

Allegion PIM-400/485 and AD-400 Installation

Application Note




This document explains how to setup and use the Allegion AD-400 wireless locks with the NXT Mercury Powered controllers and the Doors.NET software. These locks have extensive functionality and operating modes and are combined units consisting of the electric lock, credential reader, Request-to-Exit and Request-to-Enter sensors, door position switch, and tamper guard.

1.0 Hardware Requirements

Keri Hardware

- Requires NXT-MSC (Mercury-Powered) controllers
(standard NXT or PXL controllers do NOT support Allegion wireless locks)

Allegion Hardware

		
PIM 400/485 KRI Module	AD-400 Lockset	HHD (Hand Held Device)

2.0 Software/Licensing Requirements

Access the License Manager to verify you have the correct license settings:

Start > All Programs > Doors.NET > License Manager

- Current Doors.NET Software revision
- Mercury Powered controller licensing
- Mercury gateway installed and configured
- Allegion enabled

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Capacities:

- Number of Gateways – 1 or more
- Number of readers (Allegion) – 1 or more
- Number of readers (Allegion – per controller) – 1 or more

Capacities	
Administrative Clients	4
Badging Clients	1
Cardholders	48000
Central Station Clients	0
Enroll Clients	0
Gateways	4
Inputs	1024
Mapping Clients	0
OnSSI Clients	0
Outputs	1024
PXL controllers (Legacy)	10
Readers	256
Readers - Allegion	16
Readers - Allegion per Controller	16
Readers - Aperio	8
Readers - Aperio per Controller	8
Readers - Sargent Profile Series (VS2)	0
Report Clients	1
Roll Call Clients	1
Video Cameras	4
Video Clients	1

Supported Hardware

- Allegion – True
- Keri Systems – NXT (MSC) – True

Supported Hardware	
Allegion	True
Allow non-Keri Mercury Aperio Hubs	False
Assa Abloy	False
Assa Abloy - Aperio	False
Hardware Encryption	False
Keri Systems - EntraGuard	True
Keri Systems - NXT	True
Keri Systems - NXT (MSC)	True
Keri Systems - PXL 160	False
Keri Systems - PXL 380	False
Keri Systems - PXL 500	True
Mercury Security - AP Series	False
Mercury Security - SCP Series	True

Interface

- Distribution Interface – False

User Interface	
Distribution User Interface	False

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3.0 Resetting the AD-400/PIM 400-485

Before getting started:

- Ensure the batteries have adequate voltage and are installed properly in the AD-400 locks.
- The PIM 400-485 and AD-400 lock(s) have to be reset to factory defaults.
This will also remove any construction credentials.

3.1 AD-400 Reset Procedure (to Factory Defaults)

This clears all information programmed in the lock.

1. Remove the top inside cover.
2. Press and hold the Allegion button until two (2) beeps sound (10 seconds) then release.
3. Press and release the Inside Push Button (IPB) three (3) times within 10 seconds... the button will beep and blink red with each press.
4. The Allegion button and IPB will both light green for one second and a one-second beep will be heard. This indicates that the lock has been reset. If IPB is not pressed 3 times within 10 seconds, two beeps with two red blinks indicating a timeout and procedure must be repeated.
5. Replace the top inside cover.

3.2 PIM 400-485 Reset Procedure (to Factory Defaults)

To clear all programmed information:

1. Remove the main cover of the PIM400/485.
2. Press and hold both link buttons for over 3 seconds until the LEDs start to flash red several times. When complete the LEDs will flash green momentarily and unit will be reset. LEDs are identified as LINK1 and LINK2 inside the PIM400.
3. Replace the main cover.

