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An Overview Of The CA*Net3 IRR Next Generation Software

Meeting Name: Internet2 Routing Working Group Meeting
Time: 8:00pm - 11:30pm
Room Location: CALIFORNIA/WISCONSIN

Bill Rutherford (BCIT, CA*net3) will present an overview of the CA*net3 IRR next generation software. Bill will also give a demo, however, since there will not be connectivity in the meeting room, the demo will be the following morning, wed, jan 30, 10:45-11:30 (we have the space until noon), in the Memorial Union, Yuma Room (room 211).

LINKS:

CA*net 3 IRR Web Site	http://irr.canet3.net/
Project Development Team Web Site	http://c3-irr-project.gait.bcit.ca/
CA*net 3 IRR NG Web Tool	http://brahms.gait.bcit.ca:8080/irr/
IRR NG Web Tool – Customized for I2	http://jones.gait.bcit.ca:8080/i2rr/
CANARIE	http://www.canarie.ca/

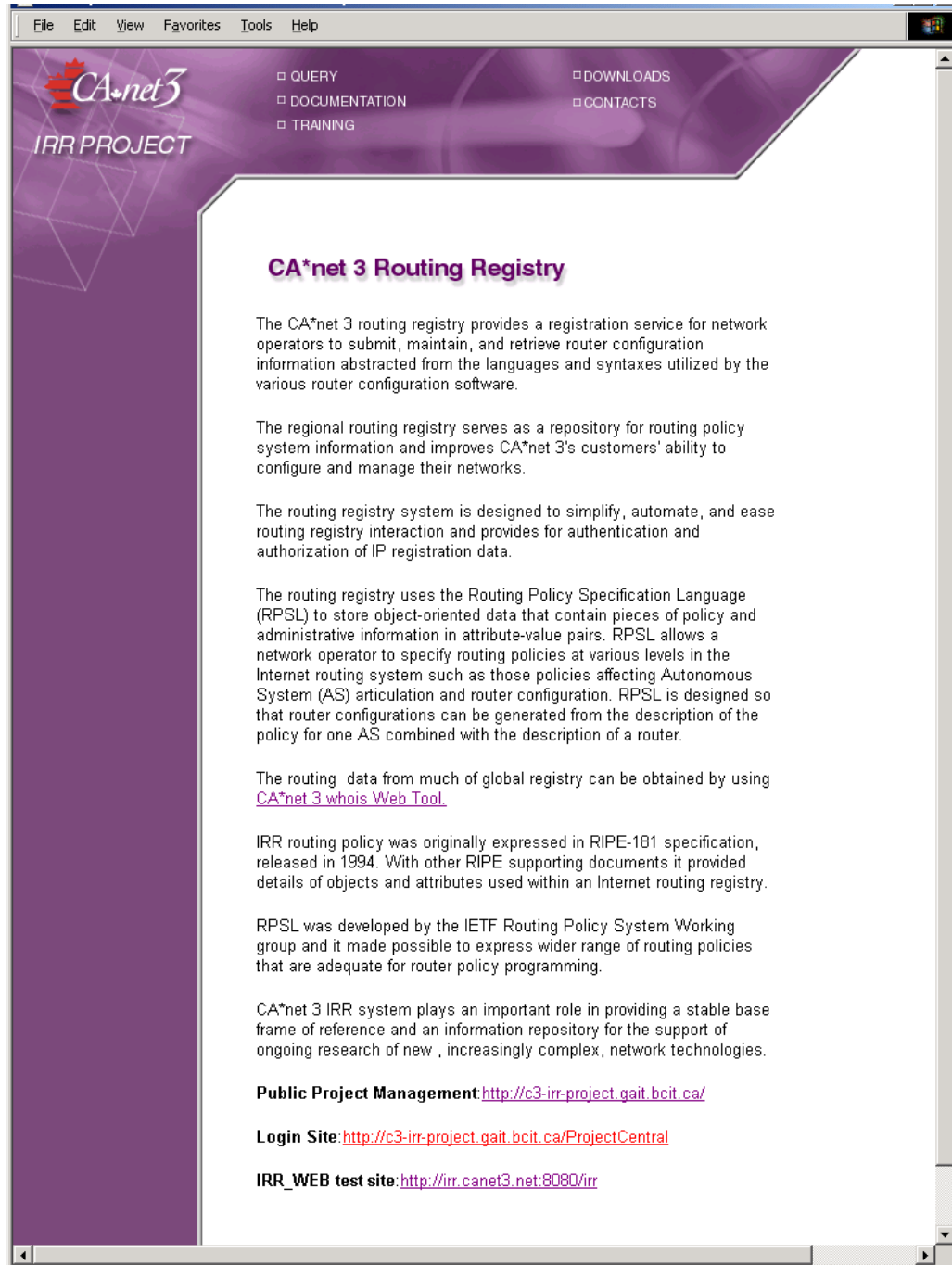


Figure 1 - PERL Based Site



The screenshot shows a web browser window displaying the CA*net3 IRR PROJECT website. The page has a purple header with the CA*net3 logo and navigation links for QUERY, DOCUMENTATION, TRAINING, DOWNLOADS, and CONTACTS. The main content area is titled "Gigapop RPSL Object Reports" and contains three query forms. The first form is selected, showing "All TierA route objects in the ARDNOC database". Below the forms is a "Report Results:" section with "Edit" and "Save To File" buttons. The results are displayed in a preformatted text area, showing two RPSL objects for the 205.189.33.0/24 and 205.189.32.0/24 routes. A footer in the bottom left corner reads "Last modified - 03/21/2002 Copyright © CANARIE 2000".

File Edit View Favorites Tools Help

CA*net3
IRR PROJECT

□ QUERY □ DOWNLOADS
□ DOCUMENTATION □ CONTACTS
□ TRAINING

Gigapop RPSL Object Reports

1. All route objects in the database

2. All objects maintained by:

3. All CA*net 3 IRR objects maintained by:

[Report Help](#)

Report Results:

```
Executed: /bin/whois -h irr.canet3.net -T route -i member-of rs-ARDNOC-TierA
% This is the CANET3 ARDNOC IRR Whois server.
% See http://irr.canet3.net for more information.

route:      205.189.33.0/24
descr:     C3 backbone routes
remarks:   Modified by the CA*net 3 IRR Team test
origin:    AS6509
member-of: rs-ARDNOC-backbone, rs-ARDNOC-TierA
notify:    thomas.tam@bellnexxia.com
notify:    eng@canet3.net
notify:    nmc@bc.net
mnt-by:    ARDNOC-MNT
changed:   wrutherf@bcit.ca 20010613
source:    ardnoc

route:      205.189.32.0/24
descr:     C3 backbone routes
remarks:   Modified by the CA*net 3 IRR Team
origin:    AS6509
member-of: rs-ARDNOC-backbone, rs-ARDNOC-TierA
notify:    thomas.tam@bellnexxia.com
notify:    eng@canet3.net
```

Last modified - 03/21/2002
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Figure 2 Basic Reporting



The screenshot shows a web browser window displaying the CA*net3 IRR Project website. The page has a purple header with the CA*net3 logo and navigation links: QUERY, DOCUMENTATION, TRAINING, DOWNLOADS, and CONTACTS. The main content area is titled "Gigapop RPSL Object Reports" and contains three search forms:

- 1. All route objects in the database
- 2. All objects maintained by:
- 3. All CA*net 3 IRR objects maintained by:

The third form's dropdown menu is open, showing a list of manually populated entries:

- ARDNOC-MNT (highlighted)
- BCNET-BC-MNT
- CRC-ON-MNT
- DAL-NS-MNT
- MRNET-MB-MNT
- NETERA-AB-MNT
- NFLD-NF-MNT
- ONET-OTT-ON-MNT
- ONET-TOR-ON-MNT
- RISQ-QC-MNT
- SRNET-SK-MNT

On the left side, there is a vertical navigation menu with links: GIGAPOP REPORTS, ROUTER CONFIGS, IRR WHOIS QUERIES, RPSL TEMPLATES, OPERATOR HELP, and ADMINISTRATION. At the bottom left, it says "Last modified - 03/21/2002 Copyright© CANARIE 2000".

