Software Configuration Plan

Version 1.0
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7/20/93

1.) Configuration Identification

1.1) Name of the software:

The name of the IDRP software release attempts to denote the major functions of the release. For example the release associated with the end of the 1992-1993 contract will be called:

"0.9-contract.end"

The name "0.9-contract.end" attempts to summarize the content of the release. The "0.9-contract.end" denotes that all basic functionality is not intact and working, but the code is the release for the end of the first contract.

1.2) Description of version numbers for the software release

The merit software will be released with a name and a series of for various sources of the code. The sources for the code are:

a) gated
b) NSFNet Project additions
c) MERIT additions

The SCM form will contain this information in the following format:

```
IDRP Release name:
gated release number - major.minor.status
NSFNet release number - major.minor.bug
MERIT release number -  major.minor.bug
                       (CVS-name)
```

The gated source code is released as a tar file. In this tar file under the following path name will contain the SCM file:

./gated/doc/idrp/scm/release-name

where "release-name" is the release name. For the 7/20/93 release, this "release-name" is "0.9-contract.end". Therefore the file would be called:

./gated/doc/idrp/scm/0.9-contract.end.

See appendix A for an annotated version of the scm form. Appendix E has a listing of the directory.

Section 1.2.1) gated release numbers

The gated release numbers are to denote the source that was pulled from gated. For example, the 7/20/93 release has the gated version: 3.0.beta. The gated has the major release 3 minor release 0, and the beta version. Status will be either:

1) alpha - to denote an earlier release for gated.
2) beta - to denote the first public release of gated.
3) release - to denote the normal gated release
4) other - which notes something special that will be annotated by the releasing person.

Section 1.2.2) NSFNet project release numbers

The NSFNet project numbers denote the CVS source tree on the ANS repository for the gated source code. These number will include CVS information on that source tree. The minor or bug release information may not be included.

Section 1.2.3) MERIT release numbers

The MERIT release numbers will be based on the functionality and releases to the code after that. For example, the SCM form for the 7/20/93 release contains:

```
MERIT release number: 0.9.0
            CVS name: IDRP3
```

The major version is 0, the minor version 9, the bug fix version is 0. The CVS naming for this version is "IDRP3".

Section 2 - Configuration Control System

Section 2.1) Software Baseline Control

Section 2.1.1) gated release procedures

The "release" of gated software is announcement of its availability to gated public domain users via email. The software is retrieved from Cornell via anonymous ftp via the Internet.

Most "gated" releases are announced by gated to the mailing list. However, some may be privately released to a user for bug fix testing prior to general release.

CVS is also used by Cornell to track their software changes. Cornel machines are backed up regularly as part of their development.

Section 2.1.2) Merit releases of code

The Merit release of IDRP code will be an announcement of the code availability to MITRE and to the idrp-faa@merit.edu mailing list. (please check the mailing list.) Software will be available via anonymous ftp from merit.edu from the file:

/pub/iso/idrp/faa/gated.tar.Z.version

This file is a compressed tar image. The version will be the release name. Until the first release, only one version of the gated tar file.

For release to FAA, this tar image is available on tape.

As release document for each major, minor or bug fix release, Merit will generate a SCM form, and a SQA form. Bug fix forms and test plans may also be associated with every release.

Every contract release will also have the following documents:

1) Software Configuration Management Plan
2) Software Quality Assurance Plan
3) Design Documents
    - IDRP design document
    - IDRP syntax document
4) Configuration Index Document
5) Accomplishment summary

The "/gated/doc/idrp" document directories will also be under source control.

The IDRP tar file is created from a particular CVS load on the ANS repository and then compressed.

Section 2.1.3) Creation of Baseline code

The original gated software is imported from gated repository into software control on a NSFNet Project repository at ANS. On the repository the CVS source control system is used. The changes specific to the ANS/NSFNET Project are applied to the software.

The CVS system tracks changes to every file put in the CVS directory. Using the system, a particular version of a file may be recreated. In addition, CVS allows for upgrading of "vendor" software (gated software) from one version to another.

