The whois Database

Introduction and Usage

Overview

- What is the whois database?
- Why use it?
- Who uses it?
- Database query process
- Database update process

What is the whois Database?

- **Network Management Database**
- **Contains information about**
  - address space
  - DNS domains
  - IP routing policies
  - contact information

Why use the Database?

- **Queries**
  - Ascertain custodianship of a resource
  - Obtain details of technical contacts for a network
  - Investigate security incidents
  - Track source of network abuse or “spam” email
- **Updates**
  - Register use of Internet resources
  - IP networks, ASNs, reverse DNS, etc.
  - Update existing records
  - *Fulfill responsibilities as resource holder*

Who uses the Database?

- **Queries**
  - Internet Service Providers
  - Site network managers and engineers
  - Any Internet user
- **Updates**
  - Internet registries (RIRs, LIRs)
  - Internet Service Providers
  - Anyone who holds an Internet resource

Database Objects

- **Database object types**

OBJECT	PURPOSE
person	contact persons
role	contact groups/roles
inetnum	IPv4 address allocations/assignments
inet6num	IPv6 address allocations/assignments
aut-num	autonomous system number
as-macro	group of autonomous systems
domain	reverse domains
route	prefixes being announced
mntner	(maintainer) database authorisation

Contact Information

Example object - ‘person’

Attributes	Values
person:	Brajesh Jain
address:	B 115 SARVODAYA ENCLAVE
address:	NEW DELHI 110017
country:	TH
phone:	+91-11-6864138
fax-no:	+91-11-6865888
e-mail:	bcjain@ndb.vsnl.net.in
nic-hdl:	BJ16-AP
mnt-by:	MAINT-IN-ESTEL-BCJ
changed:	bcjain@ndb.vsnl.net.in 20000429
source:	APNIC

Network Information

Example object - ‘inetnum’

Attributes	Values
inetnum:	203.113.0.0 - 203.113.31.255
netname:	TOTNET-AP
descr:	Telephone Organization of THAILAND(TOT)
descr:	Telephone and IP Network Service Provider
country:	TH
admin-c:	NM18-AP
tech-c:	RC80-AP
mnt-by:	APNIC-HM
mnt-lower:	MAINT-TH-SS163-AP
changed:	hostmaster@apnic.net 19990922
source:	APNIC

Database Query - Search Keys

OBJECT TYPE	ATTRIBUTES - SEARCH KEYS
person	name, nic-hdl, e-mail
role	name, nic-hdl, e-mail
mntner	maintainer name
inetnum	network number, name
domain	domain name
aut-num	as number
as-macro	as-macro name
route	route value
inet6num	network number, name

* whois supports queries on any of these objects/keys

Database Query - Inetnum

```
% whois 203.127.128.0 - 203.127.159.255
% whois 202.127.128.0/19
% whois SINGNET-SG
```

```
inetnum:    203.127.128.0 - 203.127.159.255
netname:    SINGNET-SG
descr:      Singapore Telecommunications Ltd
descr:      31, Exeter Road, #02-00, Podium Block
descr:      Comcentre, 0923
country:    SG
admin-c:    CWL3-AP
tech-c:     CWL3-AP
mnt-by:     APNIC-HM
changed:    hostmaster@apnic.net 19990803
source:     APNIC
```

- Notes
  - Incomplete addresses padded with ".0"
  - Address without prefix interpreted as "/32"

