

iSNS CLI specification
version 0.8

| <i>Version</i> | <i>Date</i> | <i>Comments</i> | <i>Author</i> |
|----------------|-------------|--|---------------------------|
| 01 - 0.4 | | Early internal versions | John Forte / Victor Li |
| 0.5 | 9/5/2006 | UIRB review version | Victor Li |
| 0.6 | 12/1/2006 | Incorporated UIRB comments | Hyon Kim |
| 0.7 | 12/05/2006 | Changed list-config to show-config per UIRB recommendation | Hyon Kim |
| 0.8 | 3/20/2007 | Changed add-dd, add-node remove-dd, remove-node command syntax. Add rename function for dd and dd set. Add show-stat subcommand. | Hyon Kim |

1 Introduction

1.1 Purpose

This document provides a description of the administrative interfaces for the iSNS product. It is intended for developers and document writers.

1.2 Scope

The design includes CLI support for iSNS. A GUI management station will be planned as a phase 2 project and the detail design is not included in this document. This document does not include iSNS design, too. Please refer to the iSNS design document (1) for iSNS server design details.

1.3 References

- 1) iSNS design document:
<http://dhs.central/projects/isns/proj-docs/iSNS-Design.html>

1.4 Terms

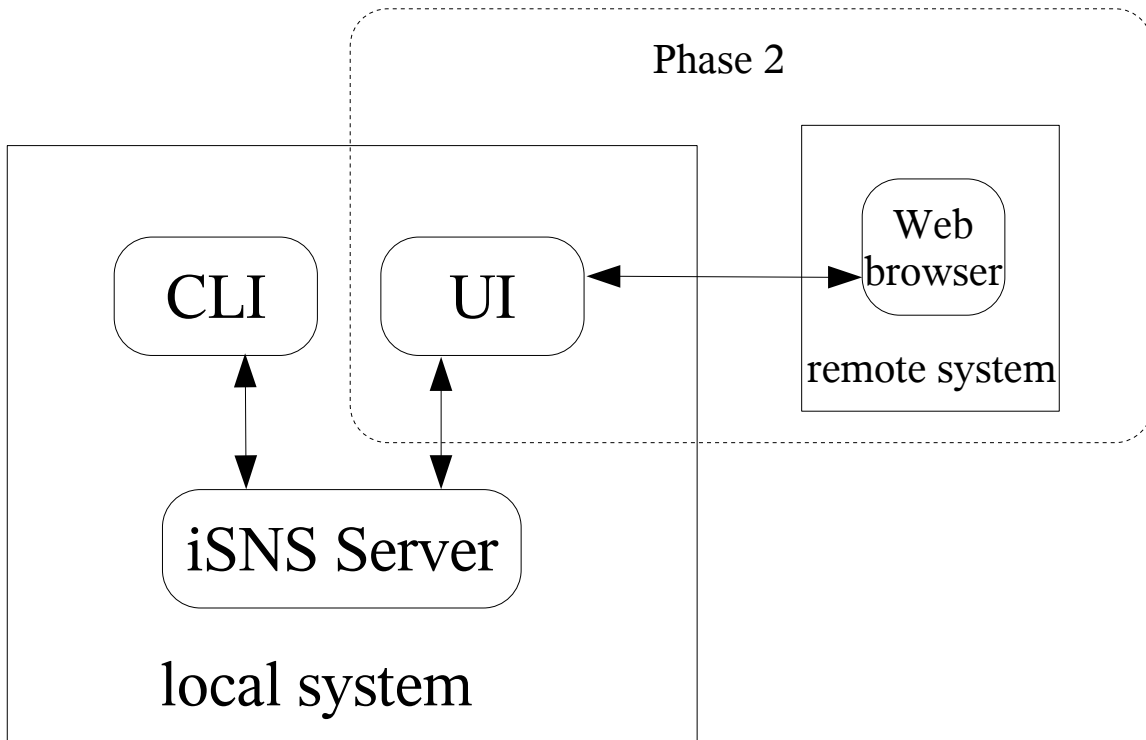
| <i>Term</i> | <i>Definition</i> |
|-------------|--|
| iSNS | Internet Storage Name Service described in RFC 4171. |

2 System Overview

2.1 Description

The CLI can be executed from any command shell running on the same system as the iSNS server. Each CLI command accomplishes one of iSNS server management function. The format of CLI will follow CLIP.

