Configuring the Router as a DNS Server

Perform this task to configure the router as a DNS server.

A Cisco IOS router can provide service to DNS clients, acting as both a caching name server and as an authoritative name server for its own local host table.

When configured as a caching name server, the router relays DNS requests to other name servers that that resolve network names into network addresses. The caching name server caches information learned from other name servers so that it can answer requests quickly, without having to query other servers for each transaction.

When configured as an authoritative name server for its own local host table, the router listens on port 53 for DNS queries and then answers DNS queries using the permanent and cached entries in its own host table.

Role of an Authoritative Name Server

An authoritative name server usually issues zone transfers or responds to zone transfer requests from other authoritative name servers for the same zone. However, the Cisco IOS DNS server does not perform zone transfers.

When it receives a DNS query, an authoritative name server handles the query as follows:

- If the query is for a domain name that is not under its zone of authority, the authoritative name server determines whether to forward the query to specific back-end name servers based on whether IP DNS-based hostname-to-address translation has been enabled via the **ip domain lookup** command.

- If the query is for a domain name that is under its zone of authority and for which it has configuration information, the authoritative name server answers the query using the permanent and cached entries in its own host table.

- If the query is for a domain name that is under its zone of authority but for which it does not have any configuration information, the authoritative name server does not forward the query elsewhere for a response; instead the authoritative name server simply replies that no such information exists.

Restrictions

Unless Distributed Director is enabled, the TTL on locally defined resource records will always be ten seconds, regardless of any authority record parameters that may have been specified for the DNS name server by the use of the **ip dns primary** command.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip dns server**
4. **ip name-server** *server-address1* [*server-address2...server-address6*]
5. **ip dns server queue limit** {**forwarder** *queue-size-limit* | **director** *queue-size-limit*}
6. **ip host** [**vrf** *vrf-name*] [**view** *view-name*] *hostname* {*address1* [*address2 ... address8*] | **additional** *address9* [*address10 ... addressn*]}
7. **ip dns primary** *domain-name* **soa** *server-name mailbox-name* [*refresh-interval* [*retry-interval*
[*expire-ttl* [*minimum-ttl*]]]]
8. **ip host** *domain-name* **ns** *server-name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** Example: Router> enable	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** Example: Router# configure terminal	Enters global configuration mode.
Step 3	**ip dns server** Example: Router(config)# ip dns server	Enables the DNS server.
Step 4	ip name-server *server-address1* [*server-address2...server-*	(Optional) Configures other DNS servers:

	address6] Example: Router(config)# ip name-server 192.168.2.120 192.168.2.121	• IOS resolver name servers • DNS server forwarders **Note** If the IOS name server is being configured to respond only to domain names for which it is authoritative, there is no need to configure other DNS servers.

Step 5	**ip dns server queue limit** {**forwarder** *queue-size-limit* | **director** *queue-size-limit*}
	
	Example:
	
	`Router(config)# ip dns server queue limit`
	
	`forwarder 10`
		(Optional) Configures a limit to the size of the queues used by the DNS server processes.
		
		• The **director** keyword was removed in 12.4(24)T.

Step 6	**ip host** [vrf *vrf-name*] [**view** *view-name*] *hostname* {address1 [*address2* ... *address8*] | **additional** *address9* [*address10* ... *addressn*]} Example: Router(config)# ip host user1.example.com 192.168.201.5 192.168.201.6	(Optional) Configures local hosts.
Step 7	**ip dns primary** *domain-name* **soa** *primary-server-name mailbox-name* [*refresh-interval* [*retry-interval* [*expire-ttl* [*minimum-ttl*]]]] Example: Router(config)# ip dns primary example.com soa ns1.example.com	Configures the router as the primary DNS name server for a domain (zone) and as the start of authority (SOA) record source (which designates the start of a zone). **Note** Unless Distributed Director is enabled, the TTL on locally defined resource records will always be ten seconds.

	mb1.example.com	
Step 8	**ip host** *domain-name* **ns** *server-name* Example: Router(config)# ip host example.com ns ns1.example.com	(Optional) Configures the router to create an NS resource record to be returned when the DNS server is queried for the associated domain. This configuration is needed only if the zone for which the system is authoritative will also be served by other name servers.

Debugging Output for Servicing a DNS Query from the Local Host Table: Example

The following is sample output from the **debug domain** command that corresponds to servicing a DNS query from the local host table when the router is configured as an authoritative name server for its own local host table:

```
Apr  4 22:16:35.279: DNS: Incoming UDP query (id#8409)
Apr  4 22:16:35.279: DNS: Type 1 DNS query (id#8409) for host
'ns1.example.com' from
192.0.2.120(1279)
Apr  4 22:16:35.279: DNS: Finished processing query (id#8409) in 0.000 secs
```

REF:
http://www.cisco.com/en/US/docs/ios/ipaddr/configuration/guide/iad_config_dns_ps6350_TSD_Products_Configuration_Guide_Chapter.html