WE866E4-P AT Commands Reference Guide

80572ST10887A Rev. 0.0 – 2018-02-16

TELIT
TECHNICAL
DOCUMENTATION

APPLICABILITY TABLE

PRODUCT
WE866E4-P

Software Release
7.0.0B

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Contents

Document History

Revision	Date	Changes
0.0	February 2018	First Issue.

1 Introduction

1.1 Scope

This document is aimed in providing an detailed specification and a comprehensive listing as a reference for the whole set of AT command.

1.2 Audience

This document is intended for Telit customers, who are integrators, about to implement their applications using our WE866E4-P modules.

Readers of this document should be familiar with Telit modules and their ease of controlling by means of AT Commands.

1.3 Contact Information, Support

For general contact, technical support services, technical questions and report documentation errors contact Telit Technical Support at:

- TS-SRD@telit.com

Alternatively, use:

http://www.telit.com/support

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

http://www.telit.com

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.

1.4 Text Convention

Table 1, page 11, shows the symbol conventions used in this manual for notification and important instructions.

Table 1 Symbol Conventions

Icon	Type	Description
	Note	Provides helpful suggestions needed in understanding a feature or references to material not available in the manual.
	Alert	Alerts you of potential damage to a program, device, or system or the loss of data or service.
	Caution	Cautions you about a situation that could result in minor or moderate bodily injury if not avoided.
	Warning	Warns you of a potential situation that could result in death or serious bodily injury if not avoided.
	Electro-Static Discharge (ESD)	Notifies you to take proper grounding precautions before handling a product.
	Danger	Indicates information MUST be followed or catastrophic equipment failure or bodily injury may occur

All dates are in ISO 8601 format, i.e. YYYY-MM-DD

1.5 Related Documents

Please refer to http://www.telit.com/gnss/ for current documentation and downloads.

1.5.1 Related Documents and Download

- Datasheets
- Product User Guides
- EVK User Guides
- Software User Guides
- Application Notes
- TelitView installation and documentation

1.5.2 Related Documents requiring a Non Disclosure Agreement

- Authorized Software User Guides
- Product firmware

2 Overview

This chapter provides the guidelines for using AT command line interface to design, configure and provision WE866E4-P module in a Wi-Fi network using serial commands.

2.1 About the Document

This document describe all AT commands implemented on the Telit wireless modules listed in the Applicability Table.

2.2 AT Commands

The Telit wireless module family can be controlled via the serial interface using the standard AT commands.

2.2.1 Command Definition

This document uses the following syntactical definitions:

- Special text fonts represent particular commands, keywords, variables, or window sessions
- Color text indicates cross-reference hyper links to supplemental information
- Command notation indicates commands, subcommands, or command elements

Table 2, page 11, describes the text conventions used in this manual for software procedures that are explained using the AT command line interface.

Table 2 Document Text Conventions

Convention Type	Description
[ ] Square brackets	Enclose optional parameters. Choose none; or select one or more an unlimited number of times each. Do not enter brackets as part of any command. `[parm1|parm2|parm3]`
? Question mark	Used with the square brackets to limit the immediately following token to one occurrence.
<CR> Carriage return	Each command is terminated by a carriage return.
<LF> Line feed	Each command is terminated by a line feed.
<CR> <LF> Carriage return Line feed	Each response is started with a carriage return and line feed with some exceptions.
< > Angle brackets	Enclose a numeric range, endpoints inclusive. Do not enter angle brackets as part of any command. `<SSID>`
= Equal sign	Separates the variable from explanatory text. Is entered as part of the command. `PROCESSID = <CID>`
. dot (period)	Allows the repetition of the element that immediately follows it multiple times. Do not enter as part of the command. `.AA:NN can be expanded to 1:01 1:02 1:03.`
A.B.C.D IP address	IPv4-style address. `10.0.11.123`
LINE End-to-line input token	Indicates user input of any string, including spaces. No other parameters may be entered after input for this token. `string of words`
WORD Single token	Indicates user input of any contiguous string (excluding spaces). `singlewordnospaces`

2.2.2 AT Command Syntax

Table 3, page 15, describes the syntax rules followed by Telit implementation used in this manual for software procedures that are explained using the AT command line interface.

Table 3 AT Command Syntax

Convention Type	Description
command syntax monospaced font	This monospaced font represents command strings entered on a command line and sample source code. `AT XXXX`
Proportional font description	Gives specific details about a parameter. `<Data> DATA`
UPPERCASE Variable parameter	Indicates user input. Enter a value according to the descriptions that follow. Each uppercased token expands into one or more other token.
lowercase Keyword parameter	Indicates keywords. Enter values exactly as shown in the command description.

2.3 Information Response and Result Codes

TBD

3 Getting Started

This chapter describes how to get started.

3.1 System Overview

The Serial-to-WiFi stack is used to provide WiFi capability to any device having a serial interface. This approach offloads WLAN, TCP/IP stack and network management overhead to the WiFi chip, allowing a small embedded host (for example an MCU) to communicate with other hosts on the network using a WiFi wireless link. The host processor can use serial commands to configure the Serial-to-WiFi Application and to create wireless and network connections.

The user will have to register on Telit website, sign the NDA and check with the local sales team for any queries during this procedure. This gives access to all the respective documentation according to the product purchased.

The following is the basic application development sequence for a Serial-to-WiFi user.

1. Evaluate GainSpan hardware and firmware

   – Download the software, program, and execute.

   – To download the software, go to SDK builder (www.gainspan.com/secure/login), and download all the latest packages including the binary (Refer WE866E4-P SDK Builder User Guide).

   – Flash the binary using module programmer user guide on the custom hardware or

   – GS evaluation board and execute in RUN mode. (Refer “WE866E4-P Module Programming User Guide”).

2. Design the custom hardware by following the design guidelines. (Refer WE866E4-P Hardware Design Guidelines)

3. Develop Host firmware

   – Interface host application using AT commands. (Refer WE866E4-P S2W AT Command Reference Guide)

   – Configure the serial interface (UART/SPI/SDIO) as required for mode, polarity.For software interface, choose Command & Response, Byte stuffing/de-stuffing as “None” for UART and SDIO options.

   – Issue general, power save, and security related commands as required.

   – Start connection to an Access Point or do provisioning as required.

- Obtain IP Address and Start Data Transfer.
- Select advanced services if any.

4. Debug Host and GainSpan module
   - Debug using provided AT commands and other options if required. (Refer WE866E4-P AT Command Reference Guide)
   - Analyze using Wire shark over wireless. For more details, refer information about AirPcap Nx in http://www.riverbed.com
5. Production Process
   - Perform generic recommendations in production line
   - Perform RF tests

NOTE: *Refer "WE866E4-P Use Case Reference Guide document for detailed use cases and examples*

3.2 Using SDK Builder

3.2.1 Serial-to-WiFi Module Information

Selecting the Serial-to-WiFi (Hosted) under the SDK Builder Configuration screen displays the module information that includes the module selected, firmware version.

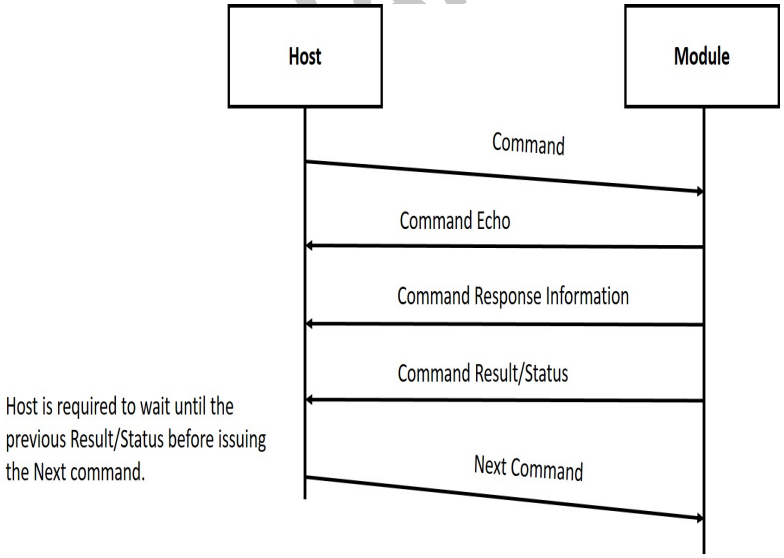
4 Architecture

This chapter describes the system architecture of Serial-to-WiFi Application.

4.1 Working Principle

Figure 1, page 19, representation shows the communication between WE866E4-P Module and the Host:

Figure 1 Communication between the Module and the Host



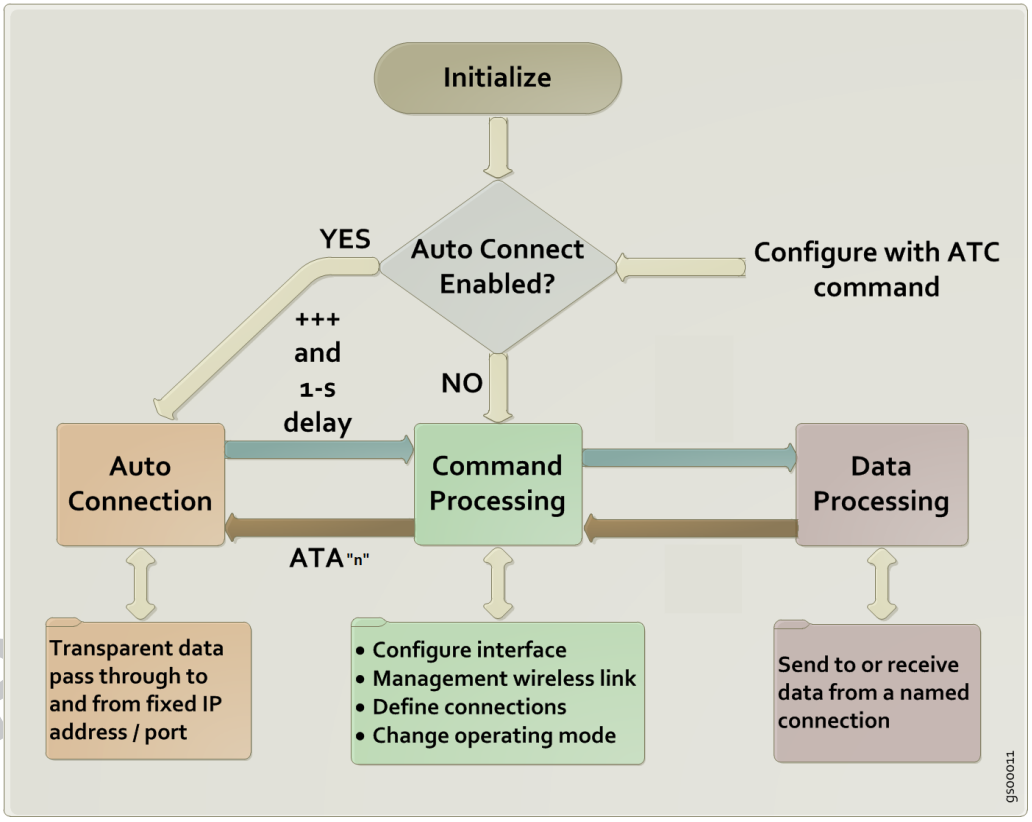
4.2 System Initialization

During the initialization process, the module SW tries to fetch the configuration file (also called as profile) from the file system. If the profile file is not found, it sets the default values i.e. factory default values to profile and creates the file in the file system.

As per the default profile, it starts in AP mode initializing the provisioning SW block. User can either configure the module through the provisioning mechanism or it can issue commands to start in STA mode and join to the intended AP.

In the profile, configuration related to wireless network, UDP/TCP/DNS/mDNS/HTTP/MQTT are kept. If the auto connection mode is set, then the module will attempt to join the wireless network and will try to open connection based on the UDP/TCP/HTTP/MQTT configuration. It configures the services and fetches based on the mDNS configuration.

Figure 2 Operating Modes in Serial-to-WiFi Application



The default UART baud rate is 115200 instead of 921600, using 8 bit characters with no parity bits and one stop bit.

5 Host Interaction

This chapter describes how a communication interface is established between Host and WE866E4-P module.

5.1 Startup Handling

Content required

NOTE:

5.2 Interface

5.2.1 Configure UART

This command is used to configure UART and set UART parameters.

Command Syntax `ATB`

Parameter Description

Table 4, page 22, describes the Configure UART parameters.

Table 4 Configure UART Parameters

Parameters	Mandatory/Optional	Value	Description
BaudRate	Mandatory	**Value range:** 110-921600 **Format:** Integer **Default value:** 115200	It specifies the UART parameters
Bits per Character	Optional	**Value range:** 0-3 **Format:** Integer **Default value:** 3	It specifies the bits per character.
Parity Mode	Optional	**Value range:** 0-3 **Format:** Integer **Default value:** 0	It specifies the mode of the parity being used.
Stop Bits	Optional	**Value range:** 0-3 **Format:** Integer **Default value:** 1	It specifies the number of stop bits.

Response

Table 5, page 22, describes the responses and remarks for Configure UART command.