2.2 Block Diagram



3 Detailed System Design – Command Line Interfaces

3.1 Command Synopsis

`isnsadm subcommand-object [options] [<operand>]`

Table 1 lists all subcommands and their descriptions.

| <i>Subcommand</i> | <i>Description</i> |
|----------------------|--|
| list-dd | lists discovery domain objects based on operand supplied or all items for the discovery domain object if no operand is supplied. |
| list-dd-set | lists discovery domain set objects based on operand supplied or all items for the discovery domain set object if no operand is supplied. |
| list-node | lists node objects based on operand supplied or all items for the node object if no operand is supplied. |
| show-config | lists administrative setting information for the server. |
| <u>show-stat</u> | <u>shows the performance statistics.</u> |
| create-dd | Creates an instance of dd object. |
| create-dd-set | Creates an instance of dd set object. |
| delete-dd | Deletes an instance of dd object. |
| delete-dd-set | Deletes an instance of dd set object. |
| add-dd | Adds a domain to a dd-set object. |
| remove-dd | Removes a domain from a dd-set object |
| add-node | Adds a node to a dd object. |
| remove-node | Removes a node from a dd object. |
| enable-dd-set | Enables an instance of an object. |
| disable-dd-set | Disables a instance of an object. |
| <u>modify-dd</u> | <u>Modifies an attribute of a dd object</u> |
| <u>modify-dd-set</u> | <u>Modifies an attribute of dd set object.</u> |

Table 1 Subcommands

Table 2 lists all objects and their descriptions.

| <i>object</i> | <i>Description</i> |
|---------------|--|
| node | iSCSI node object which is either an iSCSI target or an iSCSI initiator. |
| dd | Discovery Domain. This is a container for iSCSI targets and iSCSI initiators. A discovery domain with the name of 'DEFAULT' will always exist and will represent a reserved name. The DD name is a UTF-8 string with a maximum of 256 bytes. |
| dd-set | Discovery Domain Set. This is a container for discovery domains. A discovery domain set with the name of 'DEFAULT' will always exist and will represent a reserved name. The DD set name is a UTF-8 string with a maximum of 256 bytes. |
| config | Represent a set of administrative setting of iSNS server. Only one instance of the config object exists. |
| <u>stat</u> | <u>Represent a set of performance statistics of the iSNS server. Only one instance of the stat object exists.</u> |

Table 2 objects

Table 3 lists all operands and their descriptions.

| <i>Operand</i> | <i>Description</i> |
|---------------------------|--|
| iscsi-node-name | iSCSI target or iSCSI initiator symbolic name. The name is a UTF-8 string with a maximum of 224 bytes. |
| discovery-domain-name | Discovery Domain symbolic name. The name is a UTF-8 string with a maximum of 256 bytes. |
| discovery-domain-set-name | Discovery Domain Set symbolic name. The name is a UTF-8 string with a maximum of 256 bytes. |

Table 3 operands

Table 4 lists all generic options.

| <i>Option</i> | <i>Description</i> |
|----------------------|---|
| -V, --version | Displays version information. Stops interpretation of subsequent arguments. |
| -, --help | Displays context help. Stops interpretation of subsequent arguments. |

. Table 4:Generic Options

3.2 Subcommand description

3.2.1 list-node

```
isnsadm list-node [options] [<iscsi-node-name>, ...]
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|-----------------|------------------|---|
| -t, --target | none | Used to filter the list to display only iSCSI target nodes. |
| -i, --initiator | none | Used to filter the list to display only iSCSI initiator nodes. |
| -v, --verbose | none | Verbose output for the node information which will display the discovery domain(s) the node is a member, the entity information of the node and the portal information of the node. |

DESCRIPTION

This will list node information with the iSNS server. It lists all nodes which are currently registered with the iSNS server if no operand is specified.

RESPONSE FORMAT:

```
iSCSI Name: <iscsi-node-name>  
  Alias: <iscsi-node-alias>|-  
  Type: Initiator|Target|-
```

with -v specified:

```
  Network Entity: <entity-identifier>  
  Portal: <IP address:port>  
    Portal Group: <PGT>  
  Portal: <IP address:port>  
    Portal Group: <PGT>  
    .  
    .  
    .  
  Portal: <IP address:port>
```

```
Portal Group: <PGT>
DD: <discovery-domain-name>|-
if more than one node are available:
iSCSI Name: <iscsi-node-name>
Alias: <iscsi-node-alias>|-
Type: Initiator|Target|-
.
.
.
```

ERROR MESSAGES:

Unknown node <iscsi-node-name>. – if the node does not exist in the server repository.

3.2.2 list-dd

```
isnsadm list-dd [options] [<discovery-domain-name>,  
...]
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|----------------|------------------|---|
| -v, --verbose | none | Used to list the member contents of the discovery domain. |

DESCRIPTION

This will list the discovery domain(s) within the server. The -v option will show all nodes within the discovery domain. It lists all of discovery domains within the server if no operand is specified.

