## CMD\_BOOTLOADER\_START\_PROGRAM (0xA0)

This command starts the main program. This implicitly resets the device, akin to CMD\_CMD\_BOOTLOADER\_JUMP. No response will be sent. The exact manner of the subsequent disconnect depends on the encapsulating transport method.

Outgoing Parameters:

None

Incoming Parameters:

None

## CMD\_GET\_BOOTLOADER\_PAGE\_INFO (0xA1)

This command returns information about the number and size of the memory pages on the bootloader device.

Outgoing Parameters:

None

Incoming Parameters:

**Total length:** 8 bytes

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte # | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| 0 | Page Count | | | | | | | |
| 1 |
| 2 |
| 3 |
| 4 | Page Size | | | | | | | |
| 5 |
| 6 |
| 7 |

**Page Count:** 32 bits unsigned

**Page Size:** 32 bits unsigned

The page count is the number of programmable pages present on the device.

The page size is the size, in bytes, of each programmable page on the device.

## CMD\_GET\_BOOTLOADER\_BLOCK\_SIZES (0xA2)

This command retrieves the valid block sizes for CMD\_WRITE\_BOOTLOADER\_CODE\_BLOCK. There will be at least one valid block size returned. The reported block sizes will be non-zero and distinct. The block sizes will be returned in ascending order.

Outgoing Parameters:

None

Incoming Parameters:

**Total length:** variable (≥2 bytes)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte # | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| 0 | Block Size 0 | | | | | | | |
| 1 |
| … | Block Size n | | | | | | | |

**Block Size n:** 16 bit unsigned

## CMD\_START\_BOOTLOADER\_PAGE (0xA3)

This command prepares the device for writing to a specific page. This must be called before writing code blocks to a page or verifying a page.

Outgoing Parameters:

**Total length:** variable (≥4 bytes)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte # | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| 0 | Page Number | | | | | | | |
| 1 |
| 2 |
| 3 |
| 4 | Nonce | | | | | | | |
| … |

**Page Number:** 32 bits unsigned

**Nonce:** variable length byte array

Incoming Parameters:

None

The size and content of the nonce field is device dependent, and must be supplied by the firmware file being written to the device. The nonce field may be as short as zero bytes, if required by the bootloader implementation.

## CMD\_WRITE\_BOOTLOADER\_CODE\_BLOCK (0xA4)

This command writes a code block to the current page. The block sizes that the device will accept are defined by CMD\_GET\_BOOTLOADER\_BLOCK\_SIZES. The page must have been started with CMD\_START\_BOOTLOADER\_PAGE.

Outgoing Parameters:

**Total length:** variable (≥1 bytes)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte # | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| 0 | Block Contents | | | | | | | |
| … |

**Block Contents:** variable length byte array

Incoming Parameters:

None

## CMD\_FINISH\_BOOTLOADER\_PAGE (0xA5)

This command writes the contents of the transmitted code blocks into the page, after checking for validity.

Outgoing Parameters:

**Total length:** variable (≥0 bytes)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte # | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| 0 | MAC Tag | | | | | | | |
| … |

**MAC Tag:** variable length byte array

Incoming Parameters:

None

The size and content of the MAC tag is device dependent, and must be supplied by the firmware file being written to the device. The MAC tag may be as short as zero bytes, if required by the bootloader implementation.

## CMD\_VERIFY\_BOOTLOADER\_PAGE (0xA6)

This command verifies the contents of the currently started page.

Outgoing Parameters:

**Total length:** variable (≥0 bytes)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Byte # | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| 0 | MAC Tag | | | | | | | |
| … |

**MAC Tag:** variable length byte array

Incoming Parameters:

None

The size and content of the MAC tag is device dependent, and must be supplied by the firmware file being written to the device. The MAC tag may be as short as zero bytes, if required by the bootloader implementation.