Table 5 Configure UART Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 6, page 22, describes the synchronous responses and remarks for Configure UART command.

Table 6 Configure UART Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Example

```
ATB=115200,3,0,1
OK
```

6 General Operations

This chapter describes the commands for generic operations as required by Serial-to-WiFi Application.

6.1 Version

Content required

NOTE:

6.2 Time Setting

6.2.1 Set Time

This command is used to set and get the Julian time from RTC module.

Command Syntax `AT+YTIME=<Absolute Time>`

Parameter Description

Table 7, page 24, describes the Set Time parameters.

Table 7 Set Time Parameters

Parameters	Mandatory/Optional	Value	Description
Absolute Time	Mandatory	**Value range:** 0-1 **Format:** Integer **Default value:** 09/01/12,11:15:00 +04	It specifies the absolute time to be set

Response

Table 8, page 24, describes the responses and remarks for Set Time command.

Table 8 Set Time Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 9, page 24, describes the synchronous responses and remarks for Set Time command.

Table 9 Set Time Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Example

```
AT+YTIME=09/01/12,11:15:00+04
OK
```

6.2.2 Get Time

This command is used to get the Julian time from RTC module.

Command Syntax `AT+YTIME?`

Parameter Description

Table 10, page 25, describes the Get Time parameters.

Table 10 Get Time Parameters

Parameters	Value	Description
Time	**Value range:** 0-1 **Format:** Integer **Default value:** 09/01/12,11:15:00 +04	It specifies the time that has been set.

Response

Table 11, page 25, describes the responses and remarks for Get Time command.

Table 11 Get Time Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 12, page 25, describes the synchronous responses and remarks for Get Time command.

Table 12 Get Time Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.3 Profile Setting

The following AT commands are sequentially executed for setting a profile:

To view the current profile

To write to profile settings

To load a profile

To reboot with particular profile

To factory Reset

6.3.1 Read Profile

This command is used to read the profile from the Flash.Prior to issuing this command, the file must be open.

Command Syntax `ATZn=<Profile Number>`

Parameter Description

Table 13, page 26, describes the Read Profile parameters.

Table 13 Read Profile Parameters

Parameters	Mandatory/Optional	Value	Description
Profile Number	Mandatory	**Value range:** 0-1 **Format:** Integer **Default value:** 0	It specifies the profile number to be read.

Response

Table 14, page 26, describes the responses and remarks for Read Profile command.

Table 14 Read Profile Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 15, page 27, describes the synchronous responses and remarks for Read Profile command.

Table 15 Read Profile Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Example

```
ATZ0
OK
```

6.3.2 Save Profile

This command is used to save the profile to the file system.

Command Syntax

```
AT&WNP=<Profile Number>
```

Parameter Description

Table 16, page 27, describes the Save Profile parameters.

Table 16 Save Profile Parameters

Parameters	Mandatory/Optional	Value	Description
Profile Number	Mandatory	**Value range:** 0-1 **Format:** Integer **Default value:** N/A	It specifies the profile number to be saved.

Response

Table 17, page 27, describes the responses and remarks for Save Profile command.

Table 17 Save Profile Response

Responses	Remarks
SUCCESS	Success.
FAILURE	Failure.

Example

```
AT&W0
OK
```

6.3.3 Set Profile

This command is used to set the profile to the specified profile number.

Command Syntax

```
AT&Yn=<Profile Number>
```

Parameter Description

Table 18, page 28, describes the Set Profile parameters.

Table 18 Set Profile Parameters

Parameters	Mandatory/Optional	Value	Description
Profile Number	Mandatory	**Value range:** 0-1 **Format:** Integer **Default value:** N/A	It specifies the profile number to be set.

Response

Table 19, page 28, describes the responses and remarks for Set Profil command.

Table 19 Set Profile Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 20, page 28, describes the synchronous responses and remarks for Set Profile command.

Table 20 Set Profile Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4 System Settings

6.4.1 Open File

This command is used to open a specified file with options in the file name.

Command Syntax `AT+YFOP=<FIle Name>,<Options>`

Parameter Description

Table 21, page 29, describes the Open File parameters.

Table 21 Open File Parameters

Parameters	Mandatory/Optional	Value	Description
File Path	Mandatory	**Value range:** 1-64 **Format:** String **Default value:** N/A	It specifies the file name along with the path. Example:/sys/abc.txt
Options	Mandatory	**Value range:** 0x0-0x2, 0x41, 0x42, 0xC1, 0xC2, 0x241, 0x242, 0x441, 0x442, 0x4C1, 0x4C2 **Format:** Hexa **Default value:** N/A	It specifies any of the following three options, namely: Open for reading only. Open for writing only. Open for reading and writing.

Response

Table 22, page 29, describes the responses and remarks for Open File command.

Table 22 File Open Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 23, page 30, describes the synchronous responses and remarks for Open File command.

Table 23 Open File Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.2 Close File

This command is used to close a specified file. Prior to issuing this command, user is required to open a File.

Command Syntax `AT+YFCL=<File Discriptor>`

Parameter Description

Table 24, page 30, describes the Close File parameters.

Table 24 Close File Parameters

Parameters	Mandatory/Optional	Value	Description
File Descriptor	Mandatory	**Value range:** 0X0-0XFFFFFFFF **Format:** Hexa **Default value:** N/A	It specifies the value returned while opening a file.

Response

Table 25, page 30, describes the responses and remarks for Close File command.

Table 25 Close File Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.3 Delete File

This command is used to remove or delete a specified file. Prior to issuing this command, user is required to create File.

Command Syntax `AT+YFRM=<File Name>`

Parameter Description

Table 26, page 31, describes the Delete File parameters.

Table 26 Delete File Parameters

Parameters	Mandatory/Optional	Value	Description
File Name	Mandatory	**Value range:** 1-64 **Format:** String **Default value:** N/A	It specifies the file name to remove or delete.

Response

Table 27, page 31, describes the responses and remarks for Delete File command.

Table 27 Delete File Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.4 File Length

This command is used to get the actual file length and the space occupied in Flash. Prior to issuing this command, user is required to ensure the file is present in the Flash.

Command Syntax `AT+YFLN=<File Name>`

Parameter Description

Table 28, page 31, describes the File Length parameters.

Table 28 File length Parameters

Parameters	Mandatory/Optional	Value	Description
File Name	Mandatory	**Value range:** 0-100 **Format:** String **Default value:** N/A	It specifies the file name along with the path.

Response

Table 29, page 31, describes the responses and remarks for File Length command.

Table 29 File Length Response

Responses	Remarks
OK	Success.

Table 29 File Length Response

Responses	Remarks
ERROR	If parameter is not valid.

Synchronous Response

Table 30, page 32, describes the synchronous responses and remarks for File Length command.

Table 30 File Length Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.5 File List

This command is used to list all the files in the specified path. Prior to issuing this command, user is required to ensure the file path is present in the Flash.

Command Syntax

```
AT+YFLS=<File Path>
```

Parameter Description

Table 31, page 32, describes the File List parameters.

Table 31 File List Parameters

Parameters	Mandatory/Optional	Value	Description
File Path	Mandatory	**Value range:** 0-100 **Format:** String **Default value:** N/A	It specifies the file path.

Response

Table 32, page 40, describes the responses and remarks for File List command.

Table 32 File List Response

Responses	Remarks
OK	Success.

Table 32 File List Response

Responses	Remarks
ERROR	If parameter is not valid.

Synchronous Response

Table 33, page 40, describes the synchronous responses and remarks for File List command.

Table 33 File List Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.6 Read File

This command is used to read the specified number of bytes from the specified file with a given offset. Prior to issuing this command, the file must be open.

Command Syntax

```
AT+YFRD=<FIle Descriptor>,<Offset>,<Length>
```

Parameter Description

Table 34, page 34, describes the Read File parameters.

Table 34 Read File Parameters

Parameters	Mandatory/Optional	Value	Description
File Descriptor	Mandatory	**Value range:** 0X0-0XFFFFFFFF **Format:** Hexa **Default value:** N/A	It specifies the value returned while opening a file.
Offset	Mandatory	**Value range:** 0-1024 **Format:** Integer **Default value:** N/A	It specifies offset from the starting of the file.
Length	Mandatory	**Value range:** 0-1024 **Format:** Integer **Default value:** N/A	It specifies the number of bytes to read

Response

Table 35, page 34, describes the responses and remarks for Read File command.

Table 35 Read File Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 36, page 34, describes the synchronous responses and remarks for Read File command.

Table 36 Read File Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.7 Write File

This command is used to write the specified file from a given offset. Prior to issuing this command, the file must be open.

Command Syntax `AT+YFWR=<FIle Descriptor>,<Offset>,<Data>`

Parameter Description

Table 37, page 35, describes the Write File parameters.

Table 37 Write File Parameters

Parameters	Mandatory/Optional	Value	Description
File Descriptor	Mandatory	**Value range:** 0X0-0XFFFFFFFF **Format:** Hexa **Default value:** N/A	It specifies the value returned while opening a file.
Offset	Mandatory	**Value range:** 0-1024 **Format:** Integer **Default value:** N/A	It specifies offset from the starting of the file.
Data	Mandatory	**Value range:** 0-1024 **Format:** Integer **Default value:** N/A	It specifies the data to be written.

Response

Table 38, page 35, describes the responses and remarks for Write File command.

Table 38 Write File Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.8 Auto Mode

This command is used to enable or disable Auto mode.

Command Syntax `ATCn`

Parameter Description

Table 39, page 36, describes the Auto Mode parameters.

Table 39 Auto Mode Parameters

Parameters	Mandatory/Optional	Value	Description
n	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the Auto mode being enabled or disabled. 1 - enables Auto mode 0- disables Auto mode.

Response

Table 40, page 36, describes the responses and remarks for Auto Mode command.

Table 40 Auto Mode Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 41, page 36, describes the synchronous responses and remarks for Auto Mode command.

Table 41 Auto Mode Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.9 Get Auto Mode

This command is used to get the status of the Auto mode operation.

Command Syntax `ATCn?`

Parameter Description

Table 42, page 37, describes the Get Auto Mode parameters.

Table 42 Get Auto Mode Parameters

Parameters	Value	Description
Status	**Value range:** 0,1 **Format:** String **Default value:** 1	It specifies the status of the Auto mode operation (ENABLE or DISABLE).

Response

Table 43, page 37, describes the responses and remarks for Get Auto Mode command.

Table 43 Get Auto Mode Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 44, page 37, describes the synchronous responses and remarks for Get Auto Mode command.

Table 44 Get Auto Mode Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.10 Data Mode

This command is used to enable Data mode.

Command Syntax

`ATAn`

Parameter Description

Table 45, page 37, describes the Data Mode parameters.

Table 45 Data Mode Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:** 0-15 **Format:** Integer **Default value:** 115200	It specifies the data mode that has to be enabled for the CID.

Response

Table 46, page 38, describes the responses and remarks for Data Mode command.

Table 46 Data Mode Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 47, page 38, describes the synchronous responses and remarks for Data Mode command.

Table 47 Data Mode Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.11 Echo Mode

This command is used to enable or disable Echo mode.

Command Syntax

`ATEn`

Parameter Description

Table 48, page 38, describes the Echo Mode parameters.

Table 48 Echo Mode Parameters

Parameters	Mandatory/Optional	Value	Description
n	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the enable or disable of Echo mode, where: 1- enables Echo mode 0- disable Echo mode.

Response

Table 49, page 39, describes the responses and remarks for Data Mode command.

Table 49 Data Mode Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 50, page 39, describes the synchronous responses and remarks for Data Mode command.

Table 50 Data Mode Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.4.12 Verbose Mode

This command is used to enable or disable Verbose mode.

Command Syntax

`ATVn`

Parameter Description

Table 51, page 39, describes the Verbose Mode parameters.

Table 51 Verbose Mode Parameters

Parameters	Mandatory/Optional	Value	Description
n	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the enable or disable of Echo mode, where: 1- enables Verbose mode 0- disable Verbose mode.

Response

Table 52, page 39, describes the responses and remarks for Verbose Mode command.

Table 52 Verbose Mode Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 53, page 40, describes the synchronous responses and remarks for Verbose Mode command.

Table 53 Verbose Mode Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.5 Heap Information

This command is used to get information on total heap size and available memory for allocation.

Command Syntax `AT+YHD`

Response

Table 54, page 41, describes the responses and remarks for Heap Information command.

Table 54 Heap Information Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 55, page 41, describes the synchronous responses and remarks for Heap Information command.

Table 55 Heap Information Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.6 System Reset

This command is used to perform a soft reset to the module.

Command Syntax `AT+YSR`

Response

Table 56, page 42, describes the responses and remarks for System Reset command.

Table 56 System Reset Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 57, page 42, describes the synchronous responses and remarks for System Reset command.

Table 57 System Reset Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.7 SNTP Settings

6.7.1 SNTP Configuration

This command is used to configure the server in SNTP module. Prior to issuing this command, user is required to issue SNTP start command.

Command Syntax `AT+NSNTPCFG=<Server Address>,<Server ID>`

Parameter Description

Table 58, page 43, describes the SNTP Configuration parameters.

