

# FAQ・テクニカルガイド

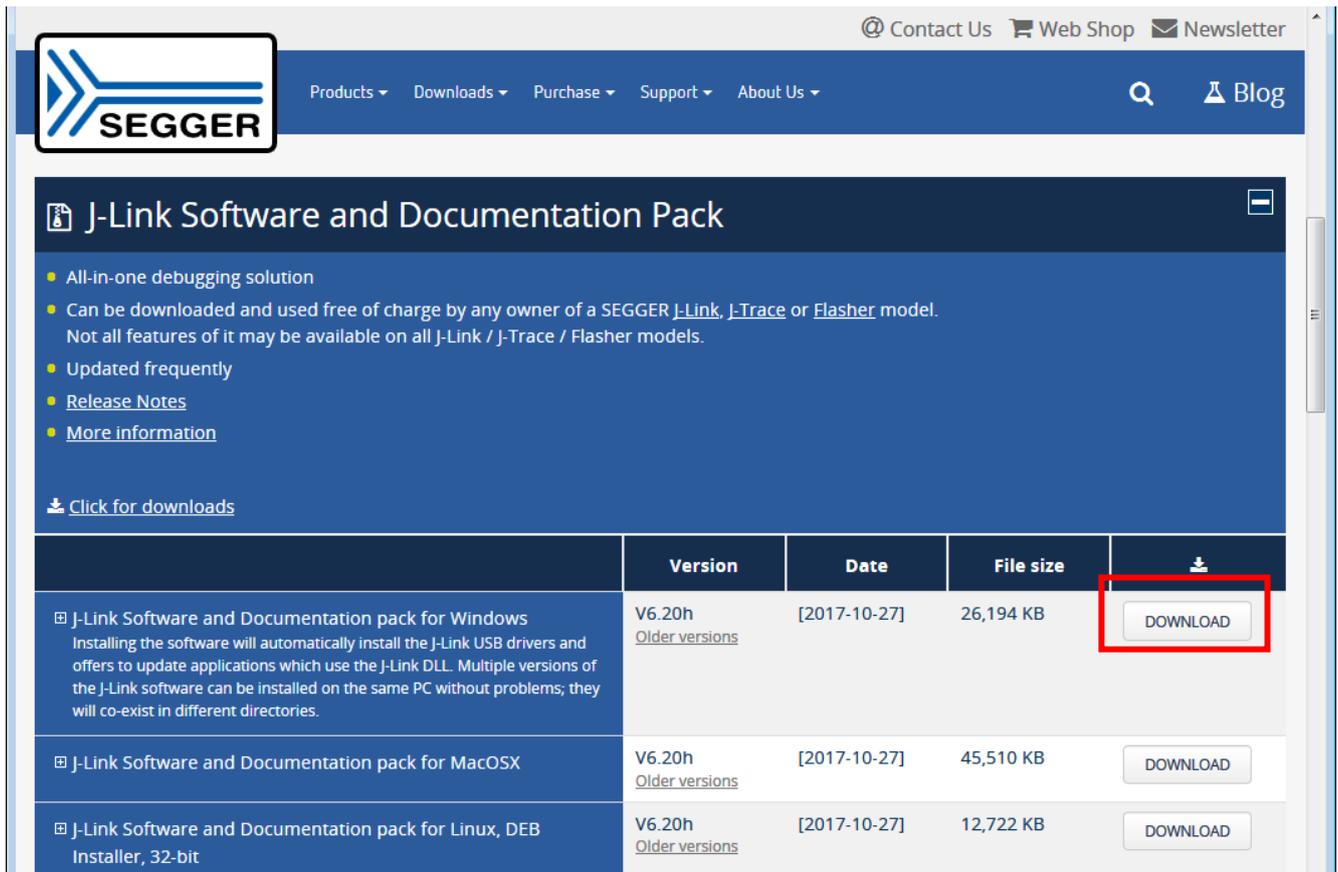
## 「J-Link Commander」 ツール

### 使用方法

#### 1. J-Link ソフトウェアのインストール

J-Link/Flasher 本体をパソコンに USB 経由で接続する前に、SEGGER 社の WEB ページ（以下の URL）から最新版の J-Link ソフトウェアをダウンロードしてパソコンにインストールしてください。