Figure 3 - Manually populated drop downs



The screenshot shows a web browser window with a menu bar (File, Edit, View, Favorites, Tools, Help) and a purple header area. The header contains the CA*net 3 logo and the text "IRR PROJECT". A navigation menu on the left lists: GIGAPOP REPORTS, ROUTER CONFIGS, IRR WHOIS QUERIES, RPSL TEMPLATES, OPERATOR HELP, and ADMINISTRATION. The main content area is titled "CA*net 3 Router Configuration" and contains seven numbered configuration steps, each with a "Submit" button:

- 1) Create a generic IPv4 access list for routes sourced by by
- 2) Create a export from/to IP to/from IP
note: interface IPs default to 1.1.1.1 / 2.2.2.2
- 3) Create an extended format cisco IPv4 access list for all C3-TierX routes maintained by
- 4) Create an extended format IPv4 access list for all routes sourced by
- 5) Create an extended format cisco IPv4 access list for routes maintained by
- 6) Create a IPv4 access list for route set name
- 7) Create a IPv4 as path access list for as set name

At the bottom left, it says "Last modified - 03/21/2002 Copyright© CANARIE 2000". A [Config Help](#) link is at the bottom center.

Figure 4 - Preliminary router access list generation



The screenshot shows a web browser window with the CA.net3 IRR PROJECT interface. The page has a purple header with navigation links: QUERY, DOCUMENTATION, TRAINING, DOWNLOADS, and CONTACTS. On the left is a sidebar with links: GIGAPOP REPORTS, ROUTER CONFIGS, IRR WHOIS QUERIES, RPSL TEMPLATES, OPERATOR HELP, and ADMINISTRATION. The main content area contains three configuration forms:

- Form 5: "Create an extended format cisco IPv4 access list for" with a dropdown for "TierA" (routes maintained by) and a dropdown for "ARDNOC".
- Form 6: "Create a Juniper IPv4 access list for" with a text input for "RS-ARDNOC-TierA" (route set name).
- Form 7: "Create a Nortel IPv4 as path access list for as set name" with a text input for "AS-C3-GIGAPOPS".

Below the forms is a "Config Help" link and an "RtConfig Results:" section with a "Save To File" button. The results section shows the following code:

```
Executed: @RtConfig access_list filter RS-ARDNOC-TierA
! Juniper IPv4 access list for RS-ARDNOC-TierA
policy-statement prefix-list-100 {
  term prefixes {
    from {
      route-filter 199.212.24.0/24 exact accept;
      route-filter 205.189.32.0/24 exact accept;
      route-filter 205.189.33.0/24 exact accept;
      route-filter 205.210.1.0/24 exact accept;
      route-filter 205.220.1.0/24 exact accept;
    }
  }
  term catch-rest {
    then reject;
  }
}
```

At the bottom left of the interface, it says "Last modified - 03/21/2002 Copyright© CANARIE 2000".

Figure 5 - Example list for Juniper



The screenshot shows a web browser window with a menu bar (File, Edit, View, Favorites, Tools, Help) and a purple-themed header. The header includes the 'CA.net3 IRR PROJECT' logo and navigation links: QUERY, DOCUMENTATION, TRAINING, DOWNLOADS, and CONTACTS. A left sidebar lists menu items: GIGAPOP REPORTS, ROUTER CONFIGS, IRR WHOIS QUERIES, RPSL TEMPLATES, OPERATOR HELP, and ADMINISTRATION. The main content area is titled 'IRR Maintainer Administrator' and contains three sections:

- Add a maintainer from the IRR database to the password file:** A form with a dropdown menu for 'Maintainers From Database' (set to 'ARDNOC-MNT'), an 'Enter password:' text input, and an 'Add Maintainer' button.
- Change a maintainer password:** A form with a dropdown menu for 'Select Maintainer' (set to 'Admin'), an 'Enter Password:' text input, and a 'Change Password' button.
- Delete a maintainer from the password file:** A form with a dropdown menu for 'Select Maintainer To Delete' (set to 'ARDNOC-MNT') and a 'Delete User' button.

Below these forms is a section for 'Change the IRR coordinator email address (linked under the contact button):' with an 'Enter new email address:' text input (containing 'irr-admin') and a 'Change email' button. At the bottom left, there is a footer with the text: 'Last modified - 03/21/2002 Copyright© CANARIE 2000' and a blue link for 'Admin Help'.

