Sierra Wireless

Ready-to-Connect Module Integration Guide

SIERRA WIRELESS®

41113385
Rev. 1

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Revision History

Revision number	Release date	Changes
1	October 2019	Doc created

Contents

1: Introduction

This document presents design guidelines for integrating Sierra Wireless Ready-to-Connect (R2C) modules into OEM host platforms and activating them for use.

These guidelines identify software and hardware integration issues for OEMs that select a Smart IoT Connectivity offer that pairs R2C modules with an "AirVantage+Connectivity" account for module and SIM management services.

Each Sierra Wireless R2C cellular module includes an embedded SIM (eSIM) that is pre-connected to selected global mobile networks.

If you already have an AirVantage+Connectivity account, skip ahead to OEM Platform Integration Design Guidelines on page 6.

1.1 Creating an AirVantage+Connectivity Account

AirVantage provides two connectivity management account ('company') types:

- AirVantage+Connectivity (AVC)—For R2C module device and SIM management.
- Connectivity Only (CONNECTIVITY)—For SIM management only.

To learn more about R2C modules and AirVantage+Connectivity, visit www.sierrawireless.com/readytoconnect/.

To manage your R2C modules, you must have an AVC account, which is necessary for enabling the module's connectivity.

To obtain an AVC account:

1. Contact your Sierra Wireless sales representative or service Sales Agent to begin the "onboarding" process.
2. Complete and submit the R2C Trial Agreement provided by your representative.

Note: If you already have a CONNECTIVITY account, your representative can convert it to an AVC account to manage both your new R2C modules and your existing Smart SIM inventory, or a separate AVC account can be created for only the modules.

Your account will be created (but not activated) and your modules (trial sample units or new units purchased through your representative) are pre-loaded in the account with a system state of "Inventory".

In AirVantage, R2C modules and physical SIM cards are referred to as "systems".

Your account information will arrive within 2–3 business days (typically) via a no-reply email.

3. Follow the email instructions to connect to the AirVantage server (instance) specified in the email and log in to your AVC account.
4. Complete the account onboarding process.

Important: *If an R2C module is powered up before being activated in AirVantage (system is still in "Inventory" state), it will attach to a network, but no service (data, voice, SMS) will be available. Once the module is activated, it can obtain service and (for trial modules) the trial period begins.*

Refer to the sections below for integration design guidelines and module activation processes.

1.2 OEM Platform Integration Design Guidelines

To facilitate integration and proper operation of R2C modules in an OEM host platform (application), integrators must be aware of and follow the integration guidelines described in this section.

Note: These guidelines describe AT commands that may be entered manually or programmatically. For AT command details, refer to the module-specific AT command reference documents indicated in *AT Command References on page 26.*
Although some actions can be performed using Legato APIs (not described), some must be done with AT commands. Legato-based customers should make sure to become familiar with how to send AT commands from the Legato AT port (accessed using "microcom -E /dev/ttyAT).

1.2.1 Hardware Integration Guidelines

1.2.1.1 External SIM Interface

R2C modules support dual SIM interfaces:

- (Default interface)
  External SIM:
  - HL78—SIM1
  - WP76/WP77—UIM1
- Embedded SIM (eSIM):
  - HL78—SIM3
  - WP76/WP77—UIM2

An "External" SIM is a SIM that is not built into the module.

The following requirements and recommendations apply to Dual SIM hardware support:

- **Requirement: SIM Detect—**The module's SIM detect line **must** be connected in the host platform for the module's SIM switching functionality to perform properly.

  The SIM detect line indicates whether an external SIM is present. By default, the module is configured for "automatic SIM switching"—it uses an external SIM if present, otherwise it switches automatically to the eSIM.

Table 1-1: AT Command Support—External SIM Integration[a]

Action	Module	AT Command
Enable SIM Detection line	HL78	AT+KSIMDET=1
	WP76, WP77	n/a
Enable automatic SIM switching	HL78	AT+KCARRIERCFG=15 *Note: This command sets the carrier to Sierra Wireless (required for eSIM use) and enables automatic SIM switching.*
	WP76, WP77	1. AT!UIMS=3 *(enable auto-switching)* 2. AT!CUSTOM="UIMAUTOSWITCH",1 *(extern. SIM preferred)* *or* AT!CUSTOM="UIMAUTOSWITCH",2 *(eSIM preferred)* *Note: If only using the eSIM, auto-switching is not required, but the eSIM must be selected as the active interface:* *1. AT!CUSTOM="UIMAUTOSWITCH",0* *2. AT!UIMS=1*

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

- **Recommendation:** Bring out the external SIM interface to a SIM holder to support the use of a "test SIM", which is used with an LTE call box during certification or development testing. This SIM holder could be depopulated, if desired, during customer volume production.
- **Recommendation:** For best performance, follow the module's design guidelines for external SIM interface implementation (signal details, schematics, suggested trace lengths, etc.). For details, refer to the module's Product Technical Specification listed in Product Technical Specifications on page 26.

Note: If the application is not intended to support Dual SIMs (no external SIM hardware, or the module is SKU-configured to use the eSIM only):

• HL78—The SIM detect line (UIM1_DET) is available for customer use as a regular GPIO (GPIO3) via the +KGPIO AT command.

• WP76/WP77—The SIM detect line should be left floating.

1.2.2 Software Integration Guidelines

R2C modules are factory-configured for proper eSIM operation. When designing host application software, the eSIM-related configurations must be protected (or restored) to ensure the eSIM functions properly. The design should also consider connectivity issues linked to network environment that could affect the module's performance.