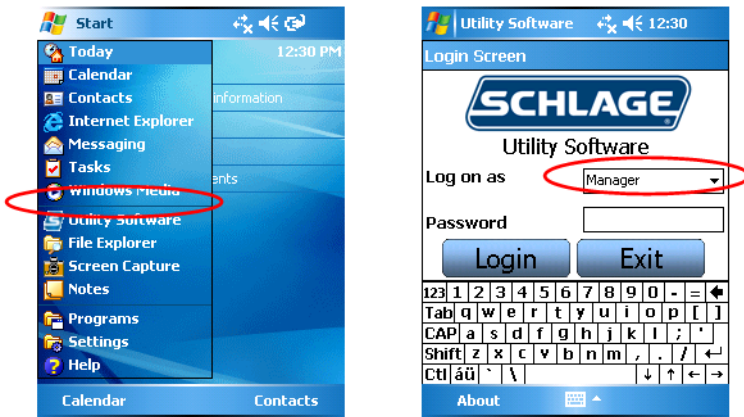
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4.0 Configuring the AD-400 Lock

4.1 Connecting the HDD programmer to the AD-400 using the Allegion Utility Software

1. Turn on the Hand Held Device (HHD) by pressing the power button on the top of the right side.
2. Remove the stylus from the back lower right side of the HHD.
3. On the HHD Home Screen, use the stylus to tap the Start button.
4. Tap the Utility Software link from the drop down list.
5. Login into the HHD as Manager (the default password is 1 2 3 4 5 6), then click Login.



6. Connect the USB cable to the HHD.
7. Plug the HHD USB cable into the lock's USB port located at the bottom of the exterior housing.



8. Press the Allegion button twice to activate the USB port on the lock.

4.2 Coupling the HDD to the AD-400 Lock

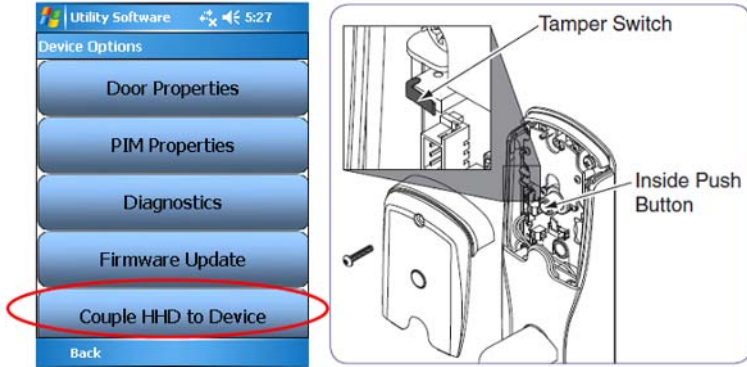
AD-Series locks can be coupled, or authenticated, with the HHD. This provides enhanced security by ensuring that the lock will only communicate with HHD(s) to which it has been coupled. Once the lock has been coupled, the Coupling Password is passed to the device from the HHD during programming. HHDs with the same coupling password can program the same devices. Each HHD with a different coupling password must be coupled with each device it will program.

1. Plug the HHD's USB cable into the AD400's USB port located underneath the exterior side of the lock.
2. Remove the top inside lock cover of the AD400.

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3. Within the Utility Software on the HHD, select Device Options.
4. Press and hold the IPB, press and release the tamper switch three times then release the IPB... The IPB will flash indicating the AD400 is in coupling mode.
5. On the HHD, select Couple HHD to Device.



6. When coupling is successful, a message will appear on the screen of the HHD
7. Unplug the HHD USB cable from the lock's USB port

4.3 Coupling the HDD to the PIM 400-485 KRI

AD-Series devices can be coupled, or authenticated, with the HHD. This provides enhanced security by ensuring that the device will only communicate with HHD(s) to which it has been coupled. Once the device has been coupled, the coupling password is passed to the device from the HHD during programming.

HHD's with the same coupling password can program the same devices. Each HHD with a different coupling password must be coupled with each device it will program.

1. Remove the PIM400/485 Cover.
2. Pull the tamper plunger switch out (or unplug J1) to disable the tamper alarm.
3. Connect the HHD to the PIM using the supplied USB cable.



4. The PIM400 will be displayed on the HHD screen.

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- On the PIM400/485, press and hold the LINK 1 button and press the LINK 2 button three times; (this will put the PIM400/485 into Coupling Mode).



- On the HHD select Device Options.
- Next, select Couple HHD to Device. You may be prompted at this point to change the password, select Yes to input a new password or No to leave at the default password (recommended).