Figure 6 - Basic management panel

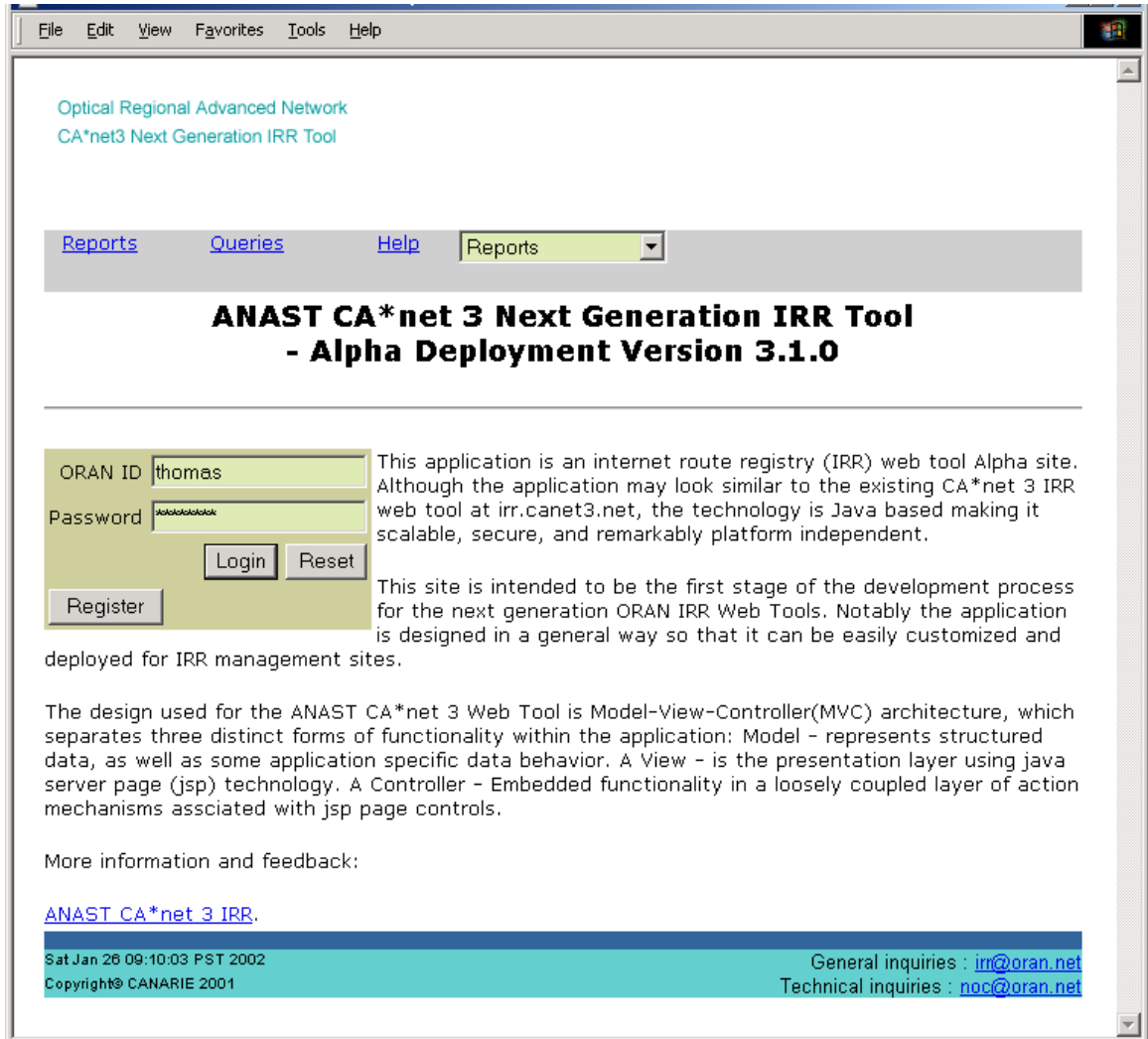


Figure 7 - New Java based site

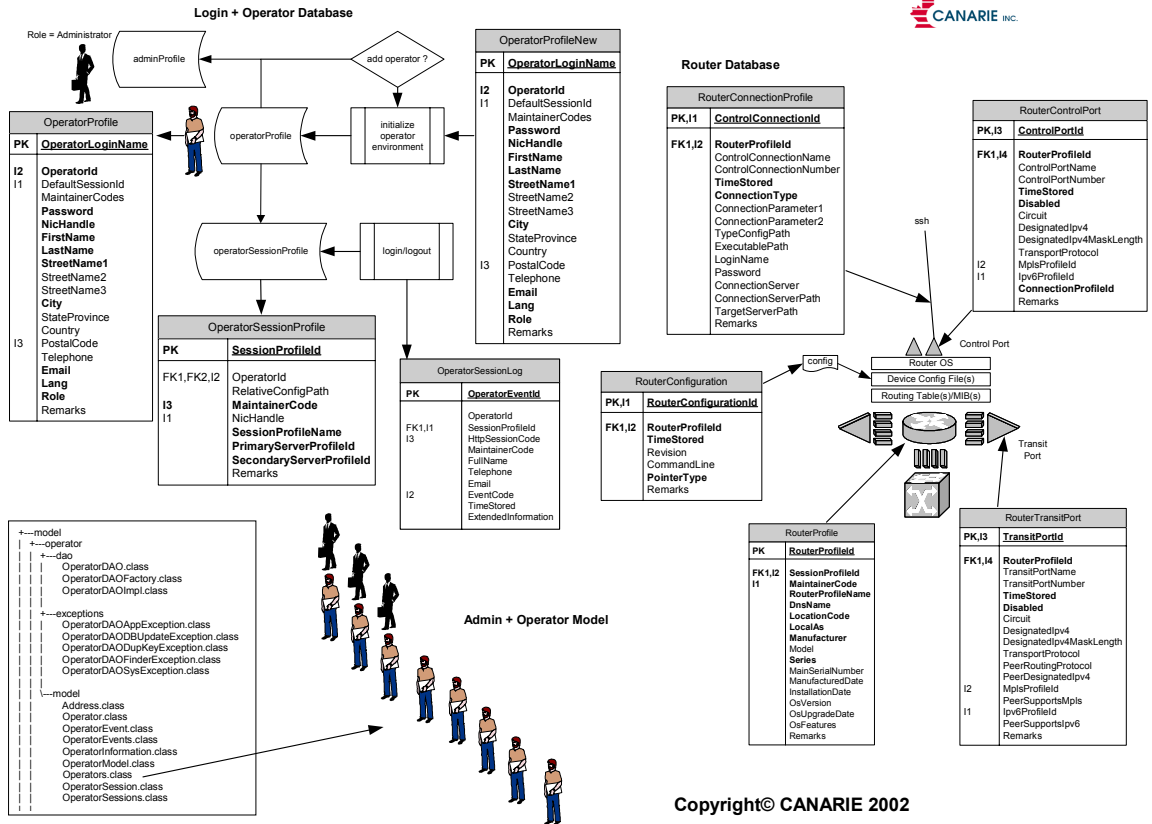


Figure 8 - New database for object characterization



File Edit View Favorites Tools Help

Optical Regional Advanced Network
CA*net3 Next Generation IRR Tool

Primary Server = GAIT
ORAN ID = thomas

Reports Queries Help Sign Out Router Configuration Operator Session Profile

First Name: Thomas
Last Name: Tam
Street Address: BCE Nexxia Inc.
110 O Connor St
City: Ottawa
State/Province: Ontario Postal Code: K1P 1H1
Country: Canada
Telephone Number: 613-785-04

User ID: thomas
Maintainer ID: ARDNOC-MNT
NIC Handle: ATT2001
Password:
E-Mail Address: thomas.tam@bellnexxia.com
Language: EN
Comments: Administrator

Default Session: ARDNOC-test1 Set
This Session: ARDNOC-test1 Load

Save

RPSL Person Object:

```
person: Thomas Tam
address: BCE Nexxia Inc.
address: 110 O'Connor Street, Floor 4
address: Ottawa, Ontario K1P 1H1
remarks: Entered by the CA*net 3 IRR Team test123
phone: 613-785-0419
e-mail: thomas.tam@bellnexxia.com
nic-hdl: ATT2001
notify: thomas.tam@bellnexxia.com
notify: eng@canet3.net
notify: c3-go-irr@canet3.net
notify: nmc@BC.net
```

Submit Person to IRR

RPSL Maintainer Object:

```
mntner: ARDNOC-MNT
descr: ARDNOC Maintainer
remarks: Modified by the CA*net 3 IRR Team
admin-c: ATT2001
```