The host application software should address the following requirements and recommendations for the module to be able to use its eSIM:

- **Requirement: APN—**The module must be configured with the factory-default APN to enable the eSIM to connect to the Sierra Wireless network.

If the application has changed the APN to use an external SIM, it must switch the APN back to the factory default before the eSIM can be used.

Factory default APNs are module category dependent:

- LPWA modules (HL78xx, WP77xx)—lp.fota.swir
- Other LTE modules (WP76xx)—fota.swir

Table 1-2: AT Command Support—APNs

Action	Module	AT Command[a]

Check/set APN	All	• Check: AT+CGDCONT?
		• Set:
		  - LPWA: AT+CGDCONT=1,"IP","lp.fota.swir"
		  - Other LTE: AT+CGDCONT=1,"IP","fota.swir"

a. For details, refer to the module's guide listed in AT Command References on page 26.

- **Requirement: Operator (network) selection mode**—The module must be configured to operate in automatic operator (network) selection mode. (This is the factory-configured default.)

  If the application has changed the selection mode, it must switch back to automatic network selection mode before the eSIM can be used.

Table 1-3: AT Command Support—Operator Selection Mode[a]

Action	Module	AT Command
Check/set operator selection mode to automatic	All	• Check: AT+COPS? • Set: AT+COPS=0

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

- **Requirement: SIM Application Toolkit (STK)**—The STK must be active on the module. (This is the factory-configured default.)

  If the application has deactivated the STK, it must reactivate it before the eSIM can be used.

Table 1-4: AT Command Support—STK[a]

Action	Module	AT Command
Check/set STK mode	HL78	n/a
	WP76, WP77	• Check: AT*PSSTKI? • Set: AT*PSSTKI=3

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

- **Requirement: GPRS/Packet data auto-attachment mode—**This mode must be active on the module. (This is the factory-configured default.)

  If the application has deactivated auto-attachment mode, it must reactivate it before the eSIM can be used.

Table 1-5: AT Command Support—Attachment Mode[a]

Action	Module	AT Command
Check/set GPRS auto-attachment mode	All	• Check: AT+CGATT? • Set: AT+CGATT=1

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

- **Recommendation: Power saving mode—**Modules that support PSM and eDRX power-saving modes can only enter these modes if they are supported by the servicing network. This should be considered in the host application software design.

Important: *Host application software using on-board Legato apps that affect the software considerations above (e.g. APN, operator selection mode) must ensure the factory-default configurations are restored by the Legato app or by the host software application before the eSIM can be used.*

1.3 Activating R2C Modules During Module Development or Deployment

Before an R2C module can establish a functioning network connection, AirVantage is used to send an activation operation, and then the module must power up to receive and process it.

Note: Module activation is a one-time only requirement—once activated, a module remains activated until it is deactivated through AirVantage.

The activation procedure varies depending on when the module is to be activated, and on any module SKU variations. Suggested processes are described below for activation on the OEM's test bench (product development stage), at the OEM factory during platform assembly/production, and in the field during device deployment.

Note: The procedures in this section describe suggested activation procedures, with direct user access to the AirVantage account. Developers may choose to use the AirVantage Web API (https://source.sierrawireless.com/airvantage/avc/reference/cloud/API/) to implement these procedures programmatically, rather than requiring direct user access to the account.

1.3.1 Test Bench (Product Development) Activation

To use R2C modules on the test bench during product development, modules must be connected to a test platform (e.g. development kit, OEM test platform, etc.) that provides access to the module's AT interface.

Until a module is activated via AirVantage, its eSIM cannot be used for network connections. However, the module can be used with an active external SIM.

Note: The procedure below uses AT command details. For details, refer to the module-specific guides listed in AT Command References on page 26.

Important: *If a module is powered up before being activated in AirVantage, it will report that it is attached to a network. However, no service (data, voice, SMS) will be available because the module still must be activated in AirVantage.*

To activate an R2C module on the test bench:

1. Install the module in a test platform (development kit, OEM test platform, etc.).
2. Make sure the platform does not have an external SIM installed. (This ensures automatic SIM switching will use the eSIM.)
3. Power up the platform and connect to the module's AT interface (e.g. via TeraTerm, Linux Terminal, etc.).
4. Get the module's IMEI—Use the +CGSN AT command to display it.

Action	Module	AT Command[a]
Display IMEI	All	AT+CGSN

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

5. The module is factory-configured for proper eSIM operation. If the configuration has been changed or if there are any issues with the module, re-configure the module for activation:
   a. (HL78xx) Enable external SIM detection—Use the +KSIMDET AT command to enable SIM detection.

Action	Module	AT Command[a]
Enable external SIM detection	HL78	AT+KSIMDET=1

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

   b. Enable automatic SIM switching:
      - HL78xx module—Use the +KCARRIERCFG AT command to enable automatic SIM switching and to set the carrier to Sierra Wireless.

(+KSIMSEL=20 can be used to enable automatic SIM switching, but does *not* set the carrier (which is required to be Sierra Wireless).)

- WP76xx/WP77xx modules—Use the !CUSTOM="UIMAUTOSWITCH" AT command to enable automatic SIM switching with either the external SIM or eSIM as the preferred (first choice) SIM, and the !UIMS AT command to enable automatic SIM switching.

