

File(s) ⬭

ceres

- integration+test*
- lib* (Global)
- include (Global)
- wg_n*
- wg_1
- doc
  - ops
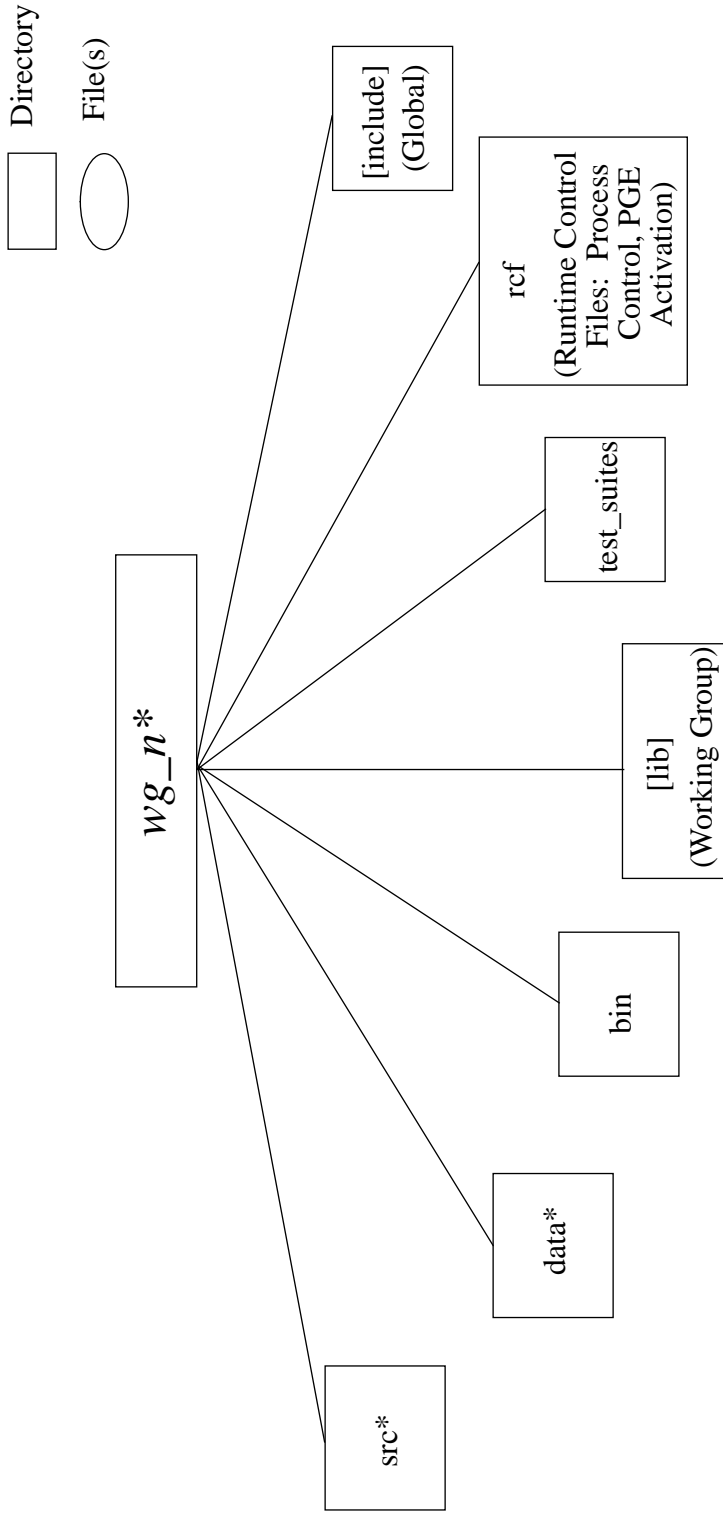 - ref
  - atbd

*Breakdown of subdirectories shown on following pages

Figure 1: CERES Delivery Directory Structure

Breakdown of the Working Group Directory Structure

Directory ☐

File(s) ⬭

wg_n*

- src*
- data*
- bin
- [lib] (Working Group)
- test_suites
- rcf (Runtime Control Files: Process Control, PGE Activation)
- [include] (Global)

