

**Interface Specification**

**for**

**AirVantage AT Commands**

|  |  |
| --- | --- |
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# Document History

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| 1.10 | 2018-09-21 | Frederic DUR | Updates in +WDSI command |
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# General

## Scope

This document specifies the AirVantage (AV) related AT Commands to be supported across Sierra Wireless.

A key aim of this document is to ensure consistent syntax and operation for AV commands across the SWI device portfolio providing customers with a uniform user experience.

This is an internal document intended for Sierra Wireless staff.

## Glossary of terms

|  |  |
| --- | --- |
| Term | Description |
| AV | AirVantage |
| HTTP | Hypertext Transfer Protocol |
| HTTPS | Hypertext Transfer Protocol Secure |
| NAP | Network Access Point |
| NV | Non-volatile memory |
| WWAN | Wireless Wide Area Network |

## References

|  |  |  |
| --- | --- | --- |
| Ref. # | Doc. # | Document title |
| [1] | [4110154](https://carmd-ev-fh01.sierrawireless.local/FH/FileHold/WebClient/LibraryForm.aspx?docId=293) | Interface Specification for UMTS AT Commands |
| [2] | [4111741](https://carmd-ev-fh01.sierrawireless.local/FH/FileHold/WebClient/LibraryForm.aspx?docId=1641) | Interface Specification for MDM9x15 AT Commands |
| [3] | [4112302](https://carmd-ev-fh01.sierrawireless.local/FH/FileHold/WebClient/LibraryForm.aspx?docId=2538) | Interface Specification for M2M AT Commands |
| [4] | [WM\_PLC\_F038](https://confluence.sierrawireless.com/download/attachments/55479779/WDSW.doc?version=1&modificationDate=1406029211000&api=v2) | +WDSW AT command Interface Specification |
| [5] | OMA-TS-LightweightM2M | Open Mobile Alliance Lightweight Machine to Machine Technical Specification |

# AT Command Documentation Format

This section provides an overview of how the document is architected and provides a template for adding new commands. Please follow this section to ensure the document has a cohesive look and feel.

## Description

Here is how each of the commands is described:

Platform

This section describes the platform(s) supporting the command.

Protection Level

This section indicates the access protection level of the command. If the command is protected, the appropriate AT command must be issued first to unlock it.

Level 1 – Not protected

Level 2 – Requires AT!ENTERCND or AT!OPENCND to unlock it

Level 3 – Requires AT!UNLOCK or AT!OPENLOCK to unlock it

Level 4 – Requires AT!OPENMEP to unlock it

Documentation

This section indicates which external (customer facing) documents include descriptions of the AT command. New commands are added as <TBD>, and Tech Pubs will update the memo with appropriate documentation identifiers as the commands are added.

If the command is not to be published externally, developers can mark it as None instead of <TBD>.

Requirements Tracking

This section indicates the applicable requirement that was the basis for the AT command.

Applicable Logos

|  |  |
| --- | --- |
|  |  |
| With_Sim | This picture indicates that a SIM card must be inserted to support the AT command. |
| Without_sim | This picture indicates that an AT command is supported even if the SIM card is absent. |
| PIN1 | This picture indicates that the PIN 1 /CHV 1 code must be entered to support the AT command. |
| No_pin_1 | This picture indicates that an AT command is supported even if the PIN 1 /CHV 1 code is not entered. |
| Pin_2 | This picture indicates that the PIN 2 /CHV 2 code must be entered to support the AT command. |
| No_pin_2 | This picture indicates that an AT command is supported even if the PIN 2/CHV 2 code is not entered. |
|  |  |

Description

This section provides background information and describes the purpose of the command.

Syntax

This section provides an example of the command in use. In the case where the command has multiple uses, more than one example is provided.

Parameters and Defined Values

This section describes all parameters and values.

Parameter Storage

This section presents the command used to store the parameter value and/or the command used to restore the parameter default value.

Examples

This section presents the real use of the described command.

Note

This section can also be included indicating some remarks about the command use.

## Syntax and format guidelines

Please refer to [3] for AT Command naming, format and syntax guidelines.

## Template

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | All commercial releases |
| Embedded Module (EM) | All commercial releases |
| Minicard (MC) | All commercial releases |
| Wireless Product (WP) | All commercial releases |
| LGA Module (SL) | All commercial releases |
| HiLo Module (HL) | All commercial releases |

Protection Level

Level 1

Documentation

<TBD>

Requirements Tracking

|  |  |
| --- | --- |
| **Carrier/Customer** | **Specification/Section** |
| None | N/A |

[Omit section if not needed.]