Action	Module	AT Command[a]
Enable automatic SIM switching	HL78	AT+KCARRIERCFG=15 *Note: This command also sets the carrier to Sierra Wireless (required for eSIM use).*
	WP76, WP77	1. AT!UIMS=3 *(enable auto-switching)* 2. AT!CUSTOM="UIMAUTOSWITCH",1 *(extern. SIM preferred)* *or* AT!CUSTOM="UIMAUTOSWITCH",2 *(eSIM preferred)* *Note: If only using the eSIM, auto-switching is not required, but the eSIM must be selected as the active interface:* *1. AT!CUSTOM="UIMAUTOSWITCH",0* *2. AT!UIMS=1*

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

c. Enable automatic operator selection mode—Use the +COPS AT command to check or set the operating selection mode to automatic.

Action	Module	AT Command[a]
Check/set operator selection mode to automatic	All	• Check: AT+COPS? • Set: AT+COPS=0

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

d. (WP76xx/WP77xx) Activate the SIM toolkit (STK)—Use the *PSSTKI AT command to check or activate the STK.

Action	Module	AT Command[a]
Check/set STK mode	WP76, WP77	• Check: AT*PSSTKI? • Set: AT*PSSTKI=3

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

e. Activate GPRS/Packet data auto-attachment mode—Use the +CGATT AT command to check or activate the mode.

Action	Module	AT Command[a]
Check/set GPRS auto-attachment mode	All	• Check: AT+CGATT? • Set: AT+CGATT=1

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

f. Set the eSIM's APN to the factory default value—Use the +CGDCONT AT command to display or set the APN.

The factory default APN is required to successfully attach to the Sierra network

Important: *Factory default APNs:*
- *LPWA modules (HL78xx, WP77xx): lp.fota.swir*
- *Other LTE modules (WP76xx): fota.swir*

Action	Module	AT Command[a]

Check/set APN	All	• Check: AT+CGDCONT?
		• Set:
		  ◦ LPWA: AT+CGDCONT=1,"IP","lp.fota.swir"
		  ◦ Other LTE: AT+CGDCONT=1,"IP","fota.swir"

a. For additional details, refer to the module's guide listed in AT Command References on page 26.

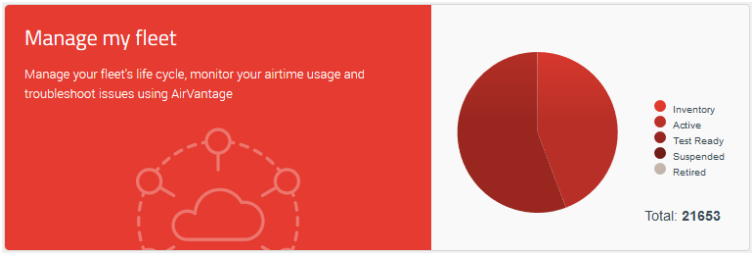
g. (HL78xx) Reset the module (power off and on) to apply the configuration changes.

WP modules do not require a reset.

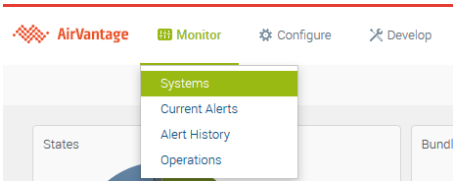
6. Activate the module in AirVantage:

a. Log in to your AirVantage account (https://eu.airvantage.net/accounts).

b. Click Manage my fleet.

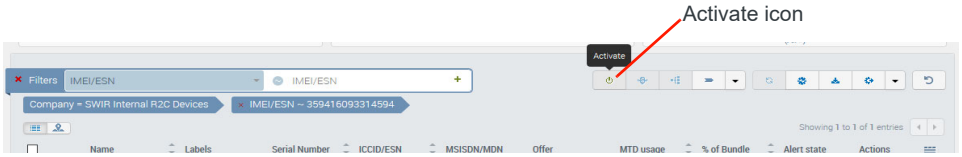


c. Select Monitor > Systems.



d. In the Filters section, select IMEI/ESN, enter the module's IMEI and then press Enter (or click the "+" icon) to find the module.

e. Select the module and click the Activate icon.

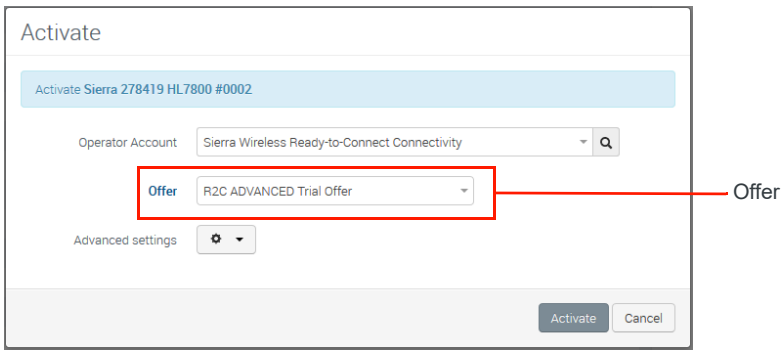


An 'Activate' dialog will appear.

f. If the Activate window includes an 'Offer' field, select the offer that includes "R2C", "Connectivity", or "Trial Offer" (which provides full device management and SIM management services).

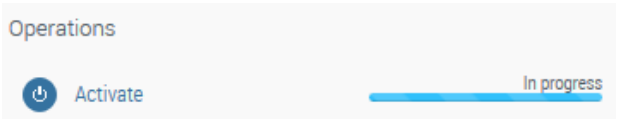
For example, "Sierra Wireless LPWA Connectivity Trial Offer", "Sierra Wireless R2C Trial Offer", etc.

