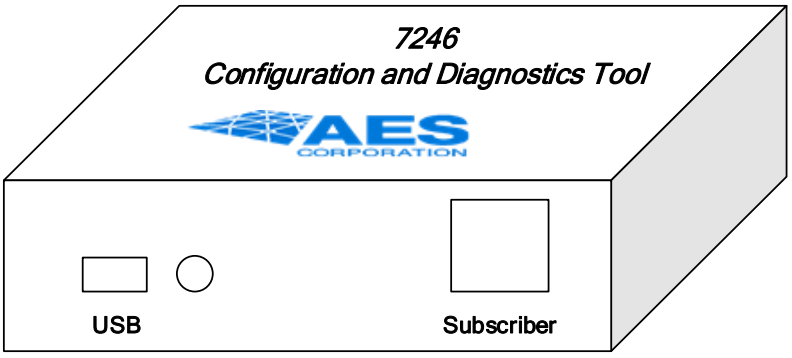
7246

CDT Configuration and Diagnostics Tool

Profile Setup Manual



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1 Summary

The Configuration and Diagnostics Tool (CDT) is a module that enhances the functionality of the standard AES handheld programmer by implementing a number of interactive features used for configuration and diagnostics of an AES subscriber. This document describes the CLI interface used to create, edit, and store customized configuration profiles used for subscriber configuration.

2 CLI Connection

To access the CLI interface, first connect the USB port to a PC. Use Device Manager to determine which COM port is connected to the USB port. Open a terminal emulator on the COM port and configure it for 4800, n,8,1. Hit <ENTER> on the terminal to get the CDT-MAIN> prompt, then type "sct" to get to the CDT-SCT> prompt.

3 Configuration Profiles

3.1 Overview

The CDT can store a number of subscriber configurations called "profiles" that are used for configuring a subscriber in the field. This reduces the time and potential for error when configuring a subscriber by limiting the operator interface to a set of menu selections.

Before going to the field, the subscriber configuration profiles need to be setup and stored in the CDT using a CLI command interface. Communication with the CDT for the setup operation uses the USB port and a terminal emulator (ex: Hyperterm). Once the CDT profiles are setup, the unit is ready to be taken to the field to configure a subscriber.

In the field, the CDT is attached to the AES handheld programmer. The CDT is then connected via cable to the programming port of the subscriber. When the CDT is powered up, the operator is presented with menu selections for the desired mode (Configuration, Diagnostics, Programmer Mode). For subscriber configuration, enter F1. The configuration menu displays options (F1, F2, F3) for reading the subscriber, updating the subscriber configuration from the stored profiles, or storing the current subscriber configuration.

The configuration function is limited to reprogramming the following settings:

Time to Live (TTL):
- Check-in
- Status
- Alarm
- Trouble
- Restoral
- Tap
- Special