Applicable Logos

|  |  |  |  |
| --- | --- | --- | --- |
| Without_sim |  |  |  |

Description

Detailed description of the purpose/function of the command

Syntax

* [For <param1>= x,y]

|  |
| --- |
| Action command  AT!name=<param1>,<param2>  OK |

* [For <param1>= z]

|  |
| --- |
| Action command  AT!name=<param1>,<param3>[,<param4>]  OK |

|  |
| --- |
| Read command  AT!name?  !name: x,<param2>  !name: y,<param2>  !name: z,<param3>[,<param4>]  OK |

|  |
| --- |
| Test command  AT!name=?  !name: (list of supported <param1>s),(list of supported <param2>s)  [!name: <param1>,(list of supported <param3>s),(list of supported <param3>s)]  OK |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <param1>: | | Description of <param1> | |
|  | x | Definition of value x |  |
|  | y | Definition of value y |  |
|  | z | Definition of value z |  |
| <param2>: | | Description of <param2> |  |
|  | a | Definition of value a |  |
|  | b | Definition of value b |  |
| <param3>: | | Description of <param3> |  |
|  | f | Definition of value f |  |
|  | g | Definition of value g |  |
| <param4>: | | Description of <param4> |  |
|  | 0 | Description of 0 |  |
|  | 1 | Description of 1 |  |

Parameter Storage

Examples

| **Command** | **Responses** |
| --- | --- |
| AT!name=? | !name: (x,y),(a,b) !name: z,(f,g),(0-1)  OK |
| AT+WDSC? | !name: x,b !name: y,a !name: z,f,0  OK  *Note: All modes are deactivated except retry mode which used the default timers* |
| AT+WDSC=x,a | OK |
| AT+WDSC? | !name: x,a !name: y,a !name: z,f,0  OK |

Notes

# +WDS Commands

The Wireless Device Services (+WDS) AT commands are module configuration and use of AirVantage (AV).

## Device Services Configuration +WDSC

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 1

Documentation

<TBD>

Applicable Logos

|  |
| --- |
| Without_sim |

Description

This Sierra Wireless proprietary command allows a user to configure:

* the user agreement for connection, package download, package install and package uninstall
* the polling mode to make a connection to the Device Services server
* the retry mode to attempt a new connection to the server when the WWAN DATA service is temporarily out of order or when an http/coap error occurs

Syntax

* For <Mode>= 0, 1, 2, 3, 5, 6

|  |
| --- |
| Action command  AT+WDSC=<Mode>,<State>  OK |

* For <Mode>=4

|  |
| --- |
| Action command  AT+WDSC=<Mode>,<Timer\_1>[[,<Timer\_2>]...[,<Timer\_n>]]  OK |

|  |
| --- |
| Read command  AT+WDSC?  +WDSC: 0,<State>  +WDSC: 1,<State>  +WDSC: 2,<State>  +WDSC: 3,<State>  +WDSC: 4,<Timer\_1>[[,<Timer\_2>]...[,<Timer\_n>]]  +WDSC: 5,<State>  +WDSC: 6,<State>  OK |

|  |
| --- |
| Test command  AT+WDSC=?  +WDSC: (0-2,5,6),(list of supported <State>s)  +WDSC: 3,(list of supported <State>s)  +WDSC: 4,(list of supported <Timer\_1>s),(list of supported <Timer\_2>s),(list of supported <Timer\_3>s),(list of supported <Timer\_4>s),(list of supported <Timer\_5>s),(list of supported <Timer\_6>s),(list of supported <Timer\_7>s),(list of supported <Timer\_8>s)  OK |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <Mode>: | | Mode | |
|  | 0 | User agreement for avms connection  When this mode is activated, an indication (see +WDSI indication for more information) is returned by the embedded module to request for an agreement before connecting to the server |  |
|  | 1 | User agreement for package download  When this mode is activated, an indication (see [+WDSI](#RefWDSI) indication for more information) is returned by the embedded module to request for an agreement before downloading any package |  |
|  | 2 | User agreement for package install  When this mode is activated, an indication (see [+WDSI](#RefWDSI) indication for more information) is returned by the embedded module to request for an agreement before installing any package |  |
|  | 3 | Polling mode  The embedded module will initiate a connection to the Device Services server according to the defined timer |  |
|  | 4 | Retry mode  If an error occurs during a connection to the Device Services server (WWAN DATA establishment failed, http error code received), the embedded module will initiate a new connection according to the defined timers. This mechanism is persistent to the reset |  |
|  | 5 | User agreement for device reboot  When this mode is activated, an indication (see [+WDSI](#RefWDSI) indication for more information) is returned by the embedded module to request for an agreement before rebooting the device |  |
| 6 | User agreement for application uninstall (SW update)  When this mode is activated, an indication (see +WDSI indication for more information) is returned by the embedded module to request for an agreement before uninstalling an application. |  |
| <State>: | | Status of the mode |  |
| For <Mode> = 0,1,2,5,6: | |  |  |
|  | 0 | disabled (default value) |  |
|  | 1 | enabled |  |
| For <Mode> = 3: | | Value in range [0-525600] (units: min) |  |
|  | 0 | the polling mode is deactivated |  |
| <Timer\_1>: | | Timer between the first failed connection and the next attempt  Value in range [0 to 20160] (units: min)  With value 0, the retry mode is deactivated  Default value: 15 |  |
| <Timer\_n>: | | Timer between the nth failed attempt connection and the (n+1)th connection (n<=8)  Value in range [1 to 20160] (units: min)  Default values:  <Timer\_2>=60 <Timer\_3>=240 <Timer\_4>=960 <Timer\_5>=2880 <Timer\_6>=10080 <Timer\_7>=10080 <Timer\_8> not used |  |