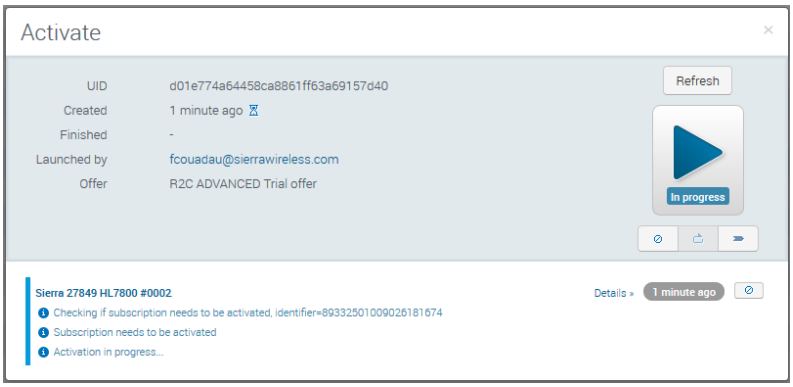
Important: *The Offer field appears only if the AirVantage account includes R2C modules **and** SIMs. Do **not** select the Sierra Wireless Device Management offer—it does not provide R2C management services.*



g. Click Activate.

A module activation operation is created and added to the Operations list with a status of "In Progress". (To view the operation details, click the Activate link in the Operations widget, or click the operation in Monitor > Operations.)





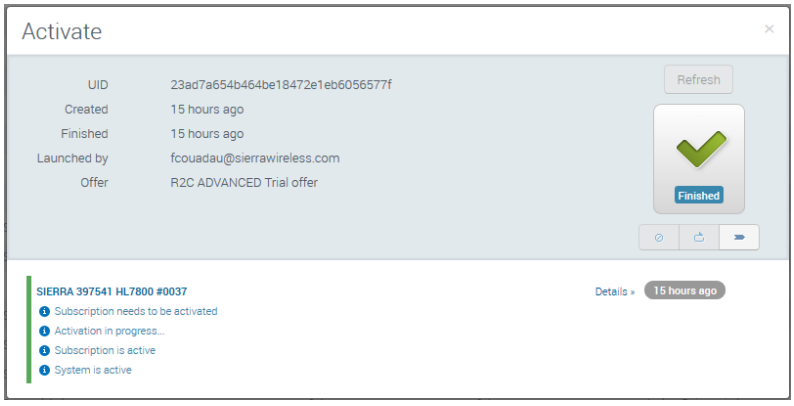
Important: *The operation status stays as "In Progress" until the module completes its activation—the module **must** power on and connect within 7 days otherwise the operation expires and the activation must be restarted from the AirVantage account.*

7. If the module is currently off, power it on.
8. The module receives and applies the AirVantage activation operation—this process typically takes up to 15 minutes to complete.

Important: *While the module is activating, it will show that it attaches to a network, detaches, and attaches again—this is normal behavior. **DO NOT** interrupt the activation or power cycle the module, otherwise the activation process will have to restart the next time the module powers up.*

If the activation operation:

- Succeeds—The operation status changes to "Finished" with a green checkmark and the module's AirVantage state changes to "Active". The module is now activated and can connect to the best available supported network.



- Fails—The operation status changes to "Finished" with a red checkmark, and the module's AirVantage state remains as "Inventory".

  To check the failure reason and restart the operation:

  i. In the Operations widget or in Monitor > Operations, click the module to display the error condition that caused the failure.

  ii. If the error indicates an issue that you can fix, do so.

iii. Restart the activation operation—click the circular arrow icon below the checkmark.

iv. If the operation fails again, contact Sierra Wireless support with the error message.

1.3.2 Factory Production Activation

Modules in host platforms can be activated during OEM factory production (systems are sent out with "hot" (active) subscriptions), or during field deployment (systems are sent without active subscriptions).

Important: *To send devices out "hot", each device must be up and running on the assembly line for ~15 minutes (or possibly longer, for devices that support global bands) to process its AirVantage activation.*

OEM factory production will typically include two phases related to R2C modules:

- Assembly—Module is installed in the host platform.
- Power test—Assembled platform is powered up.
- Activation—AirVantage sends activation operations to selected modules, and the modules process the activations when they are powered on.

R2C modules are factory-configured to allow the eSIM to receive AirVantage activations and should not require additional configuration in the OEM factory.

Important: *If an R2C module is powered up before it is activated in AirVantage, it will attach to a network. However, no service (data, voice, SMS) will be available because the module still needs to be activated on the Sierra network.*

1.3.2.1 Prepare platforms during assembly for activation

All platforms must be prepared during production for R2C module activation, whether or not they will be sent out "hot".

To prepare the platforms:

1. Assemble host platforms with unactivated ("Inventory") R2C modules.
2. For each platform, associate the module's IMEI with the assembled platform. For example, include the IMEI on a label on the platform, include in printed materials,

include in an internal tracking system, etc.). The IMEI will be needed to activate the module.

3. Make sure the platform does not have an external SIM installed. (This ensures automatic SIM switching will use the eSIM, enabling the module to receive an AirVantage activation.)
4. For systems that are to be sent out "hot":
   a. Send activations from AirVantage to each module. The activations will be received by the modules when they are powered on.

      Depending on your assembly process:
      - Send separate activations for each module—Send Single R2C Module AirVantage Activation.

        or

        Send a bulk activation for any number of modules—Send Multiple R2C Module AirVantage Activations.
      - Power on the host platforms before or after sending the activations—the activations process whenever they are received by the modules.