Table 58 SNTP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
Server Address	Mandatory	**Value range:**1-32 **Format:** String **Default value:** pool.ntp.org	It specifies the server address to be configured.
Server ID	Optional	**Value range:** 0x0,0x1,0xFFFF **Format:** Hexa **Default value:** FFFF	It specifies the ID of the server to be configured.

Response

Table 59, page 43, describes the responses and remarks for SNTP Configuration command.

Table 59 SNTP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 60, page 44, describes the synchronous responses and remarks for SNTP Configuration command.

Table 60 SNTP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.7.2 Get SNTP Configuration

This command is used to get the status of the server configuration in SNTP module. Prior to issuing this command, user is required to issue SNTP start command.

Command Syntax `AT+NSNTPCFG?`

Parameter Description

Table 61, page 44, describes the Get SNTP Configuration parameters.

Table 61 Get SNTP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
Name	Mandatory	**Value range:**N/A **Format:** String **Default value:** pool.ntp.org	
Server Address	Mandatory	**Value range:**N/A **Format:** String **Default value:** pool.ntp.org	It specifies the server address to be configured.
Status	Optional	**Value range:** N/A **Format:** String **Default value:** N/A	It specifies the status of the configuration (KOD, NORESPONSE)

Response

Table 62, page 44, describes the responses and remarks for Get SNTP Configuration command.

Table 62 Get SNTP Configuration Response

Responses	Remarks
OK	Success.

Table 62 Get SNTP Configuration Response

Responses	Remarks
ERROR	If parameter is not valid.

Synchronous Response

Table 63, page 45, describes the synchronous responses and remarks for Get SNTP Configuration command.

Table 63 Get SNTP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.7.3 Start SNTP

This command is used to start the SNTP module. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSNTPSTART`

Response

Table 64, page 45, describes the responses and remarks for Start SNTP command.

Table 64 Start SNTP Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 65, page 45, describes the synchronous responses and remarks for Start SNTP command.

Table 65 Start SNTP Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

6.7.4 Get SNTP Start

This command is used to get the status of SNTP start.

Command Syntax `AT+NSNTPSTART?`

Parameter Description

Table 66, page 46, describes the Get SNTP Start parameters.

Table 66 Get SNTP Start Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
Status	Optional	**Value range:** N/A **Format:** String **Default value:** N/A	It specifies the status of SNTP start (STARTED or NOT STARTED).

Response

Table 67, page 46, describes the responses and remarks for Get SNTP Start command.

Table 67 Get SNTP Start Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 68, page 46, describes the synchronous responses and remarks for Get SNTP Start command.

Table 68 Get SNTP Start Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7 Wireless

This chapter describes commands for configurations and operations related to WLAN layer

7.1 Wireless Generic

7.1.1 Initialization

This command is used to initialize WLAN interface.

Command Syntax `AT+WI=<Mode>`

Parameter Description

Table 69, page 47, describes the Initialization parameters.

Table 69 Initialization Parameters

Parameters	Mandatory/Optional	Value	Description
Mode	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the start of the WLAN interface, taking following values: 0- specifies the interface starts in station mode and 1- specifies the interface starts in AP mode.

Response

Table 70, page 47, describes the responses and remarks for Initialization command.

Table 70 Initialization Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 71, page 48, describes the synchronous responses and remarks for Initialization command.

Table 71 Initialization Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.1.2 Scanning

This command is used to scan the WLAN channel and provide information of the surrounding APs. Prior to isuing this command user is required enable the WLAN interface using the initialization command.

Command Syntax `AT+WS=<WHANDLE>,[<SSID>,<Channel>]`

Parameter Description

Table 72, page 48, describes the Scanning parameters.

Table 72 Scanning Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the Device ID of the WLAN interface on which scanning of the available SSID occurs , where 0- specifies disables WLAN interface 1- specifies enable the WLAN interface.
SSID	Optional	**Value range:** 0-32 **Format:** String **Default value:** N/A	It specifies the SSID of the network to be scanned
Channel	Optional	**Value range:** 1-14,36,40,44,48,52,56,60,64,100,104,108,112,116,132,136,140,149,153,157,161,165 **Format:** Integer **Default value:** 0	It specifies the specific channel for scanning. When this parameter is specified, the scan result of the specified channel is printed to the user.

Response

Table 73, page 49, describes the responses and remarks for Scanning command.

Table 73 Scanning Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 74, page 49, describes the synchronous responses and remarks for Scanning command.

Table 74 Scanning Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.1.3 Set MAC Address

This command is used to set the MAC address to the WLAN interface. Prior to issuing this command the user required to initialize the WLAN interface.

Command Syntax

```
AT+WMACS=<WHANDLE>,<MAC Address>
```

Parameter Description

Table 75, page 49, describes the Set MAC Address parameters.

Table 75 Set MAC Address Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the Device ID of the WLAN interface, where 0- specifies disables WLAN interface 1- specifies enable the WLAN interface.
MAC Address	Mandatory	**Value range:** 8 **Format:** Integer **Default value:** 00:03:7f:56:04:74	It specifies the MAC address to be set for the WLAN interface.

Response

Table 76, page 50, describes the responses and remarks for Set MAC Address command.

Table 76 Set MAC Address Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 77, page 50, describes the synchronous responses and remarks for Set MAC Address command.

Table 77 Set MAC Address Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.1.4 Get MAC Address

This command is used to get the MAC address of WLAN interface. Prior to issuing this command the user required to initialize the WLAN interface.

Command Syntax `AT+WMACG=<WHANDLE>`

Parameter Description

Table 78, page 50, describes the Get MAC Address parameters.

Table 78 Get MAC Address Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the Device ID of the WLAN interface, where 0- specifies disables WLAN interface 1- specifies enable the WLAN interface.

Response

Table 79, page 50, describes the responses and remarks for Get MAC Address command.

Table 79 Get MAC Address Response

Responses	Remarks
OK	Success.

Table 79 Get MAC Address Response

Responses	Remarks
ERROR	If parameter is not valid.

Synchronous Response

Table 80, page 51, describes the synchronous responses and remarks for Get MAC Address command.

Table 80 Get MAC Address Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.1.5 Disassociation

This command is used to disconnect from the current connected network. Prior to issuing this command user is required to initialize the WLAN interface by using AT+WI command and device has to be connected to a network.

Command Syntax

```
AT+WD=<WHANDLE>
```

Parameter Description

Table 81, page 51, describes the Disassociation parameters.

Table 81 Disassociation Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the Device ID of the WLAN interface, where 0- specifies disables WLAN interface 1- specifies enable the WLAN interface.

Response

Table 82, page 51, describes the responses and remarks for Disassociation command.

Table 82 Disassociation Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 83, page 52, describes the synchronous responses and remarks for Disassociation command.

Table 83 Disassociation Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2 Wireless Network Connection Management

7.2.1 AP Configuration

This command is used to set the configuration values to create a Network. Prior to issuing this command, user is required to create a netork by issuing AT+WNCR command (if the command is not used, then the default values is used)

Command Syntax

```
AT+WNAPC=<WHANDLE>,<HIDDEN SSID>,<Beacon Interval>,<DTIM Period>
```

Parameter Description

Table 84, page 52, describes the AP Configuration parameters.

Table 84 AP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the return value from AT+WNI command.

Table 84 AP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
Hidden SSID	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the hidden SSID created for a Network, where: 0- disables the hidden SSID and 1-enables the hidden SSID
Beacon Interval	Mandatory	**Value range:** 100-1000 **Format:** Integer **Default value:** 100 **Unit:** TUs	It specifies the interval between the beacon frames coming from access point. It is measured in TUs (Time Units) where, One TU is 1024 microseconds.
DTIM Period	Mandatory	**Value range:** 1-255 **Format:** Integer **Default value:** 3 **Unit:** seconds	DTIM (Delivery Traffic Indication Map) depends on the Beacon Interval. It specifies that when DTIM enabled beacon frame arrives, station wakes up with a default period value 3. So for every three beacons, connected sleeping stations wakes up and receive the beacon frames.

Response

Table 85, page 53, describes the responses and remarks for AP Configuration command.

Table 85 AP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 86, page 53, describes the synchronous responses and remarks for AP Configuration command.

Table 86 AP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.2 Get AP Configuration

This command is used to get the configuration of the AP.

Command Syntax `AT+WNAPC?`

Parameter Description

Table 87, page 54, describes the Get AP Configuration parameters.

Table 87 Get AP Configuration Parameters

Parameters	Value	Description
Hidden SSID	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the hidden SSID created for a Network, where: 0- disables the hidden SSID and 1-enables the hidden SSID
Beacon Interval	**Value range:** 100-1000 **Format:** Integer **Default value:** 100 **Unit:** TUs	It specifies the interval between the beacon frames coming from access point. It is measured in TUs (Time Units) where, One TU is 1024 microseconds.
DTIM Period	**Value range:** 1-255 **Format:** Integer **Default value:** 3 **Unit:** seconds	DTIM (Delivery Traffic Indication Map) depends on the Beacon Interval. It specifies that when DTIM enabled beacon frame arrives, station wakes up with a default period value 3. So for every three beacons, connected sleeping stations wakes up and receive the beacon frames.

Response

Table 88, page 54, describes the responses and remarks for Get AP Configuration command.

Table 88 Get AP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 89, page 55, describes the synchronous responses and remarks for Get AP Configuration command.

Table 89 Get AP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.3 IP Configuration in AP mode

This command is used to set the IPv4 start address, IPv4 range and lease time for an Ap that is required to create a Network. Prior to issuing this command, the user is required to issue the initialize NCM command.

Command Syntax

```
AT+WNAPIPC=<WHANDLE>,<IP Start Address>,<IP Range Address>,<Lease Time>
```

Parameter Description

Table 90, page 55, describes the IP Configuration parameters.

Table 90 IP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the return value from AT+WNI=1 command. The user is required to be in AP mode while issuing this command.
IP Start Address	Mandatory	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0	It specifies the starting of the IPV4 address allocated to connected stations when connected to an AP.
IP Range Address	Mandatory	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0 **Unit:** N/A	It specifies the maximum range an AP allocates for stations connected to its network.
Lease Time	Mandatory	**Value range:** 1-4294967295 **Format:** Integer **Default value:** 86400000 **Unit:** N/A	It specifies the lease time for DHCP Server.

Response

Table 91, page 56, describes the responses and remarks for IP Configuration command.

Table 91 IP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 92, page 56, describes the synchronous responses and remarks for IP Configuration command.

Table 92 IP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.4 Get IP Configuration in AP mode

This command is used to get the IP configuration in AP mode.

Command Syntax `AT+WNAPIPC?`

Parameter Description

Table 93, page 57, describes the Get IP Configuration parameters.

Table 93 Get IP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the return value from AT+WNI=1 command. The user is required to be in AP mode while issuing this command.
IP Start Address	Mandatory	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0	It specifies the starting of the IPV4 address allocated to connected stations when connected to an AP.
IP Range Address	Mandatory	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0 **Unit:** N/A	It specifies the maximum range an AP allocates for stations connected to its network.
Lease Time	Mandatory	**Value range:** 1-4294967295 **Format:** Integer **Default value:** 86400000 **Unit:** N/A	It specifies the lease time for DHCP Server.

Response

Table 94, page 57, describes the responses and remarks for Get IP Configuration command.

Table 94 Get IP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 95, page 57, describes the synchronous responses and remarks for Get IP Configuration command.

Table 95 Get IP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.5 AP Statistics

This command is used to get the statistics of WLAN interface in AP mode. Prior to issuing this command, the user is required to issue AT+WNCR command.

Command Syntax `AT+WNAPST`

Response

Table 96, page 58, describes the responses and remarks for AP Statistics command.

Table 96 AP Statistics Response

Responses	Remarks
+WNAPST:ucastTxPkts, ucastRxPkts, mcastTxPkts, mcastRxPkts, bcastTxPkts, bcastRxPkts ucastNonNullTxPkts, ucastNonNullRxPkts, ucastFilteredAcceptedTxPkts, ucastFilteredAcceptedRxPkts, mcastFilteredAcceptedTxPkts, mcastFilteredAcceptedRxPkts, bcastFilteredAcceptedTxPkts, bcastFilteredAcceptedRxPkts, ucastFilteredRejectedTxPkts, ucastFilteredRejectedRxPkts, mcastFilteredRejectedTxPkts, mcastFilteredRejectedRxPkts, bcastFilteredRejectedTxPkts, bcastFilteredRejectedRxPkts, nullTxPkts, nullRxPkts, qosNullTxPkts, qosNullRxPkts, psPollTxPkts, psPollRxPkts, txRetryCnt, beaconMissCnt, beaconsReceivedCnt, beaconResyncSuccessCnt, beaconResyncFailureCnt, currEarlyWakeupAdjInMs, avgEarlyWakeupAdjInMs, earlyTerminationCnt, uapsdTriggerRxCnt, uapsdTriggerTxCnt, totalActiveTimeInMs, totalPowersaveTimeInMs	Success.
ERROR	Failure.

Synchronous Response

Table 97, page 58, describes the synchronous responses and remarks for AP Statistics command.

Table 97 AP Statistics Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.6 Associated Station Information

This command is used to print the information of connected stations with the MAC address and the IP address, when WLAN interface is in AP mode. Prior to issuing this command, the user is required to initilize the NCM and set the IP configuration command.