- When coupling is successful, a notification message will appear on the HHD screen.

4.4 Linking PIM 400/485 to AD400Lock(s) with HHD

Only 1 AD-400 can be linked at a time. Ensure that no other PIM400 units are in link mode during this process.

- To set AD-400 into Link Mode create a request-to-exit (RTE) condition by holding down the inside lever or crash bar and for:
 - AD400s with Card Readers: present a card to the prox card reader
 - AD400s with Keypad: press the # key
 - AD400s with Combo Card/Keypad readers can use either option
- Continue to hold down the lever or crash bar until the Allegion button starts to blink red and green and release lever... the unit will begin rapidly blinking green indicating that the link process has begun (approximately 8 seconds).

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- The number of green blinks/beeps after the linking process indicates the RF channel number used. When in the process of linking...the number of red and green Allegion™ button flashes indicate how good an RF connection is present. Each red flash indicates a dropped RF packet. Too many red flashes indicate poor RF connection. When link process finishes...the number of beeps indicates RF channel chosen (the channel chosen can also be found by using the HHD). If the link fails, the Allegion™ button will blink red three (3) times and five (5) short beeps will sound. The PIM400 will remain in link mode. Move the PIM400/485 and/or change the RF channels and repeat steps 3 - 7.

5.0 Testing the Lock for Normal Operation

- On the HHD select Device Options > Diagnostics
- Observe the graphics on the HHD while performing the actions listed below. The graphics should reflect the action being performed.

Action	Graphic
Removing/replacing door contact or opening/closing door (door contact must be installed)	An open/closed door
Depressing outside handle	Outside handle down
Depressing inside handle	Inside handle down
Presenting a credential	Lock should unlock and Card Data field should display the card format
Pressing key on keypad	Lock should unlock and Card Data field should display the card format (see next section to edit the Keypad Output Format) <i>Note: Lock will only unlock on card presentation or key press if the 'Unlock on Read' option is selected.</i>



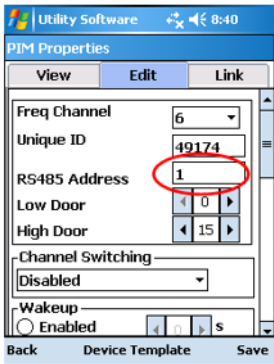
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6.0 Programming the PIM 400-485 Address

The RS485 Channel must be selected to the corresponding bus used on the NXT-MSC controller for proper operation.

1. On the HHD select Device Options > PIM properties > Edit.
2. Select the correct RS-485 address. The address number is determined by which bus the PIM 400-485 is connected to on the NXT-MSC controller. For example, if you are using a 4-door controller:
 - Bus 1 = address 1
 - Bus 2 = address 2
 - Bus 3 = address 3
 - Bus 4 = address 4



3. Disconnect the HHD.
 4. Remove the USB cable from the PIM400/485 KRI and turn off the HHD.
- Other lock and PIM settings may be configured by selecting Door Properties or PIM Properties from the HHD. Editable items include: *Heart Beat* and *Comm Loss Mode*. Consult the HHD user manual for these item settings.

7.0 Wiring the NXT-MSC 2D/4D Controller to the PIM 400-485

NXT-MSC RS-485 Port		PIM 400-485		
PIN	Label	Wire Color	PIN	485 Connector Label
1	12 VDC		- no connection -	
2	Ground	Black	1	Ground
3	IO +	White	4	TA -
4	IO -	Green	2	TB +

- The J19 and J20 Jumpers on the PIM must be in place.

