



TQ1402 and TQm1402 Wireless Access Points Version 6.0.1-7.1 Software Release Notes

Please read this document before using the management software. Listed here are the document sections:

- “Supported Platforms,” next
- “Supported Countries” on page 2
- “Default Radio1 and Radio2 Settings” on page 3
- “New Features in Version 6.0.1-7.1” on page 5
- “Issues and Operational Notes” on page 6
- “Undocumented Features” on page 8
- “Contacting Allied Telesis” on page 29

Supported Platforms

The following wireless access points support Version 6.0.1-7.1:

- TQ1402
- TQm1402

Instructions for upgrading the management software are in the *TQ1402 Series Wireless Access Points Management Software User’s Guide*, available from the Allied Telesis Inc. web site at www.alliedtelesis.com/us/en/services-support.

The firmware filenames are listed here:

- AT-TQ1402-6.0.1-7.1.img
- AT-TQm1402-6.0.1-7.1.img

Supported Countries

The TQ1402 and TQm1402 Wireless Access Points are supported in the countries listed in Table 1. The table includes the firmware versions that first supported the countries.

Table 1: Supported Countries for the TQ1402 and TQm1402 Wireless Access Points

Country	TQ1402	TQm1402
Australia	v6.0.0-0.2	v6.0.0-0.2
European Union	v6.0.0-0.2	v6.0.0-0.2
Hong Kong	v6.0.0-0.3	v6.0.0-0.3
India	v6.0.0-0.3	v6.0.0-0.3
Japan	v6.0.0-0.2	v6.0.0-0.2
Korea	v6.0.0-0.3	v6.0.0-0.3
Malaysia	v6.0.0-0.3	v6.0.0-0.3
New Zealand	v6.0.0-0.2	v6.0.0-0.2
Singapore	v6.0.0-0.3	v6.0.0-0.3
Taiwan	v6.0.0-0.3	v6.0.0-0.3
Thailand	v6.0.0-0.3	v6.0.0-0.3
United States	v6.0.0-0.2	v6.0.0-0.2
Vietnam	v6.0.0-0.3	v6.0.0-0.3

Note

The wireless access points support Dynamic Frequency Selection (DFS) on 5GHz channels that countries or regions have designated as DFS channels.

Default Radio1 and Radio2 Settings

The following tables list the v6.0.1-7.1 default settings for AWC Smart Cluster, Radio1, and Radio2. The tables apply to new units from Allied Telesis or units restored to their default settings. The tables do not apply to units upgraded to v6.0.1-7.1. The latter retain their previous settings.

Table 2 lists the default settings for AWC Smart Cluster on the TQ1402 access point. (The TQm1402 access point does not support AWC Smart Cluster.) For background information, refer to “AWC Smart Cluster (AWC-SCL)” on page 19.

Table 2: AWC Smart Cluster Default Settings

Parameter	Setting
Status	Enabled
Cluster Name	default-cluster

Table 3 lists the default settings for Radio1 (2.4GHz).

Table 3: Radio1 (2.4GHz) Basic Default Settings

Parameter	Setting
Radio	
Status	Enabled
Operational Mode	IEEE 802.11b/g/n
VAP Mode	Cell Type (not adjustable)
Channel	Auto
Bandwidth	20 MHz
Transmission Power	Max
VAP0	
Status	Enabled
Mode	Access Point
SSID	Allied- <i>nnnnnnnn</i> (Based on access point's MAC address.)
VLAN ID	1
Security Mode	WPA Personal
WPA Version	WPA2 and WPA3
Cipher Suite	CCMP

Table 3: Radio1 (2.4GHz) Basic Default Settings (Continued)

Parameter	Setting
Cipher Suite Key	(Based on access point's MAC address.)
IEEE802.11w (MFP)	Capable
VAP1 to VAP7	
Status	Disabled
Mode	Access Point
SSID	Virtual Access Point #
VLAN ID	1
Security Mode	None

Table 4 lists the default settings for Radio2 (5GHz)

Table 4: Radio2 (5GHz) Basic Default Settings

Parameter	Setting
Radio	
Status	Enabled
Operational Mode	IEEE 802.11a/n/ac
VAP Mode - TQ1402	Single Channel Type
VAP Mode - TQm1402	Cell Type (not adjustable)
Channel - TQ1402	36 (5180 MHz)
Channel - TQm1402	Auto
Bandwidth	20 MHz
Transmission Power	Max
VAP0	
Status	Enabled
Mode	Access Point
SSID	Allied-nnnnnnnn (Based on access point's MAC address.)
VLAN ID	1
Security Mode	WPA Personal
WPA Version	WPA2

Table 4: Radio2 (5GHz) Basic Default Settings (Continued)

Parameter	Setting
Cipher Suite	CCMP
Cipher Suite Key	(Based on access point's MAC address.)
IEEE802.11w (MFP)	Disabled
Broadcast Key Refresh Rate	0
VAP1 to VAP7	
Status	Disabled
Mode	Access Point
SSID	Virtual Access Point #
VLAN ID	1
Security Mode	None

New Features in Version 6.0.1-7.1

AWC Smart Cluster (AWC-SCL)

AWC Smart Cluster (AWC-SCL) lets you configure up to five TQ1402 wireless access points as a single unit by logically grouping them together. Configuration changes made to any of the access points in a cluster are automatically transmitted to the other access points over the wired LAN. This simplifies management by letting you manage up to five access points as a group rather than individually. Refer to “AWC Smart Cluster (AWC-SCL)” on page 19. The TQm1402 access point does not support this feature.

Single Channel Type on 5GHz Radio2 Radios on TQ1402 Access Points

The 5GHz Radio2 on the TQ1402 access point has a new mode called Single Channel Type. It allows access points and wireless clients in the AWC Smart Cluster to use the same channel when signals overlap. Single Channel Type can improve wireless performance for roaming clients. Refer to “Cell Type and Single Channel Type Radio Modes” on page 28. The TQm1402 access point does not support this feature.