Database Query - Inetnum

- **RIPE extended whois client**

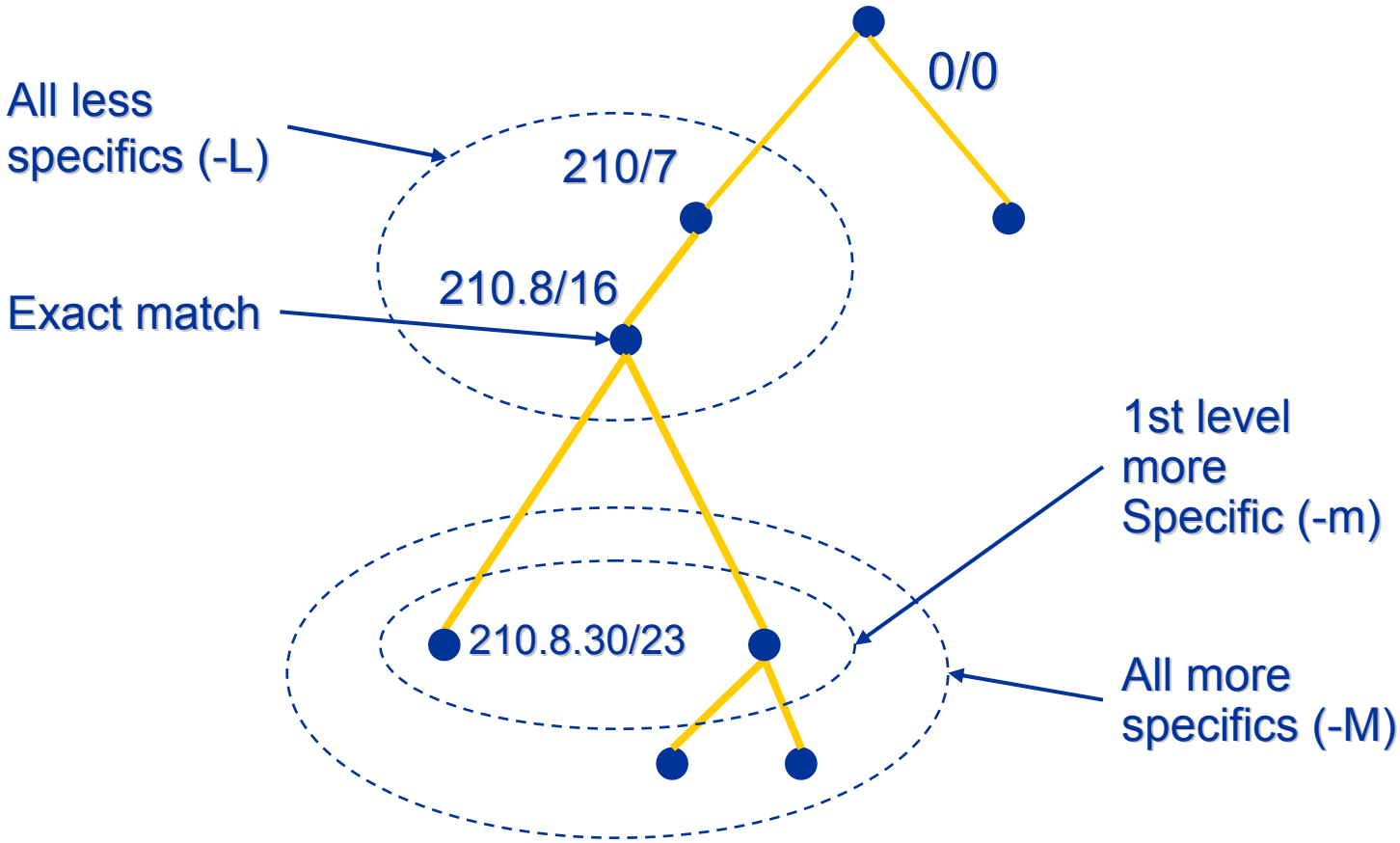
  ftp://ftp.ripe.net/ripe/dbase/software/ripe-dbase-3.0.tar.gz

- **Flags used for *inetnum* queries**

None	find exact match
- L	find all *less* specific matches
- m	find first level *more* specific matches
- M	find all *More* specific matches
- r	turn off *recursive* lookups