Parameter Storage

The <State>, <Timer\_1> and <Timer\_n>, parameters are stored in NV without sending &W command. &F command has no impact on these values.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSC=? | AT+WDSC=?  +WDSC: (0-2,5,6),(0-1)  +WDSC: 3,(0-525600)  +WDSC: 4,(0-20160),(1-20160),(1-20160),(1-20160),(1-20160),(1-20160),(1-20160),(1-20160) OK |
| AT+WDSC? | +WDSC: 0,0 +WDSC: 1,0 +WDSC: 2,0 +WDSC: 3,0 +WDSC: 4,15,60,240,960,2880,10080, 10080 +WDSC: 5,0 +WDSC: 6,0  OK  *Note: All modes are deactivated except retry mode which used the default timers* |
| AT+WDSC=2,1  *Note: Set user agreement for package download* | OK |
| AT+WDSC? | +WDSC: ,0 +WDSC: 1,0 +WDSC: 2,1 +WDSC: 3,0 +WDSC: 4,15,60,240,960,2880,10080, 10080 +WDSC: 5,0 +WDSC: 6,0 OK |

## Device Services Error +WDSE

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 1

Documentation

<TBD>

Applicable Logos

|  |
| --- |
| Without_sim |

Description

This Sierra Wireless proprietary command allows a user to know the last HTTP(S) response received by the device for the package download.

Syntax

|  |
| --- |
| Action command  AT+WDSE  [+WDSE: <HTTP\_Status>]  OK |

|  |
| --- |
| Read command  None |

|  |
| --- |
| Test command  None |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <HTTP\_Status>: | | Last HTTP response received by the embedded module  If HTTP/HTTPS is not yet used, the command only return OK | |
|  | 100 | continue |  |
|  | 101 | switching protocols |  |
|  | 200 | ok |  |
|  | 201 | created |  |
|  | 202 | accepted |  |
|  | 203 | non-authoritative information |  |
|  | 204 | no content |  |
|  | 205 | reset content |  |
|  | 206 | partial content |  |
|  | 300 | multiple choices |  |
|  | 301 | moved permanently |  |
|  | 302 | found |  |
|  | 303 | see other |  |
|  | 304 | not modified |  |
|  | 305 | use proxy |  |
|  | 307 | temporary redirect |  |
|  | 400 | bad request |  |
|  | 401 | unauthorized |  |
|  | 402 | payment required |  |
|  | 403 | forbidden |  |
|  | 404 | not found |  |
|  | 405 | method not allowed |  |
|  | 406 | not acceptable |  |
|  | 407 | proxy authentication required |  |
|  | 408 | request time-out |  |
|  | 409 | conflict |  |
|  | 410 | gone |  |
|  | 411 | length required |  |
|  | 412 | precondition failed |  |
|  | 413 | request entity too large |  |
|  | 414 | request-uri too large |  |
|  | 415 | unsupported media type |  |
|  | 416 | requested range not satisfiable |  |
|  | 417 | expectation failed |  |
|  | 500 | internal server error |  |
|  | 501 | not implemented |  |
|  | 502 | bad gateway |  |
|  | 503 | service unavailable |  |
|  | 504 | gateway time-out |  |
|  | 505 | http version not supported |  |

1. If no session was made with the server, AT+WDSE only returns with OK response, without any +WDSE: <HTTP\_Status> response.

Parameter Storage

No parameter storage.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSS=1,1 | OK  Note: A session was made with the server. |
| AT+WDSE | +WDSE: 200  OK  Note: The last HTTP response received by the embedded moduleis OK. |

Notes

This command returns +CME ERROR: 3 when:

* a parameter is filled
* the Device services are not in ACTIVATED state (see +WDSG command for more information)

## Device Services General status +WDSG

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 1

Documentation

<TBD>

Applicable Logos

|  |
| --- |
| Without_sim |

Description

This Sierra Wireless proprietary command returns some general status about Device Services.