Figure 9 - Operator data and session selection

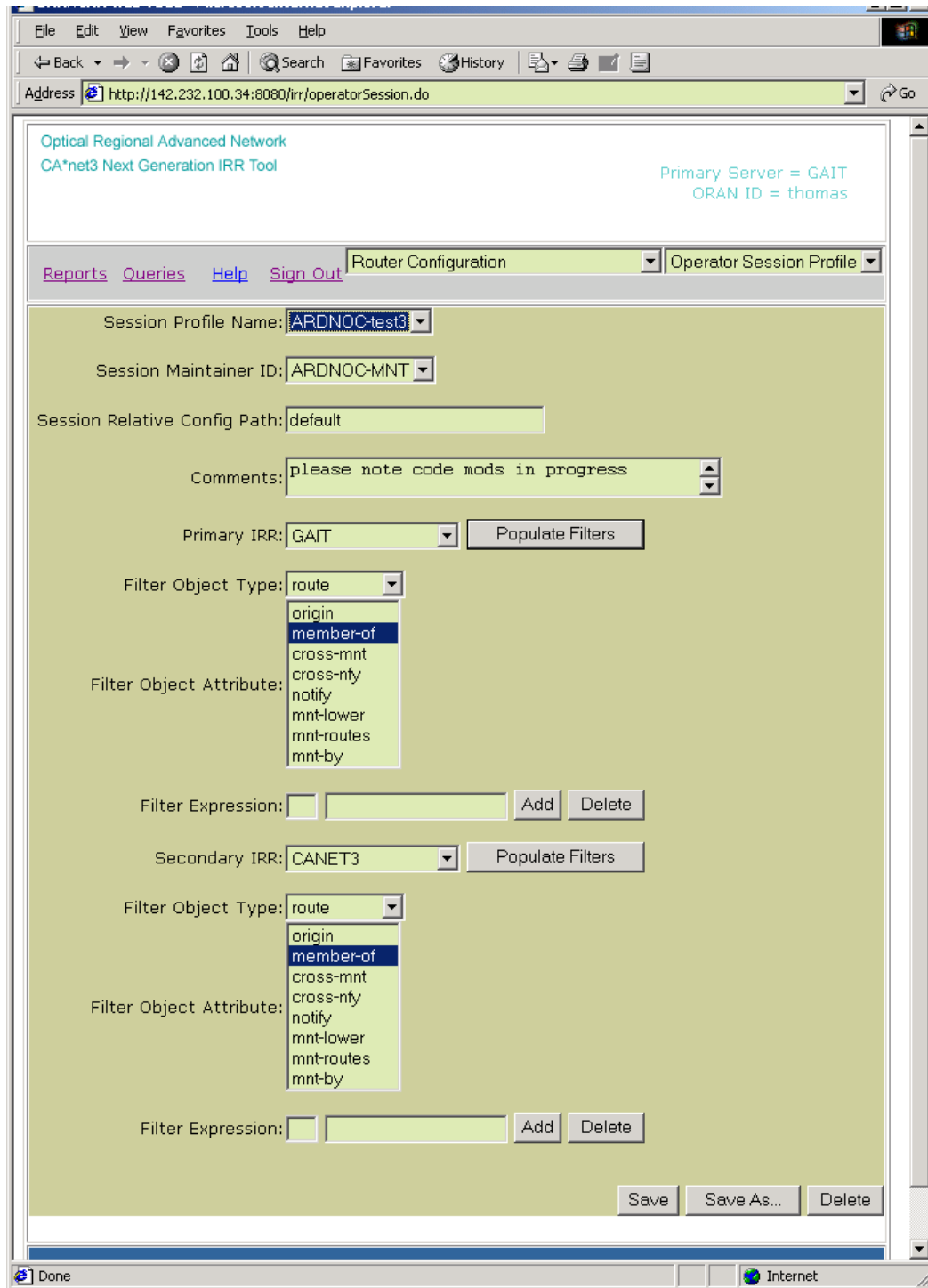


Figure 10 - Bare session

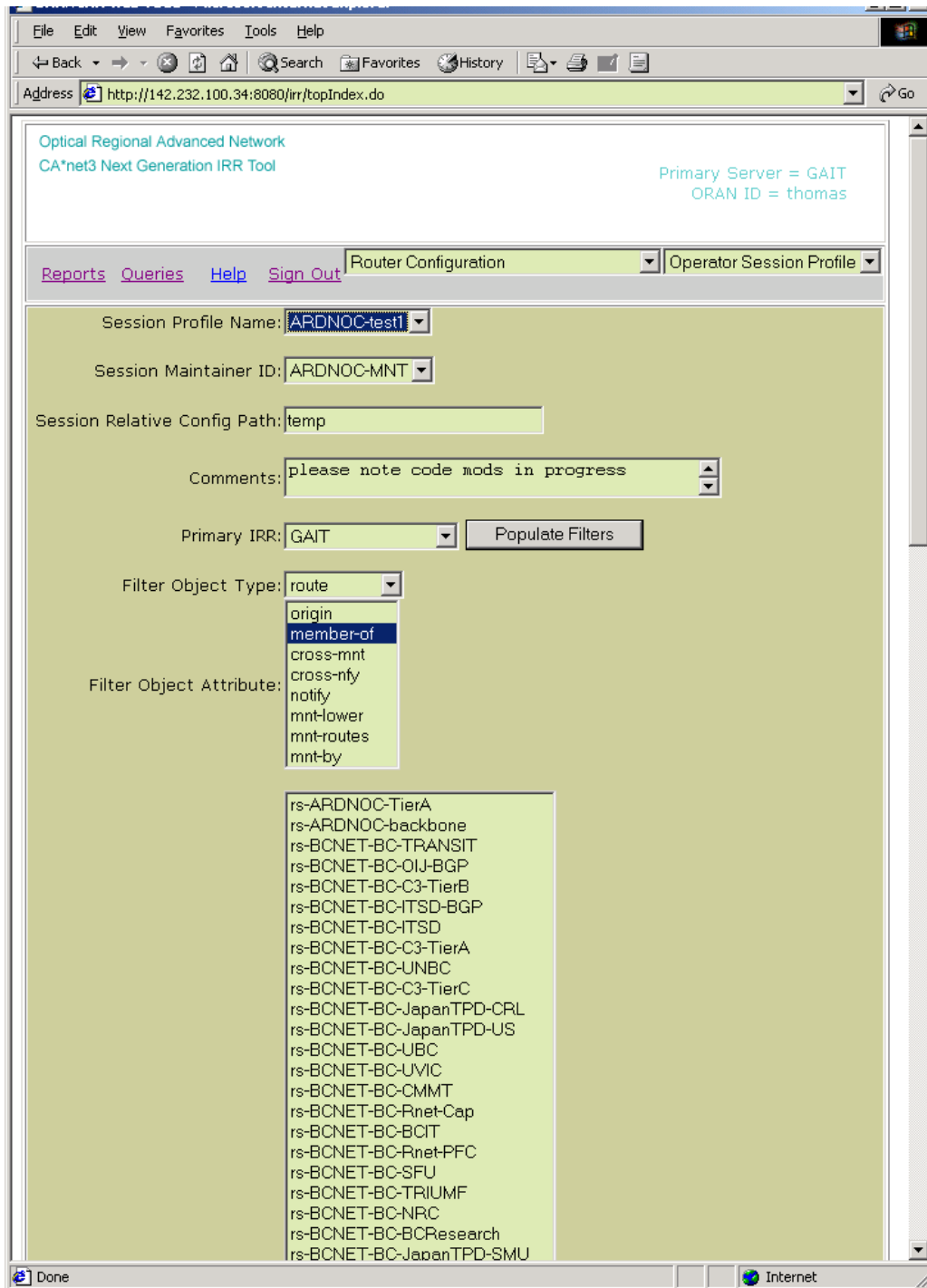


Figure 11 - Populated session



Optical Regional Advanced Network
CA*net3 Next Generation IRR Tool

Primary Server = GAIT
ORAN ID = thomas

Reports Queries Help Sign Out Router Configuration Operator Session Profile

For IRR server: GAIT find route objects with
inverse attribute of: member-of with value of: rs-ARDNOC-TierA

rs-BCNET-BC-SFU
rs-BCNET-BC-TRIUMF
rs-BCNET-BC-NRC
rs-BCNET-BC-BCResearch
rs-BCNET-BC-JapanTPD-SMU
rs-BCNET-BC-ACT
rs-BCNET-BC-BCnet
rs-BCNET-BC-TUBC
rs-CRC-ON-TierA
rs-DAL-NS-TierA
rs-DAL-NS-TierB