Database Query - Inetnum

inetnum hierarchy: **`whois 210.8.0.0/16`**



Database Query - Inetnum

'-M' will find all assignments in a range in the database

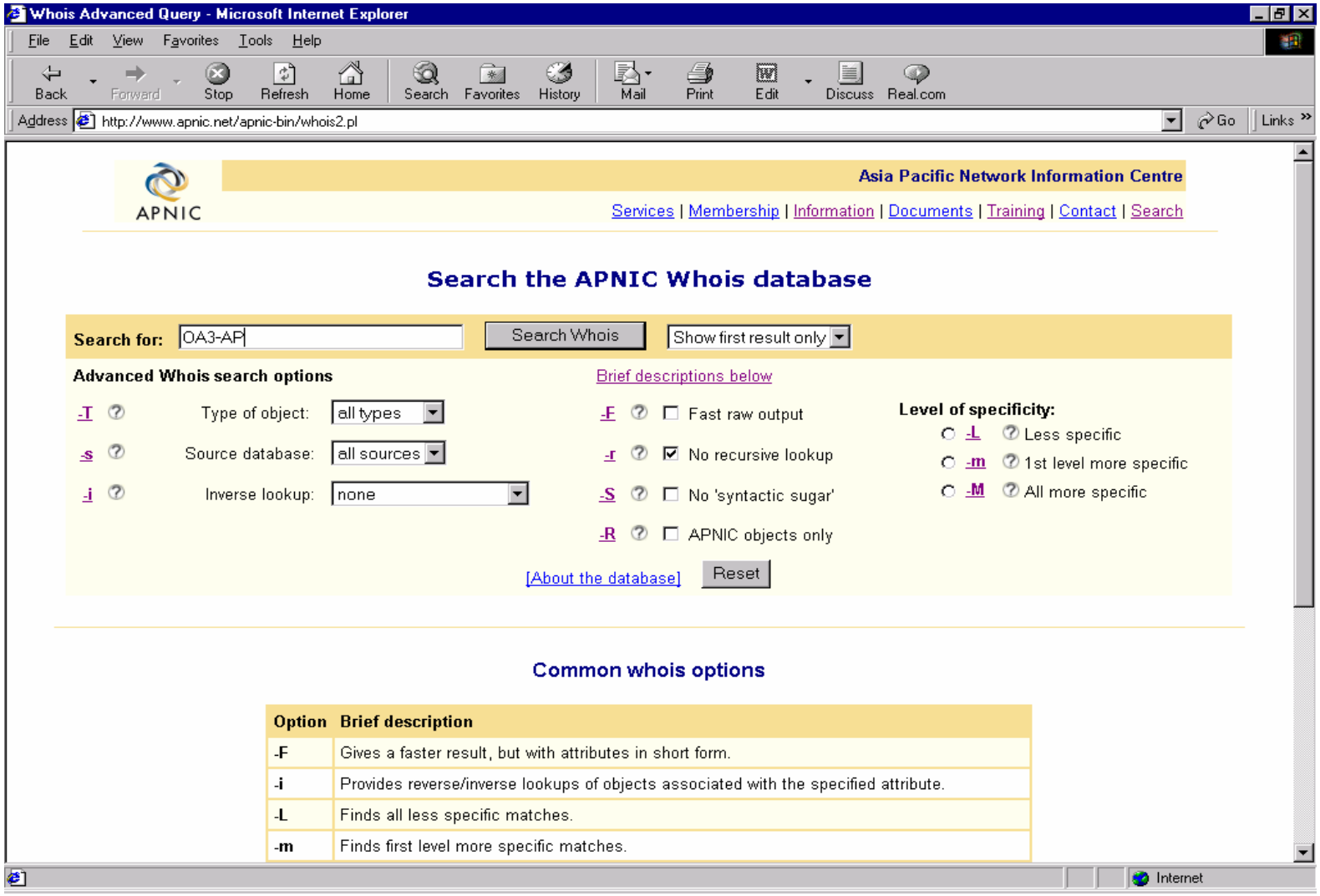
```
% whois -M 202.144.0.0/19

inetnum:     202.144.0.0 - 202.144.31.255
netname:     SILNET-AP
descr:       Satyam Infoway Pvt.Ltd.,
.....
inetnum:     202.144.13.104 - 202.144.13.111
netname:     SOFTCOMNET
descr:       SOFTCOM LAN (Internet)IP.
.....
inetnum:     202.144.1.0 - 202.144.1.255
descr:       SILNET
descr:       Satyam Infoway's Chennai LAN
.....
```