Syntax

|  |
| --- |
| Action command  AT+WDSG  +WDSG: <Indication>,<State>  [+WDSG: <Indication>,<State>[…]]  OK |

|  |
| --- |
| Read command  None |

|  |
| --- |
| Test command  AT+WDSG=?  OK |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <Indication>: | | Indication | |
|  | 0 | device services activation state |  |
|  | 1 | session and package indication |  |
| <State>: | | Status of an indication |  |
| For <Indication>=0 | |  |  |
|  | 0 | device services are prohibited. Device services will never be activated |  |
|  | 1 | device services are deactivated. Connection parameters to a Device Services server have to be provisioned |  |
|  | 2 | device services have to be provisioned. A bootstrap session is required. |  |
|  | 3 | device services are activated  For LWM2M protocol, this indication means that a bootstrap session was already made and the device is able to initiate a Device Management session with the AirVantage server.  If a device has never been activated (first used of device services on this device), the <State> is set to 1  The connection parameters are automatically provisioned, no action are needed by the user (<State>=2 or <State>=3)  The device will be activated (<State>=3) when a dedicated NAP will be set manually or automatically at the first session (see [+WDSS](#refwdss) command for more information) |  |
| For <Indication>=1 | |  |  |
|  | 0 | no session or package |  |
|  | 1 | a session is under treatment |  |
|  | 2 | a package is available on the server |  |
|  | 3 | a package was downloaded and ready to install  When a package was installed or not (not certified to be sent by the AirPrime Management Services server, see [+WDSI](#RefWDSI) command for more information) or a recovery was made, the <State> is set to 0. |  |

Parameter Storage

No storage.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSG=? | OK |
| AT+WDSG | +WDSG: 0,3 +WDSG: 1,0 OK  Note: Device services are activated, no session to the server, no patch to download or to install. |

Notes

## Device Services Reply +WDSR

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 1

Documentation

<TBD>

Applicable Logos

|  |  |  |  |
| --- | --- | --- | --- |
| With_Sim | PIN1 | No_pin_2 |  |

Description

This Sierra Wireless proprietary command allows a user to respond to the Device Services server request when user agreement is requested for connection, download and/or package install (see [+WDSI](#RefWDSI) command for more information).

Syntax

|  |
| --- |
| Action command  AT+WDSR=<Reply>[,<Timer>]  OK |

|  |
| --- |
| Read command  None |

|  |
| --- |
| Test command  AT+WDSR=?  +WDSR: (list of supported <Reply>s),(list of supported <Timer>s)  OK |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <Reply>: | | Reply to a user agreement request (see [+WDSI](#RefWDSI) command description for more information) from the embedded module | |
|  | 0 | delay the connection to server (Connect later) |  |
|  | 1 | accept the connection to server (Connect now) |  |
|  | 2 | delay or refuse to download  Refuse action is only available if OMA DM protocol is used |  |
|  | 3 | accept the download (download now) |  |
|  | 4 | accept the install (Install now) |  |
|  | 5 | delay the install (Install later) |  |
|  | 6 | accept the device reboot (Reboot now) |  |
|  | 7 | delay the device reboot (Reboot later) |  |
| 8 | accept the application uninstall (Uninstall now) |  |
| 9 | delay the application uninstall (Uninstall later) |  |
| <Timer>: | | Timer until a new User agreement request is returned by the embedded module  This parameter is only available for <Reply>=0, 2, 5, 7 and 9  Units: minutes (0-1440)  When this value is not filled, a default value is set to 30 minutes later  Value 0 indicates that the application refuses the user agreement (only possible to refuse a package download if OMA DM protocol is used) |  |

Parameter Storage

No parameter storage.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSR=? | +WDSR: (0-9),(0-1440)  OK |
|  | +WDSI: 2  Note: The Device Services server requests the device to download a package from the server. The user is requested to accept the package download. |
| AT+WDSR=3 | OK |
|  | +WDSI: 3  Note: A user agreement is requested to install a package |
| AT+WDSR=5,10 | OK  Note: A delay (10 minutes) is requested. |
|  | +WDSI: 3  Note: 10 minutes later, a new user agreement is requested to install a package. |
| AT+WDSR=4 | OK  Note: The install is requested. |

Notes

It is not possible to refuse an install request (AT+WDSR=5,0), which will return +CME ERROR: 3 response.

After an install delay, if the embedded module is powered-down the new user agreement request will be returned during the next start up.

It is not possible to refuse an uninstall request (AT+WDSR=9,0), which will return +CME ERROR: 3 response.

It’s also not possible to refuse a device reboot request (AT+WDSR=7,0), which will return +CME ERROR: 3 response.

## Device Services Session +WDSS

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 1

Documentation

<TBD>

Applicable Logos

|  |  |  |  |
| --- | --- | --- | --- |
| With_Sim | PIN1 | No_pin_2 | Wind 3mod |

Description

This Sierra Wireless proprietary command allows user to manage the device services session. It can be used to:

* Change the current PDP context identifier.
* Restore the default PDP context identifier.
* Initiate a connection to the device service server.
* Activate an automatic registration to the AirVantage server.