Command Syntax `AT+WNASTINFO`

Response

Table 98, page 59, describes the responses and remarks for Associated Station Information command.

Table 98 Associated Station Information Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 99, page 59, describes the synchronous responses and remarks for Associated Station Information command.

Table 99 Associated Station Information Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.7 Connection

This command is used to connect to a configured Network. Prior to issuing this command, the user is required to issue the initialize NCM command.

Command Syntax `AT+WNCN=<WHANDLE>,<SSID>,[<PASSPHRASE>,<Channel>]`

Parameter Description

Table 100, page 60, describes the Connection parameters.

Table 100 Connection Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the return value from AT+WNI=0 command. The user is required to be in Station mode while issuing this command.
SSID	Mandatory	**Value range:** 1-32 **Format:** String **Default value:** Telit_Guest	It specifies the SSID that has to be connected. The user required to provide the SSID of the AP to be connected.
Passphrase	Optional	**Value range:** 8-64 **Format:** String **Default value:** NULL **Unit:** N/A	It specifies the passphrase required to connect to a Network. The user is required to connect to a Network for a secured connection.
Channel	Optional	**Value range:** 1-14,36,40,44,48,52,56,60,64,100,104,108,112,116,132,136,140,149,153,157,161,165 **Format:** Integer **Default value:** 6 **Unit:** N/A	It specifies the channel of an AP to connect. If channel is not mentioned then the command scans all the channel to find an AP to connect.

Response

Table 101, page 60, describes the responses and remarks for Connection command.

Table 101 Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 102, page 61, describes the synchronous responses and remarks for Connection command.

Table 102 Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.8 Create Network

This command is used to create a Network. Prior to issuing this command, the user is required to issue the initialize NCM command.

Command Syntax

```
AT+WNCR=<WHANDLE>,<SSID>,<Channel>,<Security Type>,<Encryption
Time>,[<Passphrase>]
```

Parameter Description

Table 103, page 61, describes the Create parameters.

Table 103 Create Network Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the return value from AT+WNI=1 command. The user is required to be in AP mode while issuing this command.
SSID	Mandatory	**Value range:** 1-32 **Format:** String **Default value:** Telit_Guest	It specifies the SSID that has to be connected. The user required to provide the SSID of the AP to be connected.
Channel	Mandatory	**Value range:** 1-14,36,40,44,48,52,56,60,64,100,104,108,112,116,132,136,140,149,153,157,161,165 **Format:** Integer **Default value:** 6 **Unit:** N/A	It specifies the channel of an AP to connect. If channel is not mentioned then the command scans all the channel to find an AP to connect.

Table 103 Create Network Parameters

Parameters	Mandatory/Optional	Value	Description
Security Type	Mandatory	**Value range:** 3-4 **Format:** String **Default value:** NONE	It specifies the security type provided for a secured Network. Security types are WEP, WPA and WPA2. For an open security user has to give NONE.
Encryption Type	Mandatory	**Value range:** 3-4 **Format:** String **Default value:** NONE	It specifies the encryption type to be provided for a secured Network. Encryption Types are WEP, WPA and WPA2. For an open security user is required to has to give NONE.
Passphrase	Optional	**Value range:** 8-64 **Format:** String **Default value:** 123456789 **Unit:** N/A	It specifies the passphrase required to connect to a Network. The user is required to connect to a Network for a secured connection.

Response

Table 104, page 62, describes the responses and remarks for Create Network command.

Table 104 Create Network Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 105, page 62, describes the synchronous responses and remarks for Create Network command.

Table 105 Create Network Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.9 Get Network

This command is used to get the status of the created Network.

Command Syntax `AT+WNCR?`

Response

Table 106, page 63, describes the responses and remarks for Get Network command.

Table 106 Get Network Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 107, page 63, describes the synchronous responses and remarks for Get Network command.

Table 107 Get Network Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.10 Disconnect Network

This command is used to disconnect a Network. Prior to issuing this command, the user is required to be connected to a network in Station or AP mode.

Command Syntax `AT+WNDC=<WHANDLE>`

Parameter Description

Table 108, page 63, describes the Disconnect Network parameters.

Table 108 Disconnect Network Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the return value from AT+WNI=1 command. The user is required to be in AP mode while issuing this command.

Response

Table 109, page 64, describes the responses and remarks for Disconnect Network command.

Table 109 Disconnect Network Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 110, page 64, describes the synchronous responses and remarks for Disconnect Network command.

Table 110 Disconnect network Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.11 Initialization

This command is used to initialize NCM module based on the mode selected by the user.

Command Syntax

```
AT+WNI=<Mode>
```

Parameter Description

Table 111, page 64, describes the Initialization parameters.

Table 111 Initialization Parameters

Parameters	Mandatory/Optional	Value	Description
Mode	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the start of the WLAN interface, taking following values: 0- specifies the interface starts in station mode and 1- specifies the interface starts in AP mode.

Response

Table 112, page 65, describes the responses and remarks for Initialization command.

Table 112 Initialization Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 113, page 65, describes the synchronous responses and remarks for Initialization command.

Table 113 Initialization Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.12 WNCM Interface Configuration

This command is used to provide information of different interfaces like device identifier, state, mode, mac address, IP address.Prior to issuing this command, the user is required to issue the initialize NCM command.

Command Syntax

```
AT+WNIFCFG
```

Response

Table 114, page 65, describes the responses and remarks for Interface Configuration command.

Table 114 Interface Configuration Response

Responses	Remarks
+WNIFCFG:device_id, state, mode, MAC address, IP address	Success.
+WNIFCFG:FAILURE	Failure.

Synchronous Response

Table 115, page 66, describes the synchronous responses and remarks for Interface Configuration command.

Table 115 Interface Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.13 WNCM IP Configuration

This command is used to set the IPv4 start address, IPv4 range and lease time for an Ap that is required to create a Network. Prior to issuing this command, the user is required to issue the initialize NCM command.

Command Syntax

```
AT+WNIPC=<WHANDLE>,<IP Flag>,[<IP Address>,<IP Mask>,<IP GAteway>]
```

Parameter Description

Table 116, page 66, describes the IP Configuration parameters.

Table 116 IP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
WHANDLE	Mandatory	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the return value from AT+WNI=1 command. The user is required to be in AP mode while issuing this command.
IP Flag	Mandatory	**Value range:** 0-3 **Format:** Integer **Default value:** 1	It specifies the IP configuration is woyh static or DHCP.

Table 116 IP Configuration Parameters

Parameters	Mandatory/Optional	Value	Description
IP Address	Optional	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0 **Unit:** N/A	It specifies the static IPV4 address for the device. It may be STA mode or AP mode.
IP Mask	Optional	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0 **Unit:** N/A	It specifies the net mask for the device.
IP Gateway	Optional	**Value range:** 7-32 **Format:** Integer **Default value:** 0.0.0.0 **Unit:** N/A	It specifies the gatwaye for the device.

Response

Table 117, page 67, describes the responses and remarks for IP Configuration command.

Table 117 IP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 118, page 67, describes the synchronous responses and remarks for IP Configuration command.

Table 118 IP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.14 Get WNCM IP Configuration

This command is used to get the status of the WNCM IP configuration.

Command Syntax `AT+WNIPC?`

Response

Table 119, page 68, describes the responses and remarks for Get WNCM IP Configuration command.

Table 119 GEt WNCM IP Configuration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 120, page 68, describes the synchronous responses and remarks for Get WNCM IP Configuration command.

Table 120 Get WNCM IP Configuration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

7.2.15 WLAN Interface Statistics

This command is used to get the WLAN interface statistics in AP mode. Prior to issuing this command, the user is required to issue the connection command and be in Station mode.

Command Syntax `AT+WNSTAST`

Response

Table 121, page 69, describes the responses and remarks for Interface Statistics command.

Table 121 Interface Statistics Response

Responses	Remarks
+WNSTAST:ucastTxPkts, ucastRxPkts, mcastTxPkts, mcastRxPkts, bcastTxPkts, bcastRxPkts ucastNonNullTxPkts, ucastNonNullRxPkts, ucastFilteredAcceptedTxPkts, ucastFilteredAcceptedRxPkts, mcastFilteredAcceptedTxPkts, mcastFilteredAcceptedRxPkts, bcastFilteredAcceptedTxPkts, bcastFilteredAcceptedRxPkts, ucastFilteredRejectedTxPkts, ucastFilteredRejectedRxPkts, mcastFilteredRejectedTxPkts, mcastFilteredRejectedRxPkts, bcastFilteredRejectedTxPkts, bcastFilteredRejectedRxPkts, nullTxPkts, nullRxPkts, qosNullTxPkts, qosNullRxPkts, psPollTxPkts, psPollRxPkts, txRetryCnt, beaconMissCnt, beaconsReceivedCnt, beaconResyncSuccessCnt, beaconResyncFailureCnt, currEarlyWakeupAdjInMs, avgEarlyWakeupAdjInMs, earlyTerminationCnt, uapsdTriggerRxCnt, uapsdTriggerTxCnt, totalActiveTimeInMs, totalPowersaveTimeInMs	Success.
FAILURE	Failure.

Synchronous Response

Table 122, page 69, describes the synchronous responses and remarks for Interface Statistics command.

Table 122 Interface Statistics Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8 Network

This chapter describes commands for configurations and operations related to Network layer.

8.1 Network Interface Filter

Content required

NOTE:

8.2 DNS

8.2.1 NDNS Server Start

This command is used to start DNS server. Prior to starting the server the user is required to issue L2 and L3 commands.

Command Syntax `AT+NDNSSSTART`

Parameter Description

Table 123, page 70, describes the NDNS Server Start parameters.

Table 123 DNS Server Start Parameters

Parameters	Mandatory/Optional	Value	Description
Start	Mandatory	**Value range:**N/A **Format:** N/A **Default value:** N/A	It indicates the server to start.

Response

Table 124, page 71, describes the responses and remarks for NDNS Server Start command.

Table 124 NDNS Server Start Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 125, page 71, describes the synchronous responses and remarks for NDNS Server Start command.

Table 125 NDNS Server Start Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.2 Get NDNS Server Start

This command is used to get the status of the DNS server being started.

Command Syntax

`AT+NDNSSSTART?`

Parameter Description

Table 126, page 71, describes the Get NDNS Server Start parameters.

Table 126 Get DNS Server Start Parameters

Parameters	Mandatory/Optional	Value	Description
Status	Mandatory	**Value range:** N/A **Format:** String **Default value:** N/A	It indicates the status of the server (STARTED or NOT STRARTED).

Response

Table 127, page 71, describes the responses and remarks for Get NDNS Server Start command.

Table 127 Get NDNS Server Start Response

Responses	Remarks
STARTED	Success.

Table 127 Get NDNS Server Start Response

Responses	Remarks
NOT STARTED	Unsuccessful.

Synchronous Response

Table 128, page 72, describes the synchronous responses and remarks for Get NDNS Server Start command.

Table 128 Get NDNS Server Start Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.3 NDNS Server Stop

This command is used to get the status of the server being stopped.

Command Syntax

```
AT+NDNSSSTOP?
```

Parameter Description

Table 129, page 72, describes the Get NDNS Server Stop parameters.

Table 129 Get DNS Server Stop Parameters

Parameters	Mandatory/Optional	Value	Description
Status	Mandatory	**Value range:** N/A **Format:** String **Default value:** N/A	It indicates the status of server (STOPPED or RUNNING).

Response

Table 130, page 72, describes the responses and remarks for Get NDNS Server Stop command.

Table 130 Get NDNS Server Stop Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 131, page 73, describes the synchronous responses and remarks for Get NDNS Server Stop command.

Table 131 Get NDNS Server Stop Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.4 NDNS Server Stop

This command is used to indicate the stop the DNS server. Prior to starting the server the user is required to issue L2 and L3, along with DNS server start command.

Command Syntax

```
AT+NDNSSSTOP?
```

Parameter Description

Table 132, page 73, describes the NDNS Server Stop parameters.

Table 132 DNS Server Stop Parameters

Parameters	Mandatory/Optional	Value	Description
Stop	Mandatory	**Value range:**N/A **Format:** N/A **Default value:** N/A	It indicates the server to stop.

Response

Table 133, page 73, describes the responses and remarks for NDNS Server Stop command.

Table 133 NDNS Server Stop Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 133, page 73, describes the synchronous responses and remarks for NDNS Server Stop command.

Table 134 NDNS Server Stop Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.5 NDNS Client Resolve URL

This command is used to resolve the URL in DNS module. Before resolving the Client request, issue DNS start and server addition commands.

Command Syntax `AT+NDNSCRURL=<URL>, [<IP version>]`

Parameter Description

Table 135, page 74, describes the NDNS Client Resolve URL parameters.

Table 135 NDNS Client Resolve URL Parameters

Parameters	Mandatory/Optional	Value	Description
URL	Mandatory	**Value range:**1-64 **Format:** String **Default value:**www.telit.com	It specifies the URL to be resolved.
IP version	Optional	**Value range:** 4,6 **Format:** Integer **Default value:** 4	It specifies the IP version of the URL to be resolved.

Response

Table 136, page 74, describes the responses and remarks for NDNS Client Resolve URL command.