Database Query - Inverse

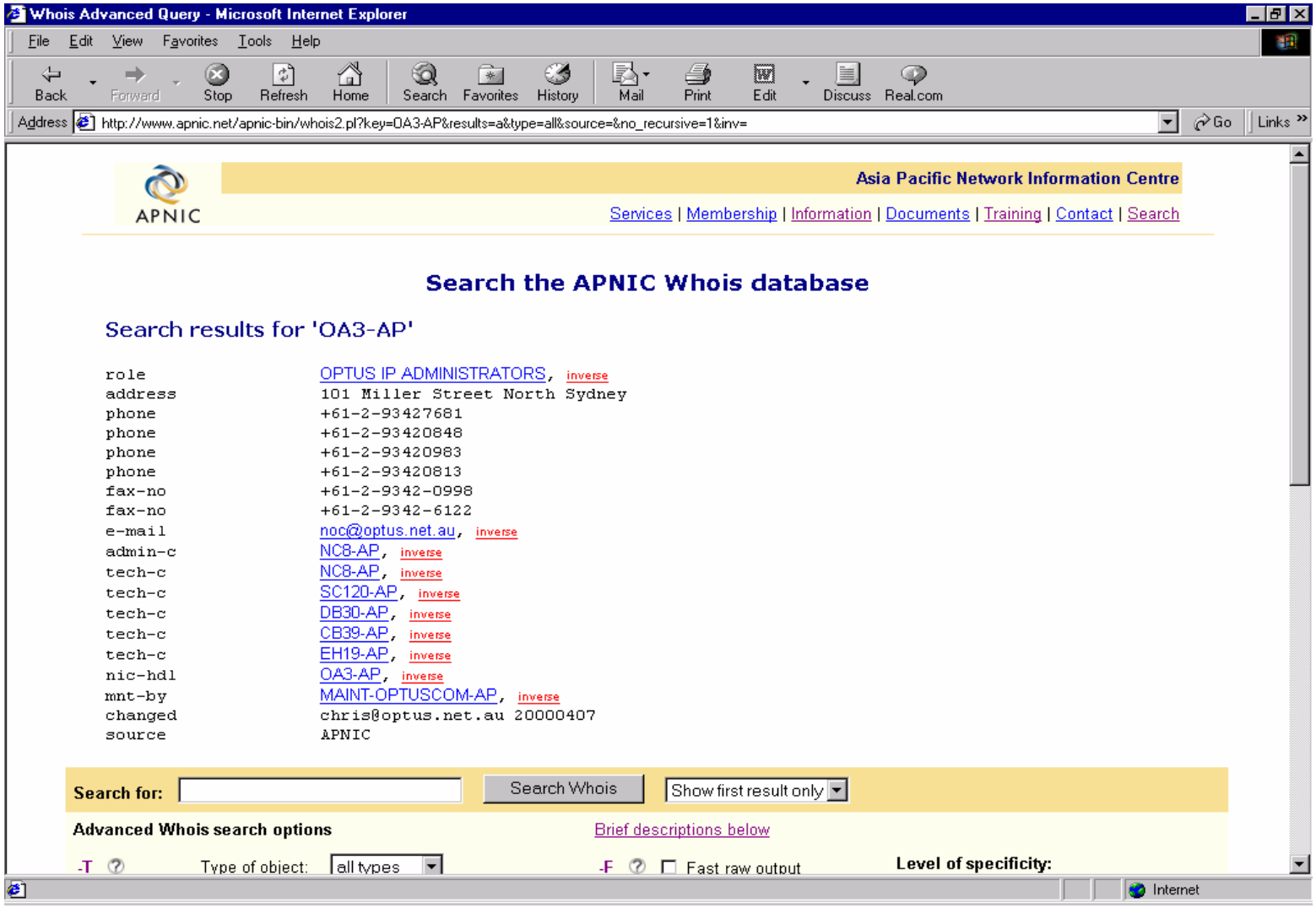
```
% whois -i person EC119-AP
```

```
inetnum:      202.166.224.0 - 202.166.255.255
netname:      NECTW-BIGLOBE
descr:        ISP Division of NEC Taiwan Ltd.
country:      TW
admin-c:      SC23-AP
tech-c:       EC119-AP
……

aut-num:      AS9283
as-name:      NECTW-AS
descr:        ISP Division of NEC Taiwan Ltd.
tech-c:       EC119-AP

mntner:       NECTW-ISP-AP
descr:        NEC Biglobe Taiwan wide
admin-c:      SC23-AP
tech-c:       EC119-AP

person:       Emily Hui Chou
address:      ISP Division of NEC Taiwan Ltd.
country:      TW
phone:        +886-2-85001787
e-mail:       tech@biglobe.net.tw
nic-hdl:      EC119-AP
```