Syntax

* For <Mode>=0

Deprecated and cannot be used anymore. Instead, use <Mode>=2 to set the profile to be used, and configure it using the dedicated AT commands (e.g: AT+CGDCONT).

* For <Mode>=1

|  |
| --- |
| Action command  AT+WDSS=<Mode>[,<Action>]  OK |

|  |
| --- |
| Read command  AT+WDSS?  [+WDSS: 1,<Action>]  [+WDSS: 2,<Cid>]  OK |

|  |
| --- |
| Test command  AT+WDSS=?  +WDSS: 1,(list of supported <Action>s for this <Mode>)  +WDSS: 2,(range of supported PDP context identifiers)  OK |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <Mode>: | | Mode | |
|  | 1 | user initiated connection to the Device Services server |  |
|  | 2 | PDP context identifier configuration for Device Services |  |
| <Cid>: | | PDP context identifier |  |
| <Action>: | |  |  |
| For <Mode>=1 only | |  |  |
|  | 0 | release the current connection to the Device Services server (default value) |  |
|  | 1 | establish a connection to the Device Services server |  |

Restore default PDP context

When +WDSS=2 is called without specifying a <Cid>, a fall-back to default PDP context is performed.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSS=? | +WDSS: 1,(0-1)  +WDSS: 2, (1-16)  OK |
| AT+WDSS? | at+wdss?  +WDSS: 1,1  +WDSS: 2,1  OK |
| AT+WDSS=1,1 | OK  Note: The user initiates a connection to the Device Services server |
|  | +WDSI: 4 +WDSI: 6 +WDSI: 23,0  Note: a bootstrap session was initiated |
|  | +WDSI: 4 +WDSI: 6 +WDSI: 23,1  Note: a device management session was initiated |
| AT+WDSS=1,0 | OK  Note: The user releases the current connection to the Device Services server. |
|  | +WDSI: 8  Note: Session was stopped |

Notes

#### Changing the PDP context identifier

There is no dedicated PDP context for AVMS. Instead, AVMS shares the same context with other applications and thus the same data connection.

It is possible to change the current PDP context using +WDSS command. However, there is no guarantee that the newly chosen identifier contains a valid configuration.

To configure PDP context, dedicated AT commands (e.g: +CGDCONT) should be called with the right parameters.

It is also possible to fall-back to the default PDP profile index by calling +WDSS=2 without specifying <Cid>.

## Device Services Indications +WDSI

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 1

Documentation

<TBD>

Applicable Logos

|  |
| --- |
| Without_sim |

Description

This Sierra Wireless proprietary command allows the user to request some unsolicited indication for Device Services.

Syntax

|  |
| --- |
| Action command  AT+WDSI=<Level>  OK |

|  |
| --- |
| Read command  AT+WDSI?  [+WDSI: <Level> OK |

|  |
| --- |
| Test command  AT+WDSI=?  +WDSI: (list of supported <Level>s)  OK |