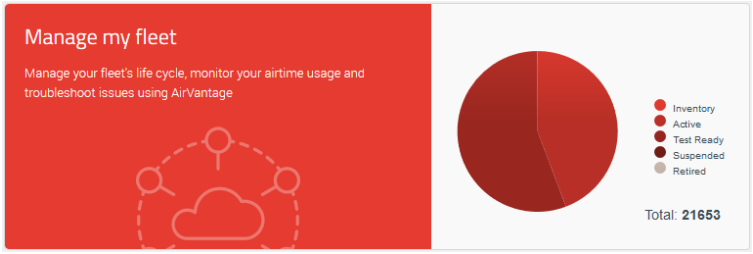
   b. Monitor each module's activation status to make sure they successfully activate—Monitor R2C Module Activation Status.

1.3.2.2 Send Single R2C Module AirVantage Activation

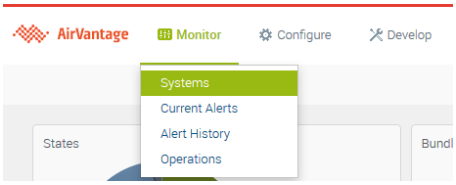
To activate a single module through AirVantage:

a. Log in to your AirVantage account (https://eu.airvantage.net/accounts).

b. Click Manage my fleet.

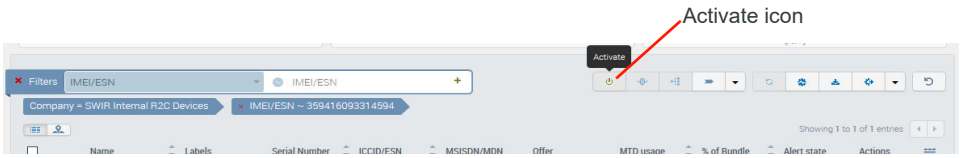


c. Select Monitor > Systems.



d. In the Filters section, select IMEI/ESN, enter the module's IMEI and then press Enter (or click the "+" icon) to find the module.

e. Select the module and click the Activate icon.

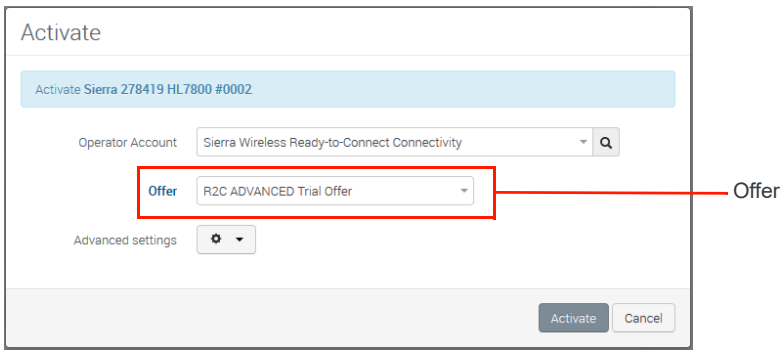


An 'Activate' dialog will appear.

f. If the Activate window includes an 'Offer' field, select the offer that includes "R2C", "Connectivity", or "Trial Offer" (which provides full device management and SIM management services).

For example, "Sierra Wireless LPWA Connectivity Trial Offer", "Sierra Wireless R2C Trial Offer", etc.

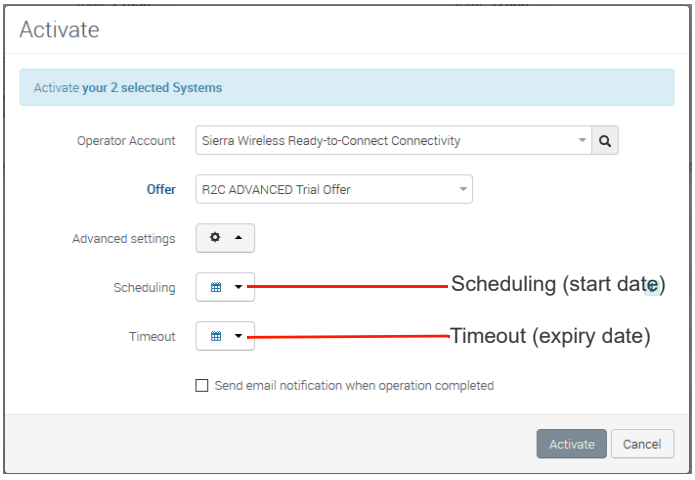
Important: *The Offer field appears only if the AirVantage account includes R2C modules **and** SIMs. Do **not** select the Sierra Wireless Device Management offer—it does not provide R2C management services.*



g. By default, the activation will be created and launched when this dialog is completed. To launch the activation later and/or to set a timeout period:

i. Click the Advanced settings icon.

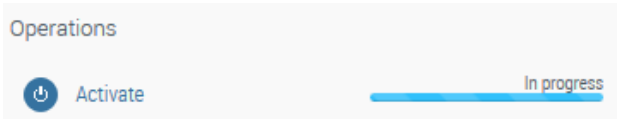
ii. To set the activation start date, click the Scheduling icon and select a start date up to 3 months in the future.