Whois Web Interface



Whois Web Interface



Database Query - Options

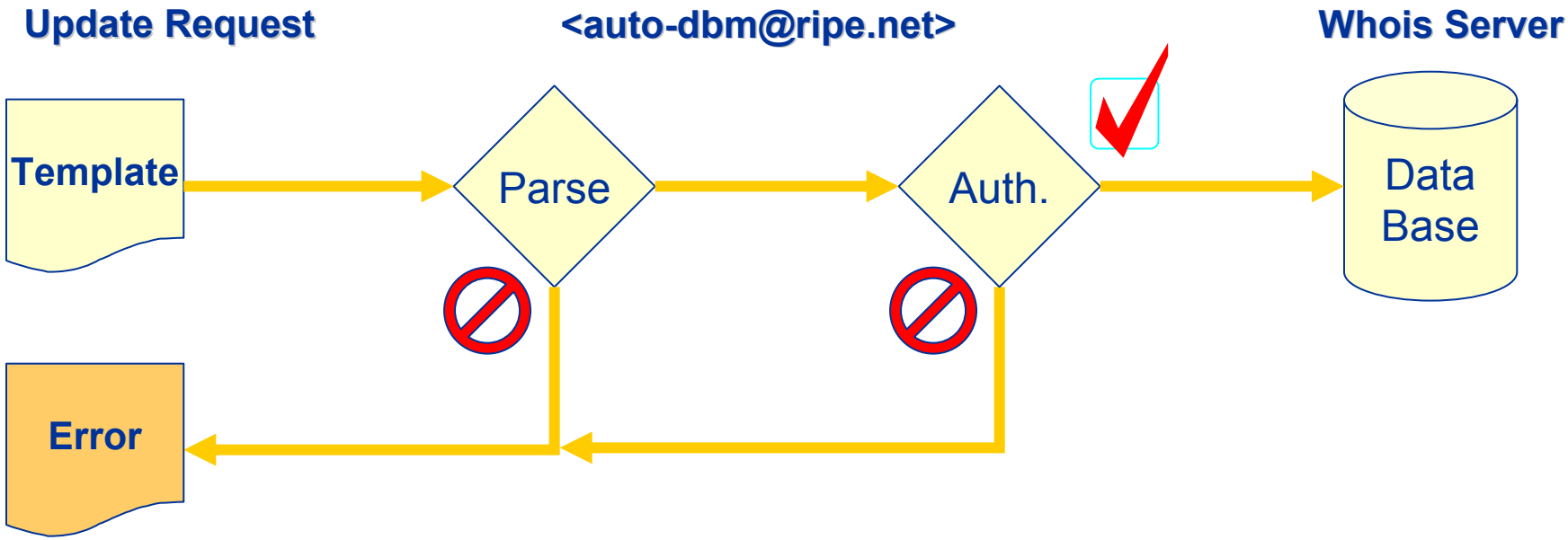
- **Summary of other flags**
  - -i *inverse* lookup on given attribute
  - -T search only for objects of given type
  - -t give template for given type
  - -v *verbose* information for given type
  - -h specify database server site

