ISTUD

bintec Dm784-I

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Chapter 1 Introduction

1.1 Introduction

One of the benefits of the ISTUD feature (IPSEC Tunnel Server Discovery Protocol) is that it simplifies the discovery and management of CIM devices in the PIO service architecture. These devices terminate IPSEC tunnels used for communications between the contents management device and the different contents presentation devices.

The ISTUD feature, initially, notifies the management or supervision station for the PIO service architecture, of CIM presence and availability for the service. It also tells the supervisor what CPU load the CIM has and the number of tunnels it has open. This information is used by the supervisor to manage the load between the different (detected) CIMs.

1.1.1 Operating mode

When this feature is enabled, the router sends a *discovery frame* to the configured supervisor and passes to a *discovery state*. The router waits for the supervisor to respond with a *discover ack. frame*. Run **timing discovery-timeout** to configure the wait time.

If no response is received, the feature passes to a *discovery-timeout state*. Run **timing discovery-rate** to configure the wait time for this. Once timed out, the router sends another discovery frame and the whole process is repeated.

If the response is received, the feature passes to an *active state* and sends the first data frame from the device (CPU load, etc.) and continues to send frames (rate configured through **timing refresh-rate** command). The supervisior device can always request data from the device through a *query data frame*.

For the router to verify the supervisor is receiving the traffic, it sends the supervisor at least one *query data* frame within the time configured through **timing supervisor-timeout**. If this does not occur, it passes to a *discovery state*.

Chapter 2 Configuration

2.1 Accessing the configuration

Run **feature istud** to access the ISTUD feature configuration (main configuration menu).

Syntax:

```
Config>feature istud

-- ISTUD configuration --
ISTUD config>
```

2.2 Configuration commands

The following table summarizes the ISTUD feature configuration commands. These commands are explained in more detail further on.

Command	Function
? (HELP)	Displays the configuration commands or subcommands options.
ENABLE	Enables the feature and initiates the discovery process for the configured supervisor.
NO	Deletes the indicated element, which then takes default.
PROTOCOL-PORT	Configures the UDP port so information with the supervisor is exchanged.
SUPERVISOR-IP	Configures the supervisor's IP address. The discovery and data frames are sent to this IP address.
TIMING	Configures the values of various timers being used. There are two types: sending rate and maximum wait time.
EXIT	Exits the ISTUD feature configuration menu.

2.2.1 ? (HELP)

Displays the list of available commands for the feature.

Syntax:

```
ISTUD config>?
```

Example:

```
ISTUD config>?
  enable          Global enable
  no              Negate a command or set its defaults
  protocol-port   UDP port for exchange protocol information
  supervisor-ip   Supervisor IP address
  timing          Configure several timers
  exit
```

2.2.2 [NO] ENABLE

Enables the feature by preconfiguring the supervisor IP address. Default is feature disabled. If you delete the supervisor IP, then the feature automatically disables.

Syntax:

```
ISTUD config>enable
```

2.2.3 NO

Sets the indicated parameter to default.

Syntax:

```
ISTUD config>no ?
  enable          Global enable
  supervisor-ip   Supervisor IP address
  protocol-port   UDP port for exchange protocol information
  timing          Configure several timers
```

2.2.4 [NO] PROTOCOL-PORT

Configures the UDP port used by the feature to register and exchange information with the supervisor device. Default is port 20000.

Syntax:

```
ISTUD config>protocol-port <port>
```

2.2.5 [NO] SUPERVISOR-IP

Configures the IP address for the supervisor device. Default is no IP address configured. This parameter must be configured before enabling the feature. If you delete said IP, the feature automatically disables.

Syntax:

```
ISTUD config>supervisor-ip <ipv4 format address>
```

2.2.6 TIMING

Configures the various timers linked to ISTUD. This configures the rate the discovery frames are sent (from the supervisor), the maximum time permitted to receive an answer from this, the rate at which information is automatically sent to the supervisor and the maximum time waited without a response from said supervisor.

Syntax:

```
ISTUD config>timing ?
  discovery-rate       Discovery frames sending rate
  discovery-timeout    Discovery frames acknowledge timeout
  refresh-rate         Automatic tunnel information sending rate
  supervisor-timeout   Supervisor alive notification timeout
```

2.2.6.1 [NO] TIMING DISCOVERY-RATE

Configures the rate (in seconds) discovery frames are sent to the supervisor. Default is every 3 seconds. Admits values between 1 and 300 seconds.

Syntax:

```
ISTUD config>timing discovery-rate <rate value>
```

This value must be greater than the value configured through **timing discovery-timeout**.

2.2.6.2 [NO]TIMING DISCOVERY-TIMEOUT

Configures the maximum time (in seconds) that the router waits for a response to a discovery frame. Default is 2 seconds. Admits values between 1 and 60 seconds.

Syntax:

```
ISTUD config>timing discovery-timeout <timeout value>
```

This value must be less than the value configured through **timing discovery-rate**.

2.2.6.3 [NO]TIMING REFRESH-RATE

Configures the rate at which the router automatically sends information to the supervisor. Default is one data frame per 60 seconds. Admits values between 1 and 7200 seconds.