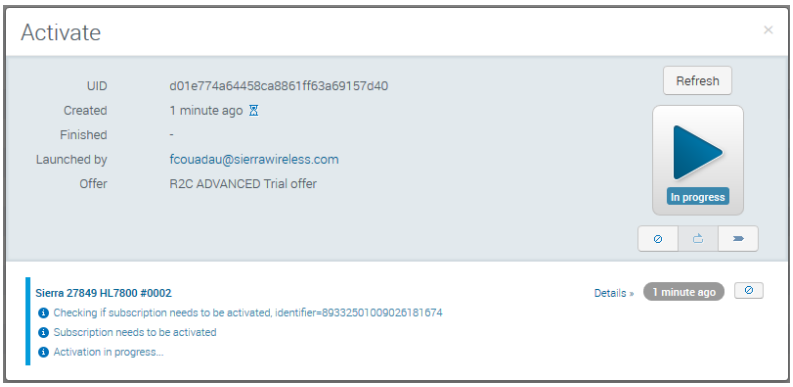


iii. To set the timeout date, click the Timeout icon and select a date up to 7 days from the start date. (By default, the activation will time out 7 days after it starts.)

h. Click Activate.

A module activation operation is created and added to the Operations list with a status of "In Progress". (To view the operation details, click the Activate link in the Operations widget, or click the operation in Monitor > Operations.)





Important: *The operation status stays as "In Progress" until the module completes its activation. The module **must** power on and connect between the operation's start ("Scheduling") date and end ("Timeout") date, otherwise the operation expires and the activation must be restarted from the AirVantage account. (The start date is when the operation is created and the end date is 7 days later, unless customized in step g above.)*

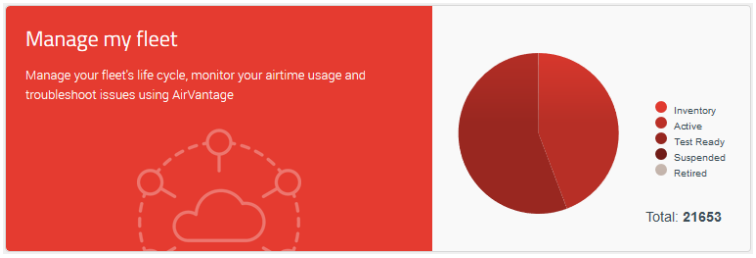
5. The module will receive the AirVantage activation when it is powered on and automatically process it—this typically takes up to 15 minutes to complete.

1.3.2.3 Send Multiple R2C Module AirVantage Activations

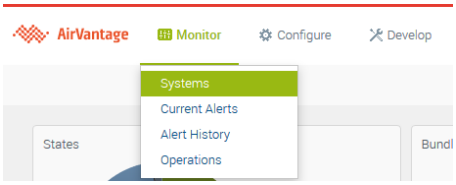
To activate multiple R2C modules (no limit) through AirVantage:

a. Log in to your AirVantage account (https://eu.airvantage.net/accounts).

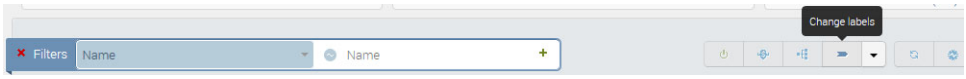
b. Click Manage my fleet.



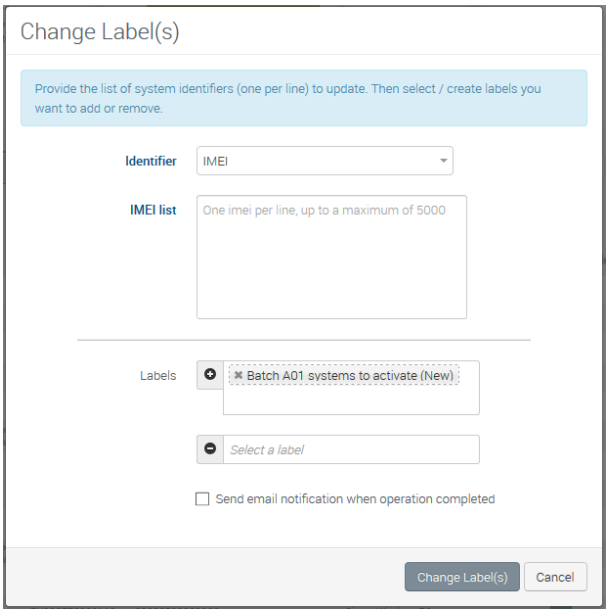
c. Select Monitor > Systems.



d. Click Change Labels.



e. In the Change Label(s) dialog box that appears, select the Identifier to use (e.g. IMEI).



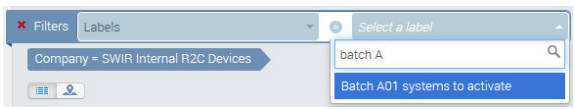
f. Paste the list of IMEIs to activate in the Names box (one IMEI per line, maximum 5000 IMEIs).

g. In the Labels + field, enter a short description (e.g. "Batch A01 systems to activate").

h. Click Change Label(s) to create an operation that applies the label to all the modules from the Names box.

i. To add more identifiers to the list, repeat steps d–h, using the same label each time in step g.

j. In the Filters section, select Labels and enter the label you applied, then press Enter (or click the "+" icon) to find the all the modules (systems) with that label.



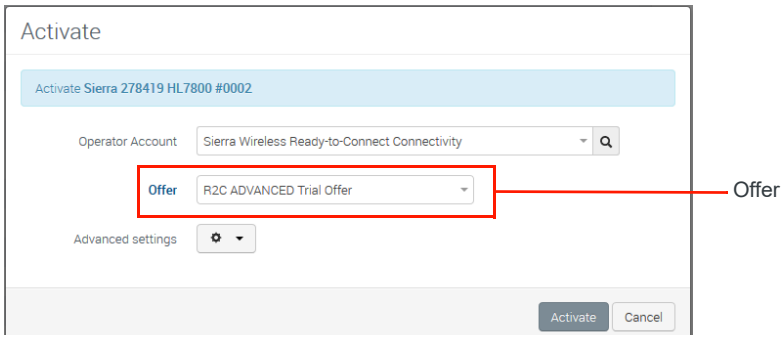
k. Select the box at the top of the list to select all the modules and click Activate.

