Improving the Accuracy of Routing Registry Data

Manish Karir,
Larry Blunk, Todd White,
Kevin Chan, Pat Pannuto

Merit Network Inc.

Summary

- In this talk we describe an ongoing project that attempts to address the issue of routing registry data accuracy by not only providing users with simple consistency checks on their registered data, but also integrates information from live BGP routing tables.

- If we allow users to view anomalies in routing registry data and actual routed information in a unified framework that also lets them easily modify the routing registry information, users will finally have both the information and the easy to use tools to help keep their routing registry data updated.

Current Routing Registry Operation

- Mostly based on IRRd software
- Goal of routing registry is to make prefix policy information publicly available to the entire Internet community via a simple whois query interface
- Registered objects are in RPSL format
- Two step process
  - Create maintainer account
  - Register objects that describe routing policy
- Updates to registry objects
  - Via email
  - Via website
- Little or no feedback to user during the process other than error reporting
- No relationship between registered data and routed prefixes

RADB-ng Project

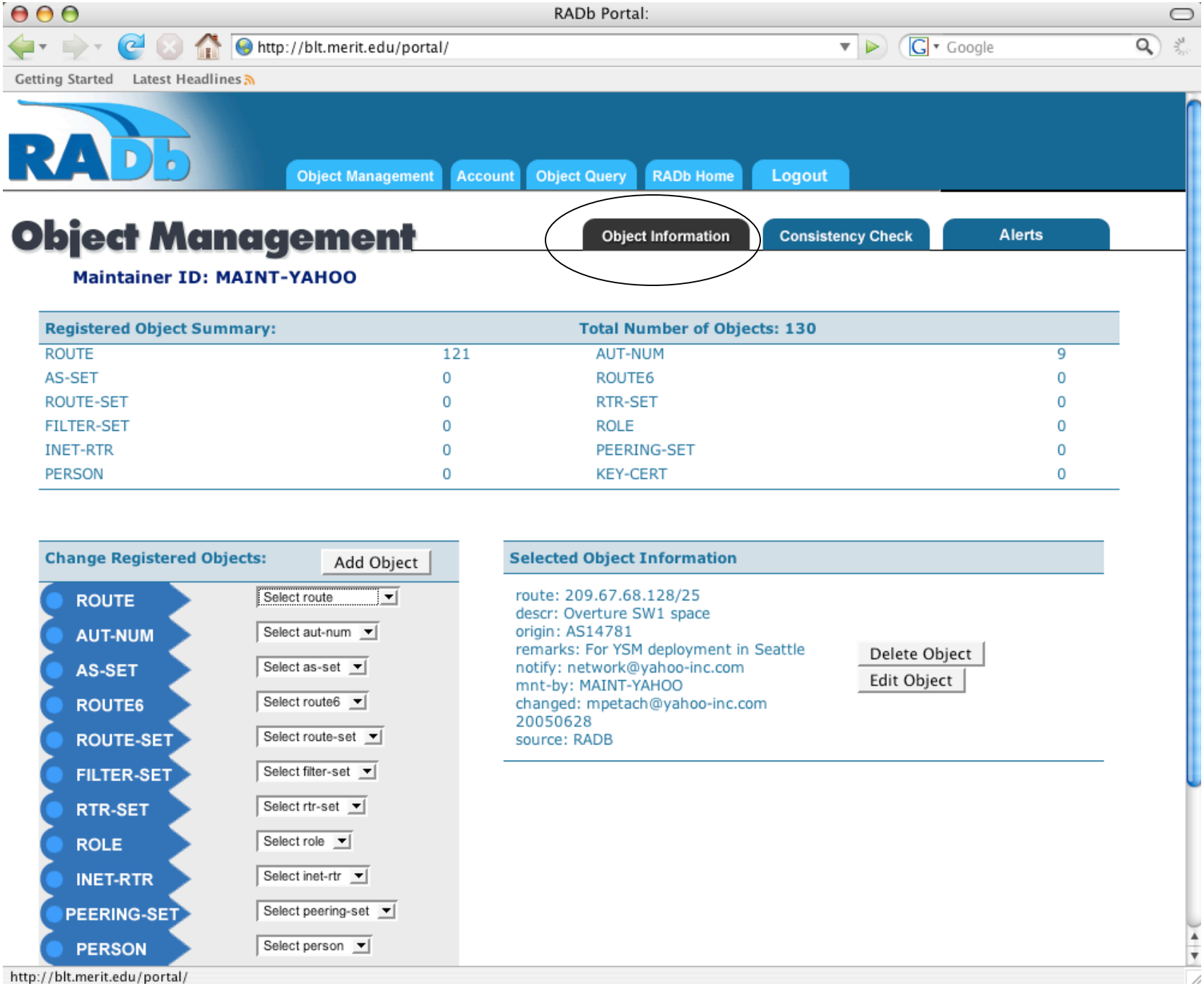
- Provide a portal based route object maintenance framework
  - Easy way to add/delete/modify registry objects
  - Easy way to examine currently registered information
  - Provide at-a-glance summary information
  - Provide feedback on registry objects that are inconsistent
  - Provide feedback on inconsistencies between routing registry and routing table information

Registry Internal Consistency Checks

- List of all route objects that do not have a matching aut-num object - Missing aut-num objects
- List of all prefixes that have multiple associated route objects

Internet Routing Consistency Checks

- Use Internet Routing Table to generate:
  - List of all announced routes
  - List of all announced objects
  - List of all unannounced objects
  - List of all unregistered routes
- Use a modified bgp peering session to perform a check on each update message and determine if the originAS is different from the originAS in the routing registry.