|  |
| --- |
| Unsolicited response  +WDSI: <Event>[,Data>] |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <Level>: | | Indication level, bit field (default value = 0)  bit set to 0: indication deactivated  bit set to 1: indication activated | |
|  | 0 | no indication |  |
|  | 1 (bit 0) | activate the initialization end indication (<Event>=0) |  |
|  | 2 (bit 1) | activate the server request for a user agreement indication (<Event>=1,2,3,24,25) |  |
|  | 4 (bit 2) | activate the authentication indications (<Event> = 4 & 5) |  |
|  | 8 (bit 3) | activate the session indication (<Event> = 6, 7 & 8) |  |
|  | 16 (bit 4) | activate the package download indications (<Event> = 9, 10 & 11) |  |
|  | 32 (bit 5) | activate the certified downloaded package indication (<Event> = 12 & 13) |  |
|  | 64 (bit 6) | activate the update indications (<Event> = 14, 15 & 16) |  |
|  |  |  |  |
|  | 256 (bit 8) | activate download progress indication (<Event>=18) |  |
|  |  |  |  |
|  |  |  |  |
|  | 2048 (bit 11) | Reserved |  |
|  | 4096 (bit 12) | Activate Bootstrap event indication (<Event>=23) |  |
| <Event>: | |  |  |
|  | 0 | device services are initialized and can be used. The device is configured in order to be able to authenticate with the AV server. |  |
|  | 1 | the Device Services server requests the device to make a connection. The device requests a user agreement to allow the embedded module to make the connection. The response can be sent using +WDSR command and this indication can be returned by the device if the user has activated the user agreement for connection (see [+WDSC](#refwdsc) command for more information) |  |
|  | 2 | the Device Services server requests the device to make a package download. The device requests a user agreement to allow the embedded module to make the download. The response can be sent using +WDSR command and this indication can be returned by the device if the user has activated the user agreement for download (see [+WDSC](#refwdsc) command for more information). |  |
|  | 3 | the device has downloaded a package. The device requests a user agreement to install the downloaded package. The response can be sent using +WDSR command and this indication can be returned by the device if the user has activated the user agreement for install (see [+WDSC](#refwdsc) command for more information). |  |
|  | 4 | the embedded module starts authentication with the server |  |
|  | 5 | authentication with the server failed. This event is sent when the server rejects the device authentication request.  Example of rejection cause: authentication keys mismatch. |  |
|  | 6 | authentication has succeeded and session with the server started |  |
|  | 7 | session with the server failed. This event is sent when the server rejects the device connection request.  Example of rejection cause: device not registered on server side. |  |
|  | 8 | session with the server is finished.  Example of session termination cause: connection loss, user initiated using +WDSS=1,0 AT command, reboot process. |  |
|  | 9 | a package is available on the server and can be downloaded by the embedded module. A <Data> parameter is returned indicating the package size in kB |  |
|  | 10 | a package was successfully downloaded and stored in flash |  |
|  | 11 | an issue happens during the package download. If the download has not started (+WDSI: 9 indication was not returned), this indication indicates that there is not enough space in the device to download the update package. If the download has started (+WDSI: 9 indication was returned), a flash problem implies that the package has not been saved in the device |  |
|  | 12 | downloaded package is certified to be sent by the AirPrime Management Services server |  |
|  | 13 | downloaded package is not certified to be sent by the AirPrime Management Services server |  |
|  | 14 | update will be launched |  |
|  | 15 | OTA update client has finished unsuccessfully |  |
|  | 16 | OTA update client has finished successfully |  |
|  | 17 | Reserved |  |
|  | 18 | download progress. This event is returned without <Data> parameter to indicate that a download starts. During the download, a percentage progress is indicated in <Data> parameter |  |
|  | 19 | Reserved |  |
|  | 20 | Reserved |  |
|  | 21 | Reserved |  |
|  | 22 | Reserved |  |
|  | 23 | Session type (only in LWM2M protocol) |  |
|  | 24 | the Device Services server requests the device to make a reboot. The device requests a user agreement to allow the embedded module to reboot. The response can be sent using +WDSR command and this indication can be returned by the device if the user has activated the user agreement for connection (see [+WDSC](#refwdsc) command for more information) |  |
| 25 | the Device Services server requests the device to uninstall a SW application. The device requests a user agreement to allow the embedded module to uninstall an application. The response can be sent using +WDSR command and this indication can be returned by the device if the user has activated the user agreement for uninstall (see [+WDSC](#refwdsc) command for more information). |  |
| <Data>: | | Specific data for some <event> |  |
| For <Event>=5 | | To be defined |  |
| For <Event>=9 | | <Data> indicates the package size in bytes, which will be downloaded  <Data> indicates the pre-empted DOTA area size needed to download an update package.  Unit: kBytes.  If pre-emption is not made, this parameter is not returned for this event.  If a reverse package is not downloaded and stored, the pre-empted area will be released after the installation. |  |
| For <Event>=11 | | <Data> indicates the reason of the download failure |  |
|  | 0 | The download fails due insufficient memory in the device to save the firmware update package. The package was not downloaded |  |
|  | 1 | An HTTP/HTTPS error occurs. Please refer to +WDSE command description |  |
|  | 2 | Corrupted firmware update package, did not store correctly. Detected, for example, by mismatched CRCs between actual and expected or signature check error. |  |
| For <Event>=18 | | <Data> indicates the download progress in percentage |  |
| For <Event>=23 | | <Data> indicates the session event |  |
|  | 0 | Bootstrap session |  |
|  | 1 | Device management session |  |

Parameter Storage

The <Level> parameter is stored in NV without using AT&W command. The default value can be restored using AT&F.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSI=? | +WDSI: (0-127,256-383,4096-4223,4352-4479)  OK |
| AT+WDSI? | +WDSI: 0  OK  Note: All indications are deactivated |
| AT+WDSI=4479 | OK |
| AT+WDSI? | +WDSI: 4479  OK  Note: All indications are activated |
|  | +WDSI: 1  Note: The Device Services server requests a connection to the embedded module |
| AT+WDSR=1  Note: Accept the connection | OK |
|  | +WDSI: 4  Note: The embedded modulewill send the first data to the AirPrime Management Services server. |
|  | +WDSI: 6  Note: The authentication succeeded |
|  | +WDSI: 8  Note: The session with the server is over. |
|  | +WDSI: 9,1000  Note: A package will be downloaded, the size is 1000 bytes |
|  | +WDSI: 18,1  Note: 1% was downloaded |
|  | +WDSI: 18,100  Note: The whole package was donwloaded |
|  | +WDSI: 10  Note: The whole package was stored in flash. |
|  | +WDSI: 11,2  Note: Package download failure due to HTTP(S) error (see +WDSE command to get the HTTP(S) error) |

Notes

To receive +WDSI indications, the Device Services should be in activated state (see [+WDSG](#refwdsg) command for more information).