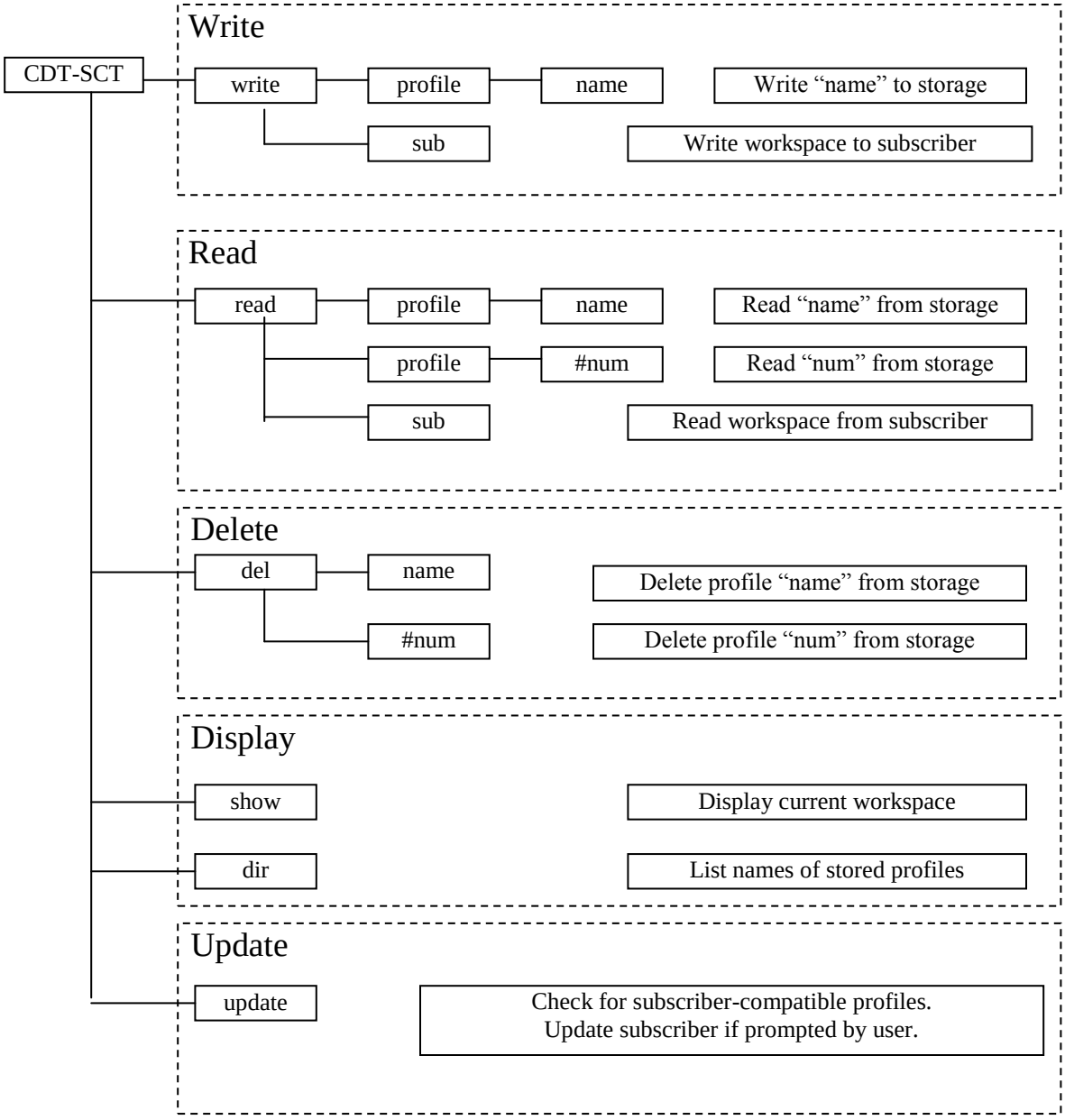
Timers:
- Check-in
- AC Report Delay
- Network Report Delay
- Comm Timeout

3.2 Profile Setup

This section describes how to setup, store, and manage the configuration profiles using the CLI interface. This interface is engaged by connecting the CDT to a PC via a USB port, and using a terminal emulator for communications. The main prompt will be "CDT-MAIN". Type "sct" to enter the subscriber configuration menu (CDT-SCT). Entering "?" will list the available commands.

