

# **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 IDRП 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**

Merit IDR3 SCM Plan (1.0 7/21/93)

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: IDR3
```

The major version is 0, the minor version 9, the bug fix version is 0. The CVS naming for this version is "IDR3".

## **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. Cornell machines are backed up regularly as part of their development.

#### **Section 2.1.2) Merit releases of code**

Merit IDRП SCM Plan (1.0 7/21/93)

The Merit release of IDRП 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
  - IDRП design document
  - IDRП syntax document
- 4) Configuration Index Document
- 5) Accomplishment summary

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

The IDRП 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 IDRП code forming a new base for the next development. Under CVS the user may tag the software

Merit IDRП SCM Plan (1.0 7/21/93)

with a specific tag for easy release. The CVS release name mentioned above is the tag for a particular version of the MERIT IDRП3.

## **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 IDRП 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 IDRП 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**

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

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 subdirectories which exist in the ./gated/docs/idrplan 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 bug or known bug, 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 IDRPs SCM Plan (1.0 7/21/93)

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 IDRPs developments.

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

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

2.) IDRП 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

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

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: IDRPlan 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: IDRPlan 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 Management:

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

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**

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

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 Adjacency RIB. All FSM steps were properly taken

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

9.) Supplier Control (n/a)

10.) Records (n/a)

cvns 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 BISPDU's 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:
% IDRPs 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

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

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).

Merit IDRП SCM Plan (1.0 7/21/93)

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 IDRП 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