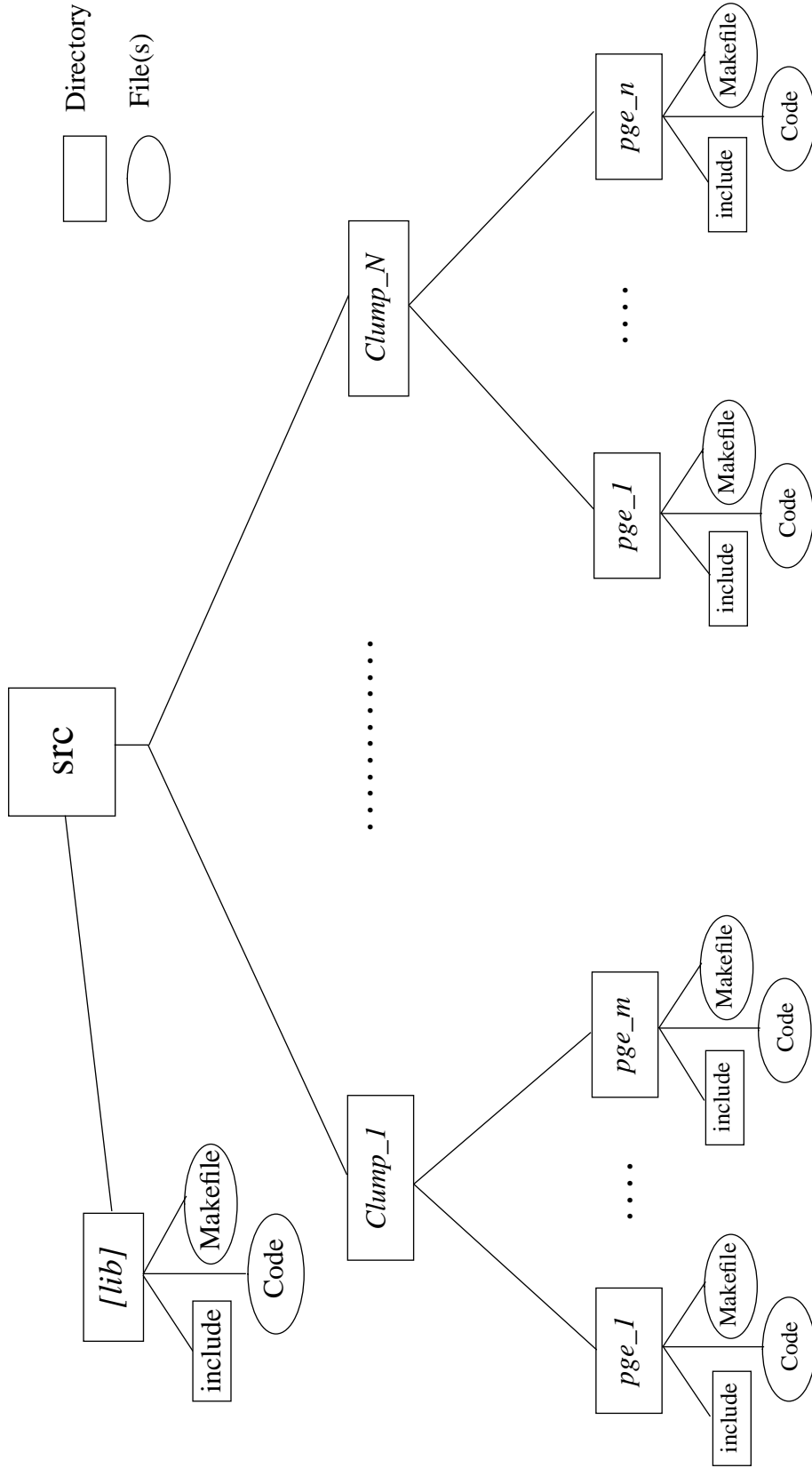*Italicized* names are dependent on delivered software

*Breakdown of subdirectories shown on following pages

Names in brackets [] are optional files or directories

Figure 1: CERES Delivery Directory Structure (Continued)