  - Alerts are sent to RADB-ng system where they are made available to the affected user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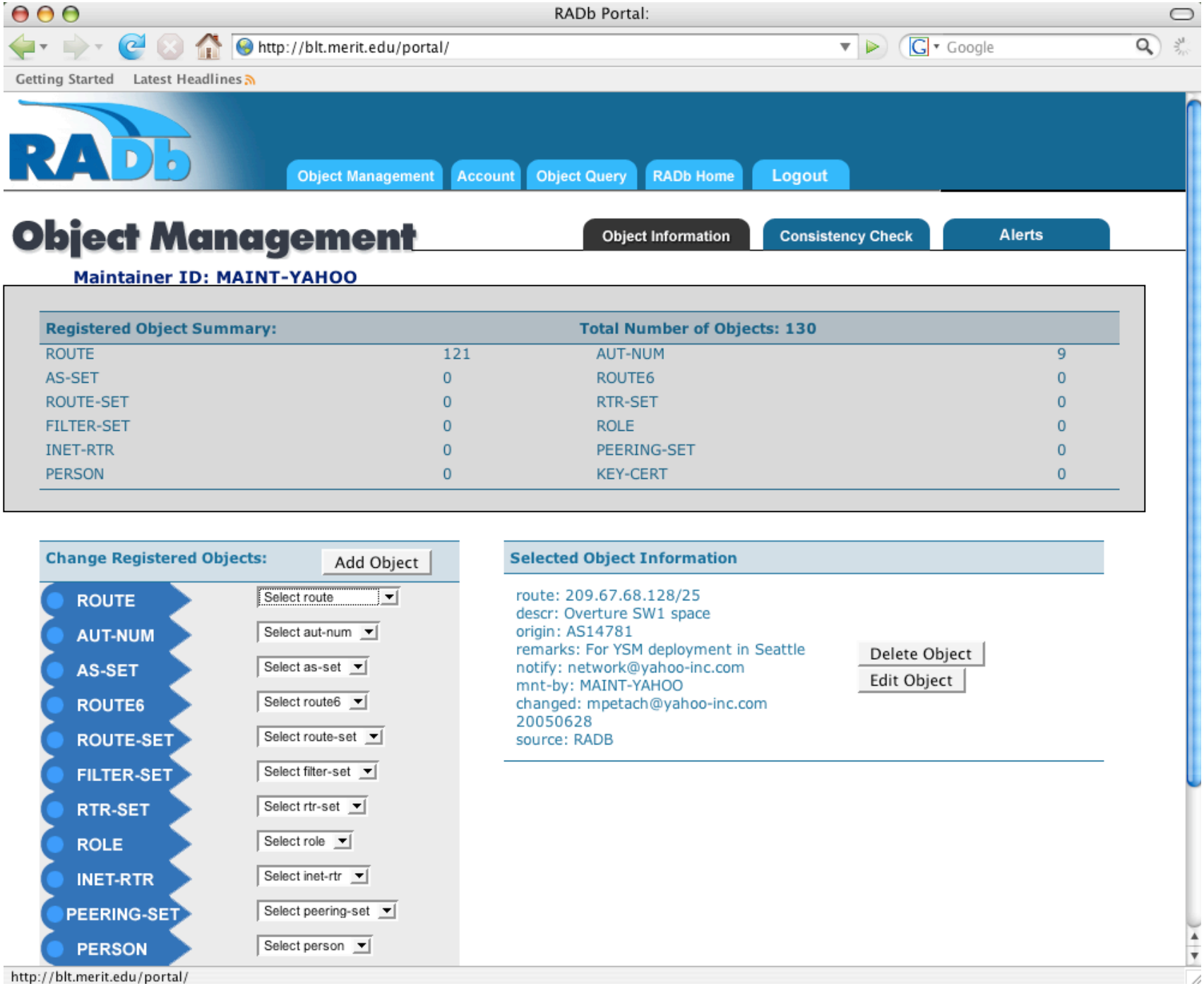
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
Object Management
Object Information
Consistency Check
Alerts
Maintainer ID: MAINT-YAHOO
Registered Object Summary:
Total Number of Objects: 130
ROUTE 121
AUT-NUM 9
AS-SET 0
ROUTE6 0
ROUTE-SET 0
RTR-SET 0
FILTER-SET 0
ROLE 0
INET-RTR 0
PEERING-SET 0
PERSON 0
KEY-CERT 0
Change Registered Objects:
Add Object
ROUTE
Select route
AUT-NUM
Select aut-num
AS-SET
Select as-set
ROUTE6
Select route6
ROUTE-SET
Select route-set
FILTER-SET
Select filter-set
RTR-SET
Select rtr-set
ROLE
Select role
INET-RTR