Submit

Detail Result Set:

Edit Save To

Executed: /bin/whois -h 142.232.100.34

```
% This is the GAIT RIPEdb 3.0.2 IRR Whois server.  
% See http://irr.canet3.net for more information.  
  
route:          205.189.33.0/24  
descr:          C3 backbone routes  
remarks:        Modified by the CA*net 3 IRR Team  
origin:         AS6509  
member-of:      rs-ARDNOC-backbone, rs-ARDNOC-TierA  
notify:         thomas.tam@bellnexxia.com  
notify:         eng@canet3.net  
notify:         nmc@BC.net  
mnt-by:         ARDNOC-MNT  
changed:        wrutherf@bcit.ca 20010613  
source:         ardnoc  
  
route:          205.189.32.0/24  
descr:          C3 backbone routes  
remarks:        Modified by the CA*net 3 IRR Team  
origin:         AS6509  
member-of:      rs-ARDNOC-backbone, rs-ARDNOC-TierA  
notify:         thomas.tam@bellnexxia.com  
notify:         eng@canet3.net  
notify:         nmc@BC.net  
mnt-by:         ARDNOC-MNT  
changed:        wrutherf@bcit.ca 20010613  
source:         ardnoc
```

Figure 12 - Report from populated session



Optical Regional Advanced Network
CA*net3 Next Generation IRR Tool

Primary Server = GAIT
ORAN ID = thomas

Reports Queries Help Sign Out Router Configuration Operator Session Profile

For IRR server: CANET3 search for: AS6509 Search Whois

Advanced Whois search options

Type of object: aut-num Inverse lookup: none

Source: (shift-select or ctrl-select for multiple sources) all ardnoc bcnet-bc crc-on dal-ns mmet-mb

Templates: View descriptions of fields in each template as-block Get Template

Query Results

Edit Save To File

Executed: /bin/whois -h 142.231.112.4 -T aut-num AS6509

```
% This is the CANET3 ARDNOG IRR Whois server.
% See http://irr.canet3.net for more information.

aut-num: AS6509
as-name: GATEWAY-TOR-ON-AS
member-of: AS-C3-GIGAPOPS
descr: CA*net 3 Backbone
remarks: Modified by the CA*net 3 IRR Team (WARNING NOT COMPLETE)
import: from AS6509 accept ANY ;
export: to AS6509 announce ANY ;
remarks: *****
remarks: DANTE New York local-preference 400
import: from AS8933 212.1.192.245 at 212.1.192.246
action pref = 65135; community.append(6509:2500, 8933:40) ;
accept <^AS8933+>;
export: to AS8933 212.1.192.245 at 212.1.192.246
announce community.contains(6509:10, 6509:11) ;
remarks: *****
remarks: ABILENE New York local-preference 400, community 6509:2502 11537:40
remarks: ABILENE Chicago local-preference 400, community 6509:2502 11537:30
remarks: ABILENE Seattle via PNM local-preference 400, community 6509:2502 11537:20
import: from AS11537 205.189.32.89 at 205.189.32.90
```

Figure 13 - New query panel with server selection



The screenshot shows a web-based configuration interface for the CA*net3 Next Generation IRR Tool. The page title is "Optical Regional Advanced Network" and "CA*net3 Next Generation IRR Tool". The primary server is identified as "GAIT" with ORAN ID "thomas". The interface includes a menu bar with "File", "Edit", "View", "Favorites", "Tools", and "Help". Below the menu, there are tabs for "Reports", "Queries", "Help", and "Sign Out", and a dropdown menu for "Router Configuration" and "Operator Session Profile".

The main configuration area is titled "Server Profile Name: CANET3" and contains the following fields:

- DNS Name: irr.canet3.net
- IPv4 Address: 142.231.112.4
- IPv6 Address: 0:0:142.231.112.4
- Server Type: RIPEdb
- Query Port: 43
- Update Port: By SOURCE
- Flood Port: 3504
- Mirror Port: 3505

Under "Authoritative Source Codes", a list of codes is displayed, including: ardnoc, bcnet-bc, crc-on, dal-ns, mmnet-mb, netera-ab, nfld-nf, onet-ott-on, onet-tor-on, risq-qc, smet-sk, surenet-on, unb-nb, upei-pei, and wednet-on. There are "Add" and "Delete" buttons next to this list.

Under "Mirrored Source Codes", the value is set to "NONE", with "Add" and "Delete" buttons.

Other configuration fields include:

- FTP Server: 142.232.100.17
- FTP Path: /pub
- FTP Data File: canet3.db.gz (with a "Parse" button)
- FTP Serial File: CANET3.CURRENTSERIAL
- RPSL Version: RPSL
- Remarks: RIPEdb 3.0.2

At the bottom right of the form, there are "Save" and "Delete" buttons.

Figure 14 - New server profile showing RPSL parse setup



Optical Regional Advanced Network
 CA*net3 Next Generation IRR Tool
 Primary Server = GAIT
 ORAN ID = thomas

Router Configuration | Admin Profile

Operator: Thomas Tam | Role: Administrator

User ID: thomas

NIC Handle: ATT2001

Maintainer Codes: ARDNOC-MNT | Add | Delete

Administrator:

- Ben Sayo
- Bill Rutherford
- Radina Nikolic
- Thomas Tam**
- Don McWilliam
- Marilyn Hay
- Yves Boudreau
- Rene Hatem
- Mike Bluett
- Denis Laplante
- Mike Hrybyk

Street Address: BCE Nexxia Inc.
 110 O Connor St
 City: Ottawa
 State/Province: Ontario | Postal Code: K1P 1H1
 Country: Canada
 Telephone Number: 613-785-04
 E-Mail Address: thomas.tam@bellnexia.com

New | Save | Delete

Archive

Operator Event Logs:

Time Stamp	Event	Operator	Maintainer	Extended Information
Fri Jan 25 16:53:15 PST 2002	Sign Out	Thomas Tam	ARDNOC-MNT	Source Ipv4 = 142.232.100.47
Fri Jan 25 16:53:41 PST 2002	Sign In	Thomas Tam	ARDNOC-MNT	Source Ipv4 = 142.232.100.47
Sat Jan 26 09:10:02 PST 2002	Sign In	Thomas Tam	ARDNOC-MNT	Source Ipv4 = 142.232.100.47
Sat Jan 26 09:18:43 PST 2002	Sign In	Thomas Tam	ARDNOC-MNT	Source Ipv4 = 142.232.100.47

Figure 15 - New administration panel showing operator events



Optical Regional Advanced Network
 CA*net3 Next Generation IRR Tool

Primary Server = GAIT
 ORAN ID = thomas

Reports Queries Help Sign Out Router Profile Operator Session Profile

New Save Delete

Router Profile Name: Save As

DNS Name:

Location Code:

Local Autonomous System:

Maintainer Team:

Manufacturer:

Model:

Series:

Main Serial Number:

Date of Manufacture:

Installation Date:

Operating System Version:

Last Upgrade Date:

Operating System Features:

Comments:

Message:

RPSL inet-rtr object:

```
inet-rtr:      c3-calcor01.canet3.net
remarks:      *****
remarks:      Entered by the CA*net 3 IRR Team
local-as:     AS6509
member-of:    RTRS-CANET3-ALL, RTRS-CANET3-CA, RTRS-CANET3-CA-WEST
ifaddr:       205.189.32.130 masklen 30
remarks:      POSO/O OC48 Cal to Van link
remarks:      NMC facility ID: Target 78-5-801OC48 CLGRAB4207W-
VANCBC09W
peer:         IS-IS 205.189.32.129
ifaddr:       205.189.32.133 masklen 30
remarks:      POS1/O OC48 - Cal to Reg link
remarks:      NMC facility ID: Target 78-4-801OC48 CLGRAB4207W-
```

Figure 16 - New router profile



Optical Regional Advanced Network
 CA*net3 Next Generation IRR Tool

Primary Server = GAIT
 ORAN ID = thomas

Router Configuration | Operator Session Profile

Router Profile Name: c3-ottcor01-rtr-profile

Transit Port Name: POS1/0
 POS0/0
 Loopback0
 ATM2/0
 ATM2/0.1
 ATM2/0.2
 ATM2/0.3
 ATM2/0.4

Router Verification

Port 1 : POS1/0 Parameter

Disabled:

: 1

Last Update: Fri Nov 09 14:45:16 PST 2001

Circuit: 57-2-502OC48 MTRLPQ02H05-OTWAON23H16

Designated IPv4: 205.189.32.153

Designated IPv4 Masklength: 30

Transport Protocol: PPP SONET

Peer Routing Protocol(s): IS-IS

Peer Designated IPv4: 205.189.32.154

Peer Supports MPLS: Yes null MPLS Profile

Peer Supports IPv6 : Yes null IPv6 Profile

Remarks: OC48 - Ottawa to Montreal link

RPSL inet-rtr object: Submit to IRR

```
inet-rtr:      c3-ottcor01.canet3.net
remarks:      *****248*
remarks:      Entered by the CA*net 3 IRR Team
local-as:     AS6509
member-of:    RTRS-CANET3-ALL, RTRS-CANET3-CA, RTRS-CANET3-CA-CENTRAL
ifaddr:      205.189.32.248 masklen 32
remarks:      Loopback0
ifaddr:      205.189.32.150 masklen 30
```

Figure 17 - New transit port profiles



The screenshot shows the 'Router Configuration' page of the CA*net3 Next Generation IRR Tool. The interface includes a menu bar (File, Edit, View, Favorites, Tools, Help) and a title bar. The main content area displays the following configuration details:

- Router Profile Name: **c3-ottcor01-rt-profile**
- Control Port Name: **ottcor-frame-relay-56k-1**
- Connection Profile: **ottcor-1-connection-ssh2**
- Configuration: **20010101120005**
- Remarks: **Main route**

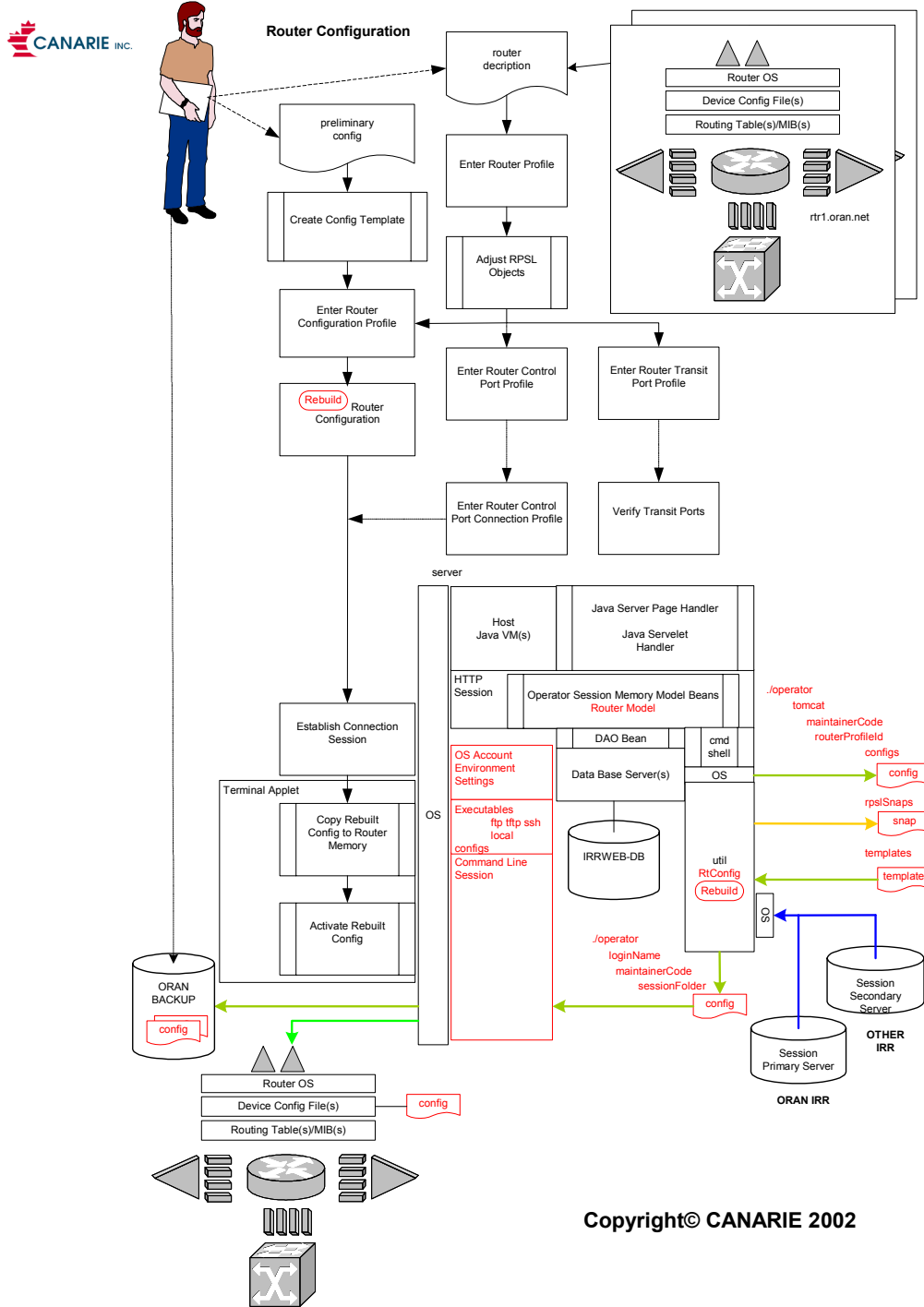
Buttons for 'Router Profile', 'Control Port Profile', 'Connection Profile', and 'Configuration Profile' are visible next to their respective fields. Below the configuration fields, the 'Current Config:' section shows the configuration ID **[20010101120005]** and buttons for 'Update' and 'Connect'.