Breakdown of a Partitioned Working Group Source Structure

Directory ☐

File(s) ⬭

```
                              src
                            /     \
                      [lib]         \
                     / |  \          \
             include Makefile Code    \
                                       \
         Clump_1 . . . . . . . . . . Clump_N
         /      \                    /      \
     pge_1 ... pge_m            pge_1 ...  pge_n
    / |  \     / |  \          / |  \      / |  \
include Makefile Code ...  include Makefile Code ... include Makefile Code ... include Makefile Code
```
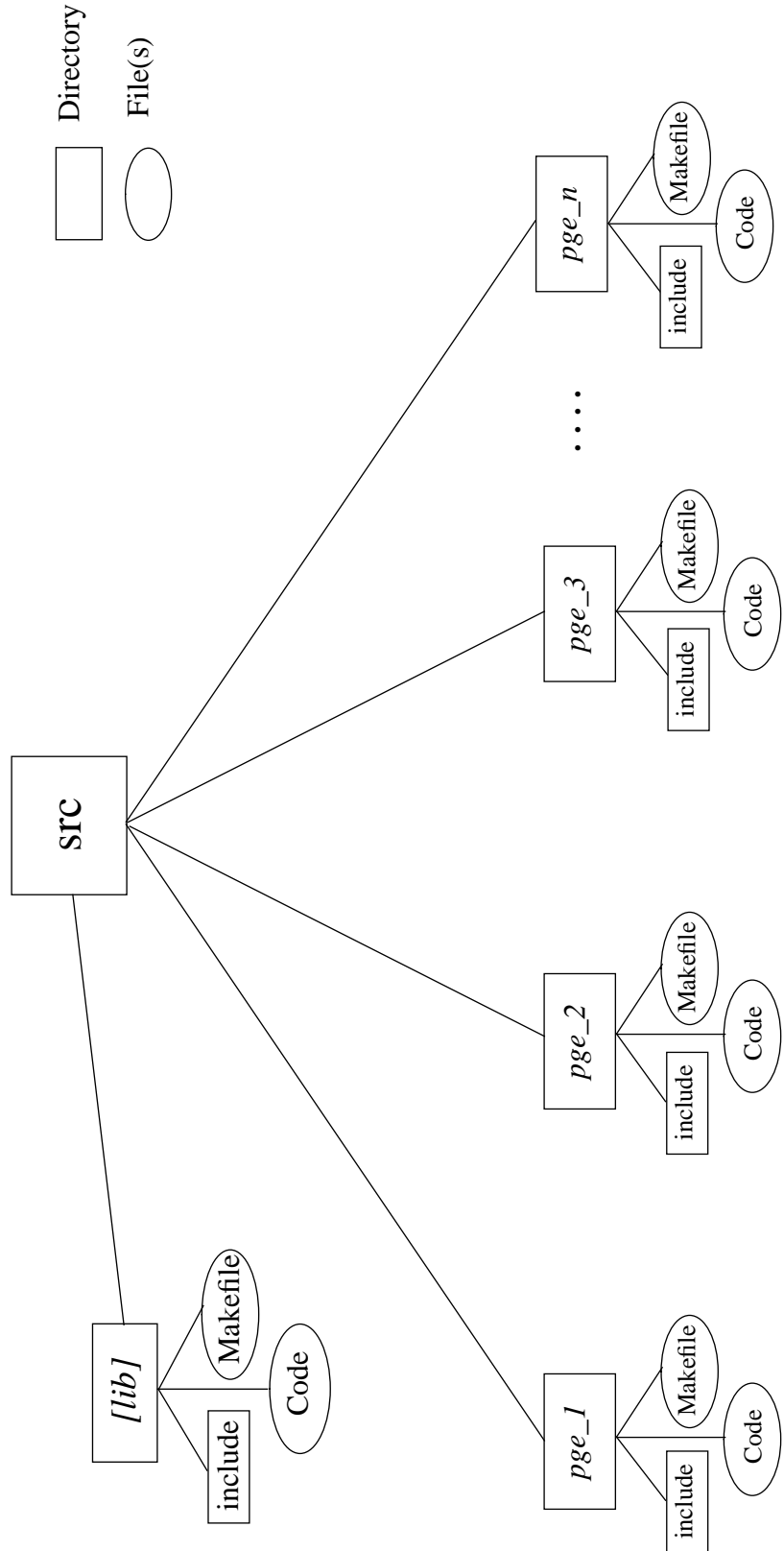
Italicized names are dependent on delivered software

Names in brackets [] are optional files or directories

Figure 1: CERES Delivery Directory Structure (Continued)