RESPONSE FORMAT:

```
DD Name: <discovery-domain-name>  
      DD set(s): <discovery-domain-set-name>, ...| -
```

with -v specified:

```
      iSCSI Name: <iscsi-node-name>  
      iSCSI Name: <iscsi-node-name>  
      .  
      .  
      .  
      iSCSI Name: <iscsi-node-name>
```

ERROR MESSAGES:

```
Discovery domain <discovery-domain-name> not found. -  
if the discovery domain <discovery-domain-name> is not in the server.
```

3.2.3 list-dd-set

```
isnsadm list-dd-set [options] [<discovery-domain-set-name>, ...]
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|----------------|------------------|---|
| -v, --verbose | none | Used to list the member contents of the discovery domain set. |

DESCRIPTION

This will list the discovery domain sets, both enabled and disabled within the server. The -v option will show all discovery domains within the DD set. It lists all of discovery domain sets if no operand is specified.

RESPONSE FORMAT:

```
DD Set Name: <discovery-domain-set-name>  
State: enabled|disabled
```

with -v specified:

```
DD Name: <discovery-domain-name>  
DD Name: <discovery-domain-name>  
.  
.  
.  
DD Name: <discovery-domain-name>
```

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name> not found. - if the discovery domain set <discovery-domain-set-name> is not in the server.

3.2.4 show-config

```
isnsadm show-config
```

DESCRIPTION

This will display iSNS server administrative settings.

RESPONSE FORMAT:

| | |
|--|--------------------|
| Entity Status Inquiry Non-Response Threshold | 3 |
| Management State Change Notification Enabled | yes |
| Default Discovery Domain/Discovery Domain Set Enabled | no |
| Node type for Discovery Domain/Domain Set Modification | control node |
| Authorized Control Node Names | - |
| Data Store Location | /etc/isns/isns.xml |

ERROR MESSAGES:

Unable to get the configuration information.

3.2.5 show-stat

```
isnsadm show-stat
```

DESCRIPTION

This will display iSNS server performance statistics.

RESPONSE FORMAT:

??? seconds registration response time
??? seconds deregistration response time
??? seconds query response time
??? client requests are outstanding.
??? seconds data store update processing time
??? data store updates are outstanding.

ERROR MESSAGES:

Unable to get the statistics data.

3.2.6 create-dd

```
isnsadm create-dd <discovery-domain-name>...
```

DESCRIPTION

This will create a discovery domain with the specified name.

ERROR MESSAGES:

Invalid discovery domain name. – if the <discovery-domain-name> is invalid.

Discovery domain <discovery-domain-name> already exists. – if the discovery domain <discovery-domain-name> exists already in the server.

3.2.7 create-dd-set

```
isnsadm create-dd-set <discovery-domain-set-name>...
```

DESCRIPTION

This will create a discovery domain set with the specified name.

ERROR MESSAGES:

Invalid discovery domain set name. – if the <discovery-domain-set-name> is invalid.

Discovery domain set <discovery-domain-set-name> already exists. – if the discovery domain set <discovery-domain-set-name> exists already in the server.

3.2.8 delete-dd

```
isnsadm delete-dd <discovery-domain-name>...
```

DESCRIPTION

This will delete a discovery domain with the specified name.

ERROR MESSAGES:

Discovery domain <discovery-domain-name> not found. -
if the discovery domain <discovery-domain-name> is not in the server.

3.2.9 delete-dd-set

```
isnsadm delete-dd-set <discovery-domain-set-name>...
```

DESCRIPTION

This will delete a discovery domain set with the specified name.

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name> not found. – if the discovery domain set <discovery-domain-set-name> is not in the server.

3.2.10 enable-dd-set

```
isnsadm enable-dd-set <discovery-domain-set-name>...
```

DESCRIPTION

This will enable a discovery domain set with the specified name.

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name> not found. – if the discovery domain set <discovery-domain-set-name> is not in the server.

3.2.11 disable-dd-set

```
isnsadm disable-dd-set <discovery-domain-set-name>...
```

DESCRIPTION

This will disable a discovery domain set with the specified name.

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name> not found. – if the discovery domain set <discovery-domain-set-name> is not in the server.

3.2.12 add-dd

```
isnsadm add-dd <options> <discovery-domain-set-name>  
<discovery-domain-name>...
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|---------------------------------|---|--|
| -d, --dd -s, -dd-set | <discovery-domain-name> <discovery-domain-set-name> | Used to specify the discovery domain to that is to be added to a discovery domain set. |

DESCRIPTION

This will add a discovery domain to the discovery domain set referenced by discovery-domain-set-name.