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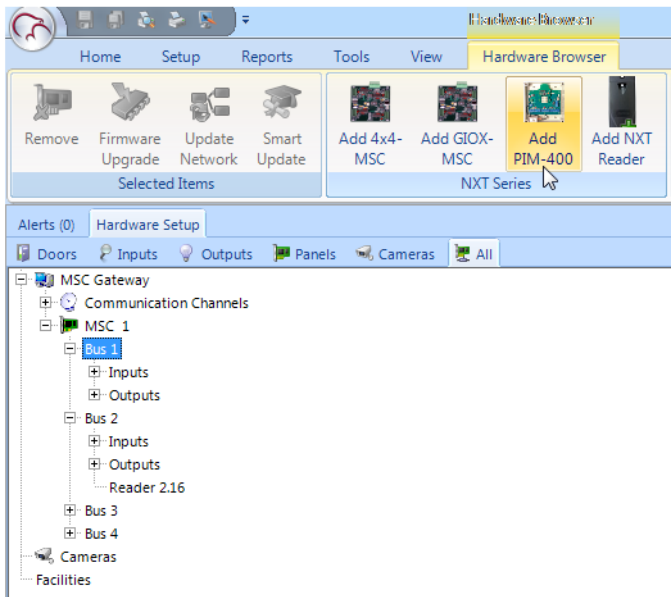
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- The PIM 400-485 wires directly to the NXT-MSC's 485 bus (4 conductor port). Take note which buses) are being used so these can be configured properly.
DO NOT POWER A PIM FROM THE NXT CONTROLLER - EACH PIM MUST HAVE ITS OWN POWER SUPPLY.
- Each NXT-MSC controller can handle up to 16 (max) AD-400 locksets per controller.
- Additional PIM 400/485s installed on an NXT-MSC controller will not increase the 16 AD-400 MAX lock limit per controller.
- More than 16 AD400 locks will require additional NXT-MSC controllers.

8.0 Configuring Doors.NET for the AD-400 and PIM 400-485

This section assumes the NXT (MSC) 2-door or 4-door controller is online, configured and ready to add the AD-400/PIM 400-485 to the database. (Refer to the [NXT \(MSC\) controller Quick Start Guide](#) for further details about setting up and configuring this controller type with Doors.NET).

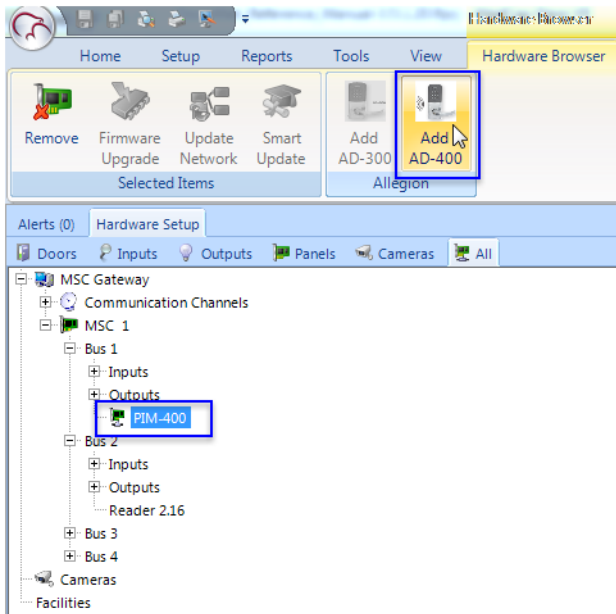
1. Log in to Doors.NET and go to Setup > Hardware Setup > All.
2. On the hardware tree you will see the gateway node and the NXT (MSC) controller(s).
3. Expand the controller and highlight the bus which the PIM400-485 is connected to.
4. From the hardware ribbon select the Add PIM-400 icon.



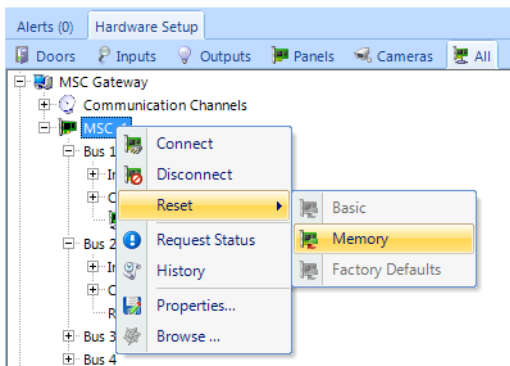
5. The PIM400 will be added to the selected controller bus on the hardware tree.