The configuration text is as follows:

```
version 12.0
no service single-slot-reload-enable
no service pad
service timestamps debug datetime msec show-timezone
service timestamps log datetime msec show-timezone
service password-encryption
service upgrade fabric-loader
!
hostname c3-ottcor01
!
boot system flash slot0:gsr-k3p-mz.120-13.S.bin
boot system flash slot0:gsr-k3p-mz.120-10.S.bin
clock timezone EST -5
clock summer-time EDT recurring
!
!
!
ip subnet-zero
no ip source-route
no ip rcmd domain-lookup
ip rcmd rsh-enable
ip host tor1 205.189.32.149
ip host mon0 205.189.32.154
ip host van1 205.189.32.129
ip host reg1 205.189.32.137
```

At the bottom, the 'Executed:' section shows the same configuration text, indicating a successful rebuild. Buttons for 'Rebuild', 'config.', 'Update', and 'Connect' are located below the configuration text.

Figure 18 - New router configuration rebuild with timestamps



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Figure 19 - Operator process overview with rebuild button



The screenshot shows the CA*net3 Next Generation IRR Tool interface. At the top, it displays "Optical Regional Advanced Network" and "CA*net3 Next Generation IRR Tool". The primary server is identified as "GAIT" with ORAN ID "thomas".

The interface includes a menu bar (File, Edit, View, Search, Go, Bookmarks, Tasks, Help) and a toolbar with "Sign Reports Queries Help Out". The main configuration area shows:

- Router Profile Name: c3-ottcor01-rtr-profile
- Control Port Name: ottcor-frame-relay-56k-1
- Control Connection Name: ottcor-1-connection-ssh2
- Generated Router Configuration Path/Filename: null

A terminal window displays the following output:

```
SunOS 5.8
login: thomas
Password:
Last login: Sun Dec 30 13:55:00 from 24.83.17.227
Sun Microsystems Inc. SunOS 5.8 Generic February 2000
$ ls
c3-calcor01-rtr-profile-20011117173024 c3-chicor01-rtr-profile-200111171710
c3-calcor01-rtr-profile-20011118154825 c3-halcor01-rtr-profile-20011219100253
c3-calcor01-rtr-profile-20011119100400 c3-halcor01-rtr-profile-20011219100919
c3-calcor01-rtr-profile-20011119100434 c3-halcor01-rtr-profile-20011219100926
c3-calcor01-rtr-profile-20011120093302 temp
c3-calcor01-rtr-profile-20011120093504
$
```

Below the terminal window are "Connect" and "Disconnect" buttons. The "Port 1 : ottcor-frame-relay-56k-1" configuration is shown with the following parameters:

Parameter	Value
Circuit	swi-outbound-34567
Designated IPv4	205.189.32.149
Designated IPv4 Masklength	4
Transport Protocol	Frame Relay

The "Connection 1 : ottcor-1-connection-ssh2" configuration is shown with the following parameters:

Parameter	Value
Connection Type	ssh
Connection Parameter 1	3des
Connection Parameter 2	test

The status bar at the bottom indicates "Document: Done (2,093 secs)".

Figure 20 - New connection session with router configs



Optical Regional Advanced Network
 CA*net3 Next Generation IRR Tool

Primary Server = GAIT
 ORAN ID = thomas

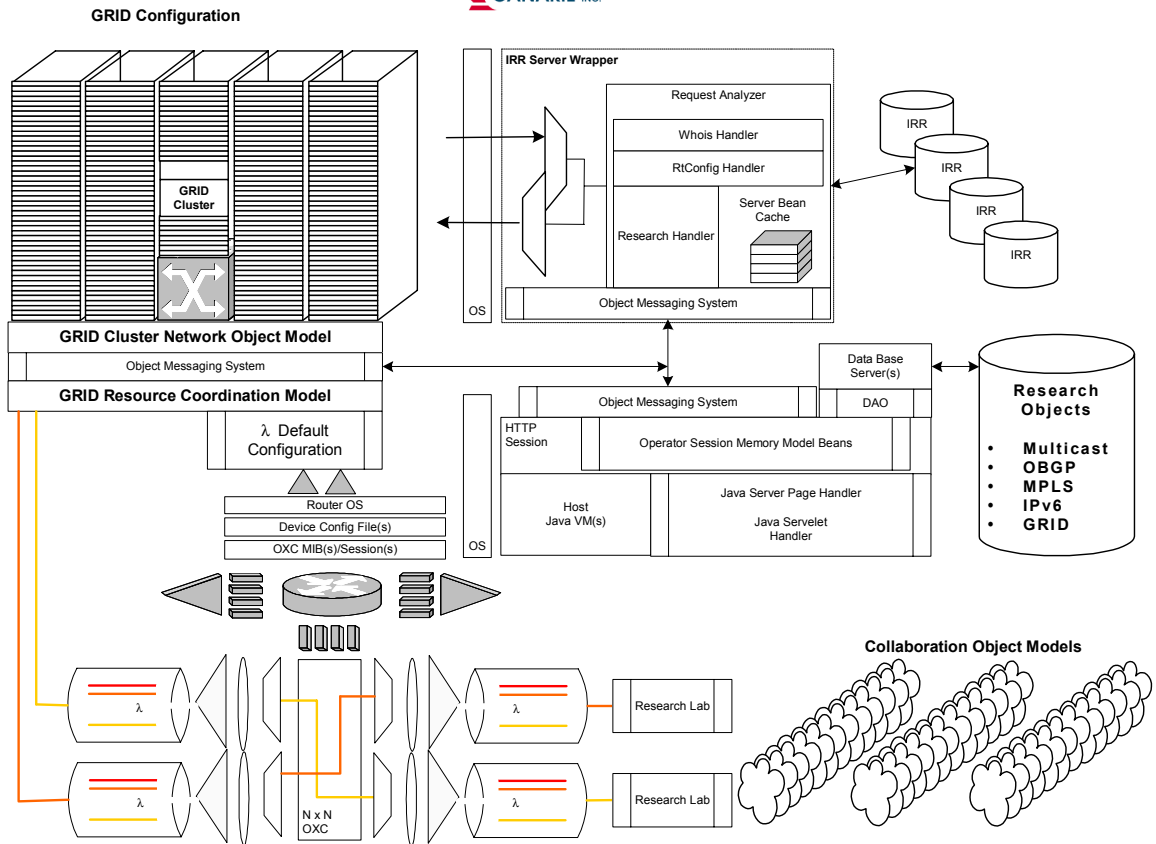
Reports Queries Help Sign Out Router Configuration Operator Session Profile