For example, the gated 3.0.beta was imported from Cornell as an update from the gated 3.0.alpha release. These changes were automatically melded with the MERIT IDRP code forming a new base for the next development. Under CVS the user may tag the software with a specific tag for easy release. The CVS release name mentioned above is the tag for a particular version of the MERIT IDRP3.

Section 2.2) Software Update procedures

Software is controlled by use of the CVS system. Both ANS code and MERIT specific code are controlled on the ANS repository. The version of CVS used for both of these is version xxx.

Section 2.2.1) NSFNet project, ANS repository procedures

NSFNET Project information is included in the "gated" tree. Changes to ANS trees are made by any of the partner's: IBM or ANS or MERIT.

Section 2.2.2) MERIT's procedures

MERIT uses the CVS product on the ANS repository. The version of the CVS product is xxx.

MERIT uses a unique naming tree for it's changes to the ANS base. Names can be used in CVS group a set of changes for recreation. Names will be used by MERIT to indicate major code changes. Major code changes included but are not limited to:

- changes to IDRP code
- gated base changes
- bug fixes
- new platforms added.

This version name will be tracked specifically as a release version: major, minor and bug. This information will be included in the CVS notes for the code.

As one of the programmers works on the IDRP code, a version of the code is checked to the person's directory on the ANS system. From this code a tar file is created, and the code moved to a MERIT machine via ftp.

After a programmer changes the code, the code is collected into a "tar" file and transferred back to the ANS repository via ftp. Using CVS, the changed code updates the library.

The CVS system is used to keep the three programmer's work synchronized. During heavy development, we strive for a daily update of the code prior to ending our work day. As code is entered into the CVS system, notes are required to annotate the changes made.

Section 2.3) Back-up Schedule

ANS machines:
 delta back-ups: daily
 full back-ups: weekly

MERIT machines:
 delta back-ups: nightly to ANS
 full back-ups: daily

Section 3.) Configuration Status

Section 3.1) Tracking of Different Versions

The CVS system provides control over each file. In addition, the SCM and SQA forms for each release provide the following additional information:

1) version tracking
2) Notes on Functions
3) Testing report
4) Documents for changes
5) Bug Reports and Review information

Please refer to SCM form in Appendix A, SQA Form in Appendix B, Bug Report Form in Appendix C, and Testing Forms in Appendix D.
The forms are annotated with explanations in italics. The forms will also be under source control. A list of the subirectories which exist in the ./gated/docs/idrp directory is included in Appendix E so that the reader can easily reference the file structures discussed.

Section 3.2) System Testing by the Developer

Testing network protocol software is the process of testing interactions between routers. The test forms will have a description of the configurations, planned tests, and a set of free form notes from the tester. System testing will take place prior to each major release.

A "Bugs" file will be created to summarize known bugs in the system which have not been fixed. For each reported bugs or known bugs, a bug report form will be generated and a bug number assigned.

Section 4) Review and Audit

MERIT is under no obligation to provide design reviews or code walk throughs or audits. However, MERIT has and will continue to provide training classes to the FAA router group to discuss the design and review the code.

MERIT may work with the NSFNet Partnership, gated developers or other experts in the field to review the design and code. We welcome any review by MITRE people, and encourage mail to be sent to idrp-faa@merit.edu.

While the review process method is more informal and on-going process, readers are encouraged to be technical aggressive in their comments. We intend to relax format of the review documentation and scheduled meetings for the prototype, and not the intensity of the technical review.

Early reviews of the Code by ATN router vendors have indicated the code is portable while needing work. Design choices have been discussed and contrasted with other ATN IDRP developments.

Appendix A - Annotated SCM form

Software Configuration Form

1.) Configuration Identification:

NAME: 0.9-contract.end

Release versions of software:
gated release number - 3.0.beta *(major.minor.status)*
ANS release number - none *(major.minor.status)*
MERIT release number- 0.9.0 *(major.minor.bug)*

2.) Media Control

ANS CVS info:
CVS release name:
CVS release date:
CVS history log file name:
(This log file will also
be included on the /gated/doc/idrp/cvs.history
subdirectory)

MERIT CVS info:
CVS release name: **idrp-3**
CVS release date: **7/21/93**
CVS history log file name: **idrp-3.7.21.93**
(This log file will also
be included on the /gated/docs/idrp/cvs.history
subdirectory)