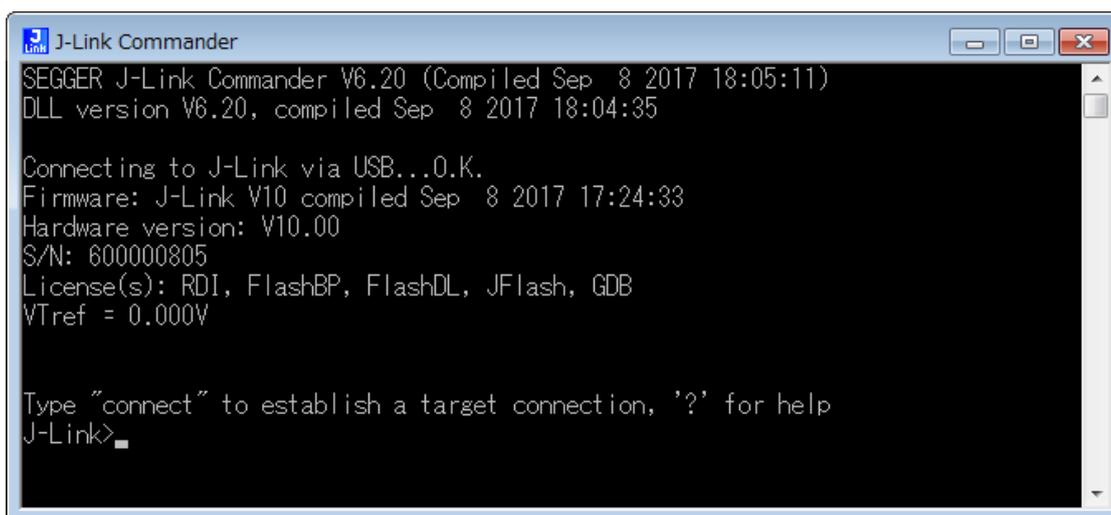
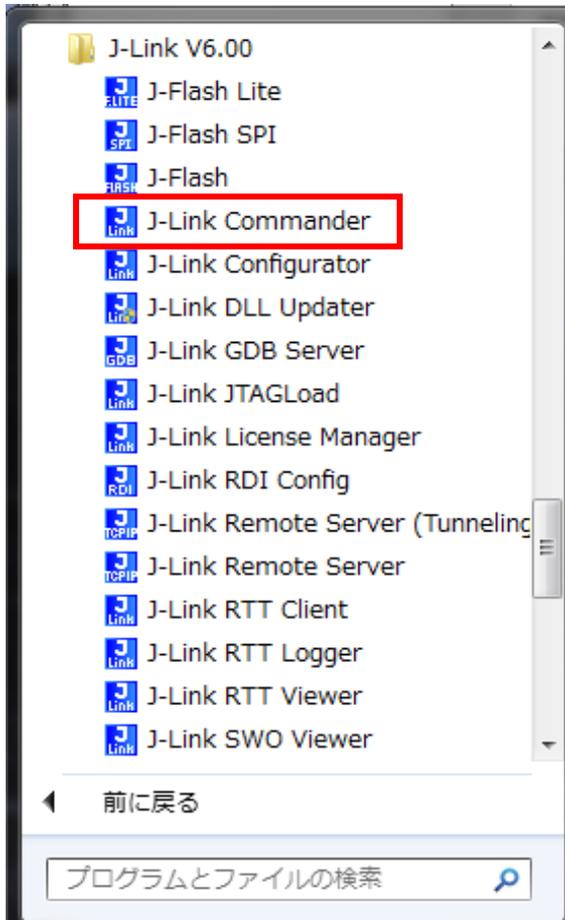
<https://www.segger.com/downloads/jlink>



	Version	Date	File size	Download
<input type="checkbox"/> J-Link Software and Documentation pack for Windows Installing the software will automatically install the J-Link USB drivers and offers to update applications which use the J-Link DLL. Multiple versions of the J-Link software can be installed on the same PC without problems; they will co-exist in different directories.	V6.20h <a href="#">Older versions</a>	[2017-10-27]	26,194 KB	<a href="#">DOWNLOAD</a>
<input type="checkbox"/> J-Link Software and Documentation pack for MacOSX	V6.20h <a href="#">Older versions</a>	[2017-10-27]	45,510 KB	<a href="#">DOWNLOAD</a>
<input type="checkbox"/> J-Link Software and Documentation pack for Linux, DEB Installer, 32-bit	V6.20h <a href="#">Older versions</a>	[2017-10-27]	12,722 KB	<a href="#">DOWNLOAD</a>

## 2. 「J-Link Commander」 ツールの起動

J-Link/Flashe 本体をパソコンに接続してパソコンのスタートメニューから「J-Link Commander」プログラムを起動します。



### 3. ターゲットマイコンデバイスに接続



```
SEGGER J-Link Commander V6.20 (Compiled Sep  8 2017 18:05:11)
DLL version V6.20, compiled Sep  8 2017 18:04:35

Connecting to J-Link via USB...O.K.
Firmware: J-Link V10 compiled Sep  8 2017 17:24:33
Hardware version: V10.00
S/N: 600000805
License(s): RDI, FlashBP, FlashDL, JFlash, GDB
VTref = 0.000V

Type "connect" to establish a target connection, '?' for help
J-Link>connect
Please specify device / core. <Default>: NRF51822_XXAA
Type '?' for selection dialog
Device>
```

