AD-Series online

OVER NETWORK REPROGRAMMING

(ONR)

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Release History:

RELEASE:	Comments	DATE
SES-20140314-A	Original posting	March 2014
SES-20140314-B	Updated with ONR AD.A.71 release - Textual updates and clarifications	December 2014

Over Network Reprogramming (ONR):

AD-Series on-line devices now have the new capability of Over the Network Reprogramming (ONR) of device firmware. Starting with firmware package AD.A.60 released March 2014, on-line access control software providers have some new commands available to allow firmware updates over the RS-485 network.

Manually programming firmware updates into on-line products using the SUS and HHD process can be time consuming and a logistic problem for larger facilities. Customers commented they would like a better way to manage firmware updates for their on-line devices. Allegion has now added Over Network Reprogramming (ONR), a new feature which gives the access control software the capability to update firmware over the network. ONR is safe, secure, and an easy device firmware update method.

Access Control Panel (ACP) software can now send the needed on-line RSI protocol commands and files to install AD-Series firmware over the RS-485 network.

Allegion will continue to release two separate sets of files for each firmware package update. The standard AD.A.XX firmware package files will be posted for use with the Schlage Utility Software (SUS) on the Hand Held Device (HHD) for standard manual updates. A matching ONR AD.A.XX firmware package will also be posted for on-line access control providers to download over RS-485 the network.

> **NOTE:** The individual product ONR.AD.A.XX files are the same individual product files used to construct the standard AD.A.XX firmware package. Functionally there is no difference between the standard firmware package and the ONR firmware packages when installed into an AD-Series device
>
> **NOTE:** The TD2 versions of the AD-Series PIM-400s are not supported. ONR requires RSI protocol and the RS485 interface, so ONR is not possible with PIM400-TD2 devices connected to the ACP via Wiegand.
>
> **NOTE:** For ONR to function the AD-400/401, AD300/301 and PIM400 must already have firmware installed from the AD.A.60 firmware package or newer. ONR will not work with older firmware versions released prior to AD.A.60.

PLEASE NOTE: Before this new ONR feature is available, your access control software partner(s) must fully integrate the new RSI protocol and ONR commands in their system software.

Supported Products:

Networked AD-Series devices using the RSI Protocol and RS-485 hardwired connections to communicate with the ACP, which include:

- PIM-400-485-RSI, PIM-400-485-SBB (or VBB)
- AD-300/301 when wired RS-485 direct to the ACP
- AD-400/401 when linked to a PIM400-485

All supported devices must also:
- Have firmware from AD.A.60 firmware package or newer

NOTE: The WPR400, WRI400, and PIM-400-TD2 do not utilize the RS485 communication interface and are NOT ONR capable.

OEM Partner Integration:

NOTE: The OEM software partners started to integrate the ONR capability with their systems in March, 2014. Contact your OEM ACP provider for more details on this new feature

ONR Programming Process:

With ONR the access control software can reprogram the firmware in AD-Series networked devices via RSI Protocol commands and RS-485 data transmissions

- AD-300/301 and the PIM400-485 are reprogrammed when hardwired directly to the ACP with RS-485

- AD-400/401 is reprogrammed by first downloading individual product files to its linked PIM-400-485 which then wirelessly downloads and reprograms the firmware update into the individual AD-400/401

NOTE: The ONR scheduling of activities, such as when a download is to start, which device to update first, how many locks to reprogram at the same time etc. are under the control of the ACP. Selecting which devices and when to reprogram them is under direct control of the ACP software; the devices can be done individually or in groups.

ONR Requirements:

The two requirements to enable the new ONR feature are:

1) The access control software must have the ONR feature enabled and be fully integrated into their system
    a. The availability/status of the ONR enabled ACP software version should be obtained from your ACP software provider

2) The RS-485 networked AD-Series device must have firmware from package AD.A.60 or newer already installed
    a. The Schlage factory will start loading firmware AD.A.60 into production units in March 2014.
    b. Older and previously installed devices will require a manual firmware update using SUS 5.0.2 or newer and the HHD, with AD.A.60 firmware package or newer before the ONR feature is enabled in the device

The ONR download concept overview:

The access control software third party provider will obtain AD-Series firmware files from the ONR version of Allegion release packages. The individual product files will be securely transmitted by the access control software to the AD-Series device over the RS-485 network. Activation, scheduling, and enabling the download is a feature of the access control software.

The ONR update is a two-step procedure.

1. In the first step, the access control software downloads and saves the firmware files into temporary eeprom memory in the AD-Series device.