CSV Files for the MAC Address Filter

This release lets you download a CSV file with client MAC addresses to the MAC address filter on the access point. This simplifies the task of adding the same MAC addresses to multiple access points as well as restoring lists to replacement devices. Rather than entering the MAC addresses individually to the MAC address filters on the access points, you can add them to a CSV file and then download the file to as many access points as needed. To download a file, click the Import from CSV button in the Settings > MAC Address List window.

Associated Clients Window

The Monitoring > Associated Client window now includes the total number of associated clients as well as their IPv4 addresses and, when possible, NetBIOS names.

MAC Access Control Selection

The MAC Filtering menu selection has been moved and renamed. In previous versions it was in the Virtual Access Point tab. It is now a separate tab in the VAP/Security window. Its new title is MAC Access Control.

Captive Portal Menu Selection

The Captive Portal menu selection has been moved. In previous versions it was an option in the Virtual Access Point tab. It is now a separate tab in the VAP/Security window.

Issues and Operational Notes

Resolved Issues

- Access points did not validate the format of static IP addresses.
- Access points added unnecessary folders in memory when storing Technical Support files.
- Access points delayed their responses to queries from SNMP managers to the Bridge MIB.
- Access points did not register the IP addresses of wireless clients from ARP responses.
- MAC address filtering worked incorrectly when the MAC address list was empty.
- Roaming wireless clients could not connect to dynamic VLANs on access points that supported VLANs 802.11r fast roaming.
- The web browser interface displayed the copyright label incorrectly.
- The Neighbor AP Detection feature was not reliable on access points that used DHCP Option 43 and that did not use the AWC plug-in.
- Fixed security vulnerabilities (CVE-2018-19630).
- The Dynamic VLAN feature in WPA Enterprise security accessed memory incorrectly.
- WPA3 Enterprise included CCMP as a valid cipher suit. This is changed to GCMP.
- Requesting the Bridge MIB with Dynamic VLAN enabled caused SNMP to freeze.
- In rare cases, firmware updates of access points from the AWC plug-in failed.
- Link up/down traps used wrong OIDs.
- SSIDs that had the "/" character were displayed incorrectly by the AWC plug-in.
- Access points stopped transmitting broadcast frames on the radios if they received frames with incorrect LLC headers on the LAN port.
- The System LED and NTP stopped functioning when the access point detected or resolved VAP configuration mismatches.
- In rare cases, the access point did not enter event messages in the system log after receiving duplicate authentication requests.

- ❑ The client inactivity timer did not work correctly with WPA3 Personal.
- ❑ WPA3 did not work correctly on VAP0 when configured with the AWC plug-in.

Known Issues

- ❑ Access points do not synchronize Hostname and SNMP System Name.
- ❑ Access points do not always save new values in the Secondary RADIUS Server Key value.
- ❑ Access points might disconnect inactive clients several seconds before the Inactivity Timer expires.
- ❑ Do not disconnect clients on WDS children using the Associated Client window in the web browser interface. The results may be unpredictable.
- ❑ In rare instances, the hardware and software tables may develop inconsistencies that can cause access points to reset. This is entered in the log as “kernel: Rebooting due to DMA error recovery.”
- ❑ Radio1 supports up to 117 wireless clients when seven VAPs are set to WPA Personal.
- ❑ Access points in Single Channel mode generated extraneous “Removing STA due to association advertisements” event messages in the system log. (TQ1402 only.)
- ❑ Access points in Single Channel mode generated client disassociated event messages in the system log that did not have action codes. (TQ1402 only.)
- ❑ The System LED did not correctly reflect a change to the enabled or disabled status of the AWC-SCL feature. (TQ1402 only.)

Operational Notes

- ❑ The access point does not support LLDP on its Ethernet LAN port.
- ❑ This version does not support the OpenFlow protocol. The OpenFlow tab and window in the web browser interface is disabled.
- ❑ Radio1 supports up to 120 clients and Radio2 up to 200 clients.
- ❑ Radio1 does not support WPA3 when set to WPA Enterprise.
- ❑ The “WPA2 and WPA3” setting is only available with WPA Personal.
- ❑ This version does not support Proxy ARP. The Proxy ARP settings in the Advanced Settings window in the web browser interface are disabled.
- ❑ The link on the Ethernet port may fluctuate up and down while the unit is initializing its management software after it is booted or powered on.
- ❑ If you enable the Management VLAN Tag feature on the wireless access point, you have to set its VID to a value other than 1, the default value, so that packets from clients on VAPs with the VID1 are handled as untagged packets.

Undocumented Features

The following sections describe these new features:

- ❑ “Easy Setup Window,” next
- ❑ “AWC Smart Cluster (AWC-SCL)” on page 19
- ❑ “Cell Type and Single Channel Type Radio Modes” on page 28

Easy Setup Window

Starting with version 6.0.1-2.1, the TQ1402 and TQm1402 wireless access points have an Easy Setup window for performing these basic functions:

- ❑ Assigning static or dynamic (DHCP) IPv4 addresses to access points.
- ❑ Configuring basic IEEE802.11b/g/n settings on Radio1.
- ❑ Configuring basic IEEE802.11a/n/ac settings on Radio2.
- ❑ Changing the administrator’s password.

Note

The Easy Setup window is available in the on-board web browser management interface. It is not available with Vista Manager EX or Vista Manager mini and the Autonomous Wave Controller (AWC) plug-in.

The access points display the Easy Setup window as the first window at the start of your management sessions. You can also display the window by selecting Easy Setup from the main menu. Refer to Figure 1.

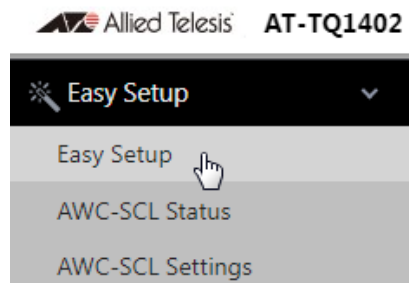


Figure 1. Easy Setup Menu Selection

The window has four sections:

- ❑ Wired Settings
- ❑ Radio1 Settings
- ❑ Radio2 Settings
- ❑ Administrator Settings

Wired Settings

The Wired Settings section is used to assign an IPv4 address to the access point. It can be a static address or a dynamic address from a DHCP server on your network. The example in Figure 2 shows the fields for a static IP address. The default is DHCP. The default address is 198.162.1.230.