Select inet-rtr
PEERING-SET
Select peering-set
PERSON
Select person
Selected Object Information
route: 209.67.68.128/25
descr: Overture SW1 space
origin: AS14781
remarks: For YSM deployment in Seattle
notify: network@yahoo-inc.com
mnt-by: MAINT-YAHOO
changed: mpetach@yahoo-inc.com
20050628
source: RADB
Delete Object
Edit Object
http://blt.merit.edu/portal/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Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
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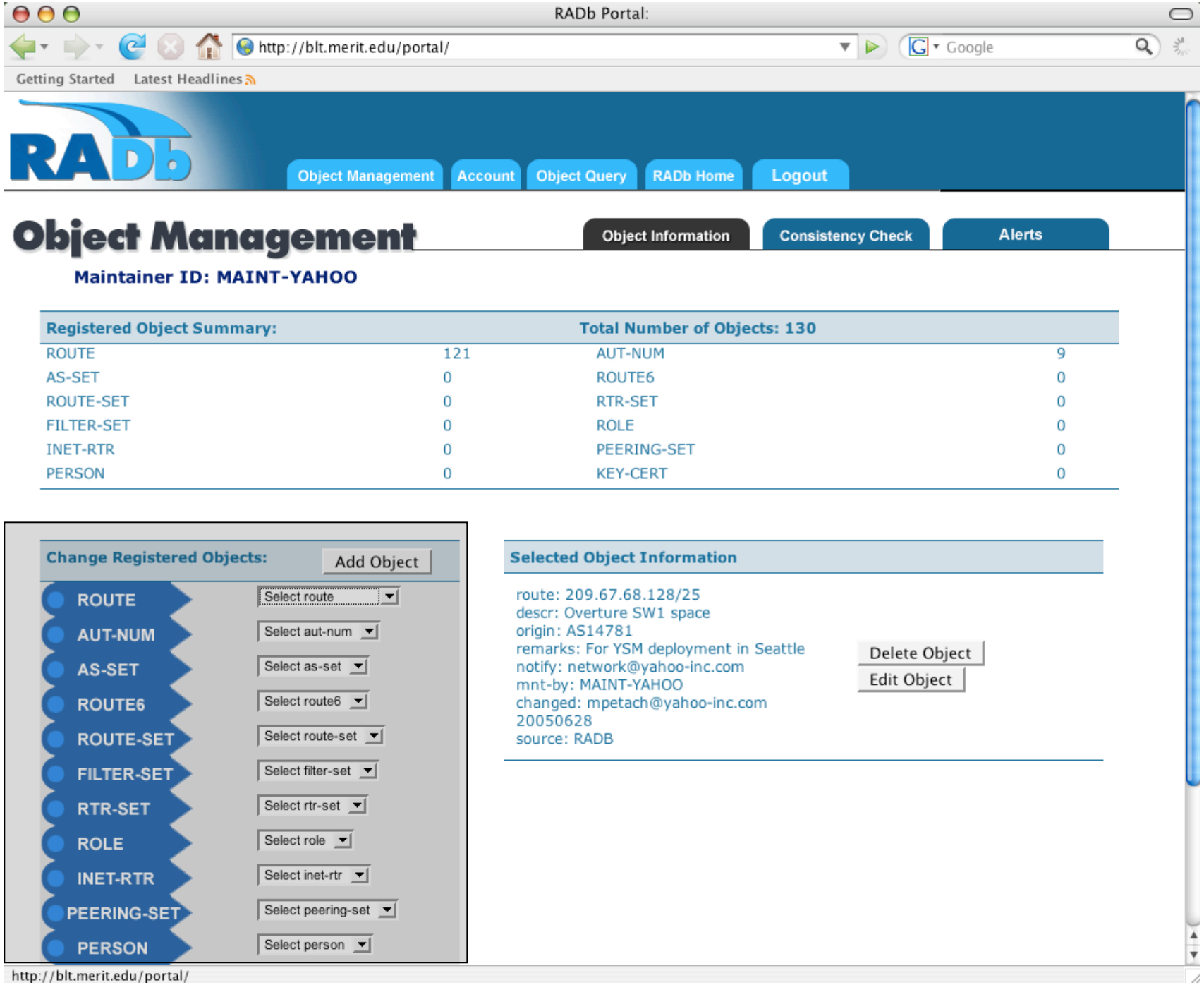
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Getting Started
Latest Headlines
RADb
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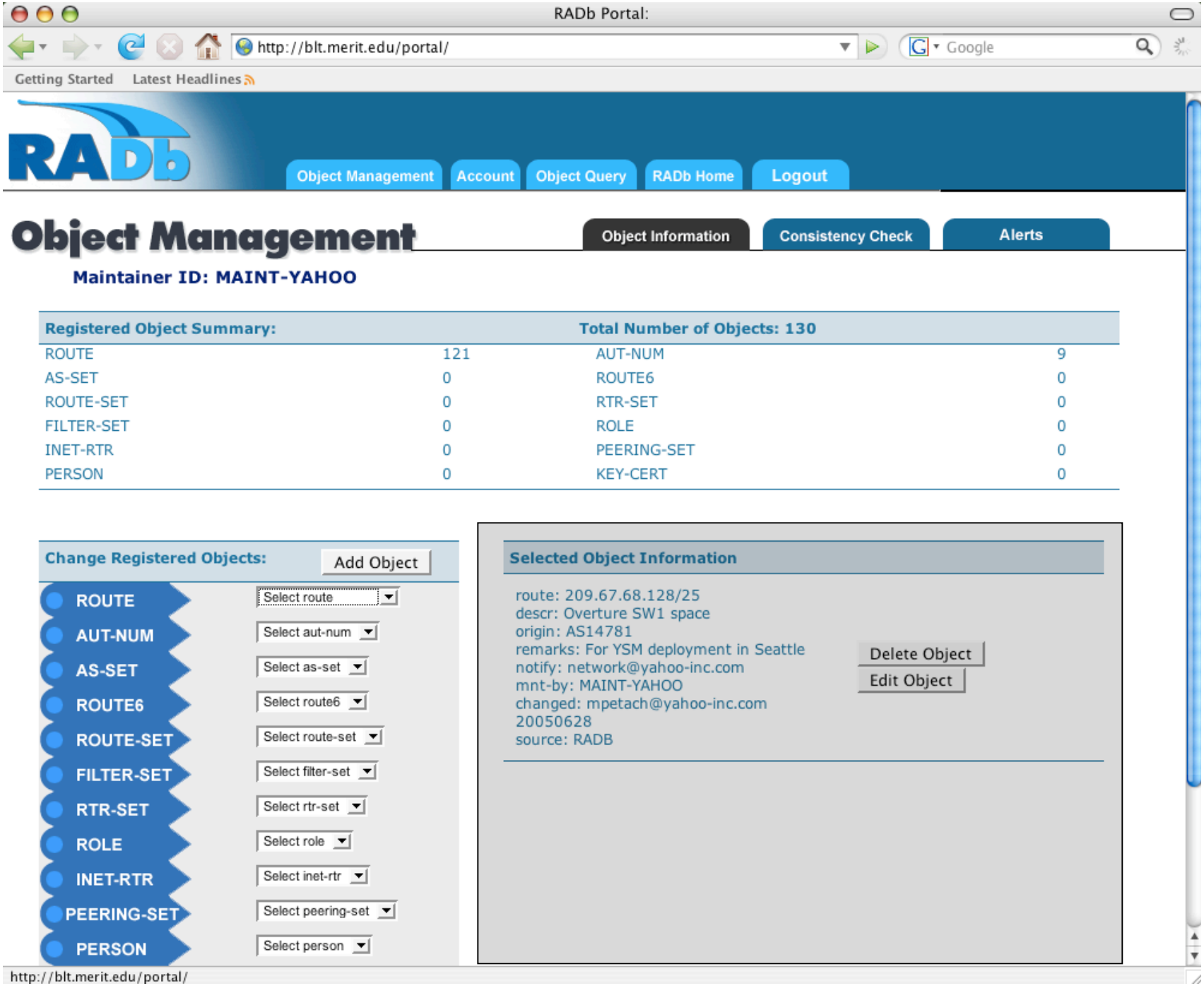