2. In the second step, the access control software commands the AD-Series device to initialize the new firmware now in the temporary eeprom memory and begin using that version for normal operation

The first step download and save may take 10-45 minutes depending on device being updated. This action is performed as a background operation and will have minimal effect on normal device or network operation.

The second step reprogram of the AD-Device, like a manual HHD reprogram, takes approximately two minutes and will disable lock operation until it is complete.

NOTE: During the reprogram step the networked device will be in Comm Loss Fail Mode and not operate normally.

ONR for an AD-300/301 is a direct procedure; the download and reprogram command is sent directly from the access control software to the AD-300/301. This is possible because the AD300 is hardwired directly to the ACP

ONR for an AD-400/401 is indirect, in that the PIM-400-485 first receives the download files, buffers and then wirelessly distributes the desired lock update firmware to the linked AD-400/401. This AD-400 indirect update is a managed cooperation of the PIM-400 and access control software, is performed as a background operation and is transparent to the end user.

NOTE: For this wireless download the access control software will turn ON the AD-400 Wake-up on Radio (WoR) feature.

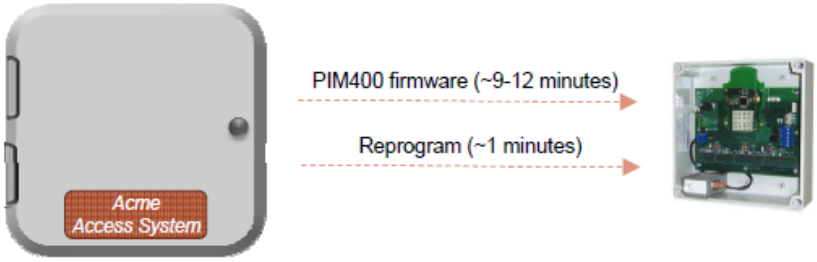
The AD lock firmware download is actually sent and saved in the temporary eeprom memory as two files. The first is the appropriate reader file, and the second is the appropriate lock main board file.

WARNING: It is the responsibility of the access control software to provide appropriate versions of the reader and main files, i.e., those files that are contained in the same firmware package. Mixing files from different firmware packages is not recommended.

ONR OEM Integration Points:

1) Downloading the firmware package to the AD300/301 or PIM400-485 will consume RS-485 bandwidth. The amount of bandwidth consumed will be managed by the access control software provider avoiding any noticeable system degradation. During the download to the eeprom memory there should be no noticeable change in device operation.

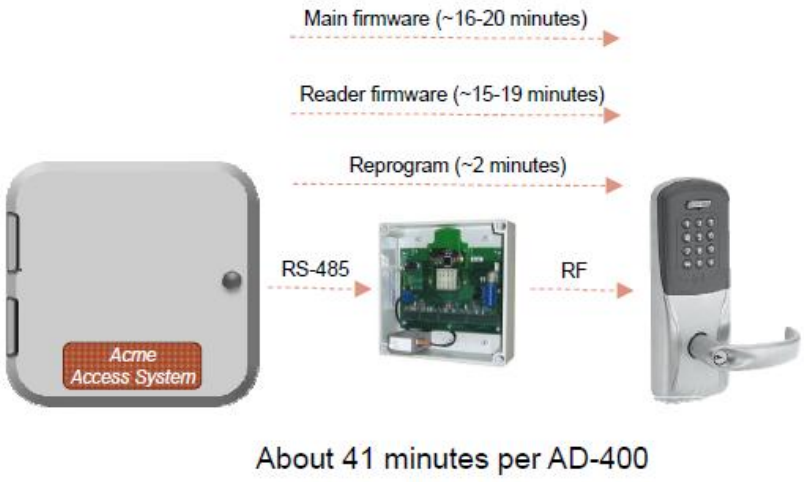
2) PIM400-485
   a. The PIM400-485 must have AD.A.60 or newer to enable ONR to the linked AD-400/401 devices
   b. The PIM400-485 is fully functional and working properly.
   c. The time required for file download to the eeprom memory over the RS-485 network, is approximately 9 to 12 minutes
   d. When the “Reprogram PIM-400” command is given by the ACP software and the PIM-400-485 reprograms with the new firmware file from temporary eeprom memory
   e. The PIM400 will be off-line for approximately a minute during the reboot after firmware download is completed. While the PIM-400-485 reboots it will also take off-line linked AD-400 locks.