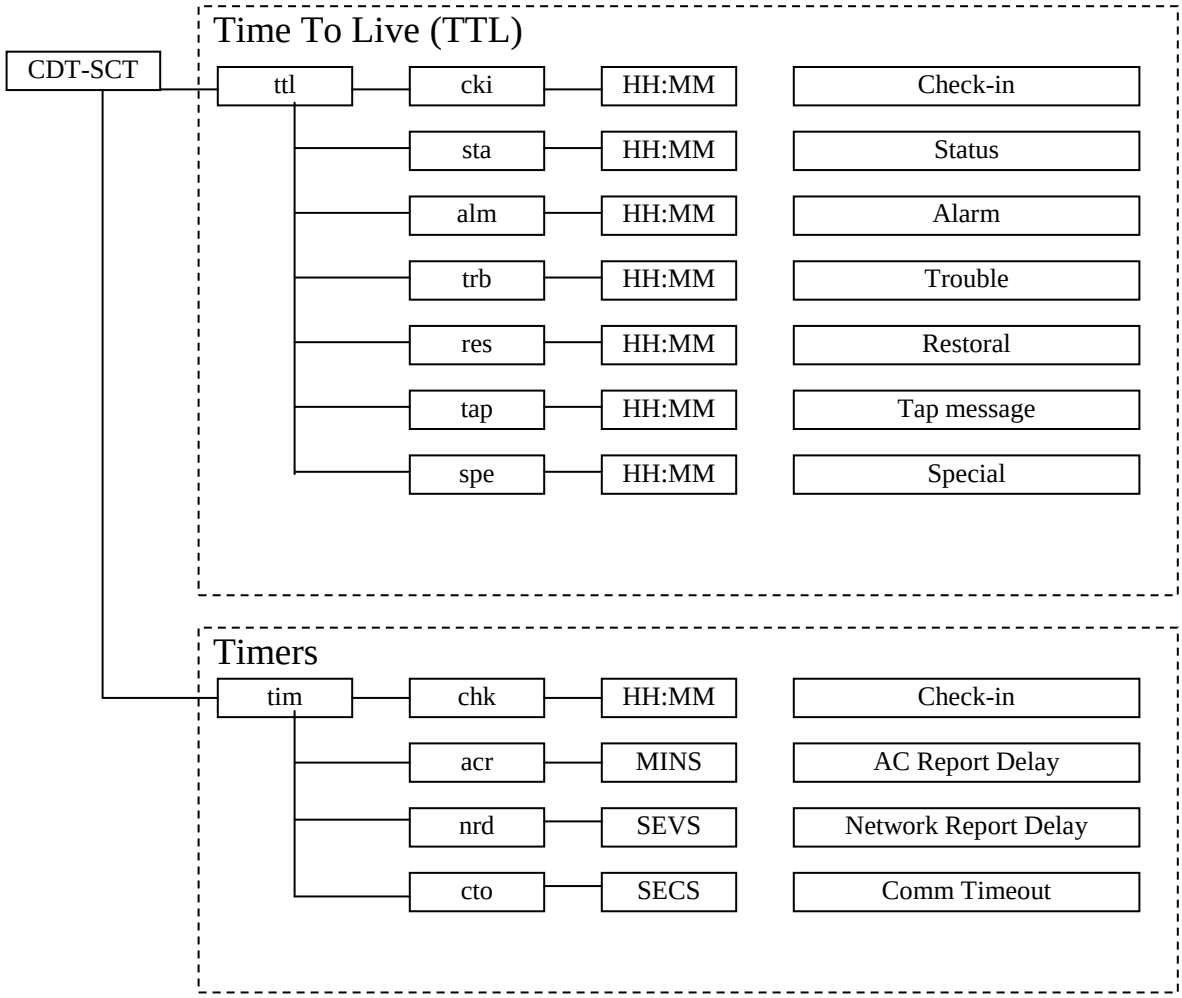
3.2.1 Profile Management

When managing profiles, the format is: `<function> <src/dest> <value>`
Example: wri pro 7788-default (write profile "7788-default")



3.2.2 Profile Editing

When editing a profile, the CLI format is: `<group> <name> <value>`
Example: ttl cki 01:05 (set the check-in time to live to 1 hour, 5 minutes)



3.2.3 Default Profiles

The CDT has a set of default profiles pre-loaded from the factory. These profiles can be used to configure the following subscriber models:

Fire: 7744, 7788
Burg: 7050, 7058, 7350, 7450, 7650

The default values are listed in the following table:

TTL Parameter	**Burg**	**Fire**
Check-in TTL	10 min	10 min
Status TTL	10 min	10 min
Alarm (Zones) TTL	3 hours	3 hours
Restoral (Zones)TTL	3 hours	3 hours
Trouble/Rest(Zones)TTL	3 hours	3 hours
TAP messages TTL	3 hours	10 min
Special TTL	10 min	10 min
Timer Parameter	**Burg**	**Fire**
Check-in timer	23:45	23:45
AC Report Delay timer	Random	Random
Network Report Delay	10 sec	10 sec
Comm TimeOut timer	121 sec	61 sec