Table 136 NDNS Client Resolve URL Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 137, page 75, describes the synchronous responses and remarks for NDNS Client Resolve URL command.

Table 137 NDNS Client Resolve URL Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.6 Set NDNS Client Server IP Address

This command is used to set the IP server in DNS module. Before setting the server IP address request, ID of the server IP address has to be set.

Command Syntax `AT+NDNSCSRVIP=<IP address>, [<ID of the IP address>]`

Parameter Description

Table 138, page 75, describes the Set NDNS Client Server IP Address parameters.

Table 138 Set NDNS Client Server IP Address Parameters

Parameters	Mandatory/Optional	Value	Description
IP Address	Mandatory	**Value range:**1-32 **Format:** Decimal **Default value:**8.8.8.8	It specifies the server IP address to be set
ID	Optional	**Value range:** 0x0,0x1,0xFFFF **Format:** Hexa Decimal **Default value:** FFFF	It specifies the ID of the server IP address to be set.

Response

Table 139, page 75, describes the responses and remarks for Set NDNS Client Server IP Address command.

Table 139 Set NDNS Client Server IP Address Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 140, page 76, describes the synchronous responses and remarks for Set NDNS Client Server IP Address command.

Table 140 Set NDNS Client Server IP Address Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.7 Get NDNS Client Server IP Address

This command is used to set the IP server in DNS module. Before setting the server IP address request, ID of the server IP address has to be set.

Command Syntax `AT+NDNSCSRVIP?`

Parameter Description

Table 141, page 76, describes the Get NDNS Client Server IP Address parameters.

Table 141 Get NDNS Client Server IP Address Parameters

Parameters	Mandatory/Optional	Value	Description
Server IP Address	Mandatory	**Value range:** N/A **Format:** Decimal **Default value:**8.8.8.8	It specifies the IP address of the server.

Response

Table 142, page 76, describes the responses and remarks for Get NDNS Client Server IP Address command.

Table 142 Get NDNS Client Server IP Address Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 143, page 77, describes the synchronous responses and remarks for Get NDNS Client Server IP Address command.

Table 143 Get NDNS Client Server IP Address Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.8 NDNS Server Host Addition

This command is used to add a Host in DNS module. Before issuing this command user is required to issue L2 and L3, along with server start commands.

Command Syntax `AT+NDNSSADDHOST=<Host Name>,<IP Address>,<Time to Live>`

Parameter Description

Table 144, page 77, describes the NDNS Server Host Addition parameters.

Table 144 NDNS Server Host Addition Parameters

Parameters	Mandatory/Optional	Value	Description
Host Names	Mandatory	**Value range:**1-32 **Format:** Decimal **Default value:**8.8.8.8	It specifies the server IP address to be set
IP Address	Mandatory	**Value range:** 0x0,0x1,0xFFFF **Format:** Hexa Decimal **Default value:** FFFF	It specifies the ID of the server IP address to be set.
Time to Live	Mandatory	**Value range:** 1-1024 **Format:** Integer **Default value:** 600	It specifies the time taken for the Host to be added in DNS module.

Response

Table 145, page 77, describes the responses and remarks for NDNS Server Host Addition command.

Table 145 NDNS Server Host Addition Response

Responses	Remarks
OK	Success.

Table 145 NDNS Server Host Addition Response

Responses	Remarks
ERROR	If parameter is not valid.

Synchronous Response

Table 146, page 78, describes the synchronous responses and remarks for NDNS Server Host Addition command.

Table 146 NDNS Server Host Addition Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.9 NDNS Service Discovery

This command is used to perform service discovery in DNS module. Prior to issuing this command the user is required to issue WNCN command.

Command Syntax `AT+NDNSSD=<Device ID>,<Instance Name>,[<IP Version>,<Time Out>]`

Parameter Description

Table 147, page 78, describes the NDNS Service Discovery parameters.

Table 147 DNS Service Discovery Parameters

Parameters	Mandatory/Optional	Value	Description
Device ID	Mandatory	**Value range:**0,1 **Format:** Integer **Default value:** 0	It specifies the Device ID obtained during WLAN NCM initiation.

Table 147 DNS Service Discovery Parameters

Parameters	Mandatory/Optional	Value	Description
Instance Name	Mandatory	**Value range:**1-64 **Format:** String **Default value:** _Mydevice.tcp.local	It specifies the name of the service to be discovered.
IP Version	Optional	**Value range:** 4,6,46 **Format:** Integer **Default value:** 4	It specifies IP version to be used in service discovery.
Time Out	Optional	**Value range:** 0-5000 **Format:** Integer **Default value:** 5000	It specifies the no activity time for discovery request handling.

Response

Table 148, page 79, describes the responses and remarks for NDNS Service Discovery command.

Table 148 NDNS Service Discovery Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 149, page 79, describes the synchronous responses and remarks for NDNS Service Discovery command.

Table 149 NDNS Service Discovery Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

8.2.10 NDNS Get Target Information

This command is used to get target information in DNS module. Prior to issuing this command the user is required to issue WNCN command.

Command Syntax `AT+NDNSSDGETTARGETINFO=<Device ID>,<Instance Name>,[<IP Version>,<Time Out>]`

Parameter Description

Table 150, page 80, describes the NDNS Get Target Information parameters.

Table 150 NDNS Get Target Information Parameters

Parameters	Mandatory/Optional	Value	Description
Device ID	Mandatory	**Value range:**0,1 **Format:** Integer **Default value:** 0	It specifies the Device ID obtained during WLAN NCM initiation.
Instance Name	Mandatory	**Value range:**1-64 **Format:** String **Default value:** _Mydevice.tcp.local	It specifies the name of the service to be discovered.
IP Version	Optional	**Value range:** 4,6,46 **Format:** Integer **Default value:** 4	It specifies IP version to be used in discovery.
Time Out	Optional	**Value range:** 0-5000 **Format:** Integer **Default value:** 5000	It specifies the no activity time for request handling.

Response

Table 151, page 80, describes the responses and remarks for NDNS Get Target Information command.

Table 151 NDNS Get Target Information Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 152, page 81, describes the synchronous responses and remarks for NDNS Get Target Information command.

Table 152 NDNS Get Target Information Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9 Data Transfer

This chapter describes commands for configurations and operations related to Transport and Application layers.

9.1 Data Transfer Configuration

Content required

NOTE:

9.2 Socket

9.2.1 Socket Accept

This command is used to accept the client connection and adds it to the CID. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SA=<CID>`

Parameter Description

Table 153, page 82, describes the Socket Accept parameters.

Table 153 Socket Accept Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command.

Response

Table 154, page 83, describes the responses and remarks for Socket Accept command.

Table 154 Socket Accept Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 155, page 83, describes the synchronous responses and remarks for Socket Accept command.

Table 155 Socket Accept Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.2 Socket Bind

This command is used to bind the socket. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax

```
AT+SB=<CID>,<Local IP Address>,<Port Number>
```

Parameter Description

Table 156, page 84, describes the Socket Bind parameters.

Table 156 Socket Bind Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command.
Local IP address	Optional	**Value range:**7-40 **Format:** Integer **Default value:** 0.0.0.0	It specifies the Local IP address to bind.
Port Number	Mandatory	**Value range:**0-65535 **Format:** Integer **Default value:** 0	It specifies the port number to bind

Response

Table 157, page 84, describes the responses and remarks for Socket Bind command.

Table 157 Socket Bind Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 158, page 84, describes the synchronous responses and remarks for Socket Bind command.

Table 158 Socket Bind Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.3 Socket Close

This command is used to close the socket and removes the entry of CID. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SCL=<CID>`

Parameter Description

Table 159, page 85, describes the Socket Bind parameters.

Table 159 Socket Close Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC or AT+SA command.

Response

Table 160, page 85, describes the responses and remarks for Socket Close command.

Table 160 Socket Close Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 161, page 85, describes the synchronous responses and remarks for Socket Close command.

Table 161 Socket Close Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.4 Socket Connection

This command is used to connect to a server. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax

```
AT+SCO=<CID>,<Server IP Address>,<Server Port Number>
```

Parameter Description

Table 162, page 86, describes the Socket Connection parameters.

Table 162 Socket Connection Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command.
Server IP address	Mandatory	**Value range:**7-40 **Format:** Integer **Default value:** 0.0.0.0	It specifies the Server IP address that is to be connected.
Server Port Number	Mandatory	**Value range:** 0-65535 **Format:** Integer **Default value:** 0	It specifies the server port number to connect.

Response

Table 163, page 86, describes the responses and remarks for Socket Connection command.

Table 163 Socket Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 164, page 86, describes the synchronous responses and remarks for Socket Connection command.

Table 164 Socket Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.5 Socket Create

This command is used to create a socket and add CID. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SC=<Family>,<Type>,[<Protocol>]`

Parameter Description

Table 165, page 87, describes the Socket Create parameters.

Table 165 Socket Create Parameters

Parameters	Mandatory/Optional	Value	Description
Family	Mandatory	**Value range:**2-5 **Format:** Integer **Default value:** 0	It specifies the communication domain in which a socket is required to be created.
Type	Mandatory	**Value range:**1-3 **Format:** Integer **Default value:** 0	It specifies the type of socket to be created.
Protocol	Optional	**Value range:** 0-255, 1536-2147483647 **Format:** Integer **Default value:** 0	It specifies the particular protocol to be used along with the socket.

Response

Table 166, page 87, describes the responses and remarks for Socket Create command.

Table 166 Socket Create Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 167, page 87, describes the synchronous responses and remarks for Socket Create command.

Table 167 Socket Create Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.6 Socket Information

This command is used to get the information of the socket. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SI=<CID>`

Parameter Description

Table 168, page 88, describes the Socket Information parameters.

Table 168 Socket Information Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC or AT+SA command.

Response

Table 169, page 88, describes the responses and remarks for Socket Information command.

Table 169 Socket Information Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 170, page 88, describes the synchronous responses and remarks for Socket Information command.

Table 170 Socket Information Synchronous Response

Responses	Remarks
+SI:IPv4/IPv6,TCP/UDP,Localip (in case of server)/serverip (in case of client), Localport (in case of server)/serverport (in case of client)	If socket exists.
FAILURE	If there is no socket.

9.2.7 Socket Status Information

This command is used to get the status of information in the socket. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SS=<CID>,[<Reset counters>]`

Parameter Description

Table 171, page 89, describes the Socket Status Information parameters.

Table 171 Socket Status Information Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC or AT+SA command.
Reset counters	Optional	**Value range:**0,1 **Format:** Integer **Default value:** 0	It specifies whether to reset the counter or not, 1- resets the counter 0- does not resets the counter.

Response

Table 172, page 89, describes the responses and remarks for Socket Status Information command.

Table 172 Socket Status Information Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 173, page 89, describes the synchronous responses and remarks for Socket Status Information command.

Table 173 Socket Status Information Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.8 Socket Listen

This command is used to listen to a socket. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SL=<CID>,[<Backlog>]`

Parameter Description

Table 174, page 90, describes the Socket Listen parameters.

Table 174 Socket Listen Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command.
Backlog	Optional	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the maximum length of the pending connection handled that may evolve.

Response

Table 175, page 90, describes the responses and remarks for Socket Listen command.

Table 175 Socket Listen Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 176, page 90, describes the synchronous responses and remarks for Socket Listen command.

Table 176 Socket Listen Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.9 Socket Receive

This command is used to receive data from any client device. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SR=<CID>,<Length>`

Parameter Description

Table 177, page 91, describes the Socket Receive parameters.

Table 177 Socket Receive Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command for UPD or AT+SA for TCP.
Length	Mandatory	**Value range:** 0-1460 **Format:** Integer **Default value:** 1460	It specifies the value of the number of bytes received.

Response

Table 178, page 91, describes the responses and remarks for Socket Receive command.

Table 178 Socket Receive Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 179, page 91, describes the synchronous responses and remarks for Socket Receive command.

Table 179 Socket Receive Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.10 Socket Receive Ready

This command is used to receive data from any client device. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+SRR=<CID>`

Parameter Description

Table 180, page 92, describes the Socket Receive Ready parameters.

Table 180 Socket Receive Ready Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command for UPD or AT+SA for TCP.

Response

Table 181, page 92, describes the responses and remarks for Socket Receive Ready command.

Table 181 Socket Receive Ready Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 182, page 92, describes the synchronous responses and remarks for Socket Receive Ready command.

Table 182 Socket Receive Ready Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.2.11 Socket Send

This command is used to send the data to a specified address. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax

```
AT+SN=<CID>,[<Destination Address>,<Port Number>,<Data>]
```

Parameter Description

Table 183, page 93, describes the Socket Send parameters.

Table 183 Socket Send Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+SC command for UPD or AT+SA for TCP.
Destination Address	Optional	**Value range:**7-40 **Format:** Integer **Default value:** 0.0.0.0	It specifies the destination IP address for the data to be sent.
Port Number	Optional	**Value range:** 0-65535 **Format:** Integer **Default value:** 0	It specifies the destination port number for the data to be sent.
Data	Optional	**Value range:** 1-1460 **Format:** Integer **Default value:** Welcome to Telit	It specifies the data to be sent.

Response

Table 184, page 93, describes the responses and remarks for Socket Send command.