「connect」コマンドで  
接続開始

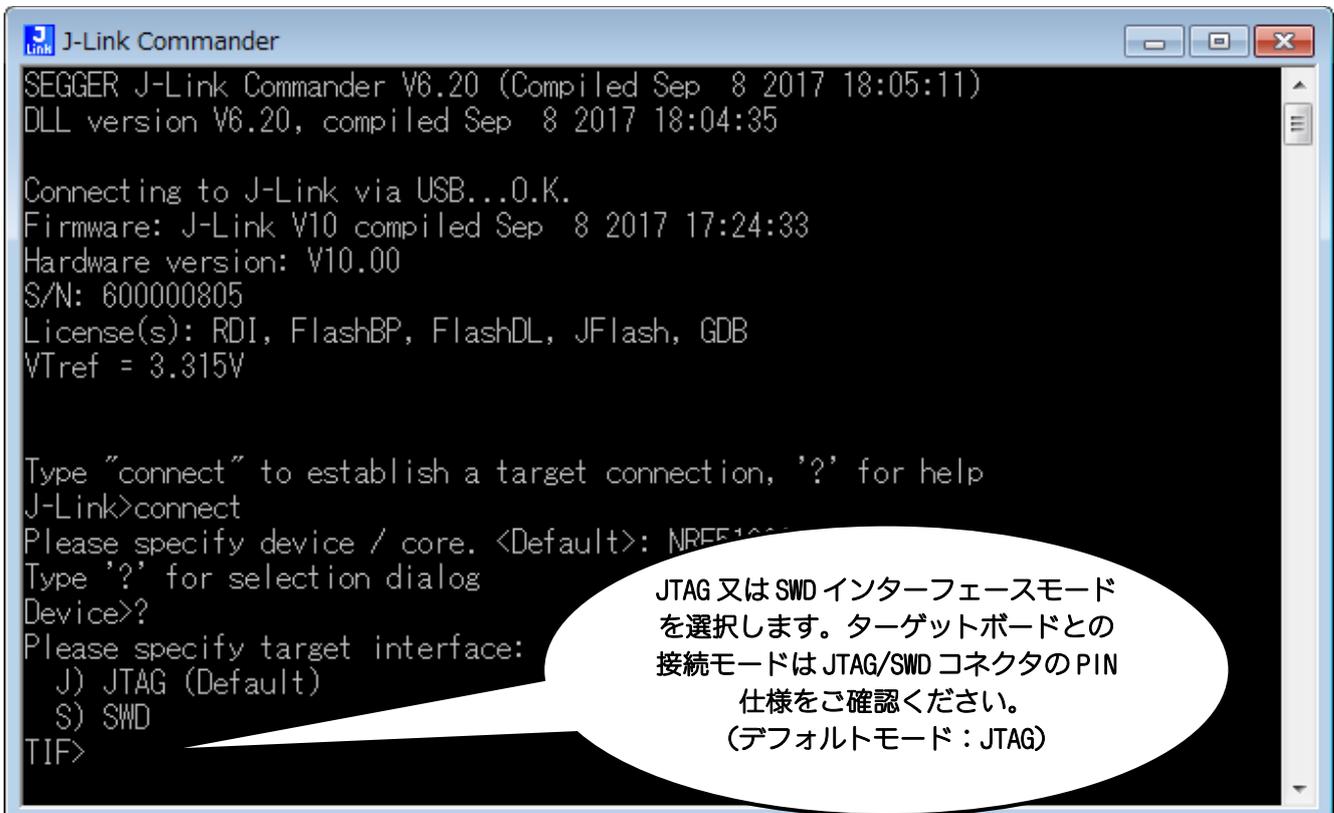
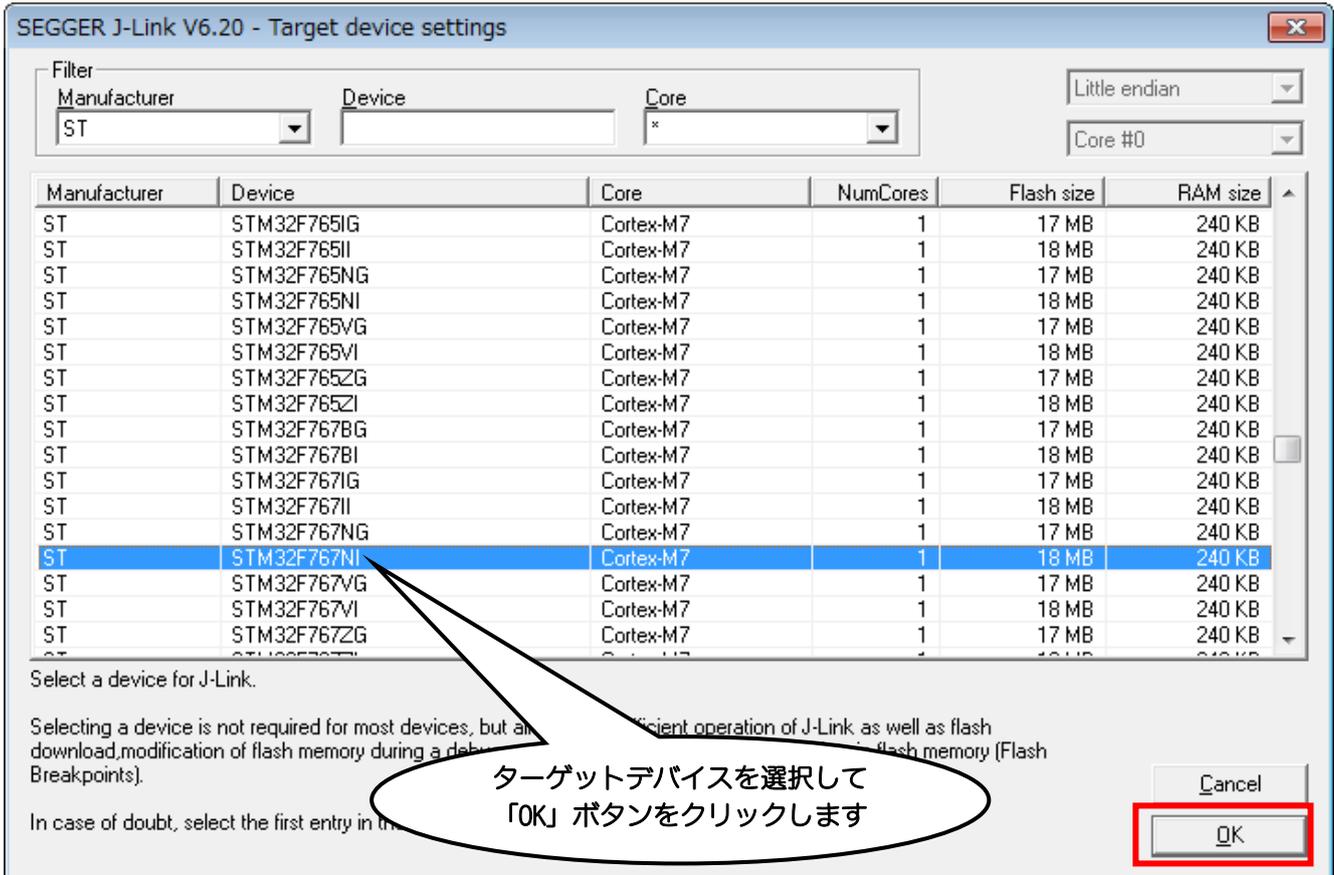


```
SEGGER J-Link Commander V6.20 (Compiled Sep  8 2017 18:05:11)
DLL version V6.20, compiled Sep  8 2017 18:04:35

Connecting to J-Link via USB...O.K.
Firmware: J-Link V10 compiled Sep  8 2017 17:24:33
Hardware version: V10.00
S/N: 600000805
License(s): RDI, FlashBP, FlashDL, JFlash, GDB
VTref = 0.000V

Type "connect" to establish a target connection, '?' for help
J-Link>connect
Please specify device / core. <Default>: NRF51822_XXAA
Type '?' for selection dialog
Device>?
```