An Activate dialog will appear.

l. If the Activate window includes an 'Offer' field, select the offer that includes "R2C", "Connectivity", or "Trial Offer" (which provides full device management and SIM management services).

For example, "Sierra Wireless LPWA Connectivity Trial Offer", "Sierra Wireless R2C Trial Offer", etc.

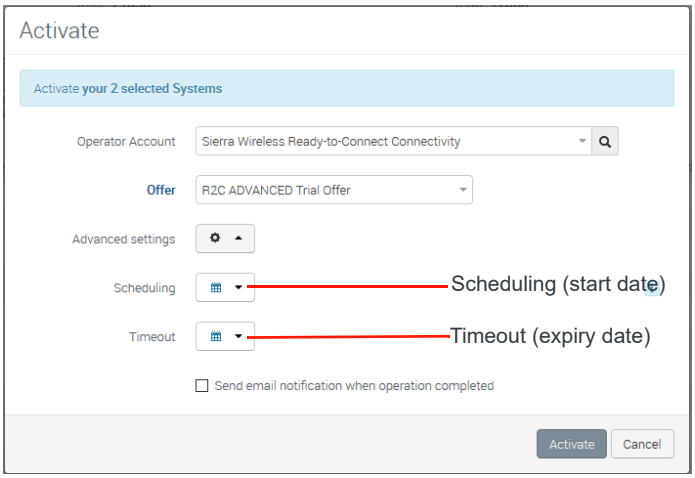
Important: *The Offer field appears only if the AirVantage account includes R2C modules **and** SIMs. Do **not** select the Sierra Wireless Device Management offer—it does not provide R2C management services.*



m. By default, the activation operation will be created and launched when this dialog is completed. To launch the activation later and/or to set a timeout period:

i. Click the Advanced settings icon.

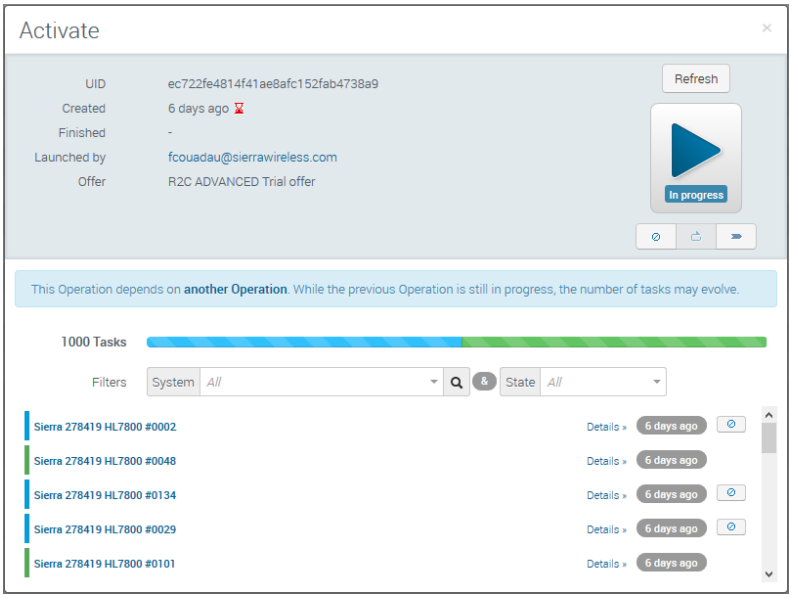
ii. To set the activation start date, click the Scheduling icon and select a start date up to 3 months in the future.



iii. To set the timeout date, click the Timeout icon and select a date up to 7 days from the start date. (By default, the activation will time out 7 days after it starts.)

n. Click Activate.

A module activation operation is created and added to the Operations list with a status of "In Progress". Each individual module activation in the batch is added to the operation as a "Task", shown in blue to indicate it is in progress.



Important: *Tasks are shown in:*

- *Blue—In progress (until corresponding module is fully activated or fails)*
- *Green—Success*
- *Red—Failed*

*The overall operation status remains "In Progress" until all the tasks finish (success or failed) completes its activation. All the modules **must** power on and connect within 7 days otherwise the operation expires and the activation must be restarted from the AirVantage account.*

Note: If the batch includes incompatible units (e.g. if some plastic SIMs were included), the individual tasks for those units will fail.

6. The modules receive their AirVantage activations when they are powered on and automatically process them—this typically takes up to 15 minutes to complete for each module.

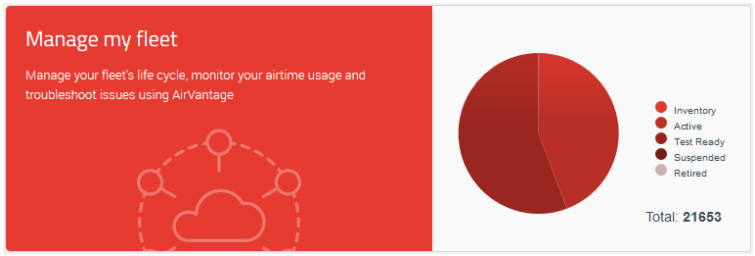
1.3.2.4 Monitor R2C Module Activation Status

To make sure an R2C module successfully activates after receiving an AirVantage activation operation, monitor the operation status in AirVantage.