Table 184 Socket Receive Send Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 185, page 93, describes the synchronous responses and remarks for Socket Send command.

Table 185 Socket Send Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3 UDP/TCP

9.3.1 Secured (SSL)

9.3.1.1 SSL Certificate Delete

This command is used to delete a list of certificate/CA data in non-volatile Memory. It is issued anytime irrespective of any operation.

Command Syntax `AT+NSSLCERTDELETE=<Certificate Type>,<Certificate Name>`

Parameter Description

Table 186, page 94, describes the SSL Certificate Delete parameters.

Table 186 SSL Certificate Delete Parameters

Parameters	Mandatory/Optional	Value	Description
Certificate Type	Mandatory	**Value range:**0-3 **Format:** Integer **Default value:** 0	It specifies the type of certificate, 0 - For CA certificate, 1- For client/server certificate.
Certificate Name	Mandatory	**Value range:**0-50 **Format:** String **Default value:** 0	It specifies the certificate name.

Response

Table 187, page 94, describes the responses and remarks for SSL Certificate Delete command.

Table 187 SSL Certificate Delete Response

Responses	Remarks
OK	Success.

Synchronous Response

Table 188, page 94, describes the synchronous responses and remarks for SSL Certificate Delete command.

Table 188 SSL Certificate Delete Synchronous Response

Responses	Remarks
OK	Success.

Table 188 SSL Certificate Delete Synchronous Response

Responses	Remarks
ERROR	If parameter is not valid.

Asynchronous Response

Table 189, page 95, describes the asynchronous responses and remarks for SSL Certificate Delete command.

Table 189 SSL Certificate Delete Asynchronous Response

Responses	Remarks
AT+NSSLCERTDEL=0,certificate<CR><LF><CR><LF>OK<CR><LF>	Successful
ERROR	If any other parameters.

9.3.1.2 SSL Certificate List

This command is used to list the certificate/CA data from the non-volatile Memory. It is issued anytime irrespective of any operation.

Command Syntax `AT+NSSLCERTDELETE=<Certificate Type>,<Certificate Name>`

Parameter Description

Table 190, page 95, describes the SSL Certificate List parameters.

Table 190 SSL Certificate List Parameters

Parameters	Mandatory/Optional	Value	Description
Certificate Type	Mandatory	**Value range:**0-3 **Format:** Integer **Default value:** 0	It specifies the type of certificate, 0 - For CA certificate, 1- For client/server certificate.

Response

Table 191, page 95, describes the responses and remarks for SSL Certificate list command.

Table 191 SSL Certificate List Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 192, page 96, describes the synchronous responses and remarks for SSL Certificate List command.

Table 192 SSL Certificate List Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Asynchronous Response

Table 193, page 96, describes the asynchronous responses and remarks for SSL Certificate List command.

Table 193 SSL Certificate List Asynchronous Response

Responses	Remarks
AT+NSSLCERTLIST=0/1/2<CR><LF><CR><LF>OK<CR><LF>	Successful
ERROR	If any other parameters.

9.3.1.3 SSL Certificate Store

This command is used to store the list of certificate/CA data from the non-volatile Memory. It is issued anytime irrespective of any operation.

Command Syntax

```
AT+NSSLCERTDELETE=<Certificate Type>,<Sequence>,<Certificate
Name>,<Certificate data>
```

Parameter Description

Table 194, page 97, describes the SSL Certificate Store parameters.

Table 194 SSL Certificate Store Parameters

Parameters	Mandatory/Optional	Value	Description
Certificate Type	Mandatory	**Value range:**0-3 **Format:** Integer **Default value:** 0	It specifies the type of certificate, 0 - For CA certificate, 1- For client/server certificate.
Sequence	Mandatory	**Value range:**1-10 **Format:** Integer **Default value:** 0	It specifies the type of certificate, 0 - For CA certificate, 1- For client/server certificate.
Certificate Name	Mandatory	**Value range:**0-50 **Format:** String **Default value:** 0	It specifies the certificate name.
Certificate data	Mandatory	**Value range:**1-6400 **Format:** Binary **Default value:** 0	It specifies the certificate data to be stored.

Response

Table 195, page 97, describes the responses and remarks for SSL Certificate Store command.

Table 195 SSL Certificate Store Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 196, page 97, describes the synchronous responses and remarks for SSL Certificate Store command.

Table 196 SSL Certificate Store Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.4 SSL Certificate Accept

This command is used to accept Client connection and add it in the CID table. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLA=<CID>`

Parameter Description

Table 197, page 98, describes the SSL Certificate Accept parameters.

Table 197 SSL Certificate Accept Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the connection ID after AT+NSSLINIT command.

Response

Table 198, page 98, describes the responses and remarks for SSL Certificate Accept command.

Table 198 SSL Certificate Accept Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 199, page 98, describes the synchronous responses and remarks for SSL Certificate Accept command.

Table 199 SSL Certificate Accept Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.5 SSL Bind

This command is used to bind the server port to a socket. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLB=<CID>,[<Locale IP Address>],<Local port number>`

Parameter Description

Table 200, page 99, describes the SSL Certificate Bind parameters.

Table 200 SSL Certificate Bind Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the connection ID after AT+NSSLINIT command.
Local IP Address	Optional	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the local IP Address to bind.
Local port number	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the local port number to bind.

Response

Table 201, page 99, describes the responses and remarks for SSL Certificate Bind command.

Table 201 SSL Certificate Bind Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 202, page 99, describes the synchronous responses and remarks for SSL Certificate Bind command.

Table 202 SSL Certificate Bind Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.6 SSL Close

This command is used to close the SSL connection. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLCL=<CID>`

Parameter Description

Table 203, page 100, describes the SSL Close parameters.

Table 203 SSL Close Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the connection ID after AT+NSSLINIT command.

Response

Table 204, page 100, describes the responses and remarks for SSL Close command.

Table 204 SSL Close Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 205, page 100, describes the synchronous responses and remarks for SSL Close command.

Table 205 SSL Close Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.7 Configure SSL

This command is used to configure the SSL connection. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLCFG=<CID>,<Configuration ID>,<Configuration value>`

Parameter Description

Table 206, page 101, describes the Configure SSL parameters.

Table 206 Configure SSL Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the connection ID after AT+NSSLINIT command.
Configuration ID	Mandatory	**Value range:**0-20 **Format:** Integer **Default value:** 0	0: Invalid configuration parameter, 1: To set SSL certificate, 2: To Set SSL CA Certificate, 3: To set Cipher information, 4: To enable/disable Time validation, 5: To enable/disable SSL alert, 6: To set the domain, 7: To et the maximum fragment length, 8: To set negotiation, 9: To set the SNI, 10: To set the ALPN extension.
Configuration value	Mandatory	**Value range:**1-64 **Format:** String **Default value:** 0	It specifies value of the configuration ID.

Response

Table 207, page 101, describes the responses and remarks for Configure SSL command.

Table 207 Configure SSL Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 208, page 101, describes the synchronous responses and remarks for Configure SSL command.

Table 208 Configure SSL Synchronous Response

Responses	Remarks
OK	Success.
FAILURE	If starting the server is unsuccessful.

9.3.1.8 SSL Connection

This command is used to connect to the SSL server. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLCO=<CID>,<Server IP Address>,<Server port number>`

Parameter Description

Table 209, page 102, describes the SSL Connection parameters.

Table 209 SSL Connection Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the connection ID after AT+NSSLINIT command.
Server IP Address	Mandatory	**Value range:**7-40 **Format:** Integer **Default value:** 0.0.0.0	It specifies the IP address of the server to connect.
Server port number	Mandatory	**Value range:**0-65535 **Format:** Integer **Default value:** 0	It specifies port number of the SSL server.

Response

Table 210, page 102, describes the responses and remarks for SSL Connection command.

Table 210 SSL Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 211, page 102, describes the synchronous responses and remarks for SSL Connection command.

Table 211 SSL Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.9 SSL Initialize

This command is used to connect to SSL. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLINIT=<SSL Client/Server>,<Protocol>`

Parameter Description

Table 212, page 103, describes the SSL Initialize parameters.

Table 212 SSL Initialize Parameters

Parameters	Mandatory/Optional	Value	Description
Client/Server	Mandatory	**Value range:**1-2 **Format:** Integer **Default value:** 2	It specifies the role of SSL, 1- acts as Client 0- acts as Server.
Protocol	Mandatory	**Value range:**0-4 **Format:** Integer **Default value:** 2	It specifies the version of the protocol being used:. 0 - TLS 1.0, 1 - TLS 1.1, 2 - TLS 1.2, 3 - DTLS 1_0, 4 - DTLS 1_2.

Response

Table 213, page 103, describes the responses and remarks for SSL Initialize command.

Table 213 SSL Initialize Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 214, page 103, describes the synchronous responses and remarks for SSL Initialize command.

Table 214 SSL Initialize Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.10 SSL Listen

This command is used to listen to SSL socket. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLL=<CID>,[<Backlog>]`

Parameter Description

Table 215, page 104, describes the SSL Listen parameters.

Table 215 SSL Listen Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+NSSLINIT command.
Backlog	Optional	**Value range:**1-15 **Format:** Integer **Default value:** 0	It specifies the maximum length pending connection in queue.

Response

Table 216, page 104, describes the responses and remarks for SSL Listen command.

Table 216 SSL Listen Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 217, page 104, describes the synchronous responses and remarks for SSL Listen command.

Table 217 SSL Listen Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.11 SSL Read

This command is used to read SSL data from any of the Client device. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax `AT+NSSLRD=<CID>,[<Length of the data>]`

Parameter Description

Table 218, page 105, describes the SSL Read parameters.

Table 218 SSL Read Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing command AT+SC (for UDP) or AT+SA (for TCP).
Length of the data	Mandatory	**Value range:**1-1460 **Format:** Integer **Default value:** 1460 **Units:** Bytes	It specifies the number of values to be received.

Response

Table 219, page 105, describes the responses and remarks for SSL Read command.

Table 219 SSL Read Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 220, page 105, describes the synchronous responses and remarks for SSL Read command.

Table 220 SSL Read Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.12 SSL Receive

This command is used to receive SSL data from any of the Client device. Prior to issuing this command, SSL connection has to be established.

Command Syntax `AT+NSSLRR=<CID>`

Parameter Description

Table 221, page 106, describes the SSL Receive parameters.

Table 221 SSL Receive Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing command AT+NSSLINIT.

Response

Table 222, page 106, describes the responses and remarks for SSL Receive command.

Table 222 SSL Receive Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 223, page 106, describes the synchronous responses and remarks for SSL Receive command.

Table 223 SSL Receive Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.3.1.13 SSL Send

This command is used to send data to SSL connection. Prior to issuing this command, SSL connection has to be established.

Command Syntax

```
AT+NSSLWR=<CID>,[<Destination IP Address>,<Destination port
number>,<Data>]
```

Parameter Description

Table 224, page 107, describes the SSL Send parameters.

Table 224 SSL Send Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** 0	It specifies the value given by issuing command AT+NSSLINIT.
Destination IP Address	Optional	**Value range:**7-40 **Format:** Integer **Default value:** 0.0.0.0	It specifies the destination IP address to send the data
Destination port number	Optional	**Value range:**1-1460 **Format:** Integer **Default value:** 0	It specifies the port number of the destination IP address to sent the data.
Data	Optional	**Value range:**0-65535 **Format:** Binary **Default value:** Welcome to Telit	It specifies the data to be sent.

Response

Table 225, page 107, describes the responses and remarks for SSL Send command.

Table 225 SSL Send Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 226, page 107, describes the synchronous responses and remarks for SSL Send command.

Table 226 SSL Send Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4 MQTT

9.4.1 MQTT Connect

This command is used to make MQTT connection with MQTT broker. Prior to issuing this command, user is required to establish L2 and L3 connection.

Command Syntax

```
AT+NMQTTCONNECT=<Host>,[<Port>],<Client ID>,[<User
Name>,<Password>,<Keep Alive>,<Time Out>,<SSL>,<Certificate>]
```

Parameter Description

Table 227, page 108, describes the MQTT Connect parameters.

Table 227 MQTT Connect Parameters

Parameters	Mandatory/Optional	Value	Description
Host	Mandatory	**Value range:**0-256 **Format:** String **Default value:** N/A	It specifies the fully qualified domain name of the server (MQTT Broker).
Port	Optional	**Value range:** 1024-65536 **Format:** Integer **Default value:** 1883	It specifies the port number of the server to which the MQTT client opens the connection. The client can indicate the port when the server is running on a non-standard port.
Client ID	Mandatory	**Value range:** 1-256 **Format:** String **Default value:** N/A	It specifies the client connecting to the server with a unique Client Identifier. It is a user defined string with ASCII characters. Example: QC4020_001122.
User Name	Optional	**Value range:** 1-256 **Format:** String **Default value:** N/A	It specifies the user name if required by the MQTT Broker.
Password	Optional	**Value range:** 1-64 **Format:** String **Default value:** N/A	It specifies the password if required by the MQTT Broker and is valid only if the user name is provided.
Keep Alive	Optional	**Value range:** 0-180 **Format:** Integer **Default value:** 60	It specifies the MQTT Keep alive time out that will be sent to MQTT Broker.

