



Pushing Performance

People | Power | Partnership

## **HARTING** MICA Firmware 2.0 Release Notes

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This Guide refers to Base Version V1.7, Interface Version and Container Version 1.0.0.



# Contents

<b>Contents .....</b>	<b>3</b>
<b>1 General Notes .....</b>	<b>4</b>
<b>2 Known Issues.....</b>	<b>5</b>

# 1 General Notes

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*Warning: An upgrade from Firmware 1.7 and earlier to Firmware 2.0 beta is NOT REVERSIBLE.*

*Warning: This Firmware is exclusively for HARTING MICA devices. It should not be installed on HA-VIS RF-R3x0 RFID readers.*

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## 2 New features

### 2.1 Support for new MICA hardware

- Support for MICA 2 and other new MICA with dual core CPUs.
- Support for MICA Wireless and other MICA with built-in GSM, LTE, GPRS, WiFi connectivity.

### 2.2 Extended RPC functionality

- The MICA RPC functionality has been extended and unified.
- RPC calls are documented at <https://<micaname>/api> and <https://<micaname>/<containername>/api> respectively.

### 2.3 New installer and universal package format

- The Install functionality of the MICA now handles installation and upgrades of containers and firmware.
- The MICA script format has been extended to support installation of multiple packages and documentation in a single archive.

### 2.4 Support for multiple Ethernet interfaces

- Users can set up additional network interfaces on a HARTING MICA and configure various container types as gateway containers to let applications use these additional network interfaces as default gateways.
- When using a second network interface and default gateway, the network needs to be configured inside the container by the container developer, or the developer needs to provide user-facing functions for the end customer to perform this configuration. Please review the application note in the documentation section of <http://www.harting-mica.com>

### 2.5 New Export and Merge functionality

- Export now saves the base file system and the overlay without merging. This means that exported containers behave identically to duplicated containers and reset to the original state of the exported container on executing a container reset. You should use this function to create backups of containers.
- Use first Merge and then Export achieve the old Export functionality of exporting a container with merged base file system and overlay. You should use this functionality to create containers for distribution.

### 2.6 Other new features

- Redesign of the SSO Service. The old functionality has been deprecated and will be removed in a future version after 2.0.
- Miscellaneous security and stability enhancements.

## 3 Notes

### 3.1 MICA Wireless fallback mode

If a MICA Wireless cannot connect to a wireless network within one minute after being switched from access point mode to station mode, the MICA resets itself to access point mode and IP address 10.10.10.10 to allow a recovery. This mechanism only applies once after changing to station mode. If you do not want the MICA to connect immediately after changing to client mode, turn it off within one minutes of making the switch.

### 3.2 Secondary network interfaces

- Gateway functionality for secondary network interfaces is not supported for MICA Wireless in station mode.
- Gateway functionality for secondary network interfaces is not supported for IPv6.

### 3.3 MDNS addressing

Containers need to implement their own mdns responder to allow accessing them by name from other containers in Firmware 2 and higher. For older containers, it might be necessary to use IP addresses to access them. If a connection between two containers stops working after the upgrade to Firmware 2, try replacing the mdns name with the IP address of the container being accessed.

### 3.4 RPC

Firmware 2 contains a major redesign of the JSON RPC interface. Deprecated RPC calls will be disabled in a future firmware version after 2.0, so developers should migrate their containers to the new RPC format within the next 6 months.

- New JSON RPC calls are only available via Websockets. These are `get_base`, `set_base`, `get_container`, `set_container`, `changepasswd`, `sign_in`, `get_clients` and `set_client`.
- If you want to use Deprecated RPC via HTTP make sure to also use old SSO authentication via `get_auth_token`. Keep in mind, that it is not intended to use Deprecated RPC via websockets.
- The following RPC are only reasonably available via websockets:
  - `update`
  - `get_container`
  - `set_container`
  - `get_base`
  - `set_base`
- if you want to use old RPC API methods with websockets, pass auth token as an empty string (do not forget to `sign_in()` before)
- Using RPC via HTTP requires to use deprecated SSO authentication via `get_auth_token()`
- `transfer_chunk` is only available via HTTP due to websocket performance issues with uploading files
- `transfer_chunk`, `reset_cert` and some other calls are possible without authentication
- Old Busybox based Container Web-GUI that use websocket SSO service (eg. GPIO, Python Demo, Mobile) sometimes might not come up, restarting the container resolves

this problem, alternatively you might use a workaround by modifying the "/etc/init.d/network"-file of your busybox container with

```
.
.
.
IPV6=$IPV6:0
if [ ! "$(cat /etc/resolv.d/20lo_dyn | grep $IPV6)" ]; then
echo "nameserver $IPV6" >> /etc/resolv.d/20lo_dyn
fi

+ # workaround for unreachable base
+ping -c 1 $IPV6

# append config files
cat /etc/hosts.d/* | while read line
do
.
.
.
```

- In some cases, Container Export might fail for large containers due to memory issues on the client browser.