ERROR MESSAGES:

Discovery domain <discovery-domain-set-name> not found. - if the discovery domain set <discovery-domain-set-name> is not in the server.

Discovery domain <discovery-domain-name>not found.
- if the <discovery-domain-name>is invalid.

Discovery domain <discovery-domain-name>is already a member in discovery domain set <discovery-domain-set-name>. - if the discovery domain is already in the discovery domain set.

3.2.13 add-node

```
isnsadm add-node <options> <discovery-domain-name>  
<iscsi-node-name>...
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|---------------------------------------|--|--|
| -n, --node <u>-d, --dd</u> | <iscsi-node-name> <u><discovery-domain-name></u> | Used to specify the node name that will be added to the operand discovery domain. |

DESCRIPTION

This will add a node to the discovery domain referenced by discovery-domain-name.

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name> not found. – if the discovery domain set <discovery-domain-set-name> is not in the server.

Discovery domain <discovery-domain-name> not found. – if the discovery domain <discovery-domain-name> is not in the server.

Discovery domain <discovery-domain-name> is already a member in discovery domain set <discovery-domain-set-name>. – if the discovery domain is already in the discovery domain set.

3.2.14 remove-dd

```
isnsadm remove-dd <options> <discovery-domain-set-name> <discovery-domain-name>...
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|----------------------------------|---|---|
| -d, --dd -s, --dd-set | <discovery-domain-name> <u><discovery-domain-set-name></u> | Used to specify the discovery domain that is to be removed from the discovery domain set. |

DESCRIPTION

This will remove a discovery domain from the discovery domain set referenced by discovery-domain-set-name.

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name>not found. - if the discovery domain set <<discovery-domain-set-name>is not in the server.

Discovery domain <discovery-domain-name>not found. - if the <discovery-domain>is not found.

Discovery domain <discovery-domain-name>is not in discovery domain set<discovery-domain-set-name>. - if the discovery domain is not in the discovery domain set.

3.2.15 remove-node

```
isnsadm remove-node <options> <discovery-domain-name>  
<iscsi-node-name>...
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|--------------------------------|--|---|
| -n, --node -d, --dd | <iscsi-node-name> <discovery-domain-name> | Used to specify the node that is to be removed from the discovery domain. |

DESCRIPTION

This will remove a node from the discovery domain referenced by discovery-domain-name.

ERROR MESSAGES:

Discovery domain <discovery-domain-name> not found. - if the discovery domain <discovery-domain-name> is not in the server.

Node <iscsi-node-name> not found. - if the discovery domain <iscsi-node-name> is not in the server.

Node <iscsi-node-name> is not in discovery domain <discovery-domain-name>. - if the node is not in the discovery domain.

3.2.16 modify-dd-set

```
isnsadm modify-dd-set <options> <discovery-domain-set-name>
```

| <i>Options</i> | <i>Arguments</i> | <i>Description</i> |
|-------------------|--|---|
| <u>-n, --name</u> | <u><discovery-domain-set-name></u> | <u>Used to change the name of an existing discovery domain set.</u> |

DESCRIPTION

This will rename an existing discovery-domain-set.

ERROR MESSAGES:

Discovery domain set <discovery-domain-set-name> not found. - if the operand discovery domain set is not found.

3.2.17 modify-dd

isnsadm modify-dd <options> <discovery-domain-name>

| <i><u>Options</u></i> | <i><u>Arguments</u></i> | <i><u>Description</u></i> |
|-----------------------|--------------------------------------|---|
| <u>-n, --name</u> | <u><discovery-domain-name></u> | <u>Used to change the name of an existing discovery domain.</u> |

DESCRIPTION

This will rename an existing discovery-domain.

ERROR MESSAGES:

Discovery domain <discovery-domain-name> not found. -if the operand discovery domain is not found.