Wired Settings

Connection Type	Static IP
Static IP Address	192.168.1.230
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.254

Figure 2. Wired Settings in the Easy Setup Window

Note

Changing the IPv4 address of the access point will interrupt your management session. To resume managing the unit, start a new session using the access point's new IP address.

The fields are described in Table 5.

Table 5. Wired Settings in the Easy Setup Window

Field	Description
Connection Type	Select one of the following: <ul style="list-style-type: none"> - DHCP: Select this option to enable the DHCP client. The access point obtains its IPv4 address from a DHCP server on the network. This is the default setting. This selection hides the other fields. - Static IP: Select this option to enter an IPv4 address. Selecting this option displays the other fields in this table.
Static IP Address	Enter an IPv4 address for the access point. The device can have only one address. The default is 192.168.1.230.
Subnet Mask	Enter the subnet mask for the IP address. The default is 255.255.255.0.

Table 5. Wired Settings in the Easy Setup Window (Continued)

Field	Description
Default Gateway	<p>Enter the default gateway address for the unit. The default is 192.168.1.254.</p> <p>The default gateway is an IP address of an interface on a router or other Layer 3 routing device. It specifies the first hop to reaching the subnets or networks where your management devices, such as management workstations and syslog servers, reside. The access point can have only one default gateway and the network portion of the address must be the same as its IP address.</p> <p>The access point must have a default gateway address. If your network does not have a default gateway or you do not want to assign one to the access point at this time, enter an unused IP address of the same network as the access point's IP address.</p>

Radio1 Settings

This section of the Easy Setup window is used to configure basic IEEE802.11b/g/n and WPA Personal settings on the 2.4GHz Radio1. Refer to Figure 3 on page 11. You can use this section to configure Radio1 and VAP0 at the following default settings:

- Radio1 mode: IEEE802.11b/g/n
- VAP0 Status: Enabled
- VAP0 Mode: Access Point
- VAP0 Security Mode: WPA Personal
- VAP0 Security: WPA2 and WPA3
- VAP0 Cipher: CCMP
- VAP0 IEEE802.11w (MFP): Capable

Note

Configuring Radio1 and VAP0 with the Easy Setup window reverts the above parameters to the listed default settings. To configure Radio1 and VAP0 for other settings, such as IEEE802.11b/g or WPA Enterprise, use the Radio and VAP/Security selections in the main menu instead.

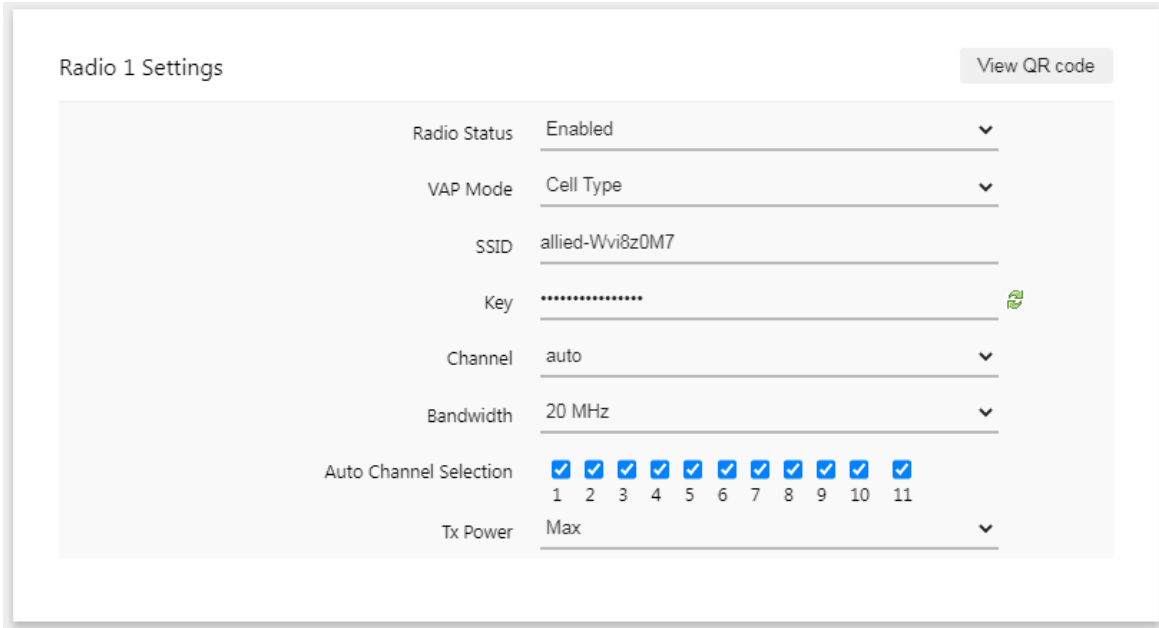


Figure 3. Radio1 Settings in the Easy Setup Window

The fields are described in Table 6.