About 13 minutes per PIM400-485-RSI

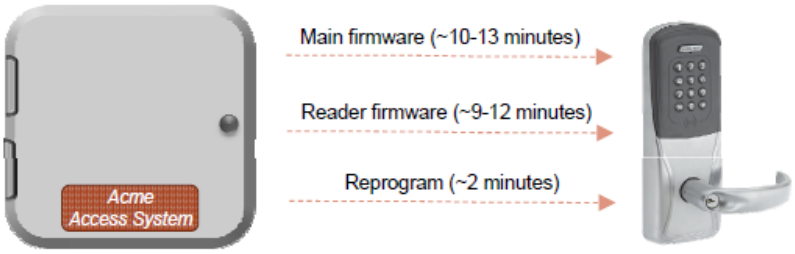
3) AD400/401
   Downloading the firmware from the ACP software to the eeprom memory in the PIM-400-485 and then to the AD-400/401 eeprom memory could take up to 45 minutes total for both the reader and main board files
   a. The locks and system are fully functional during download; as such, there should be no perceived ONR activity or slow response at the AD-400/401
   b. When the firmware download into the eeprom memory is complete the ACP will give a “Reprogram lock” command and the AD-400/401 will reboot with the new firmware. During reboot the AD-400/401 will be “Off-Line” for approximately 2 minutes, similar to a manual HHD reprograming session.

c. During this 2 minute reprogram time the lock is NOT operational, and is in Comm Loss Fail Mode.
    i. The AD-400/401 will remain in the appropriate locked/unlocked state as specified by its Comm Loss settings
d. It is expected the access control software provider will command the reprogramming of the lock during an inactive appropriate time of day. When reprogramming ends the lock returns to normal operation.
e. During ONR reprogram time, the lock IPB and reader LEDS will flash similar to a HHD firmware update.



About 41 minutes per AD-400

4) AD-300/301
Downloading the firmware from the ACP software to the eeprom memory in AD-300/301 could take approximately 25-30 minutes for the complete main board and reader firmware download.
    a. The locks and system are fully functional during download; as such, there should be no perceived ONR activity or slow response at the AD-300/301
    b. When the firmware download into the eeprom memory is complete the ACP will give a “Reprogram lock” command and the AD-300/301 will reboot the new firmware. During reboot, the AD-300/301 will be “Off-Line” for approximately 2 minutes in Comm Loss Fail Mode.
        i. The AD-300/301 will remain in the appropriate locked/unlocked state during the reprogramming.
    c. During this 2 minute reprogramming time the lock is NOT operational, and it is expected the access control software provider will command the reprogramming to be accomplished during an appropriate inactive time of day
    d. During ONR reprogramming time the lock IPB LEDS and reader LEDS will flash similar to a HHD firmware update



About 27 minutes per AD-300

e. The access control software will reprogram both main board and reader firmware. The main and reader firmware compatibility and file version management is the responsibility of the ACP software provider. For manual firmware updates using the SUS, the individual firmware files management requirement is handled by the firmware package.

> **NOTE:** It is important that the firmware loaded into our products are tested together and released in the same firmware package, to ensure compatibility

Frequently Asked Questions:

1) When will my access control software allow ONR?
    - Your integrator could have begun integration as early as March 2014. Contact your Access Control provider to determine if ONR is a feature they can support today

2) Can I load AD.A.60 with the Schlage Utility Software (SUS) using the HHD and then load an old firmware package with ONR?
    - No, ONR is only possible starting with AD.A60 and NEWER.

3) How can I reprogram my Off-Line, stand-alone locks?
    - Use SUS 5.0.2 or newer and the standard firmware package to update standalone locks.

4) What if I lose power during the download?
    - If power is lost during download the AD-Series device will recover and be fully operational on the original firmware.
    - If power at the lock is lost during the two minute reprogramming, it may be necessary to manually update the lock with the SUS.

5) Will ONR change any of my device properties settings?
    - Only WoR, updating firmware will not change any other device properties or settings. The access control software will turn ON WoR to initiate the ONR download.
    - Some access control system controllers may set some device settings to the values they expect/need, overriding any setting made using the Schlage Utility Software. This can include Keypad Output Format, Relatch After Delay, Relatch After Door/Timer, and WoR.

6) Will ONR work correctly if I have a mixture of networked lock classes like AD-400 and AD-300 in my installed locksets?
    - Yes, the lock main board will only update when ONR provides the proper type of firmware file. If the file is the wrong type the lock will deny the reprogramming and notify the access control software system.

7) Do I need to re-LINK my AD400s and PIM400s if I use ONR?
    - No, ONR will not affect the device LINK status. ONR will turn on WoR; but you do not need to re-link.

8) Can I re-class my networked locks with ONR?
    - No, ONR will not re-class a lock. ONR updates the AD-Series devices with the same (or updated) lock firmware and cannot reprogram a device to a new class. For instance an AD-400 lock cannot be changed to an AD-300 lock using ONR