PRIDE Progress Report

January, 1993

Tony Bates
Daniel Karrenberg

1. Management Summary

With Marten Terpstra formally joining the PRIDE team, it is now at full strength. The tools have been further polished and an alpha version of *prpath* has been released. The results have been presented at the RIPE meeting and at the North American Regional Techs meeting where the PRIDE team helped to keep routing registry developments converging.

A significant development is the requirement to store aggregation information in the routing registry because aggregation influences routing policy. The repercussions for the PRIDE tools and the project in general need to be carefully considered.

The project is still progressing on shedule as work on the PRIDE giude and PRIDE course commences.

2. PRIDE Activities

2.1. The Team

Marten Terpstra officially joined the PRIDE team as of January 1st.

2.2. PRIDE Tools 1 Release

The pride tools release underwent a number of changes in the month of January with various enhancements and bug-fixes. The current release is known as pride-tools-1.0.3.

The tools release is available from:

`ftp.ripe.net:pride/tools/pride-tools-1.0.3.tar.Z`

Besides the complete package, each tool is also available separately in this directory.

The reaction for the tools continues to be very positive. Table 1 details the current usage statistics of the tools and the interactive PRIDE menu. The following statistics are taken from the period of January 1st - 31st, 1994.

Tool	Ftp'd S/W(1)	whois queries(2)	Menu Usage
Prcheck	13	1094	14
Prtraceroute	14	8046	37
Full Package(3)	61		23(4)

(1) Amount of anonymous ftp transfers of the software

(2) No. of RR queries related to the tools. The average amount for each tools is for prcheck 5 and for prtraceroute 10.

(3) Means the full release package.

(4) Total number of calls to the Menu.

Table 1: Statistics for PRIDE-TOOLS-1

2.3. Prpath

The third tool, ‘prpath’ is currently in alpha test. Prpath is a tool used to extract all (AS-)paths between two networks which are allowed by routing policy from the routing registry.

Here is a simple example of prpath to illustrate the basic idea
This example shows there are two valid paths from AS1104 (NIKHEF) to AS1755
(Ebone) as derived by the routing registry.

```
% prpath rijp.ripe.net tftp.ebone.net
Possible paths using routing registry information from whois.ripe.net
>From "AS1104" (rijp.ripe.net) to "AS1755" (tftp.ebone.net)

 1: AS1104 AS1103 AS1128 AS1755
 2: AS1104 AS1103 AS1128 AS2043 AS1129 AS1755
```

Some selected testers have tested an early version and we plan to include prpath in the next interim release of the tools sometime in February. An example of prpath was presented at the January RIPE meeting (See below).

3. RIPE Meeting, Amsterdam

Tony Bates gave a presentation on the PRIDE project at the 17th RIPE meeting in Amsterdam. This included an introduction to the prpath tool with example usage. The slides are available from:

ftp.ripe.net:ripe/presentations/ripe-m17-tony-PRIDE.ps.Z

A full breakdown of the current status of the routing registry was also given with the a push to get the remaining polices registered in the routing registry. See appendix D for more details.

4. Related activities

4.1. RIPE Database Support/Enhancements

The PRIDE team continues to help in the support and enhancement of the RIPE Routing Registry with a significant amount work put into the introduction of guarded field support within the RIPE database. This was of direct interest to the PRIDE project creating a large increase in the population of the routing registry giving the tools a large usage base.

For more details see the document "Support for Guarded Fields in the RIPE database" by Tony Bates, available as:

ftp.ripe.net:ripe/docs/ripe-docs/ripe-108.{ps,txt}

4.2. Regional Techs, San Diego

Both Tony Bates and Daniel Karrenberg attended the Regional Techs meeting. The purpose of this trip was to present the PRIDE project to the North American community and to track the establishment of routing registres in North America. In particular the PRIDE team promotes that all routing registries worldwide are compatible enough to be usable by the PRIDE tools.

There is a large amount of interest (and critical need) in establishing a North American RR. The CIX and COREN are piloting with the RIPE RR software and the PRIDE tools. During the meeting Merit agreed to establish a RR as soon as possible. It was agreed that information stored in this RR would be compatible so tools could interwork. The PRIDE project will help as much as possible in this effort.