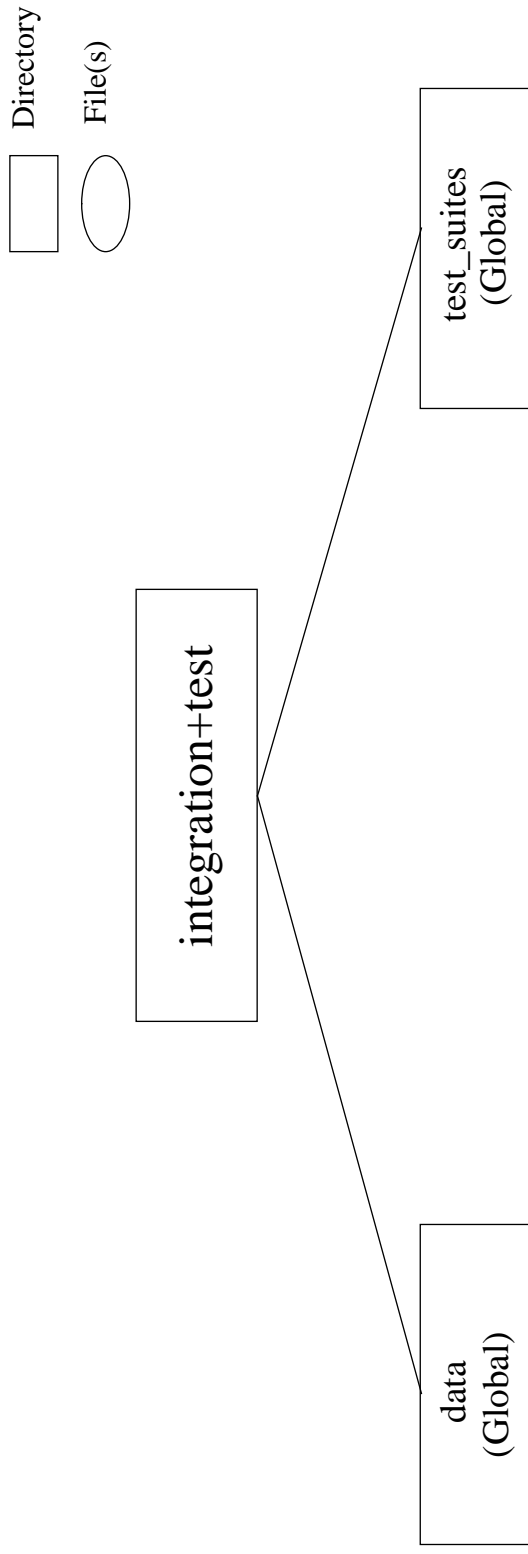# Breakdown of a Non-Partitioned Working Group Source Structure

Figure 1: CERES Delivery Directory Structure (Continued)

Breakdown of the Integration and Test Directory Structure

Directory
File(s)

integration+test

data
(Global)

test_suites
(Global)

Content of the global data directory is TBD; it is expected to contain Level 0 and ancillary data files used by all or most working groups.

