# Configuring Assisted Roaming

## Restrictions for Assisted Roaming

- This feature must be implemented only if you are using one controller. The assisted roaming feature is not supported across multiple controllers.

- This feature is supported only on 802.11n capable indoor access points. For a single band configuration, a maximum of 6 neighbors are visible in a neighbor list. For dual band configuration, a maximum of 12 neighbors are visible.

- You can configure assisted roaming only using the controller CLI. Configuration using the controller GUI is not supported.

## 802.11k Neighbor List and Assisted Roaming

The 802.11k standard allows an AP to inform 802.11k-capable clients of neighboring BSSIDs (APs in the same SSID). This can help the client to optimize its scanning and roaming behavior. Additionally, the Assisted Roaming Prediction Optimization feature can be used with non-802.11k clients, to discourage them from roaming to suboptimal APs.

**Prediction Based Roaming - Assisted Roaming for Non-802.11k Clients**

You can optimize roaming for non-802.11k clients by generating a prediction neighbor list for each client without sending an 802.11k neighbor list request. When prediction based roaming enables a WLAN, after each successful client association/re-association, the same neighbor list optimization applies on the non-802.11k client to generate and store the neighbor list in the mobile station software data structure. Clients at different locations have different lists because the client probes are seen with different RSSI values by the different neighbors as the clients usually probe before any association or re-association. This list is created with the most updated probe data and predicts the next AP that the client is likely to roam to.

The wireless infrastructure discourages clients from roaming to those less desirable neighbors by denying association if the association request to an AP does not match the entries on the stored prediction neighbor list.

- Denial count: Maximum number of times a client is refused association.

- Prediction threshold: Minimum number of entries required in the prediction list for the assisted roaming feature to activate.

For more information, see https://www.cisco.com/c/en/us/td/docs/wireless/controller/8-5/ Enterprise-Mobility-8-5-Design-Guide/Enterprise_Mobility_8-5_Deployment_Guide/ Chapter-11.html#pgfId-1140097.

# Configuring Assisted Roaming (CLI)

**Procedure**

- Configure an 802.11k neighbor list for a WLAN by entering this command:

  **config wlan assisted-roaming neighbor-list** {**enable** | **disable**} *wlan-id*

- Configure neighbor floor label bias by entering this command:

  **config assisted-roaming floor-bias** *dBm*

- Configure a dual-band 802.11k neighbor list for a WLAN by entering this command:

  **config wlan assisted-roaming dual-list** {**enable** | **disable**} *wlan-id*

**Note** Default is the band which the client is using to associate.

- Configure Assisted Roaming Prediction List feature for a WLAN by entering this command:

  **config wlan assisted-roaming prediction** {**enable** | **disable**} *wlan-id*

**Note** A warning message is displayed and load balancing is disabled for the WLAN if load balancing is already enabled for the WLAN.

- Configure the minimum number of predicted APs required for the prediction list feature to be activated by entering this command:

  **config assisted-roaming prediction-minimum** *count*

**Note** If the number of APs in the prediction assigned to a client is less than the number that you specify, the assisted roaming feature will not apply on this roam.

- Configure the maximum number of times a client can be denied association if the association request that is sent to an AP does not match any AP in the prediction list by entering this command:

  **config assisted-roaming denial-maximum** *count*

- Debug a client for assisted roaming by entering this command:

**debug mac addr** *client-mac-addr*

- Configure debugging of all of 802.11k events by entering this command:

  **debug 11k all** {**enable** | **disable**}

- Configure debugging of neighbor details by entering this command:

  **debug 11k detail** {**enable** | **disable**}

- Configure debugging of 802.11k errors by entering this command:

  **debug 11k errors** {**enable** | **disable**}

- Verify if the neighbor requests are being received by entering this command:

  **debug 11k events** {**enable** | **disable**}

- Configure debugging of the roaming history of clients by entering this command:

  **debug 11k history** {**enable** | **disable**}

- Configure debugging of 802.11k optimizations by entering this command:

  **debug 11k optimization** {**enable** | **disable**}

- Get details of the client-roaming parameters that are to be imported for offline simulation by entering this command:

  **debug 11k simulation** {**enable** | **disable**}