Table 6. Radio1 Settings in the Easy Setup Window

Field	Description
Radio Status	<p>Activate or deactivate the radio. The selections in the pull-down menu are described here:</p> <ul style="list-style-type: none"> - Enabled: Activates the radio. This is the default setting. - Disabled: Deactivates the radio.
VAP Mode	<p>Select the VAP mode. Radio1 has only Cell Type. Refer to “Cell Type and Single Channel Type Radio Modes” on page 28.</p>
SSID	<p>Enter the SSID of VAP0. The default is a unique value based on the MAC address of the access point.</p>

Table 6. Radio1 Settings in the Easy Setup Window (Continued)

Field	Description
Key	<p>Enter the CCMP key. Here are the guidelines:</p> <ul style="list-style-type: none"> - The key can be from 8 to 63 alphanumeric characters. - It can include special characters. - It is case sensitive. - The default key is based on the MAC address of the access point. - The small double-arrow symbol next to the field toggles the key between alphanumeric characters and asterisks.
Channel	<p>Select the channel for the radio from the pull-down menu. Here are the guidelines:</p> <ul style="list-style-type: none"> - You can select only one channel. - The channels vary by radio, bandwidth, and country. - Select "auto", the default setting, to have the radio select the channel automatically. The access point scans the available channels on the radio and selects the one with the least interference. - If you select Auto, you can use the Auto Channel Selection parameter in this window to restrict the channels from which the access point can choose.
Bandwidth	<p>Select the bandwidth for Radio1 from the pull-down menu. The selections for IEEE802.11b/g/n are listed here:</p> <ul style="list-style-type: none"> - 20 MHz. This is the default setting. - 40 MHz <p>The 40 MHz-wide channel allows for higher data rates, but reduces the number of available channels for other wireless devices.</p> <p>Radio1 also supports IEEE802.11b/g, but that cannot be set through the Easy Setup window. Use the Radio and VAP/Security selections in the main menu instead.</p>

Table 6. Radio1 Settings in the Easy Setup Window (Continued)

Field	Description
Auto Channel Selection	<p>Select the channels that the radio can chose from when the Channel parameter is set to Auto. Here are the guidelines.</p> <ul style="list-style-type: none"> - A channel is enabled when its check box has a check and disabled when the check box is empty. - The available channels vary by radio, mode, bandwidth, and country. - The default is all available channels are enabled. <p>This parameter is disabled when the channel is selected manually.</p>
TX Power	<p>Select the strength of the radio transmitter. The selections are Max (maximum), High, Middle, Low, Min (minimum). The default is Max.</p>

Radio2 Settings

This section in the Easy Setup window is used to configure basic IEEE802.11a/n/ac and WPA Personal settings on the 5GHz Radio2. Refer to Figure 4 on page 14. You can use the section to configure Radio2 and VAP0 at the following default settings:

- Radio2 mode: IEEE802.11a/n/ac
- VAP0 Status: Enabled
- VAP0 Mode: Access Point
- VAP0 Security Mode: WPA Personal
- VAP0 Security (Single Channel Type): WPA2
- VAP0 Security (Cell Type): WPA2 and WPA3
- VAP0 Cipher: CCMP
- VAP0 IEEE802.11w (MFP): Capable

Note

Configuring Radio2 and VAP0 with the Easy Setup window reverts the above parameters to the listed default settings. To configure Radio2 and VAP0 for other settings, such as IEEE802.11b/g or WPA Enterprise, use the Radio and VAP/Security selections in the main menu instead.

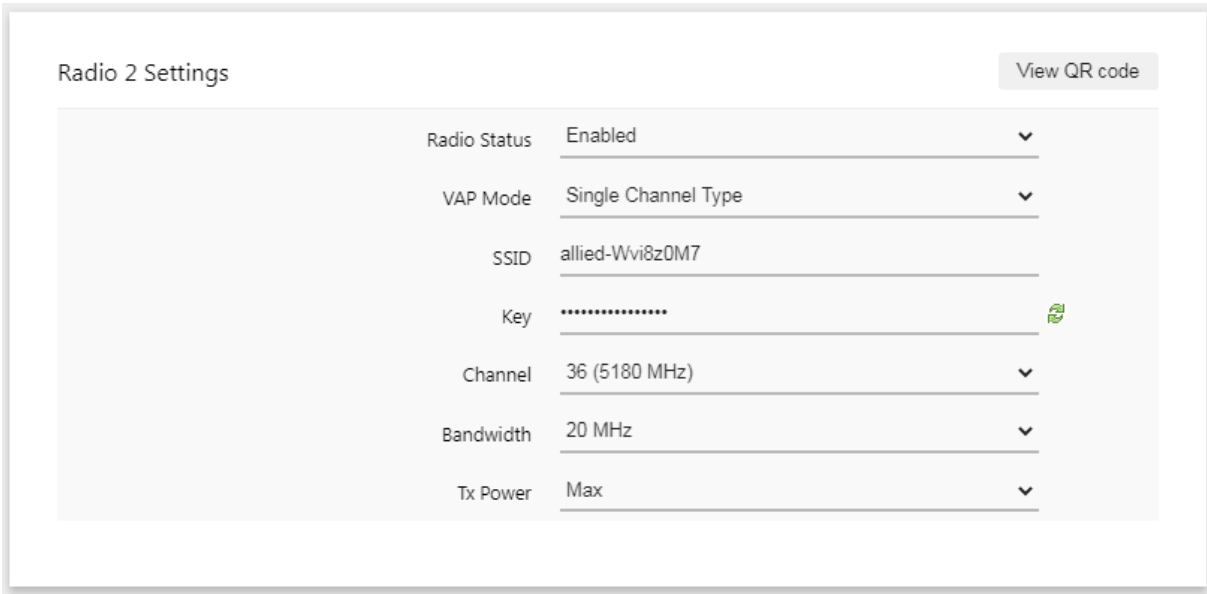


Figure 4. Radio2 Settings in the Easy Setup Window

The fields are described in Table 7.

Table 7. Radio2 Settings in the Easy Setup Window

Field	Description
Radio Status	Activate or deactivate Radio2. The selections in the pull-down menu are described here: <ul style="list-style-type: none"> - Enabled: Activates the radio. This is the default setting. - Disabled: Deactivates the radio.

