



**Dynamic Channel Switching Operation – Wireless AD-Series Devices:**

Dynamic Channel Switching (DCS) is a feature of the Schlage AD-series wireless access point modules that increases the robustness of the wireless RF communication in a noisy radio environment.

NOTE: Because DCS sets and assigns which RF channels the PIM400 and AD-Series wireless access point modules will use, you must LINK or re-LINK all locks on a PIM400 when any DCS setting is changed.

This technical note will discuss;

- Overview and operation of Dynamic Channel Switching
- DCS Settings
- Testing DCS
- Frequently Asked Questions

**Affected Product:**

Below are the AD-Series wireless access point modules that have the Dynamic Channel Switching feature.

- AD400/401**
- WRI400**
- WPR400**
- PIM400 all versions**
- RPTR400**

**Operation**

Normal operation for the PIM400 and the AD-Series wireless access point module is to use one of the ten available 900 MHz RF channels during the LINKING procedure and to continue to use that RF channel for all communication.

Should the RF channel develop noise from other RF emitters in the area (like wireless phones or speaker systems for example), the PIM400 to AD-Series wireless access point module communication may experience delays due to transmission repeats, retries or dropouts. The behavior can be noticeable during periods of severe RF noise.

When RF communication is difficult the PIM400 and AD-Series wireless access point module follow the “First, Delay and Retry” settings to repeat the radio communication on the same assigned channel. The default “First, Delay and Retry” settings are 300 msec for the first delay, 200 msec delay per repeat and, 5 repeats per attempt.

Dynamic Channel Switching minimizes the effects of noise on one RF Channel by allowing the PIM400 and AD-Series wireless access point module to switch communication between preselected groups of RF channels. With DCS enabled the PIM400 and AD-Series wireless access point module will stop using a degraded RF channel with interference and automatically change to a better performing RF channel in the assigned group of RF Channels.

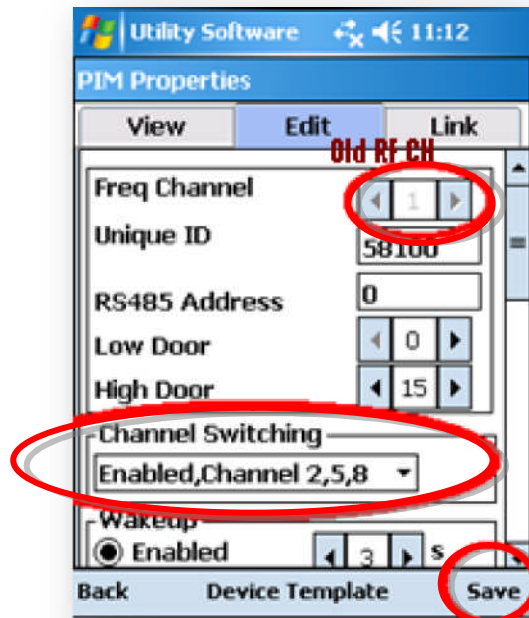
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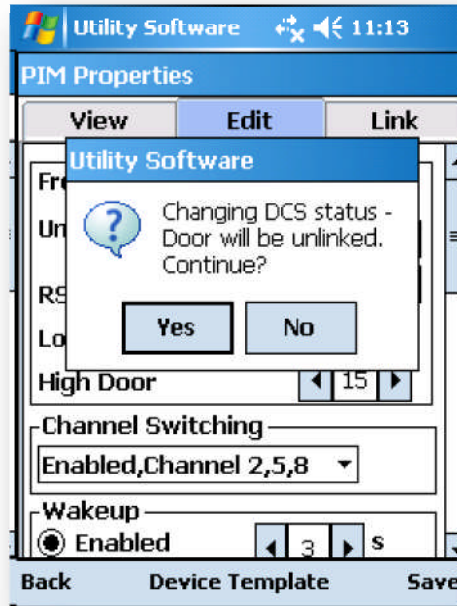
- 1) Enable DCS if there is possible RF noise in the 900 MHz band at your location.
- 2) When Dynamic Channel Switching is enabled or settings are changed, the PIM400 and AD-Series wireless access point module must then be LINKED or re-LINKED with the new settings; because DCS settings determine which RF channels the PIM400 and AD-Series wireless access point module use.
- 3) Once enabled and linked, the frequency changing operation with DCS is automatic and requires no additional action.

**Setting Dynamic Channel Switching**

- 1) Connect and couple the SUS to the PIM400 you intend to change.
  - a. See the SUS User Guide for details
- 2) Under “PIM Properties” and the “Edit” tab is the “Channel Switching” window with the four options
  - a) Disabled DCS,
  - b) Enable DCS on Channels 1, 4, 7,
  - c) Enable DCS on Channels 2, 5, 8,
  - d) Enable DCS on Channels 3, 6, 9
- 3) If the RF communication was not working on a single channel we recommended you now select a group that does not include that suspect channel
- 4) Hit “Save” to make this setting



- 5) LINK or RE-LINK all the AD-Series wireless access point modules assigned to this PIM400 now that a new group of RF Channels are selected for communication. See the appropriate device User Guide for LINKING instructions.



**To verify Dynamic Channel Switching is enabled:**

**Read the DCS Status;**

Connect the SUS device to the PIM400. Navigate to "PIM Properties," "Edit," and observe the "Channel Switching" window status. The window should say Enabled and the channels as selected, see above,

**Channel number Beep:**

The only external indication of enabled DCS is with successful LINKING. The AD400 will beep a channel number confirming the channel in use is in the selected DCS group of channels.

NOTE: DCS has three possible groups of channel number selections;

- 1, 4, 7
- 2, 5, 8
- 3, 6, 9



**Frequently Asked Questions: Dynamic Channel Switching**

- 1. If I enable DCS must I RE-LINK?**  
Yes- Enabling DCS requires RE-LINKING all the wireless devices on the PIM400. DCS changes the RF communication settings and the devices must be RE-LINKED.
- 2. Will DCS decrease the RF range between the PIM400 and wireless access point module?**  
No – Because DCS will find the best of the three RF channels for communication, performance near the limit range should improve.
- 3. Can I have a PIM400 with some AD400s set for DCS enabled and other AD400s on the same PIM400 with DCS disabled?**  
No – Enabling DCS is a setting on the PIM400 and requires all the AD-Series wireless access point modules LINKED to the PIM400 to use DCS.
- 4. Will DCS greatly reduce the AD400 battery life?**  
No - Data indicates with normal use there is no significant change in AD400 battery life with DCS enabled.
- 5. Will Dynamic Channel Switching help *Wake Up on Radio* performance?**  
Yes - Schlage recommends you enable DCS if you enable WoR. DCS will help insure a clear RF communication channel is found during a WoR RF beacon. Searching for a clear RF channel using DCS is faster than the normal single channel wait and retry mode.
- 6. Does the number of wireless access point modules controlled with DCS affect the normal response time to unlock the door?**  
No- There is no noticeable change in the delay for door operation with DCS enabled.
- 7. How do I enable DCS on a PIM400-TD2 and a PIM400-485?**  
**PIM400-TD2** – DCS is enabled with the SUS under PIM Properties, in the edit tab.  
**PIM400-485** - DCS is enabled with the SUS like the TD2 above. Additionally, the PIM400-485 DCS can also be enabled with a RSI protocol command from Access Control Panels that support remote programming. Consult your ACP supplier to determine if your ACP can support remote DCS programming.
- 8. Can I use DCS with the RPTR400?**  
Yes - Enable DCS on both, the PIM400-TD2 in the PRTR400 assembly and the PIM400 LINKED to the WRI400 part of the repeater.

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