3.2.4 CLI Script

The CLI commands can be entered into a text file script and send to the CDT via the terminal as a text file transfer. A row of 20 "#" characters is required after each command, except after the final "write pro" command. The script file may contain other comment lines beginning with the "#" character, which will be ignored by the CDT. This is an example script to create a profile named "7788F-cfg1" for programming a 7788F subscriber:

```
# Configuration for 7788F
#
# TIME TO LIVE
# TTL check-in 00:10
ttl cki 00:10
####################
# TTL status report 00:10
ttl sta 00:10
####################
# TTL alarm from zones 03:00
ttl alm 03:00
####################
# TTL trouble and its restorals from zones 03:00
ttl trb 03:00
####################
# TTL restoral from zones (alarm) 03:00
ttl res 03:00
####################
# TTL tap messages (Dialer) 00:10
ttl tap 00:10
####################
# TTL special 00:10
ttl spe 00:10
####################
#
# TIMERS
# TIMER Check-in 23:45
tim chk 23:45
####################
# TIMER AC report delay
#     use tim acr R for random
#     use time acr NN for NN minutes (max=60)
tim acr R
####################
# TIMER Network Report Delay (seconds) 10
tim nrd 10
####################
# save to profile named 7788F-cfg1
write pro 7788F-cfg1
y
```

Type “show” after the script executes to see the resulting profile:

```
CDT-SCT>show
PROFILE:7788F-cfg1
 TTL (ttl)
   CHECKIN       (cki) - 00:10
   STATUS        (sta) - 00:10
   ALARM         (alm) - 03:00
   TROUBLE       (trb) - 03:00
   RESTORAL      (res) - 03:00
   TAP           (tap) - 00:10
   SPECIAL       (spe) - 00:10
 TIMERS (tim)
   CHECKIN TIME  (chk) - 23:45
   AC REPORT DLY (acr) - RANDOM
   NW REPORT DLY (nrd) - 010 sec
```

3.2.5 Profile Naming Conventions

The profile name must consist of two fields, a model name and an identifier, separated by a hyphen. (Ex: 7058-CFG1, 7788F-VERSION1). The “Model” field in the profile must match the model field returned by a status request (CTRL-N) to the subscriber:

Example 7058 response string:

```
T,SUB  2.81  7058,F83D,2406,1,5,101
        |   |  |  | |  |      | | |-|-------- status
        |   |  |  | |  |      | |------------ netcon
        |   |  |  | |  |      |-------------- link layer
        |   |  |  | |--|---------------------- ID
        |   |  |--|------------------------- model
        |--|------------------------------- version
```

Example 7788F response string:

```
T,SUB  2.64Z5 7788F,7013,XXXX,255,7,000
        |     | |  |  |  |      | | | |-|---- status
        |     | |  |  |  |      | | |-------- netcon
        |     | |  |  |  |      |-|---------- link layer
        |     | |  |  |--|------------------- ID
        |     | |--|------------------------ model
        |----|---------------------------- version
```

During the subscriber update process, the subscriber model is determined, and the user is prompted to select one of the profiles that match the subscriber model. For example, the following profile names would be possible matches for a 7788F subscriber:

7788-default
7788F-2.64Z5

4 Subscriber Configuration

A configuration can be read from a subscriber, and can optionally be saved as a profile. In addition, an existing profile can be written to a subscriber.

4.1 Read Subscriber Configuration

At the CDT-SCT prompt, type “read sub”. The subscriber configuration will be read and displayed:

```
PROFILE:7058-2.81
 TTL (ttl)
   CHECKIN       (cki) - 00:10
   STATUS        (sta) - 00:10
   ALARM         (alm) - 03:00
   TROUBLE       (trb) - 03:00
   RESTORAL      (res) - 03:00
   TAP           (tap) - 03:00
   SPECIAL       (spe) - 00:10
 TIMERS (tim)
   CHECKIN TIME  (chk) - 00:01
   AC REPORT DLY (acr) - RANDOM
   NW REPORT DLY (nrd) - 010 sec
   COMM TIMEOUT  (cto) - 180 sec
```

4.2 Save Subscriber Configuration

To save this configuration profile, type “write pro” to store a profile with the current name, or “write pro <name>” to store it under a different name. The response should be:

```
Saving "7058-2.81"
```

4.3 Configuring the Subscriber

To configure the subscriber, type “update” at the command line. The CDT will determine the subscriber model, and will search through the list of available profiles for a match to the mode type (ex: 7744). The user will be prompted to update to a profile, and has the option to update to that profile, or skip to the next one.

```
Sub: 7058-2.81
Profile found
 7058-default
 7058-2.81
Update with profile:
"7058-default" ?
(y/n)
```

If “y” is selected, the new values will be loaded to the subscriber:

```
Updating...
Setting TTLs...
Setting TIMERs...
Done
```