Tape Backup Info:
MERIT Back-up tape number(s): **10**
MERIT Back-up tape date: **7/20/93**

3.) Configuration Status

3.1) Major release SQA forms ID(s) - **none**
3.2) Minor Release SQA forms ID(s) - **0.9.0**

4.) Associated Reviews:

4.1) MITRE design Review ID(s): **none**
4.2) MITRE code Review ID(s): **none**

Appendix B - SQA form

Annotated Software Quality Assurance Form:

The SQA form is created by concatenating several files. In the form below these files have been noted. In each of the file names the "release-name" denotes the release name such as "0.9-contract.end"

File 1 - /gated/docs/idrp/scm/"release-name"

Section 1: Software Configuration Information:

This is the SCM form described in Appendix A.
Please refer to Appendix A for the description.

File 2 - /gated/docs/idrp/sqa/"release-name".info

1) Purpose:

1.1) Summary:

(2 sentence summary of the purpose.)

1.2) Details

(maximum 2 paragraphs here which detail the changes to the code.)

2.) Quality Assurance Function -
(not applicable)

3.) Policy, Procedures, Practices
- (comments on design and debug methodology)

4.) Documentation For these Changes

1.) IDRP ISO Specification version
ISO/IEC #: (such as DIS10474:1992)
SC6 #:
ANSI #:
Date:
comment:

2.) IDRP PICS Proformas References:
Table #:A.4.3
Items: part of BASIC only
only items in 12.1 a, b, f, g, h, r, s fully supported
items: c, d, e, i, j, k, l, m, n, o, p, q, t not fully

supported

comment:

3.) ANSI Specifications

ANSI Document Name: (none)
ANSI Document #: yy-id#
Sections:
Pages:
What Implemented:

4.) IETF specifications ID
and section number

IETF Document: IDRP MIB Document
RFC/Internet Draft: Draft
author: Susan Hares
Version: 1.0
Section: 4.5
Pages: 30
What Implemented: Traps Implemented

5.) MERIT Design document

Design Document name: IDRP Design Document
Version number: 1.0
author: Susan Hares
Date: 9/5/92
Section(s): 1-5
Page(s):
What Implemented: BASIC FSM under gated

6) General Comments

(This section allows any comments not fitting in sections above.)

5.) Review and Audits:

Design Review ID(s):
Summary of Design Review comments:

Code Review ID(s)
Summary of Code Review comments:

6.) Configuration Managment:

CVS log file name:
(The actual CVS log file will be found in the directory ./gated/docs/idrp/cvs.history with the file name: "release-name".cvs.log)

7.) Problem Reports

File 3 - ./gated/docs/idrp/sqa/"release-name".bug.high

This file gives a medium level overview of bugs plus a table of the outstanding bugs. This information is generated from the bug report forms with everything having "%" in front of the the line.

7.1) Bug highlights file:

(Please note that the bug.report form uses "% " before their comments that need to be encoded as highlights.)

7.2) List of Bug Fixes as a table with:

Bug Fix global ID:
Bug Fix name:
Bug found in release (major.minor):
Date bug found:
Release that fixed bug (major.minor)
Date of Bug fix release:
Person report bug:
software modules affected to fix:
ID of Test Scenario to Test Bug:

(Please note that the lines will be prefaced with a %$ as first two characters have this information.)

8.) Testing (SQA):

File 4: ./gated/doc/idrp/tests/test.layout.n

(where n is the number of the layouts)

1.) Equipment needed:
(list of equipment needed for testing)

2.) Testing Layout:

ASCII Picture:

Description:

File 5: ./gated/doc/idrp/test/"release-name".tests

3.) Test Sequences:

Example tests descriptions might be:

Sequence of Tests:

1.) Started up Router 1 establish BIS->BIS Router 2
2.) Started up Router 3 establish BIS->BIS Router 1

File 6: ./gated/doc/idrp/test/"release-name".test.results

4.) results

Test 1:
Router 1 established connection and brought state machine up.