Table 227 MQTT Connect Parameters

Parameters	Mandatory/Optional	Value	Description
Time Out	Optional	**Value range:** 0-180 **Format:** Integer **Default value:** 75	It specifies the maximum time limit to connect to the server.
SSL	Optional	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the secured connection using SSL where, 0- disables SSL connection and 1-enables SSLconnection
Certificates	Optional	**Value range:** 0-256 **Format:** String **Default value:** N/A	It specifies the CA certificate file path if ssl connection is required.

Response

Table 228, page 109, describes the responses and remarks for MQTT Connect command.

Table 228 MQTT Connect Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 229, page 109, describes the synchronous responses and remarks for MQTT Connect command.

Table 229 MQTT Connect Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4.2 Get MQTT Connect

This command is used to get the status of MQTT connection.

Command Syntax `AT+NMQTTCONNECT?`

Parameter Description

Table 230, page 110, describes the Get MQTT Connect parameters.

Table 230 Get MQTT Connect Parameters

Parameters	Mandatory/Optional	Value	Description
Connection Status	Mandatory	**Value range:** N/A **Format:** String **Default value:** N/A	It specifies the status of MQTT connection (CONNECTED or NOT CONNECTED).

Response

Table 231, page 110, describes the responses and remarks for Get MQTT Connect command.

Table 231 Get MQTT Connect Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 232, page 110, describes the synchronous responses and remarks for Get MQTT Connect command.

Table 232 Get MQTT Connect Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4.3 MQTT Publish

This command is used to Publish MQTT message. Prior to issuing this command, user is required to establish MQTT connection.

Command Syntax

```
AT+NMQTTPUBLISH=<CID>,<QOS>,<Retain Flag>,<Message ID>,<Topic
Name>,<Data>
```

Parameter Description

Table 233, page 111, describes the MQTT Publish parameters.

Table 233 MQTT Publish Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the connection ID after MQTT connect command.
QOS	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the level of assurance to delivery the application message.
Retain Flag	Mandatory	**Value range:**0,1 **Format:** Integer **Default value:** 0	1- specifies the Server MUST store the Application Message and its QoS, so that it can be delivered to future subscribers whose subscriptions match its topic name. 0- specifies, the Server MUST NOT store the message and MUST NOT remove or replace any existing retained message.
Message ID	Mandatory	**Value range:** 0-65535 **Format:** Integer **Default value:** N/A	It specifies the ID of the message to be sent along with message being published.
Topic Name	Mandatory	**Value range:** 0-65535 **Format:** String **Default value:** N/A	It identifies the endpoint to which payload data is published.
Data	Mandatory	**Value range:** 0-1460 **Format:** Integer **Default value:** N/A	It specifies the length of the data.

Response

Table 234, page 111, describes the responses and remarks for MQTT Publish command.

Table 234 MQTT Publish Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 235, page 112, describes the synchronous responses and remarks for MQTT Publish command.

Table 235 MQTT Publish Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4.4 MQTT Subscribe

This command is used to subscribe to MQTT topic. Prior to issuing this command, user is required to establish MQTT connection.

Command Syntax

```
AT+NMQTTSUBSCRIBE=<CID>,<QOS>,<Message ID>,<Topic Name>
```

Parameter Description

Table 236, page 112, describes the MQTT Subscribe parameters.

Table 236 MQTT Subscribe Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the connection ID returned during the MQTT connect command.
QOS	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the level of assurance to delivery the application message.
Message ID	Mandatory	**Value range:** 0-65535 **Format:** Integer **Default value:** N/A	It specifies the message ID to be sent along with message being published.
Topic Name	Mandatory	**Value range:** 0-65535 **Format:** String **Default value:** N/A	It identifies the endpoint to which payload data is published.

Response

Table 237, page 113, describes the responses and remarks for MQTT Subscribe command.

Table 237 MQTT Subscribe Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 238, page 113, describes the synchronous responses and remarks for MQTT Subscribe command.

Table 238 MQTT Subscribe Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4.5 MQTT Disconnect

This command is used to disconnect MQTT connection. Prior to issuing this command, user is required to establish MQTT connection.

Command Syntax

`AT+NMQTTDISCONNECT=<CID>`

Parameter Description

Table 239, page 113, describes the MQTT Disconnect parameters.

Table 239 MQTT Disconnect Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the connection ID returned during the MQTT connect command.

Response

Table 240, page 114, describes the responses and remarks for MQTT Disconnect command.

Table 240 MQTT Connect Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 241, page 114, describes the synchronous responses and remarks for MQTT Disconnect command.

Table 241 MQTT Disconnect Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4.6 MQTT Receive Request

This command is used to send receive request. Prior to issuing this command, user is required to establish MQTT connection.

Command Syntax

```
AT+NMQTTRR=<CID>
```

Parameter Description

Table 242, page 114, describes the MQTT Receive Request parameters.

Table 242 MQTT Receive Request Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the connection ID returned during the MQTT connect command.

Response

Table 243, page 115, describes the responses and remarks for MQTT Receive Request command.

Table 243 MQTT Receive Request Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 244, page 115, describes the synchronous responses and remarks for MQTT Receive Request command.

Table 244 MQTT Receive Request Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.4.7 Receive MQTT Data

This command is used to receive data. Prior to issuing this command, user is required to establish MQTT connection.

Command Syntax `AT+NMQTTR=<CID>,<Length of the Data>`

Parameter Description

Table 245, page 115, describes the Receive MQTT Data parameters.

Table 245 Receive MQTT Data Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-15 **Format:** Integer **Default value:** N/A	It specifies the connection ID returned during the MQTT connect command.
Length of the Data	Mandatory	**Value range:** 0-1460 **Format:** Integer **Default value:** N/A	It specifies the length of the data to be received.

Response

Table 246, page 116, describes the responses and remarks for Recieve MQTT Data command.

Table 246 Recieve MQTT Data Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 247, page 116, describes the synchronous responses and remarks for Receive MQTT Data command.

Table 247 Receive MQTT Data Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.5 HTTP

9.5.1 Initiate NHTTP Client Connection

This command is used to initialize the HTTP Client Connection. Prior to issuing this command L2 and L3 connection has to be established.

Command Syntax

```
AT+NHTTPCINIT=[<Timeout>,<Maximum body length>,<Maximum header length>]
```

Parameter Description

Table 248, page 117, describes the Initiate NHTTP Client Connection parameters.

Table 248 Initiate NHTTP Client Connection Parameters

Parameters	Mandatory/Optional	Value	Description
Timeout	Optional	**Value range:**0-4294967295 **Format:** Integer **Default value:** 0 **Unit:** Seconds	It specifies the HTTP client connection timeout.
Maximum body length	Optional	**Value range:**0-65535 **Format:** Integer **Default value:** 2048 **Unit:** Bytes	It specifies the maximum length of the HTTP client body in the session.
Maximum header length	Optional	**Value range:**0-65535 **Format:** String **Default value:** 0 **Unit:** Byte	It specifies the maximum length of the HTTP client header in the session.

Response

Table 249, page 117, describes the responses and remarks for Initiate NHTTP Client Connection command.

Table 249 Initiate NHTTP Client Connect Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 250, page 118, describes the synchronous responses and remarks for Initiate NHTTP Client Connection command.

Table 250 Initiate NHTTP Client Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.5.2 Configure NHTTP Client Connection

This command is used to configure the HTTP Client Connection. Prior to issuing this command L2 and L3 connection has to be established and HTTP client connection has to be initiated.

Command Syntax

```
AT+NHTTPCCFG=<CID>,<Configuration ID>,<Configuration
value1>,<Configuration value2>
```

Parameter Description

Table 251, page 118, describes the Configure NHTTP Client Connection parameters.

Table 251 Configure NHTTP Client Connection Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-16 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+NHTTPCINIT command.
Configuration ID	Mandatory	**Value range:**0-10 **Format:** Integer **Default value:** 0	It specifies the list of available configurations
Configuration value1	Mandatory	**Value range:**0-65535 **Format:** String **Default value:** 0	It specifies the first configured value of the configuration ID.
Configuration value1	Mandatory	**Value range:**0-65535 **Format:** String **Default value:** 0	It specifies the second configured value of the configuration ID.

Response

Table 252, page 119, describes the responses and remarks for Configure NHTTP Client Connection command.

Table 252 Configure NHTTP Client Connect Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 253, page 119, describes the synchronous responses and remarks for Configure NHTTP Client Connection command.

Table 253 Configure NHTTP Client Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.5.3 Send NHTTP Client Connection

This command is used to close the HTTP Client Connection. Prior to issuing this command L2 and L3 connection has to be established and HTTP client connection has to be initiated and configured.

Command Syntax

```
AT+NHTTPCSEND=<CID>,<Method>,<File path>
```

Parameter Description

Table 254, page 119, describes the Send NHTTP Client Connection parameters.

Table 254 Send NHTTP Client Connection Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-16 **Format:** Integer **Default value:** 0	It specifies the return value after issuing the command AT+WNHTTPCINIT.
Method	Mandatory	**Value range:**0-10 **Format:** Integer **Default value:** 0	It specifies the HTTP method used as part of HTTP request.
File Path	Mandatory	**Value range:**0-32 **Format:** Integer **Default value:** N/A	It specifies the URI path to be used while sending HTTP request

Response

Table 255, page 120, describes the responses and remarks for Send NHTTP Client Connection command.

Table 255 Send NHTTP Client Connect Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 256, page 120, describes the synchronous responses and remarks for Send NHTTP Client Connection command.

Table 256 Send NHTTP Client Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

9.5.4 Close NHTTP Client Connection

This command is used to close the HTTP Client Connection. Prior to issuing this command L2 and L3 connection has to be established and HTTP client connection has to be initiated.

Command Syntax

```
AT+NHTTPCCL=<CID>
```

Parameter Description

Table 257, page 120, describes the Close NHTTP Client Connection parameters.

Table 257 Close NHTTP Client Connection Parameters

Parameters	Mandatory/Optional	Value	Description
CID	Mandatory	**Value range:**0-16 **Format:** Integer **Default value:** 0	It specifies the value given by issuing AT+NHTTPCINIT command.

Response

Table 258, page 121, describes the responses and remarks for Close NHTTP Client Connection command.

Table 258 Close NHTTP Client Connect Connection Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 259, page 121, describes the synchronous responses and remarks for Close NHTTP Client Connection command.

Table 259 Close NHTTP Client Connection Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10 Advanced Services

This chapter describes the commands for configurations and operations related to advanced services of Network and WE866E4-P supported Application features.

10.1 Network

10.1.1 Ping

This command is used to test the accessibility of the host on the Internet Protocol network.

Command Syntax `AT+NPING=<IP Address>,[<Payload>,<Count>]`

Parameter Description

Table 260, page 122, describes the Network Ping parameters.

Table 260 Network Ping Parameters

Parameters	Mandatory/Optional	Value	Description
IP Address	Mandatory	**Value range:**7-32 **Format:** N/A **Default value:** 0	It specifies the IP address to ping.
Payload	Optional	**Value range:** 1-1576 **Format:** Integer **Default value:** 64	It specifies the payload of each packet size to the ping.
Count	Optional	**Value range:** 1-6535 **Format:** Integer **Default value:** 1	It specifies the number of ping.

Response

Table 261, page 123, describes the responses and remarks for Network Ping command.

Table 261 Network Ping Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 262, page 123, describes the synchronous responses and remarks for Network Ping command.

Table 262 Network Ping Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2 Service Discovery using NmDNS

10.1.2.1 Start NMDNS Server

This command is used to start the server in mDNS module. Before issuing this command is required to issue L2 and L3 commands.

Command Syntax

```
AT+NMDNSSSTART
```

Parameter Description

Table 263, page 123, describes the Start NMDNS Server parameters.

Table 263 Start NMDNS Server Parameters

Parameters	Mandatory/Optional	Value	Description
Start	Mandatory	**Value range:**N/A **Format:** N/A **Default value:** N/A	It indicates the mDNS module to start.

Response

Table 264, page 124, describes the responses and remarks for Start NMDNS Server command.

Table 264 Start NMDNS Server Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 265, page 124, describes the synchronous responses and remarks for Start NMDNS Server command.

Table 265 Start NMDNS Server Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.2 Stop NMDNS Server

This command is used to stop the server in mDNS module. Before issuing this command user is required to issue L2 and L3 and must have issued mDNS start command.

Command Syntax `AT+NMDNSSSTOP`

Parameter Description

Table 266, page 124, describes the Stop NMDNS Server parameters.

Table 266 Stop NMDNS Server Parameters

Parameters	Mandatory/Optional	Value	Description
Stop	Mandatory	**Value range:**N/A **Format:** N/A **Default value:** N/A	It indicates the mDNS module to stop.

Response

Table 267, page 124, describes the responses and remarks for Stop NMDNS Server command.

Table 267 Stop NMDNS Server Response

Responses	Remarks
OK	Success.

Table 267 Stop NMDNS Server Response

Responses	Remarks
ERROR	If parameter is not valid.

Synchronous Response

Table 268, page 125, describes the synchronous responses and remarks for Stop NMDNS Server command.

Table 268 Stop NMDNS Server Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.3 NMDNS Host Name Registration

This command is used for Host name registration in DNS module. Prior to issuing this command the user is required to issue mDNS start command.