- **For more information try...**

```
whois -h  whois.apnic.net HELP
whois -h whois.ripe.net HELP
```

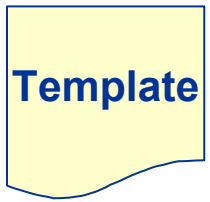
Database Update Process

- Email requests to <auto-dbm@ripe.net>
- Each request contains an *object template*



Database Update Process

- **Update transactions**
  - –Create a new object
  - –Change attributes of an object
  - –*Delete* an object



- **Updates are submitted by email**
  - E-mail to: <auto-dbm@ripe.net>
- **Email message contains template with new or updated object**

Object Template

whois -t <object type>

- Recognised by the RIPE whois client/server

```
% whois -h whois.ripe.net -t person
```

```
person:   [mandatory]  [single]     [primary/look-up key]
address:  [mandatory]  [multiple]   [ ]
country:  [optional]   [single]     [ ]
phone:    [mandatory]  [multiple]   [ ]
fax-no:   [optional]   [multiple]   [ ]
e-mail:   [optional]   [multiple]   [look-up key]
nic-hdl:  [mandatory]  [single]     [primary/look-up key]
remarks:  [optional]   [multiple]   [ ]
notify:   [optional]   [multiple]   [inverse key]
mnt-by:   [optional]   [multiple]   [inverse key]
changed:  [mandatory]  [multiple]   [ ]
source:   [mandatory]  [single]     [ ]
```

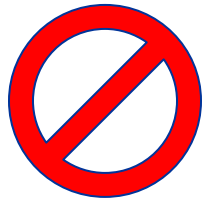
Database Update Process

- **Automatic request processing**

  <auto-dbm@ripe.net>

  – Automatic “robot” for all database updates
  – Email template for create/update/delete

- **Templates are syntax checked**
  – Warnings
  – Errors



- **Database service support**

  <ripe-dbm@ripe.net>

Data Protection

- **Authorisation**
  - **“mnt-by”** attribute references a “mntner” (maintainer) object
  - **“mnt-by”** should be used with every object

- **Authentication**
  - Updates to an object must pass authentication rule specified by its maintainer object

Data Protection

- **Failed Authorisation**
  - Template NOT corrected and object NOT accepted
  - Automatic email notification sent to requestor
  - Automatic email notification sent to “notify” address

- **Successful update**
  - If Parse and Auth. steps succeed, database is updated
  - Confirmation by email to requestor

Authentication/Authorisation

– Maintainer object example

```
inetnum:     193.1.2.0/24
descr:       SYNFUX-NET
mnt-by:      MAINT-AU-SYNFLUX

mntner:      MAINT-AU-SYNFLUX
descr:       Synflux International Pty.
country:     AU
admin-c:     UG1-AP
tech-c:      UG1-AP
upd-to:      umar@synflux.com.au
mnt-nfy:     umar@synflux.com.au
auth:        CRYPT-PW apnbVcktyz6UY
mnt-by:      MAINT-AU-SYNFLUX
changed:     umar@synflux.com.au 19990404
```

Authentication/Authorisation

- **Maintainer specific attributes**
  - notify:
    - Sends notification of any changes to maintained objects to email address specified
  - mnt-by:
    - Maintainers must also be protected! (Normally by themselves)
  - auth:
    - Authentication method for this maintainer

Authentication/Authorisation

- **'auth' attribute gives authentication method**
  - NONE
    - **Strongly discouraged!**
  - MAIL-FROM
    - Very weak authentication. Discouraged
  - CRYPT-PW
    - Crypt (Unix) password encryption
    - Use web page to create your maintainer
  - PGP-KEY

Questions