「?」を入力してデバイス設定ダイログを起  
動します。又は、デバイス名  
「例：STM32F767NI」を入力します。



```

J-Link Commander
DLL version V6.20, compiled Sep  8 2017 18:04:35
Connecting to J-Link via USB...O.K.
Firmware: J-Link V10 compiled Sep  8 2017 17:24:33
Hardware version: V10.00
S/N: 600000805
License(s): RDI, FlashBP, FlashDL, JFlash, GDB
VTref = 3.315V

Type "connect" to establish a target connection, '?' for help
J-Link>connect
Please specify device / component
Type '?' for selection
Device>?
Please specify target
  J) JTAG (Default)
  S) SWD
TIF>S
Specify target interface speed [kHz]. <Default>: 4000 kHz
Speed>

```

ターゲットボードとの JTAG/SWD 接続で安定して使用可能なクロック値（単位：kHz）を設定します。デフォルトクロックの 4000kHz で問題なければ Enter キーを入力します。

```

J-Link Commander
Connecting to target via SWD
Found SW-DP with ID 0x5BA02477
Found SW-DP with ID 0x5BA02477
Scanning AP map to find all available APs
AP[1]: Stopped AP scan as end of AP map has been reached
AP[0]: AHB-AP (IDR: 0x74770001)
Iterating through AP map to find AHB-AP to use
AP[0]: Core found
AP[0]: AHB-AP ROM base: 0xE00FD000
CPUID register: 0x411FC270. Implementer code: 0x41 (ARM)
Found Cortex-M7 r1p0, Little endian.
FPUnit: 8 code (BP) slots and 0 literal slots
CoreSight components:
ROMTbl[0] @ E00FD000
ROMTbl[0][0]: E00FE000, CID: B105100D, PID: 000BB4C8 ROM Table
ROMTbl[1] @ E00FE000
ROMTbl[1][0]: E00FF000, CID: B105100D, PID: 000BB4C7 ROM Table
ROMTbl[2] @ E00FF000
ROMTbl[2][0]: E000E000, CID: B105E00D, PID: 000BB00C SCS
ROMTbl[2][1]: E0001000, CID: B105E00D, PID: 000BB002 DWT
ROMTbl[2][2]: E0002000, CID: B105E00D, PID: 000BB00E FPR
ROMTbl[2][3]: E0000000, CID: B105E00D, PID: 000BB000 ICI
ROMTbl[1][1]: E0041000, CID: B105900D, PID: 000BB000 ICI
ROMTbl[0][1]: E0040000, CID: B105900D, PID: 000BB000 ICI
Cache: Separate I- and D-cache.
I-Cache L1: 16 KB, 256 Sets, 32 Bytes/Line, 4-Way
D-Cache L1: 16 KB, 128 Sets, 32 Bytes/Line, 4-Way
Cortex-M7 identified.
J-Link>

```

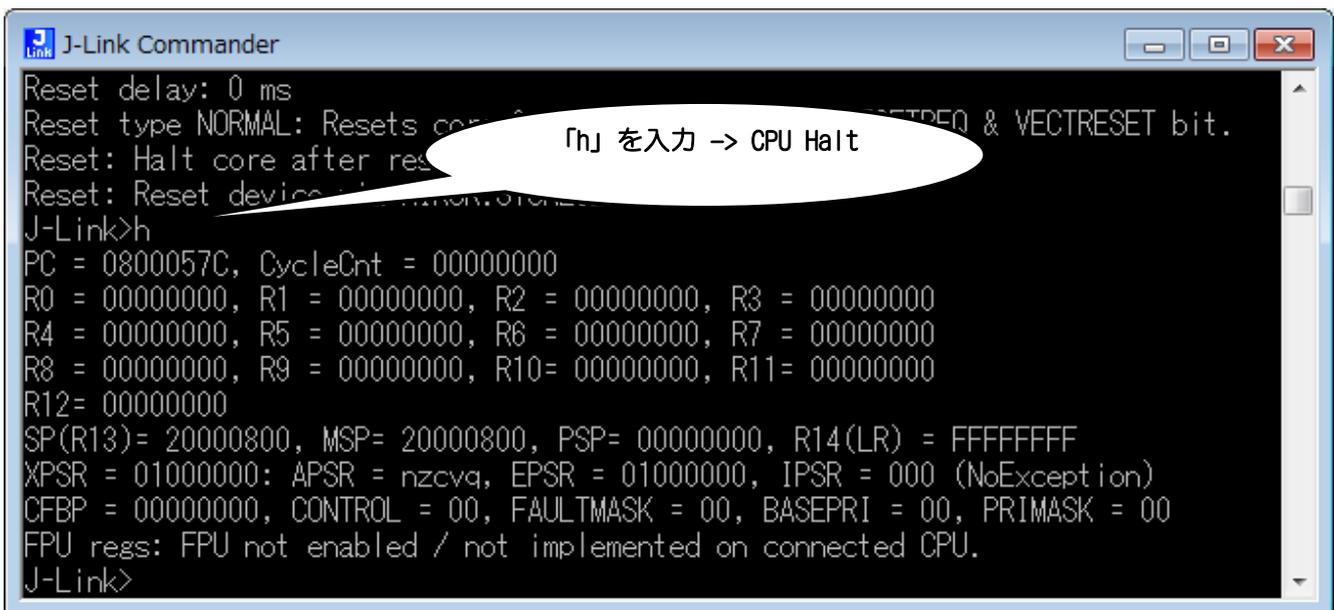
JTAG/SWD 接続のハードウェア関連の問題なければ簡単に接続します。



The screenshot shows the J-Link Commander terminal window. The text displayed is as follows:

```
J-Link Commander
Cache: Separate I- and D-cache.
I-Cache L1: 16 KB, 256 Sets, 20.5
D-Cache L1: 16 KB, 128 Sets, 20.5
Cortex-M7 identified
J-Link>r
Reset delay: 0 ms
Reset type NORMAL: Resets core & peripherals via SYSRESETREQ & VECTRESET bit.
Reset: Halt core after reset via DEMCR.VC_CORERESET.
Reset: Reset device via AIRCR.SYSRESETREQ.
J-Link>
```

A callout bubble points to the 'r' command, containing the text: 「r」を入力 -> CPU Reset