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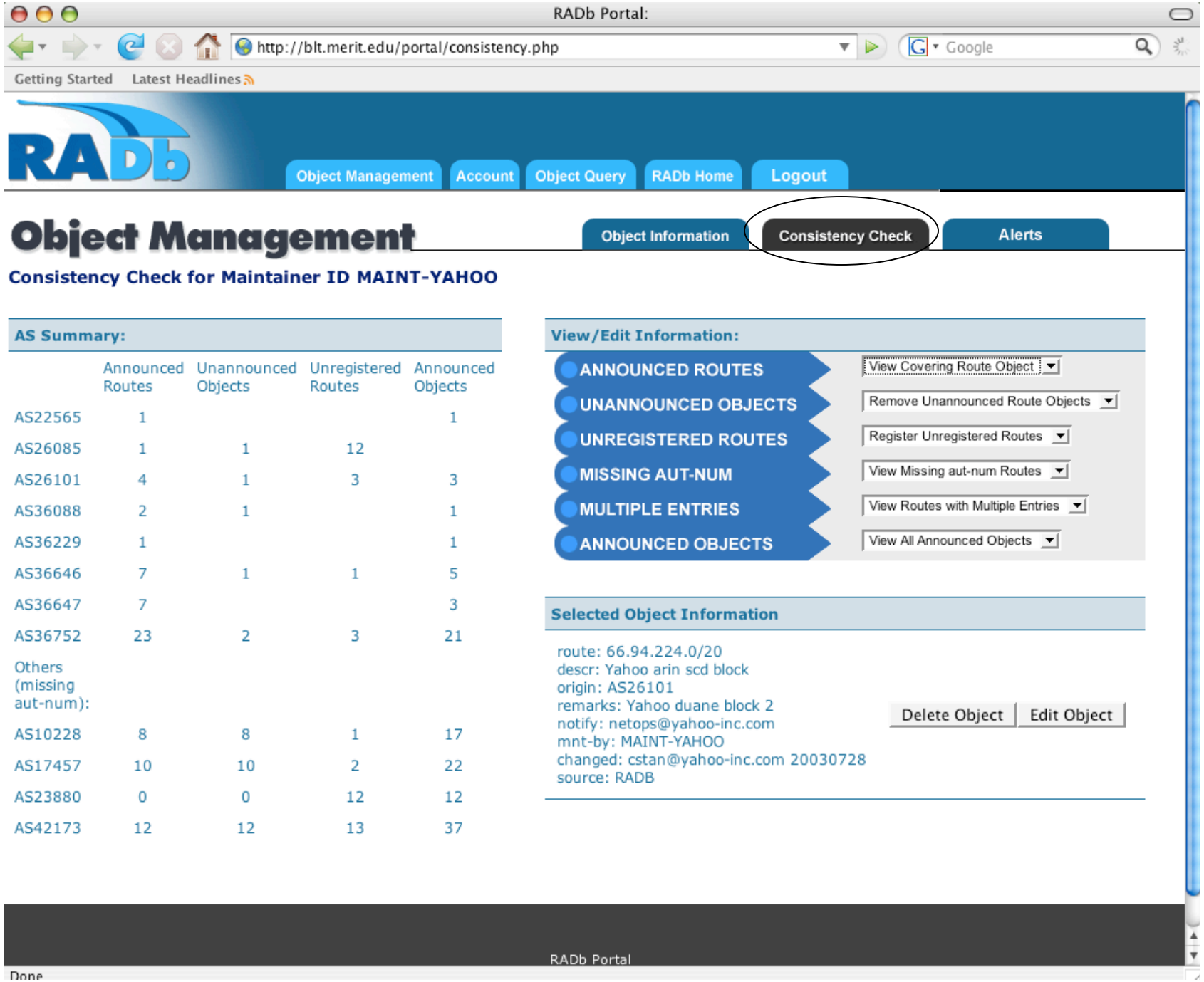
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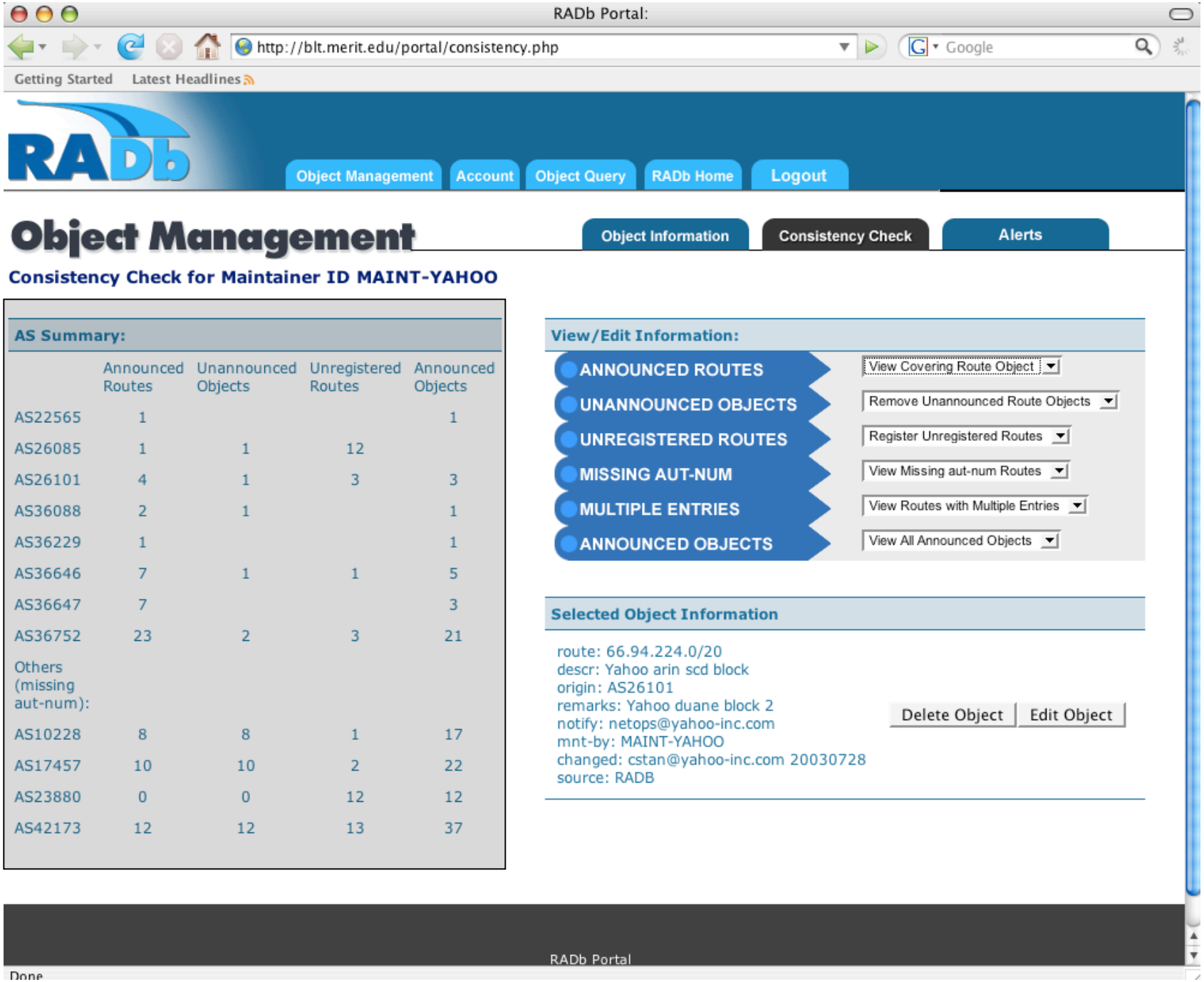
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
Object Management
Object Information
Consistency Check
Alerts
Consistency Check for Maintainer ID MAINT-YAHOO
AS Summary:
Announced Routes
Unannounced Objects
Unregistered Routes
Announced Objects
AS22565 1 1
AS26085 1 1 12
AS26101 4 1 3 3
AS36088 2 1 1
AS36229 1 1
AS36646 7 1 1 5
AS36647 7 3
AS36752 23 2 3 21
Others (missing aut-num):
AS10228 8 8 1 17
AS17457 10 10 2 22
AS23880 0 0 12 12
AS42173 12 12 13 37
View/Edit Information:
ANNOUNCED ROUTES
View Covering Route Object
UNANNOUNCED OBJECTS