Table 7. Radio2 Settings in the Easy Setup Window (Continued)

Field	Description
VAP Mode	<p>Select the VAP mode. Options are listed here:</p> <ul style="list-style-type: none"> - Single Channel Type: TQ1402 wireless access points in the AWC Smart Cluster use the same channel on Radio2. This is the default setting when AWC Smart Cluster is enabled. This setting is only available with AWC Smart Cluster. - Cell Type: TQ1402 wireless access points use different channels on Radio2. This setting is available when AWC Smart Cluster is enabled or disabled. This is the only setting when AWC Smart Cluster is disabled. <p>Refer to “Cell Type and Single Channel Type Radio Modes” on page 28.</p>
SSID	<p>Enter the SSID of VAP0. The default is a unique value based on the MAC address of the access point. If AWC Smart Cluster is enabled, the access points in the cluster all use the same VAP0 SSID, from the access point with the highest MAC address.</p>
Key	<p>Enter the CCMP key. Here are the guidelines:</p> <ul style="list-style-type: none"> - The key can be from 8 to 63 alphanumeric characters. - It can include special characters. - It is case sensitive. - The default key is based on the MAC address of the access point. - The small double-arrow symbol next to the field toggles the key between alphanumeric characters and asterisks.

Table 7. Radio2 Settings in the Easy Setup Window (Continued)

Field	Description
Channel	<p>Select the channel for the radio from the pull-down menu. Here are the guidelines:</p> <ul style="list-style-type: none"> - You can select only one channel. - The channels vary by radio, bandwidth, and country. - The default for Radio2 for the TQ1402 access point when VAP mode is Single Channel Type is channel 36 (5180 MHz). - The default for Cell Type mode is auto. - The auto option has the radio select the channel automatically. The access point scans the available channels on the radio and selects the one with the least interference. This is the default for the TQm1402. - Do not select auto for AWC Smart Cluster on the TQ1402 access point. AWC Smart Cluster requires a specific channel. It can be any available channel. - If you select Auto, you can use the Auto Channel Selection parameter in this window to restrict the channels from which the access point can choose.
Bandwidth	<p>Select the bandwidth for Radio2 from the pull-down menu. The selections for IEEE802.11a/n/ac are listed here:</p> <ul style="list-style-type: none"> - 20 MHz. This is the default setting. - 40 MHz - 80 MHz

Table 7. Radio2 Settings in the Easy Setup Window (Continued)

Field	Description
Auto Channel Selection	<p>Select the channels that the radio can chose from when the Channel parameter is set to Auto. Here are the guidelines.</p> <ul style="list-style-type: none"> - A channel is enabled when its check box has a check and disabled when the check box is empty. - The available channels vary by radio, mode, bandwidth, and country. - The default is all available channels are enabled. - Do not use auto for AWC Smart Cluster on the TQ1402 access point. AWC Smart Cluster requires a specific channel. Select the channel in the Channel field.It can be any available channel. <p>This parameter is disabled when the channel is selected manually.</p>
TX Power	<p>Select the strength of the radio transmitter. The selections are Max (maximum), High, Middle, Low, Min (minimum). The default is Max.</p>

Note

The Easy Setup window requires that the bandwidths of the two radios be set to the default value 20MHz.

Administrator Settings


You use the bottom section of the Easy Setup window to change the password to the on-board manager account. Refer to Figure 5 on page 18. The fields are described in Table 8 on page 18.


Note

Do not change the default administrator name "manager".

Administrator Settings

Administrator Name

Current Password 

New Password 


Confirm New Password 

Figure 5. Administrator Settings in the Easy Setup Window

Table 8. Administrator Settings in the Easy Setup Window

Field	Description
Administrator Name	Displays the current login manager name. To change the name, enter the new name. Here are the guidelines: <ul style="list-style-type: none"> - The name can be up to 12 alphanumeric characters. - The first character must be a letter. It cannot be a number or special character. - It cannot contain spaces. - The name is case-sensitive. - The default name is “manager”.
Current Password	Enter the current login password.
New Password	Enter the new password. Here are the guidelines: <ul style="list-style-type: none"> - The password can be up to 32 alphanumeric characters. - It cannot contain spaces or special characters. - It is case-sensitive.
Confirm New Password	Reenter the new password.

AWC Smart Cluster (AWC-SCL)

AWC Smart Cluster (AWC-SCL) is a new feature in this release. It lets you manage up to five TQ1402 access points as a single unit by logically grouping them together. Configuration changes made to any one of the access points in a cluster are automatically transmitted to the other access points over the wired LAN. This simplifies management by letting you manage multiple access points as a group rather than individually. Here are the guidelines:

- ❑ AWC Smart Cluster is supported on the TQ1402 access point. It is not supported on the TQm1402 access point.
- ❑ The feature is intended for access points that are to have identical configuration settings.
- ❑ AWC Smart Cluster is configured in the Easy Setup window in the on-board web browser interface.
- ❑ The default setting for AWC Smart Cluster is enabled. Unless you disable the feature, TQ1402 access points automatically try to form clusters using their default settings as soon as you install them on your network.
- ❑ Clusters must have names. The names of different clusters in the same network have to be unique.
- ❑ Configuration changes are transmitted over the wired network on the LAN ports of the access points. This requires that the LAN ports on access points in clusters be connected to the wired network.
- ❑ You cannot use AWC Smart Cluster with Vista Manager EX or Vista Manager mini and the AWC plug-in. You have to disable Smart Clusters to use those programs to manage TQ1402 access points. Refer to “Disabling AWC Smart Cluster” on page 27.
- ❑ Clusters can have up to five access points. Clusters of six or more units are not recommended.
- ❑ Access points in a cluster must have their own individual IPv4 addresses. You can assign them manually or with a DHCP server.
- ❑ The IP addresses of access points in a cluster have to be members of the same network.
- ❑ Access points can belong to only one cluster at a time.
- ❑ A cluster’s BSSID is based on the MAC address of the access point with the highest MAC address. (The web browser management interface does not display the cluster’s BSSID.)
- ❑ The System LED functions are follows when AWC Smart Cluster is enabled:
 - Slow green blinking (500 ms intervals) when the access point is searching for a cluster.
 - Fast green blinking (100 ms intervals) when the access point is synchronizing its configuration with other access points in a cluster.