Command Syntax

```
AT+NMDNSHNREGINFO=<Host Name>
```

Parameter Description

Table 269, page 125, describes the NMDNS Host Name Registration parameters.

Table 269 NMDNS Host Name Registration Parameters

Parameters	Mandatory/Optional	Value	Description
Host Name	Mandatory	**Value range:**1-32 **Format:** String **Default value:** Telit_Guest	It specifies the Host name that is to be registered.

Response

Table 270, page 125, describes the responses and remarks for NMDNS Host Name Registration command.

Table 270 NMDNS Host Name Registration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 271, page 126, describes the synchronous responses and remarks for NMDNS Host Name Registration command.

Table 271 NMDNS Host Name Registration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.4 NMDNS Service Registration

This command is used for service registration in mDNS module. Prior to issuing this command the user is required to issue mDNS start and set the Host name command.

Command Syntax `AT+NMDNSSRVREG=<Instance Name>,<Type/Protocol>,<Port Number>`

Parameter Description

Table 272, page 126, describes the NMDNS Service Registration parameters.

Table 272 NMDNS Service Registration Parameters

Parameters	Mandatory/Optional	Value	Description
Service	Mandatory	**Value range:**1-32 **Format:** String **Default value:** _QC4020	It specifies the instance name of the service to be registered.
Protocol	Mandatory	**Value range:**1-32 **Format:** String **Default value:** __MyDevice._tcp.local	It specifies the type or protocol of the service to be registered.
Port Number	Mandatory	**Value range:**1-9000 **Format:** Integer **Default value:** 80	It specifies the port number of the service to be registered.

Response

Table 273, page 127, describes the responses and remarks for NMDNS Service Registration command.

Table 273 NMDNS Service De Registration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 274, page 127, describes the synchronous responses and remarks for NMDNS Service Registration command.

Table 274 NMDNS Service Registration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.5 NMDNS Service De-registration

This command is used for service de-registration in mDNS module. Prior to issuing this command the user is required to issue mDNS start, set the Host name and service register command.

Command Syntax `AT+NMDNSSRVDEREG=<Service>`

Parameter Description

Table 275, page 127, describes the NMDNS Service De-registration parameters.

Table 275 NMDNS Service De-registration Parameters

Parameters	Mandatory/Optional	Value	Description
Service	Mandatory	**Value range:**1-64 **Format:** String **Default value:** _QCA4020._MyDevice._tcp.local	It specifies the instance name of the service to be de-registered.

Response

Table 276, page 128, describes the responses and remarks for NMDNS Service De-registration command.

Table 276 NMDNS Service De-registration Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 277, page 128, describes the synchronous responses and remarks for NMDNS Service De-registration command.

Table 277 NMDNS Service De-registration Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.6 Start NMDNS Module

This command is used to start mDNS module. Before issuing this command is required to issue L2 and L3 commands.

Command Syntax `AT+NMDNSSTART`

Response

Table 278, page 128, describes the responses and remarks for Start NMDNS Module command.

Table 278 Start NMDNS Module Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 279, page 129, describes the synchronous responses and remarks for Start NMDNS Module command.

Table 279 Start NMDNS Module Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.7 Get NmDNS Start

This command is used to start mDNS module. Before issuing this command is required to issue L2 and L3 commands.

Command Syntax `AT+NMDNSSTART?`

Parameter Description

Table 280, page 129, describes the Get NMDNS Start parameters.

Table 280 Get NMDNS Start Parameters

Parameters	Mandatory/Optional	Value	Description
Status	Mandatory	**Value range:** 1-64 **Format:** String **Default value:** N/A	It specifies the NMDNS module has STARTED or NOT STARTED.

Response

Table 281, page 129, describes the responses and remarks for Get NMDNS Start command.

Table 281 Get NMDNS Start Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 282, page 129, describes the synchronous responses and remarks for Get NMDNS Start command.

Table 282 Get NMDNS Start Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.8 NMDNS Text Update

This command is used to update a text record of the service in mDNS module.Prior to issuing this command user is required to issue NMDNS start, set Host name and service registration command.

Command Syntax `AT+NMDNSUPDATETXT=<Service Name>,<Text Record>`

Parameter Description

Table 283, page 130, describes the NMDNS Text Update parameters.

Table 283 NMDNS Text Update Parameters

Parameters	Mandatory/Optional	Value	Description
Service Name	Mandatory	**Value range:**1-32 **Format:** String **Default value:** _QCA4020._MyDevice._tcp.local	It specifies the service name of the service to which the text record is to be updated.
Text Record	Mandatory	**Value range:**1-32 **Format:** String **Default value:** Updated text record	It specifies the text record of the service to be updated.

Response

Table 284, page 130, describes the responses and remarks for NMDNS Text Update command.

Table 284 NMDNS Text Update Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 285, page 130, describes the synchronous responses and remarks for NMDNS Text Update command.

Table 285 NMDNS Text Update Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.9 Stop NMDNS Module

This command is used to start mDNS module. Before issuing this command is required to issue L2 and L3 commands.

Command Syntax `AT+NMDNSSTOP`

Response

Table 286, page 131, describes the responses and remarks for Stop NMDNS Module command.

Table 286 Stop NMDNS Module Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 287, page 131, describes the synchronous responses and remarks for Stop NMDNS Module command.

Table 287 Stop NMDNS Module Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.1.2.10 Get NMDNS Stop

This command is used to start mDNS module. Before issuing this command is required to issue L2 and L3 commands.

Command Syntax `AT+NMDNSSTART?`

Parameter Description

Table 288, page 131, describes the Get NMDNS Stop parameters.

Table 288 Get NMDNS Stop Parameters

Parameters	Mandatory/Optional	Value	Description
Status	Mandatory	**Value range:** 1-64 **Format:** String **Default value:** N/A	It specifies the NMDNS module has STARTED or RUNNING.

Response

Table 289, page 132, describes the responses and remarks for Get NMDNS Stop command.

Table 289 Get NMDNS Stop Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 290, page 132, describes the synchronous responses and remarks for Get NMDNS Stop command.

Table 290 Get NMDNS Stop Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.2 Application Features

10.2.1 Firmware Update

10.2.1.1 Over the Air Firmware Upgrade

This set of commands is for over the air frame upgrade using pull method. This module uses the HTTP client to download the binaries form an HTTP server. AT+HTTPCONF command is used to configure any header(s) that need to be present in the HTTP GET request.

10.2.1.1.1 FWUP HTTP Client

This command is used to upgrade firmware using HTTP client. Before isueing this command the user is required to set the IP configuration, if not set then WNCM module will set the default static address for the interface.

HTTP client connects to the HTTP server and does a GET of the over the air (OTA) file. Once the OTA file is received from the HTTP server, the firmware is loaded into the trial firmware location in the Flash. After checking the validity of the trial firmware the trial firmware can be upgraded to current firmware or discarded using the Trail AT command.

NOTE: *If the HTTP server has a Host name then the user must resolve the IP address of the server using DNS and provide the server IP address to the AT command.*

Command Syntax

```
AT+FUHTTPC=<Server Address>, [<Server port>], <File URI>, [<SSL Flag>,
<Time Out>]
```

Parameter Description

Table 291, page 134, describes the FWUP HTTP Client parameters.

Table 291 FWUP HTTP Client Parameters

Parameters	Mandatory/Optional	Value	Description
Server Address	Mandatory	**Value range:** 1-63 **Format:** String **Default value:** N/A	It specifies the HTTP server address or the name.
Server Port	Optional	**Value range:** 1-65535 **Format:** Integer **Default value:** 80	It specifies the HTTP server port.
File URI	Mandatory	**Value range:** N/A **Format:** String **Default value:** ota.bin	it specifies the URI of the firmware file on HTTP server.
SSL Flag	Optional	**Value range:** 0,1 **Format:** Integer **Default value:** 0	It specifies the SSL flag where, 0- is for HTTP 1- is for HTTPs
Time Out	Optional	**Value range:** 1-1000000 **Format:** Integer **Default value:** 100	It specifies the HTTP server time out value.

Response

Table 292, page 134, describes the responses and remarks for FWUP HTTP Client command.

Table 292 FWUP HTTP Client Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 293, page 135, describes the synchronous responses and remarks for FWUP HTTP Client command.

Table 293 FWUP HTTP Client Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Example

```
AT+FUHTTPC="192.168.45.22", 80, "\ota.bin", 100
OK
```

10.2.1.1.2 FWUP Trial Image

This command is used to handle the trial image after a successful firmware upgrade.

Once the firmware upgrade is successful, the new firmware is stored in flash trial image location. The trial image can be accepted / rejected using this AT command - if accepted, the trial image is moved from trial image location to current image location in Flash and if rejected, the trial image is removed from flash.

NOTE: *The firmware upgrade is done from current location only. After a firmware upgrade, the next firmware upgrade is done only after accepting or rejecting the trial image.*

Command Syntax

```
AT+FUTRIALIMG = [<Accept/Reject Image Flag>, <Reboot Flag>]
```

Parameter Description

Table 294, page 135, describes the FWUP Trial Image parameters.

Table 294 FWUP Trial Image Parameters

Parameters	Mandatory/Optional	Value	Description
Accept/reject Image Flag	Optional	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the trial image handling flag where, 0- specifies the rejection of trial image and 1- specifies the acceptance of the trial image.
Reboot Flag	Optional	**Value range:** 0,1 **Format:** Integer **Default value:** 1	It specifies the reboot after the acceptance of trial image (moved from the trila image location to current image location in the flash) where, 0 - indicates to No reboot and 1 - indicates to Reboot.

Response

Table 295, page 136, describes the responses and remarks for FWUP Trial Image command.

Table 295 FWUP Trial Image Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 296, page 136, describes the synchronous responses and remarks for FWUP Trial Image command.

Table 296 FWUP Trial Image Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

10.2.2 Provisioning

10.2.2.1 Web Provisioning

This command is used to start the server with HTTP. Before issuing this command is required to issue L2 and L3 commands.

Command Syntax

```
AT+WNWEBPROV=<Start>,[<Port Number>,<SSL Flag>,<Server
Certificate>,<Server Key>,<Server CA>]
```

Parameter Description

Table 297, page 137, describes the Web Provisioning parameters.

Table 297 Web Provisioning Parameters

Parameters	Mandatory/Optional	Value	Description
Start	Mandatory	**Value range:**0, 1 **Format:** Integer **Default value:** 0	1- starts the web provisioning server 0- stops the web provisioning server.
Port Number	Optional	**Value range:**0-9999 **Format:** Integer **Default value:** 0	It specifies the Port on which the server is running.
SSL Flag	Optional	**Value range:**0, 1 **Format:** Integer **Default value:** 0	0- disables HTTPS 1- enables HTTPS
Server Certificate	Optional	**Value range:** N/A **Format:** String **Default value:** N/A	It specifies the SSL server certificate name.
Server Key	Optional	**Value range:**0-9999 **Format:** String **Default value:** 80	It specifies the SSL private key name.
Server CA	Optional	**Value range:** N/A **Format:** String **Default value:** N/A	It specifies the SSL CA certificate name.

Response

Table 298, page 137, describes the responses and remarks for Web Provisioning command.

Table 298 Web Provisioning Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

Synchronous Response

Table 299, page 138, describes the synchronous responses and remarks for Web Provisioning command.

Table 299 Web Provisioning Synchronous Response

Responses	Remarks
OK	Success.
ERROR	If parameter is not valid.

11 Power Management - Radio and System

This chapter describes the commands for configurations and operations related to power management for radio and system.

11.1 Radio Receive Setting

Content required

NOTE:

11.2 Battery Measurement

Content required

11.3 System Power Save

Content required

12 Peripheral

This chapter describes commands for configurations and operations related to WE866E4-P supported peripherals such as I2C, PWM, GPIO, and so on

12.1 PWM

Content required

NOTE:

12.2 GPIO

Content required

13 Production and Debug

This chapter describes commands for configurations and operations used in Production and helpful in debugging.

13.1 RF Test

Content required

NOTE:

13.2 Live Calibration

Content required

13.3 Debug

Content required

14 List of Acronyms

TTSC	Telit Technical Support Centre
USB	Universal Serial Bus
HS	High Speed
DTE	Data Terminal Equipment
UMTS	Universal Mobile Telecommunication System
WCDMA	Wide band Code Division Multiple Access
HSDPA	High Speed Downlink Packet Access
HSUPA	High Speed Uplink Packet Access
UART	Universal Asynchronous Receiver Transmitter
HSIC	High Speed Inter Chip
BLE	Bluetooth low energy
SPI	Serial Peripheral Interface
ADC	Analog – Digital Converter
DAC	Digital – Analog Converter
I/O	Input Output
GPIO	General Purpose Input Output
CMOS	Complementary Metal – Oxide Semiconductor
MOSI	Master Output – Slave Input
MOSO	Master Input – Slave Output
CLK	Clock
MRDY	Master Ready
SRDY	Slave Ready
CS	Chip Select
RTC	Real Time Clock
PCB	Printed Circuit Board
ESR	Equivalent Series Resistance
VSWR	Voltage Standing Wave Radio

VNA	Vector Network Analyzer

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