Remove Unannounced Route Objects
UNREGISTERED ROUTES
Register Unregistered Routes
MISSING AUT-NUM
View Missing aut-num Routes
MULTIPLE ENTRIES
View Routes with Multiple Entries
ANNOUNCED OBJECTS
View All Announced Objects
Selected Object Information
route: 66.94.224.0/20
descr: Yahoo arin scd block
origin: AS26101
remarks: Yahoo duane block 2
notify: netops@yahoo-inc.com
mnt-by: MAINT-YAHOO
changed: cstan@yahoo-inc.com 20030728
source: RADB
Delete Object
Edit Object
RADb Portal
Done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Google
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
Object Management
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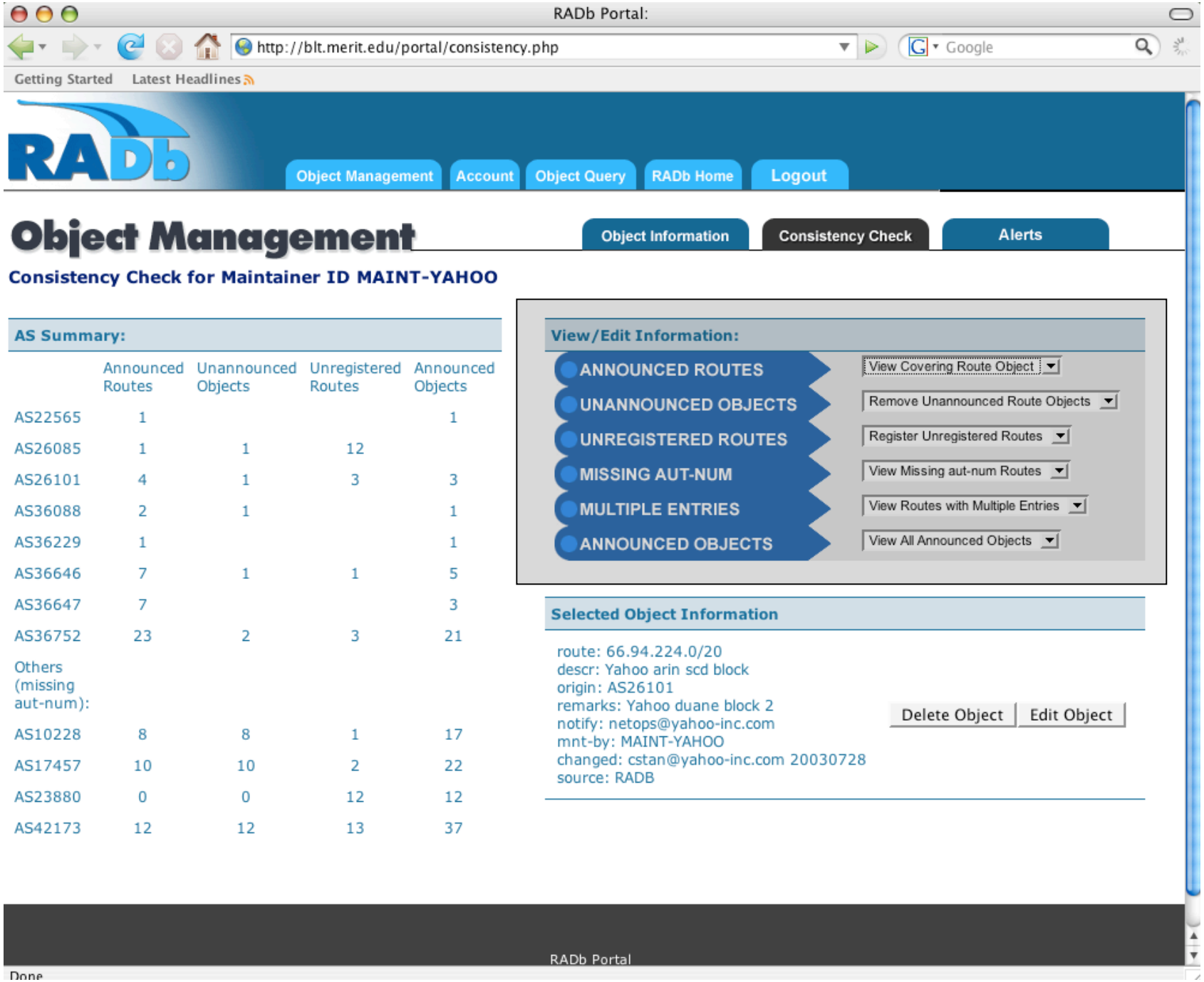