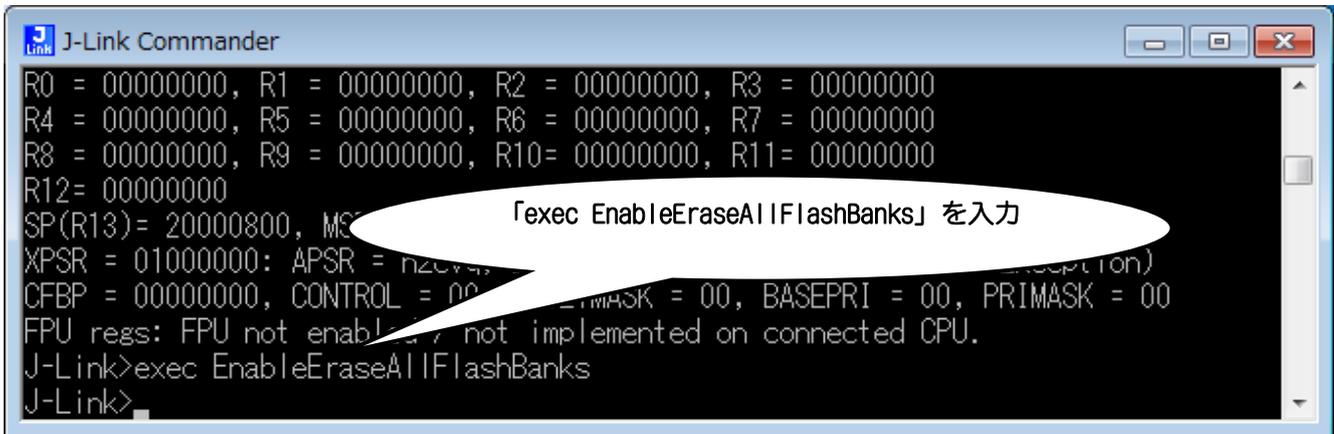


The screenshot shows the J-Link Commander terminal window after the 'h' command. The text displayed is as follows:

```
J-Link Commander
Reset delay: 0 ms
Reset type NORMAL: Resets core & peripherals via SYSRESETREQ & VECTRESET bit.
Reset: Halt core after reset via DEMCR.VC_CORERESET.
Reset: Reset device via AIRCR.SYSRESETREQ.
J-Link>h
PC = 0800057C, CycleCnt = 00000000
R0 = 00000000, R1 = 00000000, R2 = 00000000, R3 = 00000000
R4 = 00000000, R5 = 00000000, R6 = 00000000, R7 = 00000000
R8 = 00000000, R9 = 00000000, R10= 00000000, R11= 00000000
R12= 00000000
SP(R13)= 20000800, MSP= 20000800, PSP= 00000000, R14(LR) = FFFFFFFF
XPSR = 01000000: APSR = nzcvg, EPSR = 01000000, IPSR = 000 (NoException)
CFBP = 00000000, CONTROL = 00, FAULTMASK = 00, BASEPRI = 00, PRIMASK = 00
FPU regs: FPU not enabled / not implemented on connected CPU.
J-Link>
```

A callout bubble points to the 'h' command, containing the text: 「h」を入力 -> CPU Halt

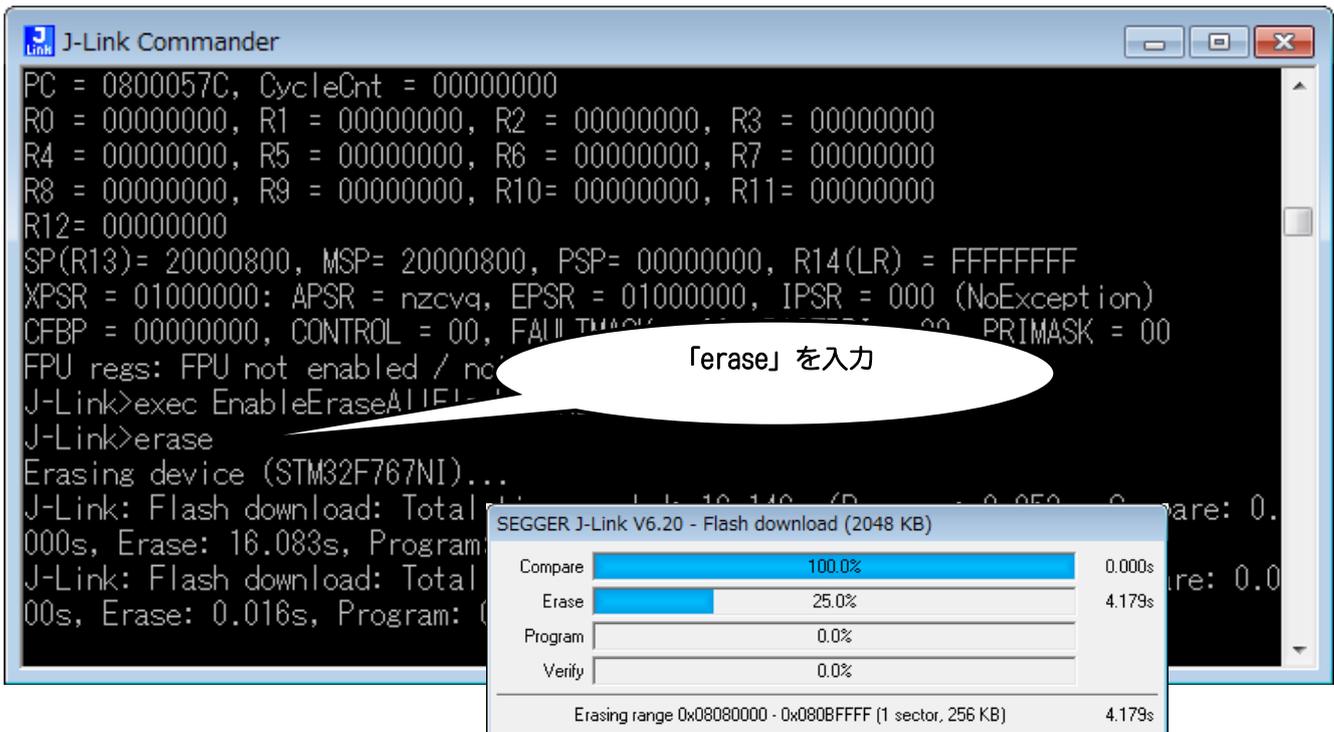
## 4. フラッシュを ERASE



```

J-Link Commander
R0 = 00000000, R1 = 00000000, R2 = 00000000, R3 = 00000000
R4 = 00000000, R5 = 00000000, R6 = 00000000, R7 = 00000000
R8 = 00000000, R9 = 00000000, R10= 00000000, R11= 00000000
R12= 00000000
SP(R13)= 20000800, MSP= 20000800, PSP= 00000000, R14(LR) = FFFFFFFF
XPSR = 01000000: APSR = nzcvg, EPSR = 01000000, IPSR = 000 (NoException)
CFBP = 00000000, CONTROL = 00, FAULTMASK = 00, BASEPRI = 00, PRIMASK = 00
FPU regs: FPU not enabled / not implemented on connected CPU.
J-Link>exec EnableEraseAllFlashBanks
J-Link>
  