An important result of the technical discussions was that routing registries need to store information about CIDR aggregation, because aggregation has an inpoact on routing policy.

Daniel Karrenberg and Elise Gerich (of Merit) gave a summary presentation of the discussions and a basic set of information that would be stored within the RR.

5. Progress Against Milestones

PRIDE-2 (PRIDE-TOOLS-1) was completed in week 50, one week late according to the original project plan.

PRIDE-3 (PRIDE-GUIDE-1) is expected to be completed on schedule.

PRIDE-4 (PRIDE-COURSE-1) is expected to be completed on schedule.

6. PRIDE Planning

PRIDE-3 (PRIDE-GUIDE-1)

Work has now begun in earnest on PRIDE-3 based on the earlier work plan. A full outline (structure) has been defined for the guide as well as a "house style" and procedures for document preparation. The basic structure is as follows:

- Introduction
- How to use this Guide
- Routing Policy Basics
- What's in a Routing Registry and how does it help me ?
- How do I register ?
- Using the Tools
- Questions and Answers
- Appendices

Work also continues on a revised edition of the RIPE-81 document. This will act as a major part of the input into PRIDE-3.

PRIDE-4 (PRIDE-COURSE-1)

With the outline of PRIDE-3, PRIDE-4 naturally falls into place with heavy emphasis on the use of examples in PRIDE-3 to be used for PRIDE-4. It is hoped to give a course sometime after week 10, the milestone date for PRIDE-4. It is unclear exactly where this will take place.

7. Appendices

The list of appendices are a regular part of the monthly reports. They are expected to grow as the project evolves.

Appendix A — PRIDE documents

This contains the list of PRIDE documents.

The PRIDE project proposal:

`ftp.ripe.net:pride/docs/pride-prop.{ps,txt}`

Appendix B — Related documents

This contains a list of all PRIDE related documents.

RIPE Routing Registry format - RIPE 81

`ftp.ripe.net:ripe/docs/ripe-docs/ripe-081.ps`

Guarded Field Support in the RIPE database - RIPE 108

`ftp.ripe.net:ripe/docs/ripe-docs/ripe-108.ps`

SWIP proposal

`merit.edu:/pub/nsfnet/swip/swip.txt`

Appendix C — PRIDE tools

PRIDE-1 (First release of PRIDE-tools 1)

`ftp.ripe.net:pride/tools/pride-tools-1.tar.Z`

The pride ftp directory contains the following directories:

tools
: PRIDE tools and related software

reports
: PRIDE monthly project reports

docs
: PRIDE and related documents

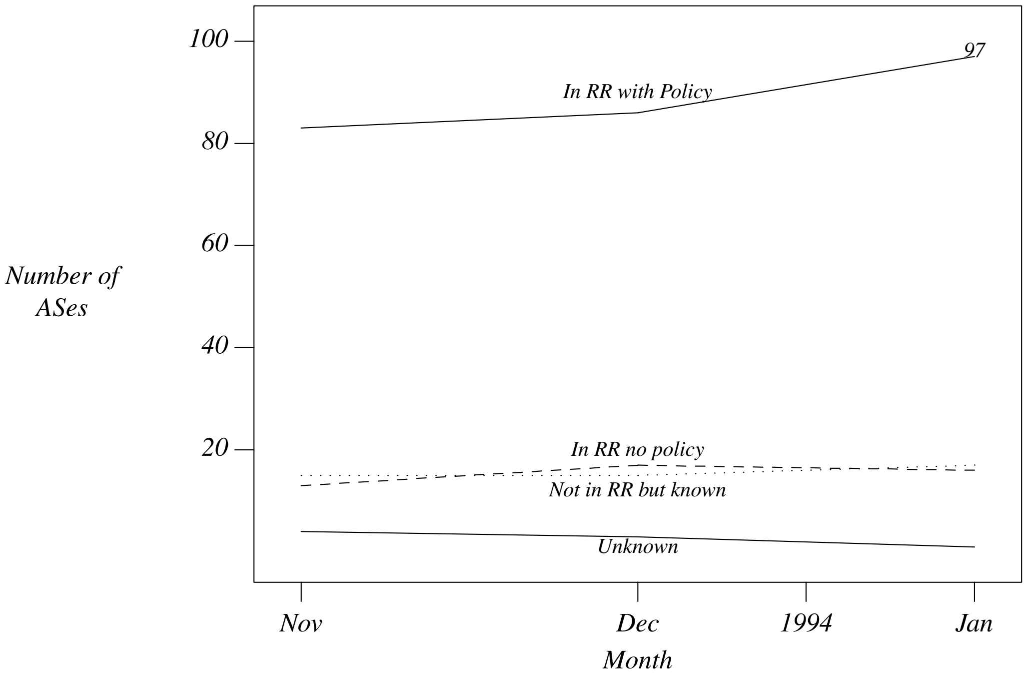
Appendix D — Routing Registry (RR) Status