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Google
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
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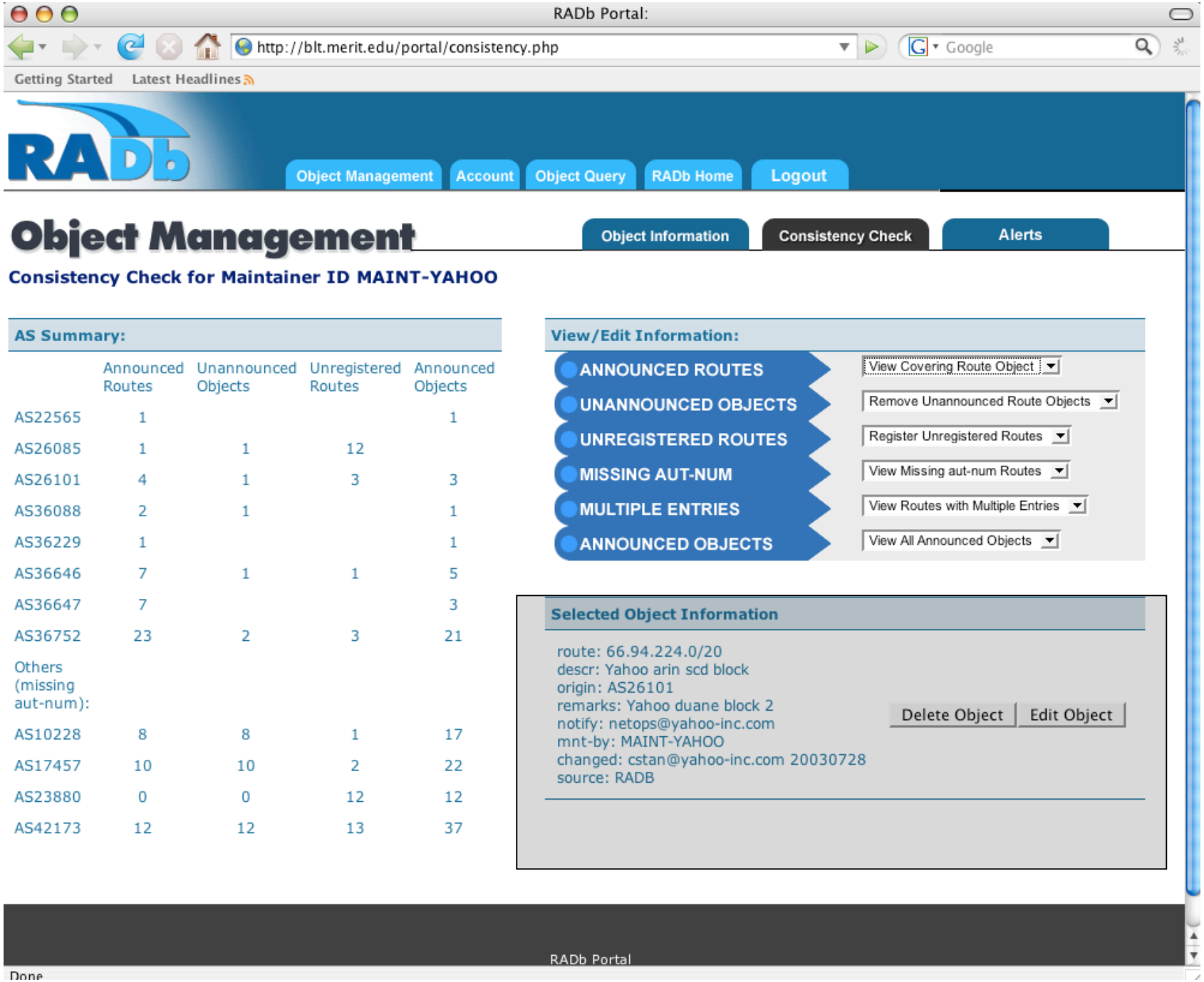
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Google
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
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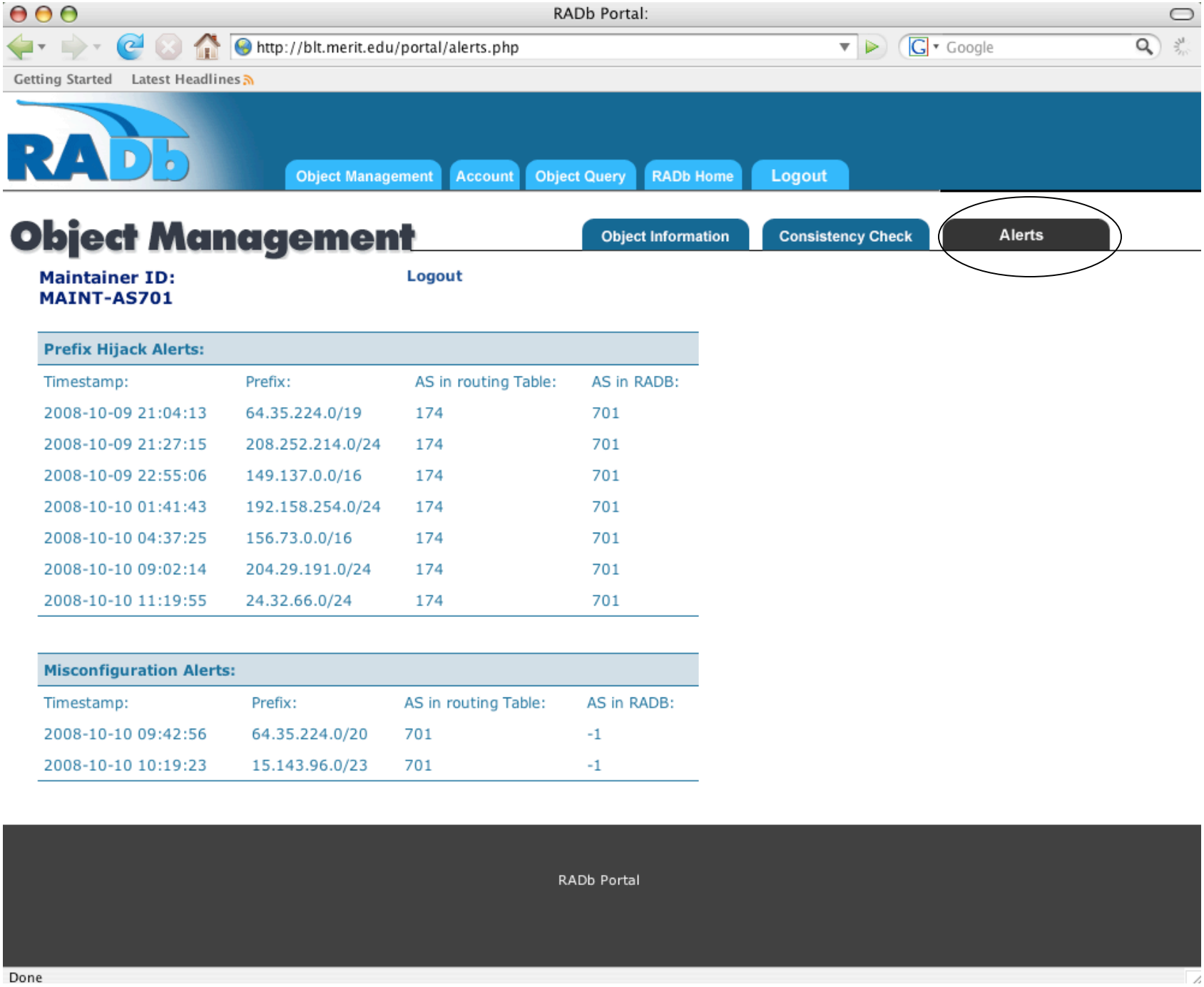
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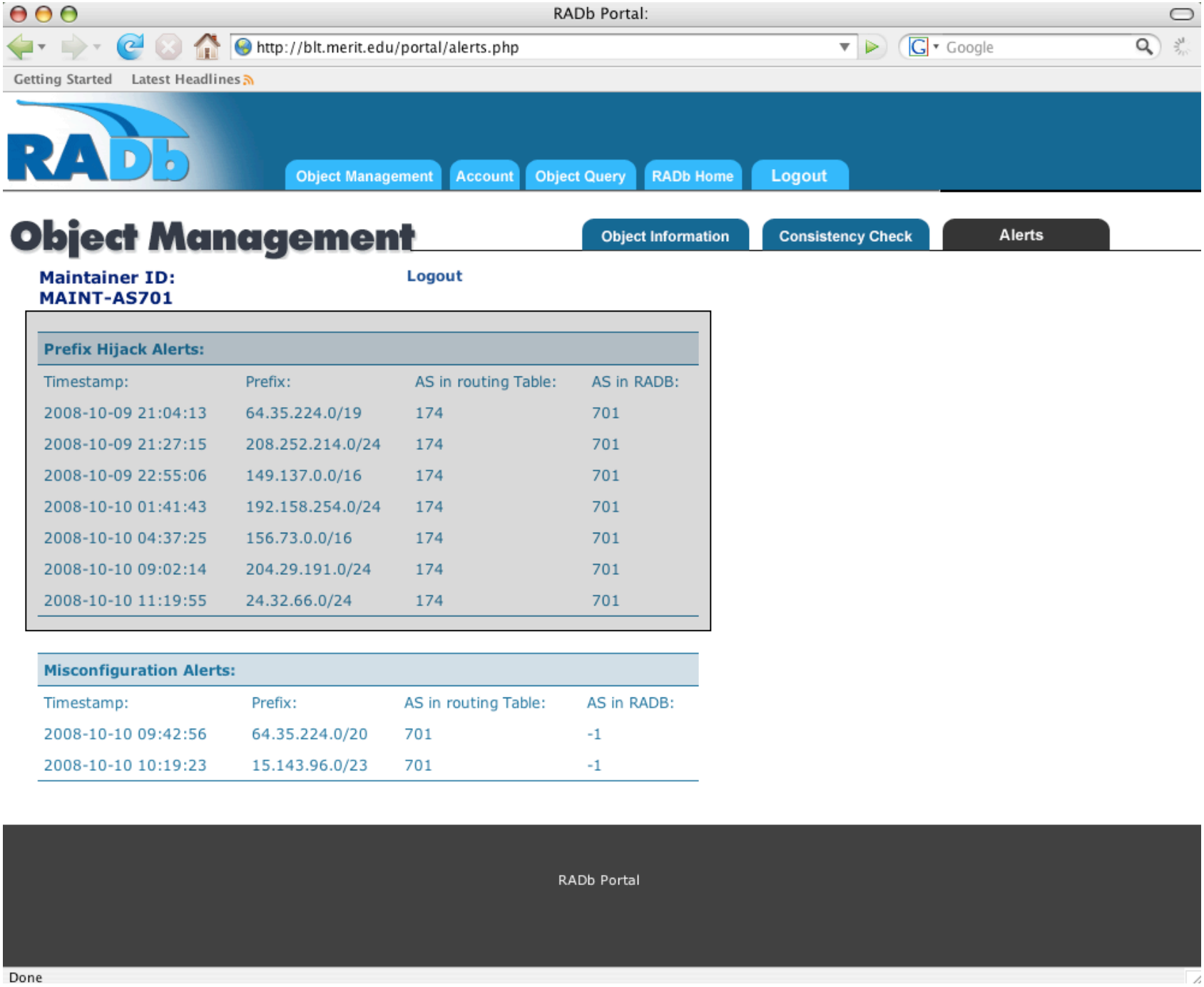
Google
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
Object Management
Object Information
Consistency Check
Alerts
Maintainer ID:
MAINT-AS701
Logout
Prefix Hijack Alerts:
Timestamp: Prefix: AS in routing Table: AS in RADB:
2008-10-09 21:04:13 64.35.224.0/19 174 701
2008-10-09 21:27:15 208.252.214.0/24 174 701
2008-10-09 22:55:06 149.137.0.0/16 174 701
2008-10-10 01:41:43 192.158.254.0/24 174 701
2008-10-10 04:37:25 156.73.0.0/16 174 701
2008-10-10 09:02:14 204.29.191.0/24 174 701
2008-10-10 11:19:55 24.32.66.0/24 174 701
Misconfiguration Alerts:
Timestamp: Prefix: AS in routing Table: AS in RADB:
2008-10-10 09:42:56 64.35.224.0/20 701 -1
2008-10-10 10:19:23 15.143.96.0/23 701 -1
RADb Portal
Done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http://blt.merit.edu/portal/alerts.php
Google
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
Object Management
Object Information
Consistency Check
Alerts
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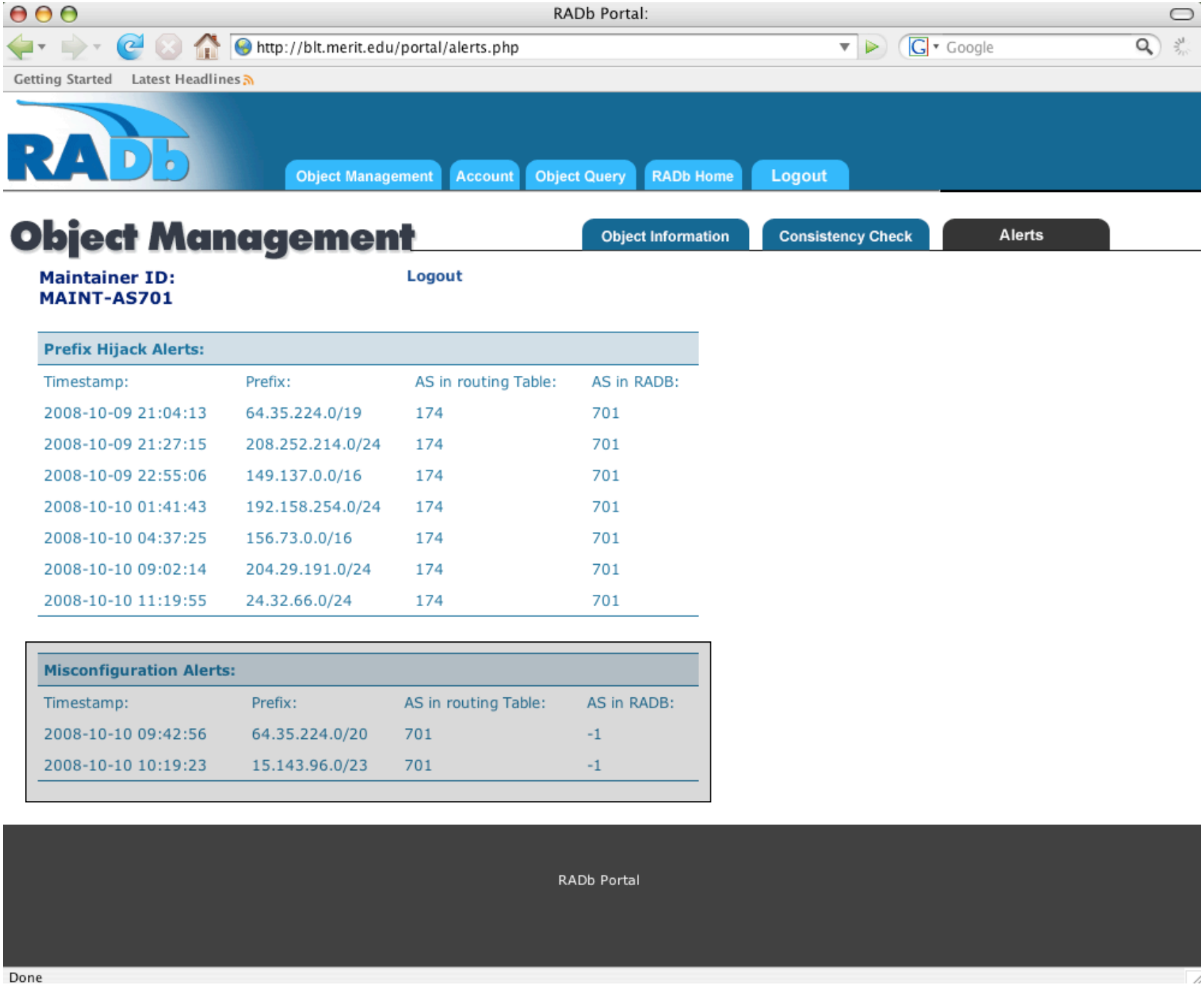
RADb Portal:
http://blt.merit.edu/portal/alerts.php
Google
Getting Started
Latest Headlines
RADb
Object Management
Account
Object Query
RADb Home
Logout
Object Management
Object Information
Consistency Check
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Conclusions

- We have developed an integrated framework that provides an easy to use interface to keep routing registry data current
- The new framework includes feedback from various consistency checks on registered objects and easy ways to correct any inconsistencies
- We have added the much needed missing link between live Internet Routing Data and Route Registry Information
- Please send email for a Beta Test account: mkarir@merit.edu