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6. Highlight the PIM400 on the hardware tree and then click the Add AD-400 icon.



7. Select the NXT (MSC) controller, right-click and perform a memory reset.



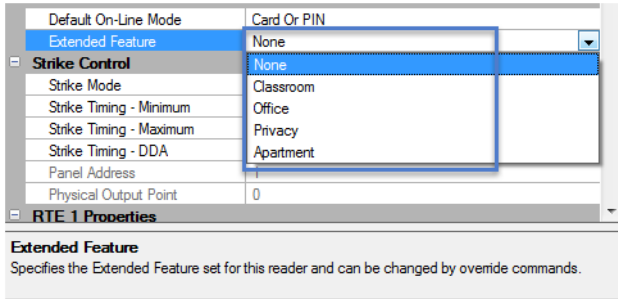
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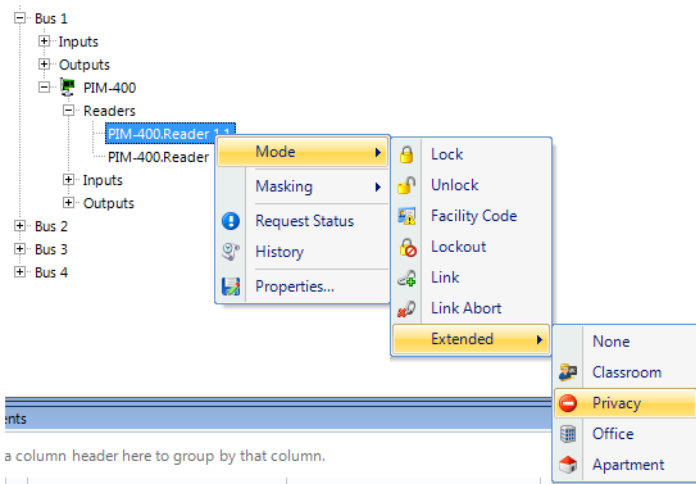
9.0 Extended Features

There are several lock modes that are supported by the AD-400 series locks. You can set one of these supported modes by performing the following:

1. Highlight the AD-400 in the hardware tree.
2. Locate the Modes section and select from the Extended Features drop-down list.

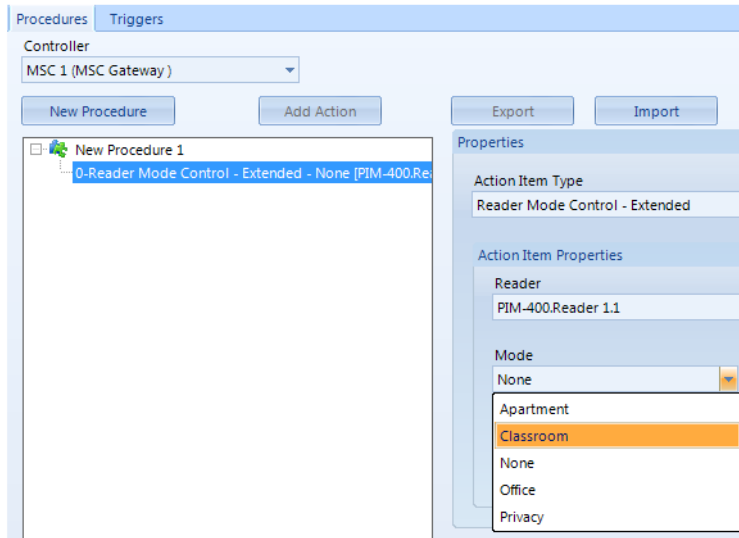


3. You can right-click the AD-400 in the hardware tree or from the doors status grid and select Mode > Extended.



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4. You can setup a Local Linkage Procedure to set one of the extended modes.



There are numerous system events that can be defined as Local Linkage Triggers but the event must be generated from the same controller to which the AD-400 is connected. For example: an Extended Feature could be set from a double card presentation, when a certain input goes active/secure or if a tamper input is active/secure on the lock. Refer to the online help for more information about using Local Linkage with Allegion AD series locks.