```

「exec EnableEraseAllFlashBanks」を入力



```

J-Link Commander
PC = 0800057C, CycleCnt = 00000000
R0 = 00000000, R1 = 00000000, R2 = 00000000, R3 = 00000000
R4 = 00000000, R5 = 00000000, R6 = 00000000, R7 = 00000000
R8 = 00000000, R9 = 00000000, R10= 00000000, R11= 00000000
R12= 00000000
SP(R13)= 20000800, MSP= 20000800, PSP= 00000000, R14(LR) = FFFFFFFF
XPSR = 01000000: APSR = nzcvg, EPSR = 01000000, IPSR = 000 (NoException)
CFBP = 00000000, CONTROL = 00, FAULTMASK = 00, BASEPRI = 00, PRIMASK = 00
FPU regs: FPU not enabled / not implemented on connected CPU.
J-Link>exec EnableEraseAllFlashBanks
J-Link>erase
Erasing device (STM32F767NI)...
J-Link: Flash download: Total 0.000s, Erase: 16.083s, Program: 0.000s
J-Link: Flash download: Total 0.000s, Erase: 0.016s, Program: 0.000s
  
```

「erase」を入力

SEGGER J-Link V6.20 - Flash download (2048 KB)		
Compare	100.0%	0.000s
Erase	25.0%	4.179s
Program	0.0%	
Verify	0.0%	
Erasing range 0x08080000 - 0x080BFFFF (1 sector, 256 KB)		4.179s

## 5. アプリケーションイメージのフラッシュ書き込み

The screenshot shows the J-Link Commander interface with the following text:

```
J-Link> loadfile C:\¥SHANAI¥app.bin 0x08000000
Downloading file [C:\¥SHANAI¥app.bin]...
J-Link: Flash download: Bank 0 @ 0x08000000: 1 range affected (1024 bytes)
J-Link: Flash download: Total time needed: 0.04s (Prepare: 0.000s, Compare: 0.000s, Erase: 0.000s, Program: 0.040s, Verify: 0.000s, Restore: 0.000s)
O.K.
J-Link> loadfile C:\¥SHANAI¥database.bin 0x08008000
Downloading file [C:\¥SHANAI¥database.bin]...
J-Link: Flash download: Bank 0 @ 0x08000000: 3 ranges affected (753664 bytes)
J-Link: Flash download: Total time needed: 3.193s (Prepare: 0.074s, Compare: 0.000s, Erase: 0.000s, Program: 3.040s, Verify: 0.018s, Restore: 0.028s)
O.K.
J-Link>
```

A callout bubble points to the first command: 「loadfile image.bin <address>」を入力してアプリケーションデータをフラッシュにダウンロード

A progress dialog box titled "SEGGER J-Link V6.20 - Flash download (736 KB)" is overlaid on the screen:

Operation	Progress	Time
Compare	100.0%	0.029s
Erase	100.0%	0.000s
Program	52.2%	1.730s
Verify	0.0%	
Programming range 0x08075520 - 0x08075D3F (2 KB)		1.759s