State: January 1993

Status of European ASes in RR	# of ASes	Percentage
In RIPE database with Routing Policy information	97	74 %
In RIPE database without Routing Policy information	16	12 %
Not in RIPE database but in NIC/related databases	17	13 %
Unknown in any database	1	1 %
Total	131	

Table 2: Breakdown of known European routed ASes

The graph below shows the growth rate of the routing registry since the beginning of the PRIDE project.



Status of Worldwide ASes in RIPE RR	# of ASes	Percentage
In RIPE database with Routing Policy information	97	30 %
Non-Euro ASes in RIPE Database with RP info	2	1 %
In RIPE database without Routing Policy information	16	5 %
Non-Euro known without Routing Policy information	206	62 %
Unknown in any database	5	2 %
Total	326	

Table 3: Breakdown of known Worldwide routed ASes

Appendix E — Example usage of Interactive menu

% **telnet info.ripe.net 4711**

```
Trying 192.87.45.1 ...
Connected to ns.ripe.net.
Escape character is '^]'
                 PRIDE Tools Server

     1 - prcheck
         This tool checks syntax and consistency of AS objects
         in RIPE-81 format. These objects describe routing
         policy and jointly form the RIPE Routing Registry.
         The server version can only check objects already in
         the database. If you install prcheck locally you can
         use it to check local objects (before submitting them)
         as well. You can also find out if your routing policy is
         consistent with those of your neighbors.

     2 - prtraceroute
         This tool combines the normal traceroute output with
         routing policy information from the RIPE Routing
         registry. The output clearly identifies routing problems.
         The server version can only trace routes from host
         ns.ripe.net.If you install prtraceroute locally you can
         also trace from your host.

     q - Quit

Enter Selection: 2

This server version will display a quite verbose
version of the prtraceroute output. The argument
to enter is a destination domain name or IP address.
The route from ns.ripe.net to the destination will
be displayed.

Enter destination host []: ns0.ja.net

doing prtraceroute -l -v ns0.ja.net

traceroute with AS and policy additions [Jan  4 14:02:47 UTC]

                from AS1104 ns.ripe.net (192.87.45.1)
                to   AS 786 ns0.ja.net (193.63.94.20)

 1 AS1104  hef-router.nikhef.nl          (192.87.45.80)     [I] 2 3 2 ms
 2 AS1103  Amsterdam1.router.surfnet.nl  (192.16.183.112)   [D1] 2 2 2 ms
 3 AS1103  Amsterdam2.router.surfnet.nl  (145.41.9.130)     [I] 5 3 4 ms
 4 AS2043  amsterdam4.empb.net           (193.172.4.17)     [E1] 6 7 5 ms
 5 AS2043  london1.empb.net              (193.172.4.5)      [I] 22 23 27 ms
 6 AS 786  int-gw.ulcc.ac.uk             (193.172.27.14)    [E1] 24 26 33 ms
 7 AS 786  ns0.ja.net                    (193.63.94.20)     [I] 45 24 56 ms

AS Path followed:  1104 1103 2043 786
```

```
AS1104 = NIKHEF-H
AS1103 = SURFnet IP
AS2043 = European Multiprotocol Backbone
AS 786 = The JANET IP Service

done.
Enter Selection: q
Goodbye
Connection closed by foreign host.
```