Update

Router Profile Name: c3-calcor01-rtt-profile

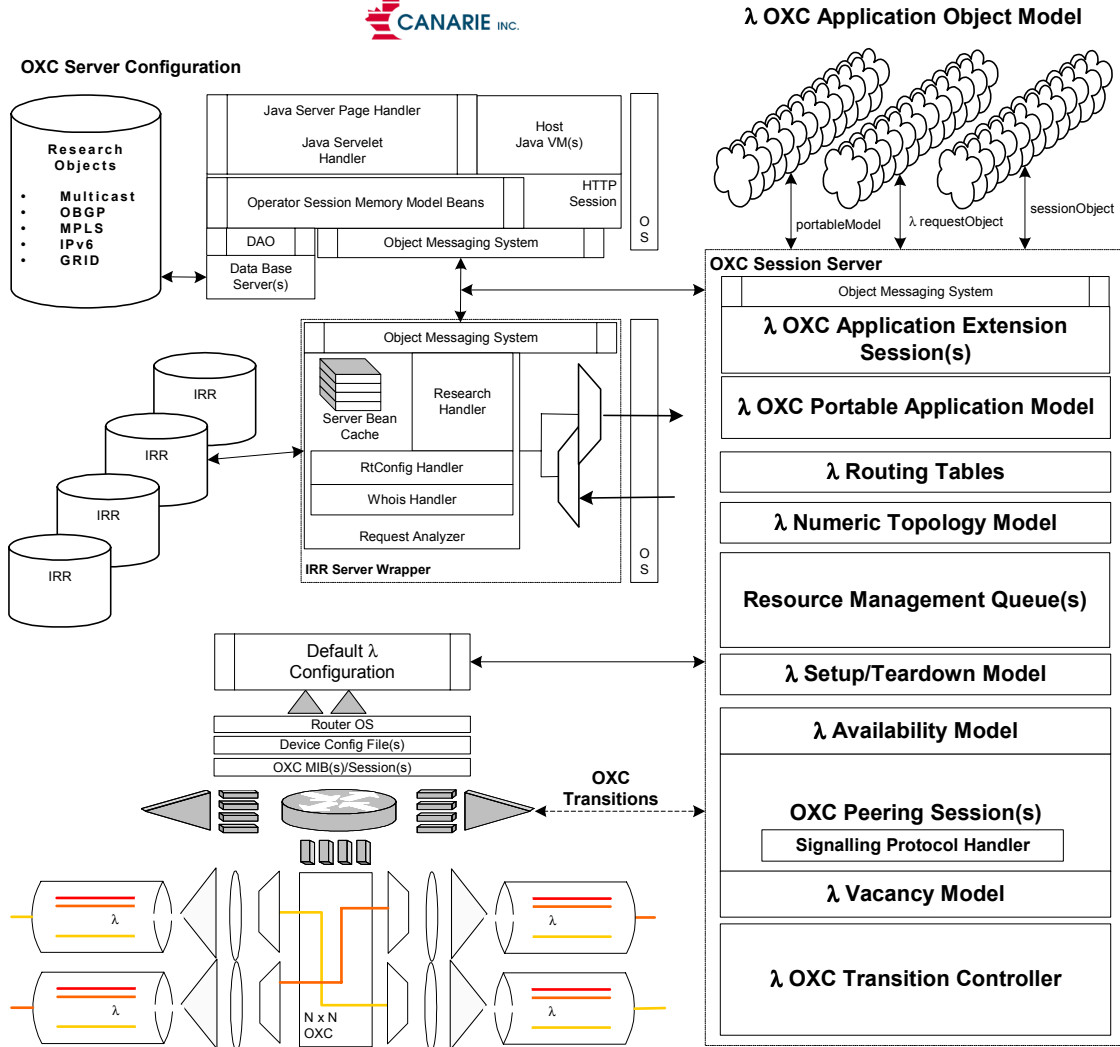
Port	Link	Parameter	Value	Test Type	Test Result
Port 1 : POS0/0	OC48 Cal to Van link	Designated IPv4	205.189.32.130	ping	205.189.32.130 is alive
		Peer Designated IPv4	205.189.32.129	ping	205.189.32.129 is alive
Port 2 : POS1/0	OC48 - Cal to Reg link	Designated IPv4	205.189.32.133	ping	205.189.32.133 is alive
		Peer Designated IPv4	205.189.32.134	ping	205.189.32.134 is alive
Port 3 :	link to NETERA GigabitEthernet2/0.1 Calgary	Designated IPv4	205.189.32.198	ping	205.189.32.198 is alive
		Peer Designated IPv4	205.189.32.197	ping	205.189.32.197 is alive
Port 4 :	link to NETERA GigabitEthernet2/0.2 Edmonton	Designated IPv4	205.189.32.126	ping	205.189.32.126 is alive
		Peer Designated IPv4	205.189.32.125	ping	205.189.32.125 is alive
Port 0 : Loopback0		Designated IPv4	205.189.32.253	ping	205.189.32.253 is alive
		Peer Designated IPv4	none	ping	

Figure 21 - New router verification



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Figure 22 - Future trends with GRID facilitation



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Figure 23 - Possible optical cross connect session server



Port	Parameter	Value	Test Type	Test Result
Port 4 : ATM2/0.1	point-to-point vBNS via STARTAP			
	Designated IPv4	205.189.32.94	ping	205.189.32.94 is alive
	Peer Designated IPv4	205.189.32.93	ping	205.189.32.93 is alive
Port 5 : ATM2/0.2	point-to-point CERN via STARTAP			
	Designated IPv4	192.65.184.181	ping	192.65.184.181 is alive
	Peer Designated IPv4	192.65.184.182	ping	192.65.184.182 is alive
Port 6 : ATM2/0.3	point-to-point NREN NASA via STARTAP			
	Designated IPv4	192.12.123.82	ping	192.12.123.82 is alive
	Peer Designated IPv4	192.12.123.81	ping	no answer from 192.12.123.81
Port 7 : ATM2/0.4	point-to-point Israel via STARTAP			
	Designated IPv4	192.114.98.5	ping	192.114.98.5 is alive
	Peer Designated IPv4	192.114.98.6	ping	192.114.98.6 is alive
Port 8 : ATM2/0.5	point-to-point NORDUnet via STARTAP			
	Designated IPv4	205.189.32.114	ping	205.189.32.114 is alive
	Peer Designated IPv4	205.189.32.113	ping	205.189.32.113 is alive
Port 9 : ATM2/0.6	point-to-point NASA NISN via STARTAP			
	Designated IPv4	192.150.29.14	ping	no answer from 192.150.29.14
	Peer Designated IPv4	192.150.29.13	ping	no answer from 192.150.29.13

Figure 24 - From demo showing all NASA links down



The screenshot shows a web browser window with the Internet2 logo and navigation menu. The main content area displays a user profile form with the following fields:

- Primary Server = I2, ORAN ID = ken
- Router Configuration (dropdown), Operator Session Profile (dropdown)
- Reports, Queries, Help, Sign Out (links)
- First Name: Ken, Last Name: Lindahl
- Street Address: Comm & Network Services, Information & Systems Techn
- City: 283 Evans Hall #3806, Berkeley, C
- State/Province: Alberta, Postal Code: 94720-3806
- Country: United States
- Telephone Number: (510) 642-0866
- User ID: ken, Default Session: I2-test1, This Session: I2-test1
- Maintainer ID: MAINT-AS25
- NIC Handle: ken lindahl
- Password: [masked]
- E-Mail Address: lindahl@ack.berkeley.edu
- Language: EN
- Comments: Radina entered for I2 Demo
- Save button

Below the form are two sections:

RPSL Person Object:

```

person: ken lindahl
address: Communication & Network Services
address: Information & Systems Technology
address: 283 Evans Hall #3806
address: Berkeley, CA USA
address: 94720-3806
phone: +1 510 642-0866
e-mail: lindahl@ack.berkeley.edu
nic-hdl: ken lindahl
notify: noc@berkeley.edu
mnt-by: MAINT-AS25
changed: lindahl@ack.berkeley.edu 20010420
  
```

Submit Person to IRR button

RPSL Maintainer Object:

```

mntner: MAINT-AS25
descr: maintainer for AS 25, University of California, Berkeley
  
```

Figure 25 - From demo showing "teaser"