

Prepared (also subject responsible if other) ECIAMAO		No. 50/155 17-AVA 901 16 Uen		
Approved	Checked	Date 2013-01-19	Rev B	Reference

## IPWorks DNS NSUpdate Function Overview

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## 1 Introduction

### 1.1 Document History

Rev	Date	Sign.	Comment
A	2015-01-29	ECIAMAO	<ul style="list-style-type: none"><li>This document replaces 4/155 17-AVA 901 16 Uen A due to IPWorks v16A updates.</li></ul>
PB1	2016-06-21	ECIAMAO	Updated the reference list.

### 1.2 Purpose

The purpose of this document is to describe the real time fast provisioning functionality of the nsupdate command provided by CLI.

### 1.3 Scope

This document illustrates the underlying functionality of real time fast provisioning from the users perspective.

The scope of this document includes an explanation of the following,

- nsupdate functionality
- user interaction with the CLI

### 1.4 Document Structure

## 2 Survey of Included Functions

### 2.1 Overview

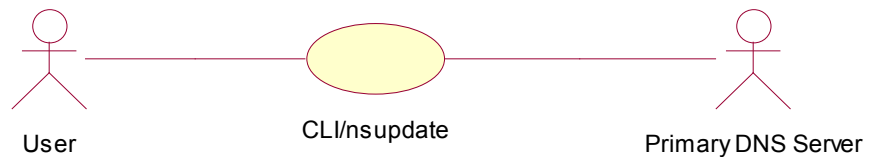
Dynamic DNS update requests allow resource records to be added or removed from a zone without manually editing the zone file. This proves highly effective in real time scenarios.

The nsupdate utility is an automated solution for making such dynamic updates. Since the updates take affect immediately on the DNS server, nsupdate is a very attractive proposition for real time scenarios.

All dynamic updates are made only on the Primary DNS Server.

The functionality of the CLI version of nsupdate is to allow for such real time fast provisioning.

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NSUPDATE allows the user to add and delete records to the primary DNS server but it is not possible to update resource records. The only way to update records through nsupdate would be to delete the records and then add them again. For further details please refer to Section 4.2.

## 2.2 List of Actors

### 2.2.1 Actor: User

User is a human actor who interacts with the DNS server via the nsupdate command of CLI to add/remove resource records from zones.

In the IPWorks system, a user could be the EMA (Ericsson Multi Activation).

## 2.3 List of Sub-Functions

### 2.3.1 NSUPDATE

This function enables the user to perform Dynamic DNS update requests.

## 3 Detailed Description

### 3.1 NSUPDATE

#### 3.1.1 Pre-conditions

The following pre-conditions exist,

- User must be logged into CLI
- Primary DNS server should be running
- DNS server must be configured for Dynamic Updates. Please refer to Configure DNS and ENUM [2] for configuration details.

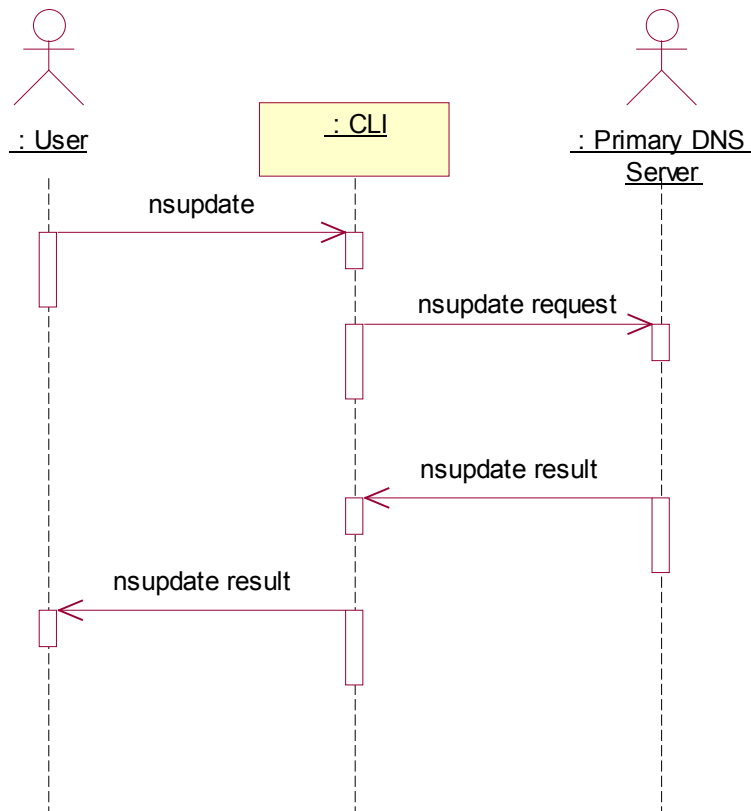
#### 3.1.2 Main Scenario

Using the nsupdate functionality involves the following steps,

- User enters nsupdate and the associated commands OR provides the file name containing the commands on the CLI prompt
- This request is then sent to the primary DNS server by CLI. If the primary DNS server is down, then the request is rejected.