5 Diagnostics

The diagnostics interface is engaged by typing “diag” at the CDT-MAIN prompt. The user is presented with the CDT-DIAG prompt. This interface provides all the CDT Diagnostics functions via a text-based interface. Enter the name of the desired test at the prompt, or hit “?” to get a list of available options. Terminate any repeating tests by hitting the ESC key. The diagnostics options are:

```
status  - get subscriber status
zones   - get zones status
routing - get routing info
packets - start packet monitor
history - show packet history
pstats  - show packet history stats
store   - store packet history in flash
recall  - recall packet history from flash
delete  - delete packet history from flash
```

5.1 Status

Poll for subscriber status (CTRL_N) once per second and display the response:

```
MODEL VER   ID  PEER
7058  2.81 5710 2406
LL:1  NC:5 Stat:000      (LL=Link Layer, NC=Netcon)
Status: OK
```

5.2 Zones

Poll for zone status (CTRL_Z) once per second and display the response:

Zones normal:

```
ZONES     <ESC:Exit>
Zx00,Z1-8:0000-0000
Zones Normal
```

Zone 1 alarm:

```
ZONES     <ESC:Exit>
Zx01,Z1-8:1000-00T0
 Z1:ALARM
 Z3:norm
 Z2:norm
 Z4:norm
```

Zone 7 trouble:

```
ZONES     <ESC:Exit>
Zx01,Z1-8:1000-00T0
 Z5:norm
 Z7:norm
 Z6:TRBL
 Z8:norm
```

5.3 Routing

Poll for routing table (CTRL_T) once per second and display the routing table and number of Ok peers (Q=2,3) vs Total peers:

```
Peers  Ok:3 Total:3
1.2406,L:00,N:0,Q:03
2.7350,L:01,N:5,Q:03
3.0101,L:01,N:5,Q:03
```

5.4 Packets

Initiates the packet monitoring session. Collects and displays packets received and transmitted by the subscriber, and accumulated count of Rx, Tx, and Ack packets:

```
SEQ SRC  DEST TYPE
 C1 7013>2406 D_CHKI - Rx:1   Tx:0   Ak:0
 C1 2406>7013 P_ACK  - Rx:2   Tx:0   Ak:0
 84 5710>2406 D_CHKI - Rx:2   Tx:1   Ak:0
 84 2406>5710 P_ACK  - Rx:3   Tx:1   Ak:1
 A5 0101>2406 D_CHKI - Rx:4   Tx:1   Ak:1
 A5 2406>0101 P_ACK  - Rx:5   Tx:1   Ak:1
```

5.5 History

Displays the packets collected during the previous packet monitoring session, or recalled from non-volatile flash:

```
 C1 7013>2406 D_CHKI
 C1 2406>7013 P_ACK
 84 5710>2406 D_CHKI
 84 2406>5710 P_ACK
 A5 0101>2406 D_CHKI
 A5 2406>0101 P_ACK
```

5.6 Pstats

Displays the statistics from the previous packet monitoring session:

```
 STATS:
  Rx:5
  Tx:1
 Ack:1
```

5.7 Store

Stores the latest 255 entries in the packet history buffer to non-volatile flash.

5.8 Recall

Read the packets stored in non-volatile flash into the history buffer and display them.

5.9 Delete

Delete the history buffer stored in non-volatile flash.

6 Firmware Update

The CDT firmware can be updated via the USB port using the CDTProgrammer application. If the firmware requires an upgrade, follow these steps:

1. Connect the USB cable to the CDT
2. Determine the COM port connected to the USB port
3. Put the CDTProgrammer executable and the new CDT.hex file in a known directory
4. Open a command window and go to the directory
5. Execute the flash programmer with the following command line: (easiest with a .bat file)

   ```
   <executable> -i <virtual usb com port> -b 115200 <file>
   ```

   Example to load CDT.hex using COM8:

   ```
   CDTProgrammer -i COM8 -b 115200 CDT.hex
   ```

6. Observe the following sequence in the command window. When complete, the CDT should boot to the new image. Re-open the terminal on the COM port to verify.

   ```
   CDTProgrammer -i COM8 -b 115200 CDT.hex

   Setting up
   Reading Target Device ID...Found dsPIC33FJ256GP506A (ID: 0x07f5)

   Reading HexFile
   Reading Target

   Programming Device......... Done

   Update to: CDT Ver x.xxx
   ```