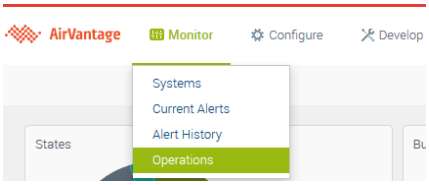
Important: *While a module is activating, it will attach to a network, detach, and attach again—this is normal behavior.* ***DO NOT*** *interrupt the activation or power cycle the module, otherwise the activation process will have to restart the next time the module powers up.*

To monitor a module's activation status:

1. Log in to your AirVantage account (https://eu.airvantage.net/accounts).
2. Click Manage my fleet.



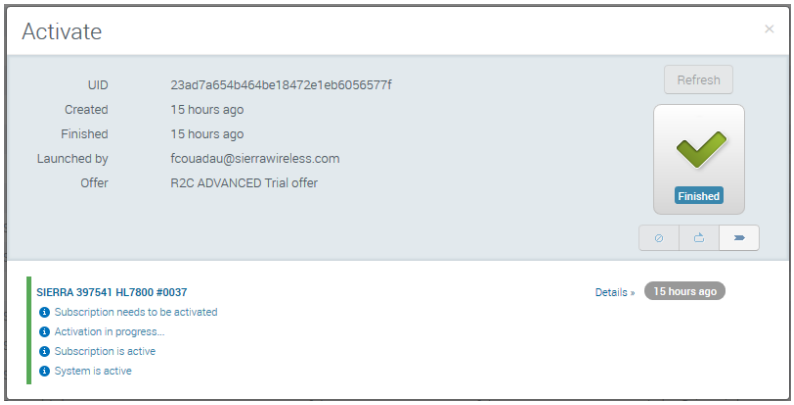
3. Select Monitor > Operations.



4. Find your activation operation in the list (use the Filter if needed) to check the activation operation status.

   If the activation operation:

   - Succeeds—The operation status changes to "Finished" with a green checkmark and the module's AirVantage state changes to "Active". The module is now activated and can connect to the best available supported network.



- Fails—The operation status changes to "Finished" with a red checkmark, and the module's AirVantage state remains as "Inventory".

  To check the failure reason and restart the operation:

  i. In the Operations widget or in Monitor > Operations, click the module to display the error condition that caused the failure.

  ii. If the error indicates an issue that you can fix, do so.

  iii. Restart the activation operation—click the circular arrow icon below the checkmark.

  iv. If the operation fails again, contact Sierra Wireless support with the error message.

1.3.3 Field Deployment Activation

Host platforms can be deployed with their R2C modules "hot" (with active subscriptions as described in Factory Production Activation) or without active subscriptions.

To deploy platforms without active subscriptions:

1. Assemble the platform in the factory without live connectivity testing, and ship it for field deployment.
2. Activate the platform(s) through AirVantage.

   Depending on your deployment routine:

   - Activate a single module prior to deployment, or in the field during deployment—Send Single R2C Module AirVantage Activation.

     or

   - Send a bulk activation for multiple platforms before deployment—Send Multiple R2C Module AirVantage Activations.

Important: *The activation operation status stays as "In Progress" until the module completes its activation. The module **must** power on and connect between the operation's start date and end date, otherwise the operation expires and the activation must be restarted from the AirVantage account. (The start date is when the operation is created and the end date is 7 days later, unless customized while creating it.)*

3. Make sure the platform does not have an external SIM installed. (This ensures automatic SIM switching will use the eSIM, enabling the module to receive an AirVantage activation.)

4. Power on the platform in the field (before or after sending the activations). The AirVantage activation operation processes when it is received by the module.

Important: *If the OEM device is powered up before it is activated in AirVantage, it will attach to a network. However, no service of any type (data, voice, SMS) will be available because the module still needs to be activated.*

5. Monitor the module's activation operation status to make sure it successfully activates—Monitor R2C Module Activation Status.

2: Glossary

Table 2-1: Terminology

Term	Definition
SIM	SIM hardware—Physical SIM in supported form factors (2FF, 3FF, 4FF, MFF2, DFN6)
eSIM	Embedded SIM—A SIM that cannot be removed. Typically a soldered-down MFF2 SIM or DFN6 eSIM.
eUICC	Embedded software on a SIM/eSIM that allows operator profile exchanges to happen.
Sierra Wireless Smart SIM	SIM pre-provisioned with multiple MNO profiles that dynamically adapts to network conditions, moving to the best available network. Provisioning available on regional or worldwide basis. Available with eUICC support.
R2C (Ready-to-Connect)	Sierra Wireless cellular modules and routers that include an embedded Smart SIM, have built-in security, and are natively managed via the AirVantage IoT platform.
AirVantage Connectivity	Cloud-based management services for SIM and cellular module management.
UIM1	External SIM interface
UIM2	eSIM interface
onboard/ onboarding	AirVantage Connectivity management account creation and active process
host application	The host platform on which an R2C module is integrated.

3: References

The following references relating to R2C modules are available at source.sierrawireless.com.

3.1 Product Technical Specifications

[1] AirPrime WP76xx Product Technical Specification (Doc #4119652)

[2] AirPrime WP7700/WP7702 Product Technical Specification (Doc #41111420)

[3] AirPrime HL7800 and HL7800-M Product Technical Specification (Doc #41111094)

3.2 AT Command References

[4] AirPrime HL78xx AT Commands Interface Guide (Doc #41111821)

[5] AirPrime WP8548/WP75xx/WP76xx/WP77xx AT Command Reference (Doc #4118047)