When a package is available on the AirPrime Management Services server, the embedded module checks if enough space is available in a dedicated memory area, SWI\_FOTA\_partition:

If the downloaded package is not certified (bad CRC, bad signature, not correspond to the current software), this package is not deleted.

## Device Services +WDSW

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 3

Documentation

**None: Internal AT command**

Applicable Logos

|  |  |
| --- | --- |
| Without_sim |  |

Description

This Sierra Wireless proprietary command allows configuration of AirVantage Management Services in the module.

Syntax

* For <Operation>= 3 and <Action>=0, 1, 2

|  |
| --- |
| Action command  **AT+WDSW=<Operation>,<Action>,<Path>[,<Value>]**  OK |

* For <Operation> = 15

Action command

**AT+WDSW=<Operation>[,<Delete>]**

OK

* For <Operation> = 24

Action command

**AT+WDSW=<Operation>**

<Reason>

OK

* For <Operation> = 25

Action command

**AT+WDSW=<Operation>,<ConfigId>,<ConfigValue>**

OK

|  |
| --- |
| Read command  **AT+WDSW?**  +WDSW: 25,<ConfigId>,<ConfigValue>  OK |

|  |
| --- |
| Test command  AT+WDSW=?  ERROR |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <Operation>: | | Operation | |
|  | 3 | Read, write or execute a resource  Only action on single resource instance is possible. |  |
|  | 15 | File deletion (see <Delete> parameter definition) |  |
|  | 24 | LWM2M session establishment reason |  |
|  | 25 | LWM2M agent internal configuration for internal usage |  |
| <action>: | | For node read and write | |
|  | 0 | Read node |  |
|  | 1 | Write node |  |
|  | 2 | Exec node |  |
| <Delete>: | | Parameter for <Operation>=15  If this parameter is omitted, the device behavior is the same than <Delete> = 0 | |
|  | 0 | Delete DM credentials stored from SFS |  |
|  | 1 | Delete download workspace file from EFS |  |
|  | 2 | Delete Bootstrap credentials stored in NV and SFS |  |
| <Reason>: | | for <Operation>=24  If this parameter is omitted, the device behavior is the same than <Delete> = 0 | |
|  | 1 | LWM2M session was established on user request (manual) |  |
|  | 2 | LWM2M session was automatically established for FOTA notification |  |
|  | 3 | LWM2M session was automatically established for FOTA AOTA ongoing job |  |
|  | 4 | LWM2M session was automatically established for download resume |  |
|  | 5 | LWM2M session was automatically established for polling |  |
| <ConfigId>: | | for <Operation>=25 | |
|  | 0 | Update message mechanism deactivation. When this configuration is set, the device does not send UPDATE message to the AirVantage server. The only use case in which the device sends an UPDATE message is when an EXEC command is received on /1/0/8 |  |
| <ConfigValue>: | | Configuration value | |
|  |  | For <ConfigId>=0 0: The device automatically sends UPDATE message to the AirVantage server (default value)  1: The device does not automatically sends UPDATE message to the AirVantage server (except EXEC command on /1/0/8) This configuration is not stored in NV and the default value is set after a reset. |  |

Parameter Storage

No parameter storage.

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WDSS=1,1 | OK  +WDSI: 4  +WDSI: 6  +WDSI: 23,1  Note: Initiate an AirVantage session (LWM2M protocol) |
| AT+WDSW=24 | 1  OK  Note: AirVantage session was initiated by user |
| AT+WDSW=3,0,"/3/0/0" | Sierra Wireless, Incorporated  OK  Note: Read manufacturer (LWM2M resource path: /3/0/0) |

## AirVantage Credential Provisioning +WAMS

Platform

|  |  |
| --- | --- |
| **Family/Product(s)** | **Release** |
| Automotive (AR) | AR75xx, AR8652 |
| Embedded Module (EM) | EM74xx |
| Minicard (MC) | MC74xx |
| Wireless Product (WP) | WP85xx, WP75xx |
| LGA Module (SL) |  |
| HiLo Module (HL) |  |

Protection Level

Level 3 (Confidential)

Documentation

None – Internal Use Only

Requirements Tracking

|  |  |
| --- | --- |
| **Carrier/Customer** | **Specification/Section** |
| None | N/A |

Applicable Logos

|  |  |
| --- | --- |
| Without_sim |  |

Description

This command is used during the production process and allows setup / verifying the credentials required by AirVantage (AV).

The comprehensive list of configurable items is provided below. This command shall be used sequentially for each requested item.

Note: This command is confidential and should be only used during the production process.