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- The DNS server responds to CLI after the request is executed
- The CLI then sends an update count to the user which specifies the number of records affected by the request



### 3.1.3 Alternative Scenarios

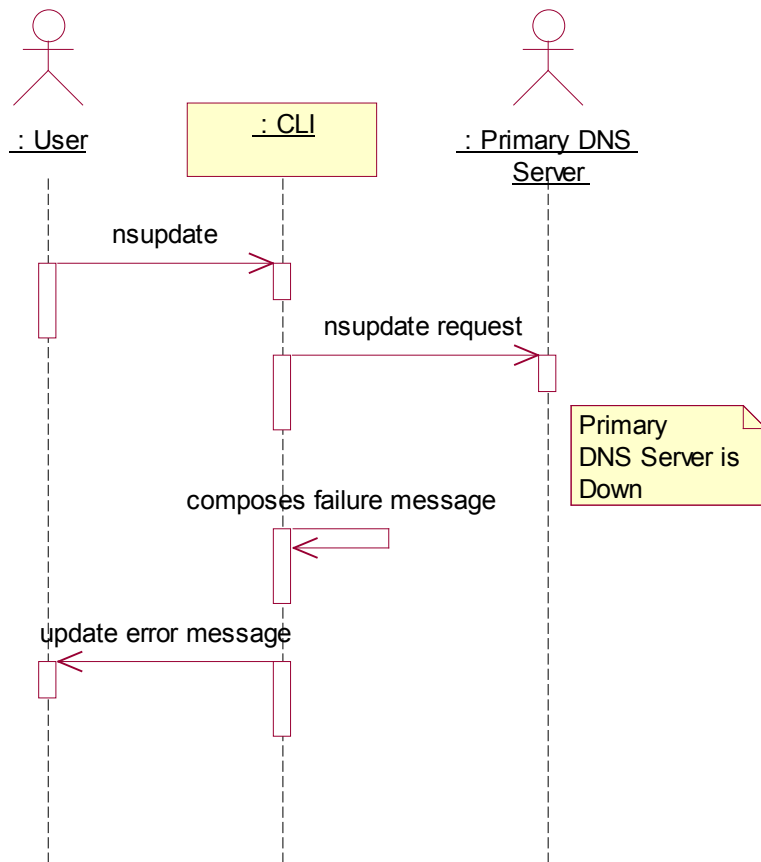
#### 3.1.3.1 Primary DNS Server Not Running

In case the Primary DNS Server is not running, CLI returns an error message to the user.

This involves the following steps,

- User enters nsupdate and the associated commands on the CLI prompt
- CLI then tries sending the request to the primary DNS server.
- If the primary DNS server is down, then CLI sends an error message back to the user.

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### 3.1.3.2 Packet Loss with UDP option

By default NSUPDATE uses UDP to send dynamic update requests to the nameserver.

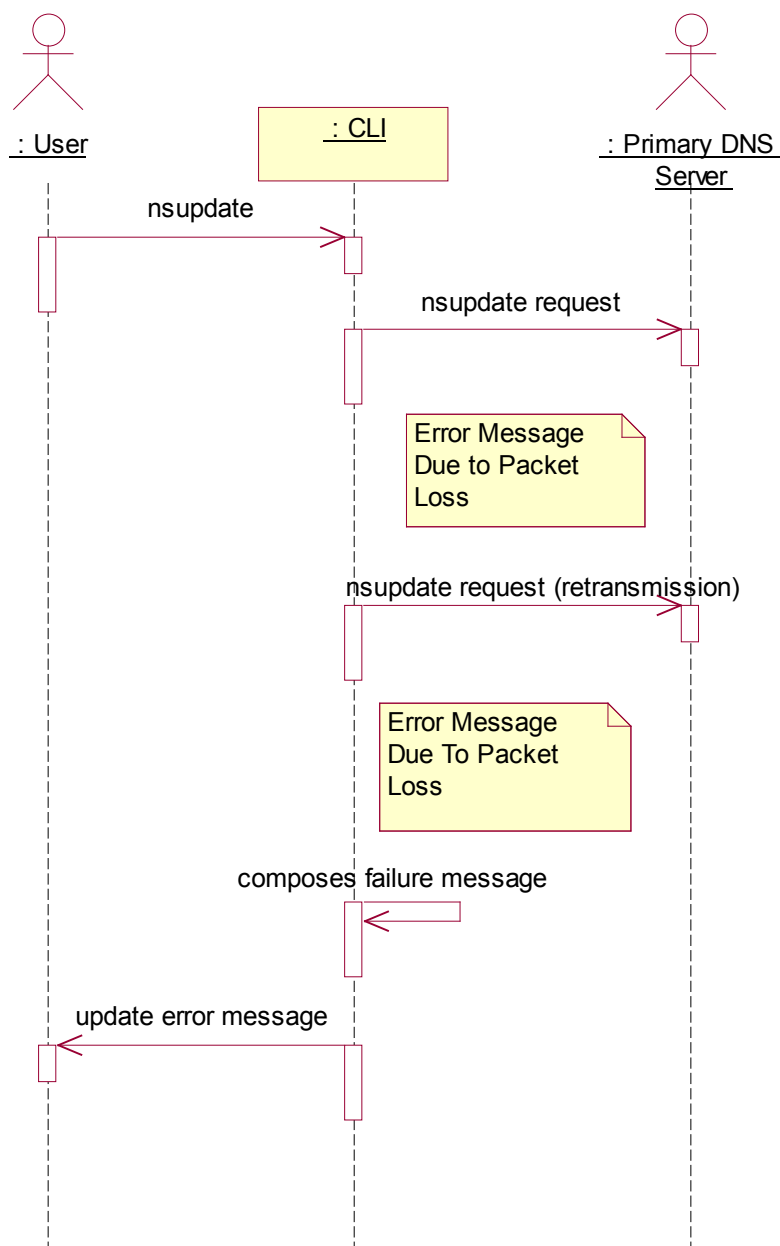
However it is possible that these packets could get lost. Hence in case of a failure, CLI retries the update request once more before sending the user an error message.