Syntax:

```
ISTUD config>timing refresh-rate <rate value>
```

2.2.6.4 [NO]TIMING SUPERVISOR-TIMEOUT

Configures the maximum time in seconds that a router can wait without receiving a petition from the supervisor.
Once this has timed out, the router passes to a discovery state and begins to send discovery frames (to try and get a response). Default is 300 seconds. Admits values between 1 and 7200 seconds.

Syntax:

```
ISTUD config>timing supervisor-timeout <timeout value>
```

2.2.7 EXIT

Exits the ISTUD feature configuration console and returns to the device's general configuration prompt.

Syntax:

```
ISTUD config>exit
```

Chapter 3 Monitoring

3.1 Accessing the monitoring

Run **feature istud** (main monitoring menu) to access ISTUD monitoring.

Syntax:

```
+feature istud
-- ISTUD console --
ISTUD+
```

3.2 Monitoring commands

The following monitoring commands are available:

Command	Function
? (HELP)	Displays the monitoring commands or the subcommands options.
CLEAR	Deletes ISTUD statistics.
LIST	Displays the state and the statistics for this.
EXIT	Exits the feature monitoring menu.

3.2.1 ? (HELP)

Displays the monitoring commands or the subcommands options.

Syntax:

```
ISTUD+?
  clear    Clear statistics
  list     List statistics
  exit
```

3.2.2 CLEAR

Clears the statistics that support the ISTUD feature. These statistics refer to the counters for the frames sent and received by the feature.

Syntax:

```
ISTUD+clear
```

3.2.3 LIST

Displays the status of the feature and the statistics for the ISTUD feature (helps to identify and delimit operating problems).

Syntax:

```
ISTUD+list
```

Example:

```
ISTUD+list
State : ACTIVE
Tx Discover frm:          0   Rx Discover ACK frm:          0
Discovery Timeouts:       0   Rx Discover ACK wrong frm:    0
                              RX Unsupported frames:        0
                              RX Unknown frames:            0

Tx Refresh frm:           7
Tx Data frm:              4   Rx Query data frm:            4
Supervisor Timeouts:      0
```

```
ISTUD+
```

The status of the feature can be:

DISCOVERY	The router has sent a discovery frame to the supervisor and is waiting for a response.
DISCOVERY-TIMEOUT	The router has not received a response from the supervisor within the configured time.
ACTIVE	The router is in contact with the supervisor, receiving petitions and periodically sending information.
DISABLED	The feature is not enabled.

The statistics show the number and type of sent and received frames (including error frames). The statistics also display the number of *timeouts* that have occurred.

3.2.4 EXIT

Exits the ISTUD feature monitoring console and returns to the device's general monitoring prompt.

Syntax:

```
ISTUD+exit
+
```

Chapter 4 Example

4.1 Example

Configuring a CIM in the PIO service architecture can be carried out as follows. Traffic from the two IPSec tunnels is received by the ethenet0/0 interface and information in clear is sent through the ethernet0/1 interface. The CIMs' supervisor has address 172.24.78.94 and uses port 45700 for the ISTUD feature.

```
   log-command-errors
   no configuration
   set hostname CIM-1
   feature access-lists
; -- Access Lists user configuration --
     access-list 100
        entry 1 default
        entry 1 permit
        entry 1 source address 202.1.0.0 255.255.0.0
        entry 1 destination address 201.1.0.0 255.255.0.0
;
     exit
;
   exit
;
;
   network ethernet0/0
; -- Ethernet Interface User Configuration --
     ip address 2.1.1.1 255.255.255.0
;
   exit
;
;
   network ethernet0/1
; -- Ethernet Interface User Configuration --
     ip address 202.1.1.1 255.255.0.0
     ip address 202.1.2.1 255.255.0.0 secondary
     ip address 202.1.3.1 255.255.0.0 secondary
     ip address 172.24.78.149 255.255.0.0 secondary
;
   exit
;
;
;
   event
; -- ELS Config -
     enable trace event IKE.040
     enable trace event IKE.041
     enable trace event IKE.048
     enable trace subsystem ISTUD ALL
     enable filter
     ev-buffer 3000 200
   exit
;
;
   protocol ip
; -- Internet protocol user configuration --
     route 10.1.1.0 255.255.255.0 2.1.1.2
     route 10.1.2.0 255.255.255.0 2.1.1.3
     route 10.1.3.0 255.255.255.0 2.1.1.4
     route 0.0.0.0 0.0.0.0 2.1.1.100
;
     classless
;
     ipsec
; -- IPSec user configuration --
```

```
         enable
         assign-access-list 100
;
         template 1 default
         template 1 isakmp des md5
         template 1 source-address 2.1.1.1
;
         template 2 default
         template 2 dynamic esp tdes md5
         template 2 source-address 2.1.1.1
;
         map-template 100 2
         key preshared ip 0.0.0.0 ciphered 0x37349246263B0066
      exit
;
   exit
;
;
;
   feature istud
; -- ISTUD configuration --
      supervisor-ip 172.24.78.94
      protocol-port 45700
      enable
;
   exit
;
   dump-command-errors
   end
```