Figure 1: CERES Delivery Directory Structure   (Continued)
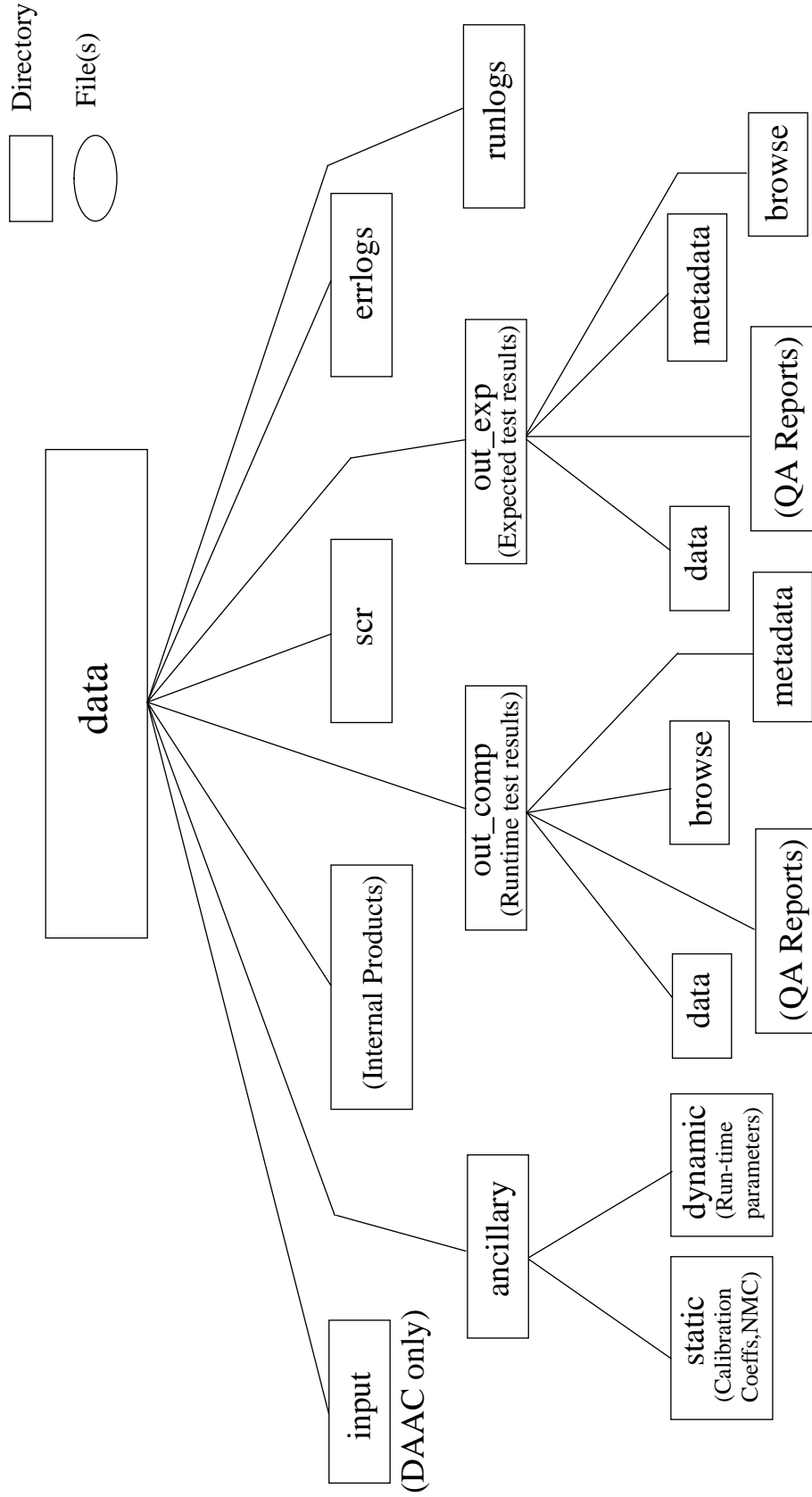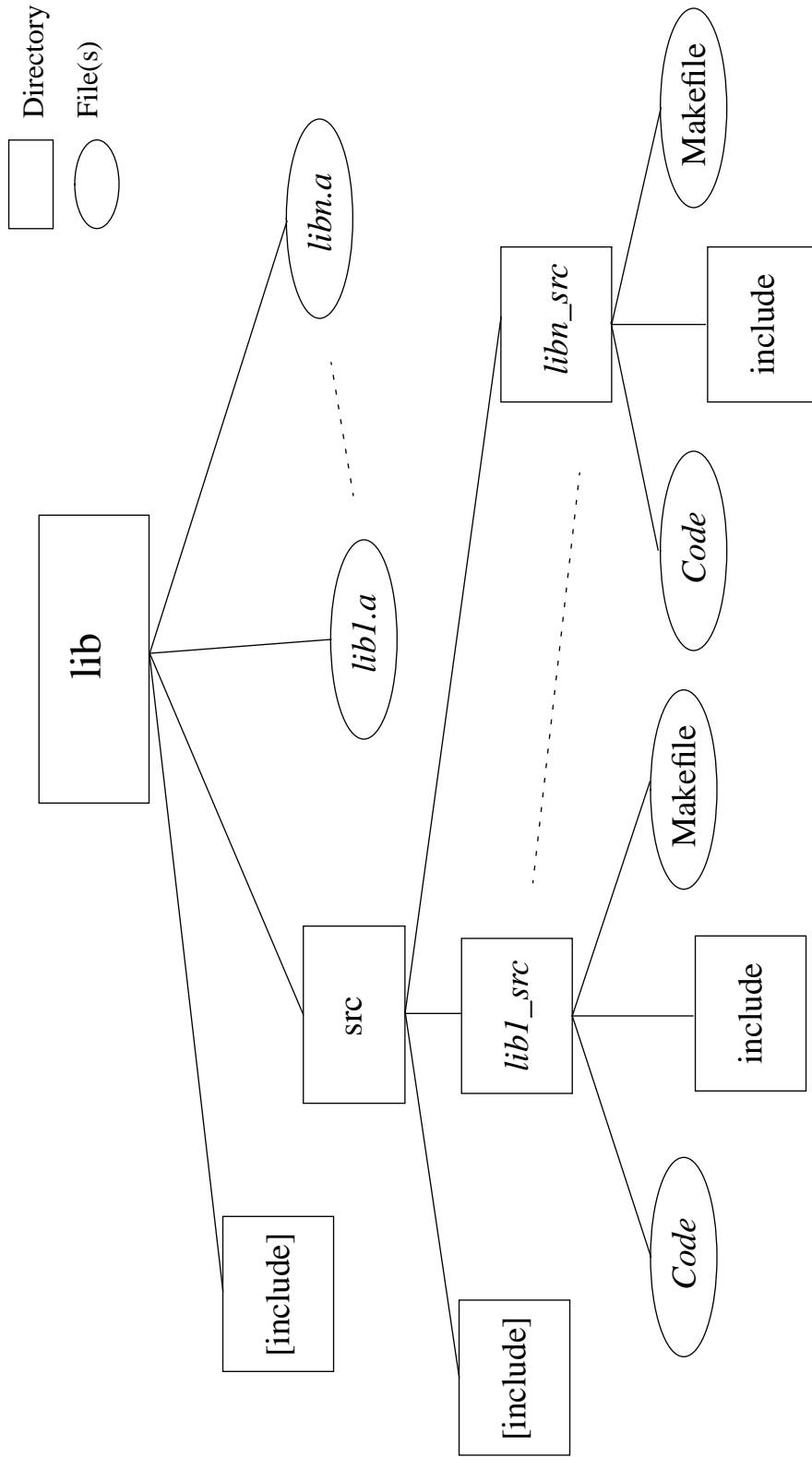
Breakdown of a Data Directory