Syntax

|  |
| --- |
| Action command  AT+WAMS=<mode>,<item id>,<data length>[,<key index>,<keyversion>]<CR>  >enter data<Ctrl-Z / ESC>  +WAMS: <result>  OK |

|  |
| --- |
| Read command  AT+WAMS?  ERROR |

|  |
| --- |
| Test command  AT+WAMS=?  ERROR |

Parameters and Defined Values

|  |  |  |  |
| --- | --- | --- | --- |
| <mode>: | | Operation mode | |
|  | 0 | Verify AirVantage credentials stored into the module |  |
|  | 1 | Write AirVantage credentials into the module |  |
| <item id>: | | Item identity to write or verify |  |
|  | 1 | Firmware public key (for AirVantage/OMA-DM) |  |
|  | 2 | Application public key (for AirVantage/OMA-DM) |  |
|  | 3 | Device login (for AirVantage/OMA-DM) |  |
|  | 4 | MD5[Device Login: Device Pwd] (for AirVantage/OMA-DM) |  |
|  | 5 | MD5[Server ID: Server Pwd] (for AirVantage/OMA-DM) |  |
|  | 6 | Server ID (for AirVantage/OMA-DM) |  |
|  | 7 | Server URL (for AirVantage/OMA-DM) |  |
|  | 8 | Nonce (for AirVantage/OMA-DM) |  |
|  | 9 | Firmware public key (for AirVantage/LWM2M) |  |
|  | 10 | Software public key (for AirVantage/LWM2M) |  |
|  | 11 | Bootstrap server address (for AirVantage/LWM2M) |  |
|  | 12 | PSK\_IDENTITY for bootstrap server (for AirVantage/LWM2M) |  |
|  | 13 | PSK for bootstrap server (for AirVantage/LWM2M) |  |
|  |  |  |  |
| <data length>: | | Length of the actual data unit in bytes  Range: 1 - 512 |  |
|  | For <item id>: |  |  |
|  | 1, 2 | Public key (Firmware or Application) (for AirVantage/OMA-DM): PKCS #1 RSAPublicKey conformant key in ASN.1 DER format.  Max size is 294 bytes. |  |
|  | 3, 4, 5, 8 | Device login, MD5 or nonce (for AirVantage/OMA-DM). Raw data.  Max size is 16 bytes |  |
|  | 6 | Server ID (for AirVantage/OMA-DM).  Max size is 32 bytes |  |
|  | 7 | Server URL (for AirVantage/OMA-DM).  Max size is 80 bytes |  |
|  | 9, 10 | Public key (Firmware or Application) for AirVantage/LWM2M.  Max size is 512 bytes |  |
|  | 11 | Bootstrap server address (for AirVantage/LWM2M).  Max size is 200 bytes |  |
|  | 12 | PSK\_IDENTITY for bootstrap server (for AirVantage/LWM2M).  Max size is 128 bytes |  |
|  | 13 | PSK for bootstrap server (for AirVantage/LWM2M).  Max size is 64 bytes |  |
| <key index>: | | Index of the public key – relevant only if item is a public key (Firmware or Application)  Range 0 – 0xFFFF  This parameter is required for <item id>: 1, 2, 9, 10 |  |
| <key version>: | | Version of the public key – relevant only if item is a public key (Firmware or Application)  Range 0 – 0xFFFF  This parameter is required for <item id>: 1, 2, 9, 10 |  |
| <result>: | | Result code of requested Write/Verify operation |  |
|  | 0 | Write operation OK or Verification OK (Credential matches the supplied data) |  |
|  | 1 | No credential stored |  |
|  | 2 | Credential does not match the supplied data (verification mode) |  |

Parameter Storage

Examples

| **Command** | **Responses** |
| --- | --- |
| AT+WAMS=1,7,32**<CR>**  >“https://www.sierrawireless.com”**<Ctrl-Z>**  Note: Server URL stored | +WAMS: 0  OK |
| AT+WAMS=0,7,32<CR> >“https://www.sierrawireless.com”<Ctrl-Z>  *Note: Server URL matches the supplied data* | +WAMS: 0  OK |
| AT+WAMS=0,3,10<CR>  >1234567890<Ctrl-Z>  *Note: No Device login stored* | +WAMS: 2  OK |
| AT+WAMS=1,3,10<CR>  >123456789000<Ctrl-Z>  *Note: Device login store failed (incorrect length)* | +WAMS: 1  OK |
| AT+WAMS=1,1,300,5,1234<CR>  >523321522…6633255<Ctrl-Z>  *Note: Firmware Public key stored* | +WAMS: 0  OK |
| AT+WAMS=0,1,300,5,1234<CR>  >623321522…6633255<Ctrl-Z>  *Note: Firmware public key does not match the supplied data* | +WAMS: 2  OK |

Notes