Test 2: (text)
Router 3 established a session with Router one and created an Adjaceny RIB. All FSM steps were properly taken

File 7 ./gated/doc/idrp/sqa/sqa.trailer

9.) Supplier Control (n/a)

10.) Records (n/a)

cvs log file name:

Appendix C - Bug Report Form

Bug Report Form:

```
$% Global Id for Bug: 1 (number)
$% Bug name: Ignored Updates  (12-20 characters)
$% Bug found in release (major.minor): 0.9.0
$% Release that fixed bug (major.minor) 0.9.1
$% Date of Bug fix release: 7/31/93
$% Person report bug: jgs@merit.edu
$% software modules affected to fix: list-1, list-2
$% ID of Test Scenario to Test Bug: 10
$% ASsociated Bug Reports ID(s): 8

% Bug highlights:
% Problem:
% Valid UPDATE BISPDUs ignored.
% Solution:
% "Fix end to end handling to check for lost sequence number.
% Fix parse pdu code not to not tromp on sequence number."
%
%
% Fix Requires change to:
% IDRP protocol (y/n):
% ANSI spec (y/n):
% IETF document (y/n):
% MERIT Design document (y/n):
% Code algorithm (y/n):
% Code only (y/n):
% module list 1: idrp.h idrp_parse_pdu.c
% module list 2: idrp_transport.c idrp_proto.h
```

Scenario that caused Bug:

internal->internal->internal->internal full mesh
internal->external->external->external sequence

Best Guess at what Caused Bug:

(jgs)
My best guesa is that the first PDU carrying 'default' triggers IDRP to go into some kind of "I'm ignoring you now" mode. At any rate, the effect seems to be that IDRO is triggered to go into that mode somehow and doesn't come out.

Fix requires change to:

Merit IDRP SCM Plan (1.0 7/21/93)

1.) IDRP ISO Specification version :(none)
    ISO/IEC DIS10474:1992
    SC6:
    ANSI:
    Date:
    What needs to change:

2.) IDRP PICS Proforms References: (none)
    Table #:
    Items:

3.) ANSI Specifications : (none)

    ANSI Document Name:
    ANSI Document #: yy-id#
    Sections:
    Pages:
    What needs to change:

4.) IETF specifications: (none)

    IETF Document: IDRP MIB Document
    RFC/Internet Draft: Draft
    Author:
    Version: 1.0
    Section(s): 4.5
    Pages: 30
    What needs to change:

5.) MERIT Design Document: (none)

    Design Document Name:
    Author:
    Version Number:
    Section(s):
    Page(s):
    What needs to change:

6.) Code Fix:

    Source modules: list-1, list-2
    comment on fix: ETE code not initializing

Appendix D – Testing Form

File 1 – /gated/doc/idrp/tests/test.layout.nn
where nn is an ID for a test layout

$% SQA Test Info id:0.9
$% Testlayout: test.layout.1

9.1) Equipment needed:
(list of equipment needed for testing)

1) 2 PCs with BSDI unix and gated
2) 2 RS6000 with AIX and gated

9.2) Testing Layout

Equipment Layout:
Logical connection Layout

File 2 – /gated/doc/idrp/tests/test.seq.nn
where nn is an ID for a test sequence

9.3) Tests
$% Test Scenario ID #: 01 (nn as in the file name)
$% Test Scenario Name: Rib Refresh Sequence
Test Sequences:

(ASCII diagrams and texts for the test sequences)

File 3 – /gated/doc/idrp/tests/release.results.nn
where nn is an ID for a test sequence
release is the name of the release

9.4) Test Results
$% Test Results ID: 01
$% MERIT software version: 0.9.0.a (major.minor.bug.internal)
Test Results:

(This section includes ASCII diagrams and texts for the test results).

Appendix E - Directory for Release Documentation

```
                    ./gated/doc/idrp/

     -------------------------------------------------
     |         |       |     |      |     |     |    |
   bugs  cvs.history  docs  review  sqa  scm   tests pics
```

bugs - has the bug reports 1-n
cvs.history - has the cvs history logs for MERIT/ANS (compressed)

docs - has IDRP documents and standards documents
plus SCM form, SQA form, bug report, Test report

review - has copies of reviews

sqa - has SQA forms for releases and build scripts for SQA

scm - has SCM forms for releases

tests - has files with testing layout, test sequences and
test results.

pics - Pics Proforma files associated with minor and major releases