AWC Smart Cluster requires that Radio2 be set to the following default values:

- ❑ Mode: IEEE802.11a/n/ac
- ❑ VAP0 Status: Enabled
- ❑ VAP0 Mode: Access Point
- ❑ VAP0 Security Mode: WPA Personal
- ❑ VAP0 Security: WPA2

- VAP0 Cipher: CCMP
- VAP0 IEEE802.11w (MFP): Capable

When AWC Smart Cluster is enabled, you should only use the Easy Setup window to configure Radio1 or Radio2.

TQ1402 access points in an AWC Smart Cluster share the same configuration settings, except for these settings:

- Host names
- MAC addresses
- IP addresses
- SNMP system names, system contacts, and system locations
- Channel and transmission powers when the VAP operating mode of Radio2 is Cell Type
- Transmission powers when the VAP operating mode of Radio2 is Single Channel Type

Planning an AWC Smart Cluster

Here are factors to consider when planning the AWC Smart Cluster of TQ1402 access points:

- How many access points will be in the cluster? The recommended maximum is five access points.
- What will be the cluster's name? The name has to be the same on all the access points. The default name is "default-cluster". The name is case-sensitive. Different clusters on the same network must have unique names.
- What will be the IPv4 addresses of the TQ1402 access points? Each access point has to have a unique IP address and the addresses have to be part of the same network. The addresses can be assigned manually or from a DHCP server.
- What will be the Administrator password? The password has to be the same on all access points. The default is "friend". The password is case-sensitive.
- Will the VAP mode on Radio2 on the access points be Cell Type or Single Channel Type? The default is Single Channel Type. Refer to "Cell Type and Single Channel Type Radio Modes" on page 28.

Here are additional factors to consider if the VAP operating mode on Radio2 will be Single Channel Type:

- What will be the common Radio2 channel of the access points in the AWC Smart Cluster? The default is channel 36 (5180 MHZ).
- Is your wireless network already using channel 36? If so, you need to change its channel or the channel on Radio2 on the TQ1402 access points.
- Which TQ1402 access point in the cluster has the highest MAC address? The BSSID of the common 5GHz wireless network of the cluster will be based on its MAC address. The MAC addresses of the access points are on labels on the side rear panels. They can also be viewed in the Status -> System window in the on-board web browser management interface.

The worksheet in Table 9 is provided to assist you in planning and managing AWC Smart Clusters. You should copy and fill it out for each cluster.

Table 9: AWC Smart Cluster Worksheet

Parameter	Value
Smart Cluster Name	
VAP Mode on 5GHz Radio2: Cell Type or Single Channel Type (Default: Single Channel Type)	
Common Radio2 Channel for Single Channel Type (Default: channel 36 (5180 MHZ))	
#1 TQm1402 Access Point	
Location	
Static or DHCP IP Address	
MAC Address	
#2 TQm1402 Access Point	
Location	
Static or DHCP IP Address	
MAC Address	
#3 TQm1402 Access Point	
Location	
Static or DHCP IP Address	
MAC Address	
#4 TQm1402 Access Point	
Location	
Static or DHCP IP Address	
MAC Address	
#5 TQm1402 Access Point	
Location	
Static or DHCP IP Address	
MAC Address	

Building a New Cluster or Adding Access Points to an Existing Cluster

Check the following on new access points before building a new cluster or adding access points to an existing cluster:

- Do they have firmware version 6.0.1-7.1 or later? (menu selections: Monitoring > Status > System)
- Do they have the same firmware version? The access points of a cluster must have the same firmware version.
- Are their parameters at the default settings? (menu selections: Maintenance > Configuration > Factory Default)
- Is there an existing wireless network that is already using channel 36 (5180 MHz)? If so, you will need to change the channel on that network or on Radio2 on the TQ1402 access points.

Adding new access points to an existing cluster does not change the configuration settings of the cluster. The only exception is possibly the BSSID. If the cluster is set to Single Channel Type, the BSSID will change if the MAC address of the new access point is higher than the addresses of the other access points.

To build a new AWC Smart Cluster or add access points to an existing cluster, do the following:

1. Connect the LAN port on the new access point to your wired LAN.
2. Start a management session on the access point.

Note

To restore the default settings, perform steps 3 and 4. Otherwise, go to step 5.

3. Select **Maintenance > Configuration > Factory Default** to restore the factory default settings.
4. Wait one minute and then start a new management session.
5. Select **Easy Setup** from the main menu. This is the default selection.
6. In the Wired Settings section of the window, assign an IP address to the access point. The IP address has to be part of the same network as the other access points in the cluster. You can assign the address manually or from a DHCP server. The default is DHCP.
7. In the Radio2 Settings section, select **Single Channel Type** or **Cell Type** from the VAP Mode pull-down menu. The default is Single Channel Type. Refer to “Cell Type and Single Channel Type Radio Modes” on page 28.
8. In the Administrator Settings section at the bottom of the Easy Setup window, change the Administrator password. Refer to “Administrator Settings” on page 17. The access points in the cluster should all have the same password. The password is case-sensitive. The default is “friend”.

9. Select **Easy Setup > AWC-SCL Settings** from the main menu. Refer to Figure 6.

The screenshot shows the 'Easy Setup > AWC-SCL Settings' window. On the left is a navigation menu with options: Easy Setup, AWC-SCL Status, AWC-SCL Settings (selected), Monitoring, Settings, Maintenance, and Account. The main content area is divided into two sections. The top section, titled 'Cluster Settings', contains a 'Status' dropdown menu set to 'Enabled' and a 'Cluster Name' text field containing 'default-cluster'. The bottom section, titled '00:1a:eb:de:a8:40', contains a 'Hostname' text field with 'AT-TQ1402', a 'Connection Type' dropdown set to 'DHCP', and four radio configuration options: 'Radio 1 Channel' (auto), 'Radio 1 Tx Power' (Min), 'Radio 2 Channel' (auto), and 'Radio 2 Tx Power' (Max). At the bottom right are three buttons: 'Channel Reassignment', 'Single Channel BSSID Resetting', and 'Save & Apply'.