コマンド事例：

**loadfile image\_rom.srec**

**loadfile image\_rom.hex**

**loadfile image\_rom.bin 0x18000000**

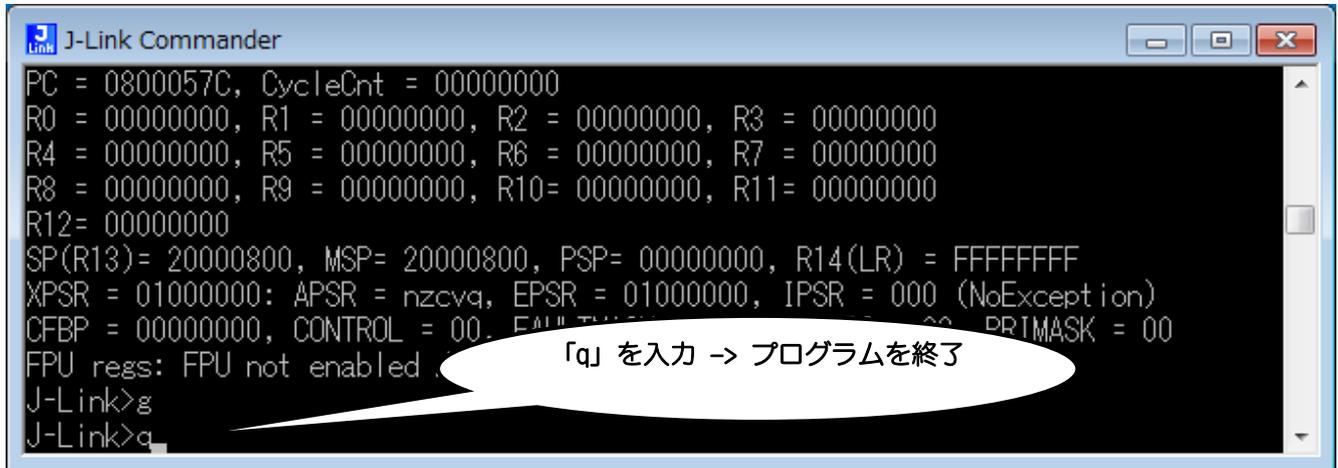
The screenshot shows the J-Link Commander interface with the following text:

```
31s, Erase: 0.000s, Program: 3.040s, Verify: 0.018s, Restore: 0.028s)
O.K.
J-Link> r
Reset delay: 0 ms
Reset type NORMAL: Resets core & JTAG controller.
Reset: Halt core after reset.
Reset: Reset device via JTAG.
J-Link> h
PC = 0800057C, CycleCnt = 00000000
R0 = 00000000, R1 = 00000000, R2 = 00000000, R3 = 00000000
R4 = 00000000, R5 = 00000000, R6 = 00000000, R7 = 00000000
R8 = 00000000, R9 = 00000000, R10 = 00000000, R11 = 00000000
R12 = 00000000
SP(R13) = 20000800, MSP = 20000800, PSP = 00000000, R14(LR) = FFFFFFFF
XPSR = 01000000: APSR = nzcya_eFDP (NoException)
CFBP = 00000000, CONTROL = 00000000, SK = 00
FPU regs: FPU not enabled
J-Link> g
J-Link>
```

Callout bubbles provide instructions for the commands:

- 「r」を入力 → CPU Reset
- 「h」を入力 → CPU Halt
- 「g」を入力 → プログラムを実行

## 6. 「J-Link Commander」 ツールを終了



The screenshot shows the J-Link Commander application window. The title bar reads "J-Link Commander". The main content area displays the following text:

```
PC = 0800057C, CycleCnt = 00000000
R0 = 00000000, R1 = 00000000, R2 = 00000000, R3 = 00000000
R4 = 00000000, R5 = 00000000, R6 = 00000000, R7 = 00000000
R8 = 00000000, R9 = 00000000, R10= 00000000, R11= 00000000
R12= 00000000
SP(R13)= 20000800, MSP= 20000800, PSP= 00000000, R14(LR) = FFFFFFFF
XPSR = 01000000: APSR = nzcvg, EPSR = 01000000, IPSR = 000 (NoException)
CFBP = 00000000, CONTROL = 00. FAULTMASK = 00. PRIMASK = 00
FPU regs: FPU not enabled
J-Link>g
J-Link>q
```

A white callout bubble with a black border points to the command prompt area, containing the text: 「q」を入力 → プログラムを終了

- ※ 「J-Link Commander」 ツールの各コマンドの詳細はユーザーマニュアルをご参照ください。すべてのコマンドを1つのBATファイルとして実装可能ですので、1クリックでのBATコマンド実行も可能です。

## 株式会社エンビテック

代理店販売（デバッグ、RTOS、GUI、ミドルウェア）

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