NOTE: Local Linkage is an additional add-on module and is not included in the standard version of the software.

9.1 Extended Feature Descriptions

Classroom/Storeroom Mode

Lockset is normally secure. Inside lever always allows free egress. Valid toggle credentials on the exterior may be used to change to a passage or secured status.

NOTE: IPB cannot be used.

NOTE: Cannot use with Mortise Deadbolt Chassis.

Privacy Mode

Lockset is normally secure. Inside lever always allows free egress. Interior push button on inside housing may be used to select a privacy status. The interior push button will disable normal electronic access from the exterior. Opening the door or pressing the interior push button a second time on the inside housing deactivates the privacy status.

Privacy Mode with Mortise Deadbolt

Device is normally secured. Upon presenting normal credential to exterior the device momentarily unlocks. Upon turning the thumb turn on the interior the device is placed into a "Privacy State" and will allow access only to "Pass Thru" credentials. Upon retracting the thumb turn or changing state of door position switch the device is removed out of the "Privacy State" and returns to the prior designated state.

Office Mode

Lockset is normally secure. Inside lever always allows free egress. Interior push button on inside housing may be used to select a passage or secured status. Meets need for lockdown function for safety and security.

NOTE: Valid toggle credentials on the exterior may also be used to change status.

NOTE: Cannot be used with Mortise Deadbolt

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Apartment Mode

Lockset is normally secure. Inside lever always allows free egress. Interior-push button on inside housing may be used to select a passage or secured status. Opening the door or pressing the interior push button causes the lockset to toggle unsecured. While toggled unsecured, the lockset can only be secured while the door is closed by pressing the interior push button or using a normal credential on the exterior. Normal electronic access from the exterior is always allowed.

Apartment Mode with Mortise Deadbolt

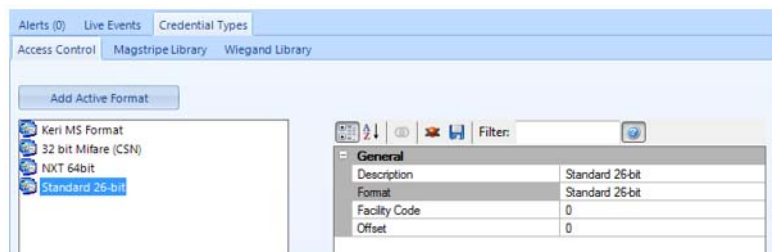
Device is normally secured. Upon presenting normal credential to exterior the device permanently unlocks. Upon extending the deadbolt with thumb turn on the interior the device relocks to normally secured state (not Privacy state). Upon retracting the thumb turn or pressing IPB and opening the door, device permanently unlocks. Upon shutting the door and presenting normal credential to the exterior reader the device returns to a normally secured state. Mortise deadbolt chassis will have deadbolt retracted.

10.0 Setup and Configuring Credential Types

1. Before setting up users or adding credentials to users, “Credential Types” must be configured to allow proper card and/or PIN operation.
2. The Credential Types feature must be enabled on your license key within the Options section.



3. While logged into the Doors.NET software, click Setup > Credential Types.
4. From the Access Control tab, click Add Active Format.
5. In the properties pane locate Format and select Standard 26-bit.
6. For PIN operation leave the FC field set to 0 and leave the Offset field set to 0. (This format will allow the keypad to work in 26-bit mode with a FC of 0).
7. For CARD operation set the FC field to the Facility Code programmed in the card(s) to be enrolled.
8. Leave the offset field set to 0, click save.
9. If using cards the above process will need to be completed for each facility code in use.



11.0 Enrolling a Card

1. From Home > Cardholders, add a new cardholder and save.
2. When adding a card or PIN to a cardholder ensure the 'Calculate Internal Number' option is unchecked.
3. Enter the Imprint number (number printed on the card) or the PIN into the Cardnumber field.
4. Leave the issue code at the default value of zero.
5. Click the Add Card button then save.
6. Assign the card record an access group from the Access Rights tab.
7. This card will automatically be sent to the controller(s) and should work within a few seconds.

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12.0 Contact Keri Systems

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