Figure 6. AWC-SCL Settings Window

10. In the Cluster Settings section, enter the **Cluster Name**. If you are adding an access point to a cluster, enter the name of the existing cluster. The name is case-sensitive.
11. In the Cluster Settings section, set the **Status** of Smart Cluster to **Enabled**. This is the default setting.
12. Click the **Save and Apply** button.

The access point searches for other access points on the wired network with the same Cluster Name and, if found, becomes a member by adopting their settings. If there is no cluster yet, it continues searching.
13. If Radio2 VAP0 mode is set to Single Channel Type, click the **Single Channel BSSID Resetting** button In the AWC-SCL Settings window. This step ensures that the BSSID of the cluster is based on the access point with the largest MAC address.
14. Select **Account > Logout** to end the management session.
15. Repeat this procedure to add more access points to the cluster.

Viewing the Members of Clusters

To view the members of a cluster, go to **Easy Setup > AWC-SCL Status**. Refer to Figure 7.

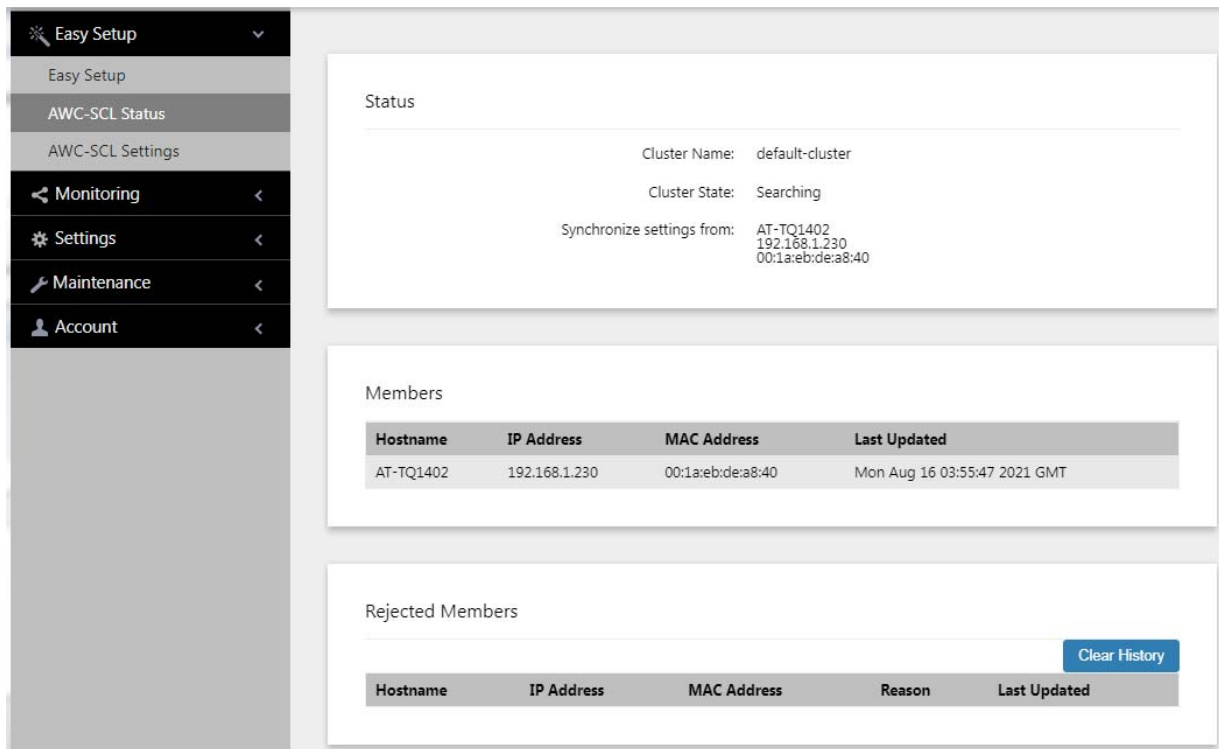


Figure 7. AWC-SCL Status Window

The sections in the window are described in Table 10.

Table 10. AWC-SCL Status Window

Section	Description
Status	<p>Displays the following information:</p> <ul style="list-style-type: none"> - Cluster name - Cluster State: This can be Searching, indicating the access point has not yet joined a cluster, or Constructed, meaning it has joined a cluster. - Synchronize Settings from: Displays the hostname, IP address, and MAC address of the access point in the cluster to which this access point is synchronizing its settings.
Members	Lists the access points of the cluster.

Table 10. AWC-SCL Status Window (Continued)

Section	Description
Rejected Members	<p>Lists access points that tried to join the cluster but were rejected. Possible reasons include:</p> <ul style="list-style-type: none"> - The cluster has already reached its maximum number of five access points. - The new access point has a different firmware version. - The new access point has a different country code.

Managing AWC Smart Clusters

To view or configure the settings of the TQ1402 access points in an AWC Smart Cluster, do the following:

1. Using your web browser, log on to any TQ1402 access point in the cluster.
2. Make the desired configuration changes to the access point. Your changes are transmitted to the other access points in the cluster over the wired LAN when you click the **Save & Apply** buttons.
3. When you are finished, log out from the access point by selecting **Account > Logout**.

Configuring the Radios in AWC Smart Clusters

You can change basic Radio1 and Radio2 settings of the access points in a cluster from the AWC-SCL Settings window. To display the window, select **Easy Setup > AWC-SCL Settings**. Refer to Figure 6 on page 23. The fields are described in Table 11.

Table 11. AWC-SCL Settings Window

Field	Description
Hostname	Use this field to change the hostname of the access point where you started the management session on the cluster.