Directory

File(s)

```
                                data
       ┌──────┬─────────┬────────┬────────┬────────┬──────────┐
     input  ancillary  (Internal  scr    out_comp  errlogs   runlogs
    (DAAC    │         Products)         (Runtime           
     only)   │                           test results)      
         ┌───┴────┐                           │          out_exp
      static    dynamic                       │         (Expected test results)
   (Calibration (Run-time          ┌──────┬───┴────┬────────┐      ┌────────┬────────┬────────┐
   Coeffs,NMC)  parameters)      data   (QA     browse   metadata  data  (QA      metadata  browse
                                        Reports)                        Reports)
```

Figure 1: CERES Delivery Directory Structure (Continued)

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Breakdown of the Global Lib Directory Structure

Directory

File(s)

lib

libn.a

lib1.a

src

libn_src

Makefile

include

Code

lib1_src

Makefile

include

Code

[include]

[include]

Italicized names are dependent on delivered software.

Names in brackets [] are optional files or directories

Figure 1: CERES Delivery Directory Structure   (Continued)

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APPENDIX C

Example of creating an SCCR for the ERBE-like Subsystems.

1. Type **xhost +saisun00**.

2. Login to saisun00 -- **rlogin saisun00 -l erbelike** (the appropriate subsystem in this case). To obtain the working group's password, please contact Nichele McKoy.

3. Type **acm.csh** to start the Analyst Configuration Management program.

4. Type **viking.larc.nasa.gov:0.0** at the prompt for machine display (of course, use your machine's display information).

5. At the first screen of CERES Analyst CM Processing, enter **1** to create an SCCR.

6. When the CERES CM System screen appears, press return to continue.

7. Select **SCCR** from the Analyst Menu.

8. Select **Create** from the CERES Analyst SCCR Menu.

9. Scroll down list of Subsystem names until **SS_ERBELIKE** (the appropriate subsystem in this case) is highlighted and choose Select from the SELECT SUBSYSTEM MENU.

10. Now the CERES Software Configuration Change Request form is displayed. Type in the **Description of Change** (the cursor is automatically here). Press return and the cursor goes to **Reason for Change**. Enter reason and press return. Press return after **n/a** automatically shows up in the Estimated Man Power field. Press return after **n/a** automatically shows up in the Schedule field. Press return after **n/a** automatically shows up in the Impact field. Now the CERES CM System Analyst List screen is displayed. Scroll down the list of Analyst Names and E-mail Addresses until your name is highlighted. If your name is not in the list, select **Add** from the Select Analyst Menu to add your name and e-mail address to the list. After highlighting your name in the list, choose **Select** from the Select Analyst Menu. The SCCR screen is displayed again. **Press <ESC> to save changes. Enter 'Y' at the Submit SCCR prompt.**

11. Exit CM system.

For additional details, see "How to Create an SCCR" in the CERES Configuration Management Plan. If you have specific questions, please contact either Nichele McKoy or Tammy Olaisen.