When NSUPDATE is used with the TCP option, cli does not attempt any retries.

This involves the following steps,

- User enters nsupdate and the associated commands on the CLI prompt
- CLI tries sending the nsupdate request to the primary DNS server.
- In case of failure, CLI sends the nsupdate request to the primary DNS Server again
- If the failure is repeated , CLI send the user an error message

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## 4 Operational Conditions

### 4.1 Configurable Parameters

The nsupdate command can be used with the following additional options,

-v option : By default **nsupdate** uses UDP to send update requests to the name server. The -v option makes nsupdate use a TCP connection.

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*filename* option : **nsupdate** reads input from a file or standard input. On specifying the file name **nsupdate** reads from the file.

## 4.2 Commands and User Procedures

The following commands are provided by **nsupdate**,

( i ) **server** {servername} [port]

Sends all dynamic update requests to the name server *servername*.

When no server statement is provided, **nsupdate** will send updates to the master server of the correct zone. The MNAME field of that zone's SOA record will identify the master server for that zone.

*port* is the port number on *servername* where the dynamic update requests get sent. If no port number is specified, the default DNS port number of 53 is used.

(ii) **local** {address} [port]

Sends all dynamic update requests using the local *address*.

When no local statement is provided, **nsupdate** will send updates using an address and port chosen by the system.

*port* can additionally be used to make requests come from a specific port. If no port number is specified, the system will assign one

(iii) **zone** {zonename}

Specifies that all updates are to be made to the zone *zonename*. If no *zone* statement is provided, **nsupdate** will attempt determine the correct zone to update based on the rest of the input.

(iv) **show**

Displays the current message, containing all of the prerequisites and updates specified since the last send.

(v) **send**

This is equivalent to entering a blank line which then sends all the accumulated commands as one single dynamic update request.

(vi) **prereq nxdomain** {domain-name}

Requires that no resource record of any type exists with name *domain-name*.

(vii) **prereq yxdomain** {domain-name}

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Requires that *domain-name* exists (has as at least one resource record, of any type).

(viii) **prereq nxrrset** {domain-name} [class] {type}

Requires that no resource record exists of the specified *type*, *class* and *domain-name*. If *class* is omitted, IN (internet) is assumed.

(ix) **prereq yxrrset** {domain-name} [class] {type}

This requires that a resource record of the specified *type*, *class* and *domain-name* must exist. If *class* is omitted, IN (internet) is assumed.

(x) **prereq yxrrset** {domain-name} [class] {type} {data...}

The *data* from each set of prerequisites of this form sharing a common *type*, *class*, and *domain-name* are combined to form a set of RRs. This set of RRs must exactly match the set of RRs existing in the zone at the given *type*, *class*, and *domain-name*. The *data* are written in the standard text representation of the resource record's RDATA.

(xi) **update delete** {domain-name} [ttl] [class] [type] [data...]

Deletes any resource records named *domain-name*. If *type* and *data* is provided, only matching resource records will be removed. The internet class is assumed if *class* is not supplied. The *ttl* is ignored, and is only allowed for compatibility.

(xii) **update add** {domain-name} {ttl} [class] {type} {data...}

Adds a new resource record with the specified *ttl*, *class* and *data*.

## 4.3 Charging

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## 4.4 Characteristics

The nsupdate command provides the user with an opportunity to automate DNS services with the added benefit of high speed updates.

## 5 Standard Compliance Statement

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## 6 Miscellaneous

The nsupdate utility allows the use of Transaction signatures (TSIG) to authenticate the Dynamic DNS updates. These signatures rely on a shared secret that should be known to nsupdate and the nameserver.



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However the nsupdate feature provided by CLI does not support authentication through Transaction Signatures (TSIG).

## 7 Terminology

### 7.1 Abbreviations

CLI	Command Line Interface
DNS	Domain Naming System
TSIG	Transaction Signatures
TCP	Transport Control Protocol
UDP	User Datagram Protocol
EMA	Ericsson Multi Activation

### 7.2 Definitions

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## 8 References

[1]	Configure DNS and ENUM	7/1543-AVA 901 33/2	A
[2]	Command Line Interface User Guide for IPWorks SS	2/1553-AVA 901 33/2	A