Table 11. AWC-SCL Settings Window

Field	Description
Connection Type	<p>Use this field to change the IPv4 address of the access point where you started the management session. The options are:</p> <ul style="list-style-type: none"> - DHCP: Assign the IP address from a DHCP server on your network. This is the default. - Static: Assign a static address to the access point. <p>For instructions, refer to Table 5 on page 9.</p>
Radio1 Channel	<p>Use this field to change the Radio1 channel. Options are listed here:</p> <ul style="list-style-type: none"> - Option 1: Changes the Radio1 channel only on the access point where you started the management session. From the pull-down menu, select either a static channel or Auto to have the access point search for an unused channel, and click the Save & Apply button. - Option 2: Changes the Radio1 channels on all the access points in the cluster. From the pull-down menu, select Auto and click the Channel Reassignment button. (Do not select a static channel.) Access points that detect interference on their Radio1 channels search for unused channels.
Radio2 Channel	<p>Use this field to change the Radio2 channel when VAP0 mode is Cell Type. It changes the Radio2 channel only on the access point where you started the management session. From the pull-down menu, select a static channel or Auto to have the access point search for an unused channel. Then click the Save & Apply button.</p> <p>To change the Radio2 channels on the access points in a cluster when VAP0 mode is Single Channel Type, use the Easy Setup window. A cluster requires a static channel. Do not select Auto. Assign the same static Radio2 channel to all the access points in the cluster.</p>

Disabling AWC Smart Cluster

The default setting for AWC Smart Cluster on the TQ1402 access point is enabled. You can disable the feature if you do not want to use it or to remove access points from clusters. Afterwards, you can manage access points with the on-board web browser interface or Vista Manager EX or Vista Manager mini and the AWC plug-in.

1. Start a management session on the access point with your web browser.
2. Select **AWC-SCL Settings** from the main menu. The AWC-SCL Settings window is shown in Figure 6 on page 23.
3. In the Clusters Settings section of the window, select **Disabled** from the Status pull-down menu.
4. Click the **Save & Apply** button.

The access point displays the prompt in Figure 8 if Radio2 is set to Single Channel Type. As explained in “Cell Type and Single Channel Type Radio Modes” on page 28, Single Channel Type is only supported with AWC Smart Cluster. The prompt is alerting you that disabling AWC Smart Cluster also disables Single Channel Type on Radio2 and changes the radio’s mode to Cell Type.

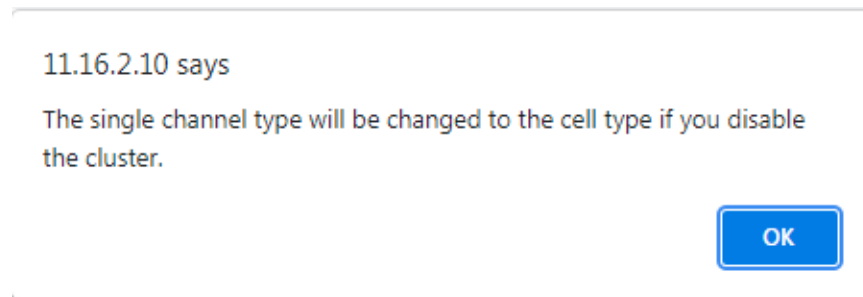


Figure 8. Disabling AWC Smart Cluster Prompt

5. Click the **OK** button.

The access point disables AWC Smart Cluster on Radio2. The access point is no longer a member of a cluster.

Note

Continue with the next step if the cluster is using Single Channel Type and you removed an access point from the cluster.

6. Start a management session on one of the remaining access points in the cluster.
7. Select **Easy Setup > AWC-SCL Settings** from the main menu.

8. Click the **Single Channel BSSID Resetting** button. This step ensures that the cluster's BSSID is from the access point with the largest MAC address.
9. Click the **Save & Apply** button.

Cell Type and Single Channel Type Radio Modes

The 2.4GHz Radio1 and 5GHz Radio2 radios have the Cell Type mode. Radios set to this mode use different channels when signals from access points overlap, to avoid interference. Overlapping signals are often needed in network environments to ensure that wireless networks adequately cover all physical work areas. Wireless networks that use multiple channels work best for stationary clients who remain connected to the same wireless access points at all times. Cell Type is the only operational mode for the radios in the TQm1402 access point and the 2.4GHz radio in the TQ1402 access point.

Wireless networks of multiple channels, however, can pose problems for roaming clients. Packets can be lost as clients change channels as they transition between access points. Roaming clients may also experience slow traffic if, instead of transitioning, they remain connected to their original access points after moving a distance away.

The 5GHz Radio2 radio on the TQ1402 access point has a second mode called Single Channel Type. This mode is available when access points are in an AWC Smart Cluster. The mode allows access points to use the same 5GHz channel even when their signals overlap. This avoids the need for roaming clients to change channels when they transition between access points, thereby reducing the chance of lost packets. Single Channel Type can also reduce the need for complex channel planning.

Here are the Single Channel Type guidelines:

- Single Channel Type is supported on Radio2 on the TQ1402 access point. It is the default setting. The default channel is 36 (5180 MHz).
- Radio1 does not support Single Channel Type. It supports Cell Type only.
- Single Channel Type requires AWC Smart Cluster.
- The TQm1402 access point does not support Smart Cluster or Single Channel Type. Its radios support Cell Type only.
- You set the Radio2 VAP mode in the Easy Setup window.
- When using Single Channel Type, you must use the Easy Setup window to make changes to Radio2 and VAP0 settings.

Refer to "AWC Smart Cluster (AWC-SCL)" on page 19 for information and instructions on how to build clusters of TQ1402 access points with the Cell Type or Single Channel Type VAP mode.

Contacting Allied Telesis

For assistance with this product, you can contact Allied Telesis technical support by going to the Services & Support section of the Allied Telesis web site at www.alliedtelesis.com/us/en/services-support. You can find links for the following services on this page:

- ❑ Helpdesk (Support Portal) - Log onto Allied Telesis interactive support center to search for answers to your questions in our knowledge database, check support tickets, learn about Return Merchandise Authorizations (RMAs), and contact Allied Telesis technical experts.
- ❑ Software Downloads - Download the latest software releases for your product.
- ❑ Licensing - Register and obtain your License key to activate your product.
- ❑ Product Documents - View the most recent installation guides, user guides, software release notes, white papers and data sheets for your product.
- ❑ Warranty - View a list of products to see if Allied Telesis warranty applies to the product you purchased and register your warranty.
- ❑ Allied Telesis Helpdesk - Contact a support representative.

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