



## Release Notes: JN-AN-1245

DK006: JN5189 / JN5188 / K32W061 / K32W041

# Zigbee 3.0 Controller and Switch

These release notes provide information on the SDK compatibility, memory usage and change history for the JN-AN-1245 Zigbee 3.0 Controller and Switch Application Note.

## 1 Public v2002 – 21-Aug-2020

Public release for DK006: JN5189 / JN5188 / K32W061 / K32W041.

### 1.1 Public v2002: Compatibility

The software provided with this Application Note has been tested with the following evaluation kits and SDK versions. The supplied makefiles are configured to compile for K32W061 chips on the K32W061DK6 SDK which was also used to create the pre-built binaries, there is information on the main Application Note document on how to compile for different chips/SDKs.

Product Type	Part Number	Version	Supported Chips
JN518x Development Kit	JN518x-DK006	-	JN5189 / JN5188
IoT_ZTB Development Kit	IoT_ZTB-DK006	-	K32W061 / K32W041
MPCXpresso –Toolchain		v11.2.0 build 4120	JN5189 / JN5188 K32W061 / K32W041
Development Kit – SDK	K32W061DK6	v2.6.1 MR1- <del>RC3.1</del>	JN5189 / JN5188 K32W061 / K32W041

### 1.2 Public v2002: Memory Usage

The applications of this Application Note have the following memory footprints:

```
text data  bss    dec filename
179384 1656 19072 200112 ColorSceneController_OM15082
209980 1828 21428 233236 ColorSceneController_NtagIcode_Ota_RamOpt_OM15082
158428 1556 17824 177808 DimmerSwitch_OM15082
183876 1740 20188 205804 DimmerSwitch_NtagIcode_Ota_RamOpt_OM15082
```

### 1.3 Public v2002: End Device RAM Retention

The End Devices in this Application Note retain the following RAM during sleep:

```
retain spare  kb    banks filename
3496  600    4  -----7 DimmerSwitch_NtagIcode_Ota_RamOpt_OM15082
16456 8120   24  ----4567 ColorSceneController_OM15082
3816  280    4  -----7 ColorSceneController_NtagIcode_Ota_RamOpt_OM15082
15176 1208   16  ----567 DimmerSwitch_OM15082
```

## 1.4 Public v2002: New Features

None.

## 1.5 Public v2002: Bug Fixes

### MCUZIGBEE-2592: EndDevice RamOpt OTA via Router : fail to rejoin and continue when Router powered off

Application now monitors ZPS\_EVENT\_NWK\_POLL\_CONFIRM message, accumulate the error and do rejoin once the errors is bigger than the threshold. Find below code in AN.

```
#ifndef SLEEP_MIN_RETENTION
    if (psStackEvent->uEvent.sNwkPollConfirmEvent.u8Status == MAC_ENUM_NO_ACK)
        u8NumOfPollFailure++;
    else
        u8NumOfPollFailure = 0;

    if(u8NumOfPollFailure > MAX_POLL_FAILURE)
    {
        DBG_vPrintf(TRACE_APP, "\r\nPoll failure exceed MAX_POLL_FAILURE, start BDB rejoin\r\n");
        BDB_vRejoinCycle(TRUE);
        u8NumOfPollFailure=0;
    }
#endif
```

### MCB-1924: ZED sleep current is too high, should about 1.15uA for 4K RAM retention.

Update makefile to select correct mode for 32K clock. Find below code in makefile and AN.

```
CLK_32K = 1
ifeq ($(CLK_32K), 1)
CFLAGS += -DgClkUseFro32K=1
CFLAGS += -DgPWR_UseAlgoTimeBaseDriftCompensate=1
# 32k FRO automatic calibration (0 = disable, 1 = enable)
CFLAGS += -DgClkRecalFro32K=0
else
CFLAGS += -DgClkUseFro32K=0
Endif

#ifdef APP_LOW_POWER_API
static void PreSleep(void)
#else
PWRM_CALLBACK(PreSleep)
#endif
{
...
/* Minimize GPIO power consumption */
    BOARD_SetPinsForPowerMode();
}
```

## 1.6 Public v2002: Known Issues

### artf726309 : JN-AN-1245: Time interval large than 5s from OTA Upgrade End Response to Rejoin in ColorSceneController

To do, seems to be about 9 seconds, OTA completes successfully.

## 2 Public v2001 – 17-Apr-2020

Public release for DK006: JN5189 / JN5188 / K32W061 / K32W041.

### 2.1 Public v2001: Compatibility

The software provided with this Application Note has been tested with the following evaluation kits and SDK versions. The supplied makefiles are configured to compile for K32W061 chips on the K32W061DK6 SDK which was also used to create the pre-built binaries, there is information on the main Application Note document on how to compile for different chips/SDKs.

Product Type	Part Number	Version	Supported Chips
JN518x Development Kit	JN518x-DK006	-	JN5189 / JN5188
IoT_ZTB Development Kit	IoT_ZTB-DK006	-	K32W061 / K32W041
MPCXpresso –Toolchain		v11.1.1 build 3241	JN5189 / JN5188 K32W061 / K32W041
Development Kit – SDK	K32W061DK6	v2.6.0 RFP RC5	JN5189 / JN5188 K32W061 / K32W041

### 2.2 Public v2001: Memory Usage

The applications of this Application Note have the following memory footprints:

```

text data  bss    dec filename
180052 1660 19072 200784 ColorSceneController_OM15082
210528 1840 21428 233796 ColorSceneController_NtagIcode_Ota_RamOpt_OM15082
159048 1560 17824 178432 DimmerSwitch_OM15082
184312 1736 20188 206300 DimmerSwitch_NtagIcode_Ota_RamOpt_OM15082
39344 208 3724 43276 GpEhSwitch_OM15082

```

### 2.3 Public v2001: End Device RAM Retention

The End Devices in this Application Note retain the following RAM during sleep:

```

retain spare kb    banks filename
16456 8120 24 ----4567 ColorSceneController_OM15082
3816 280 4 -----7 ColorSceneController_NtagIcode_Ota_RamOpt_OM15082
15176 1208 16 -----567 DimmerSwitch_OM15082
3496 600 4 -----7 DimmerSwitch_NtagIcode_Ota_RamOpt_OM15082

```

### 2.4 Public v2001: New Features

None.

### 2.5 Public v2001: Bug Fixes

#### artf734822: OTA end request error due to server power off during OTA process

When server power off then power on, device will restart the OTA, but the flash driver needs to reinit as well.

## 2.6 Public v2001: Known Issues

### artf726309 : JN-AN-1245: Time interval large than 5s from OTA Upgrade End Response to Rejoin in ColorSceneController

To do, seems to be about 9 seconds, OTA completes successfully.

### MCUZIGBEE-2592 : End Device RamOptOTA via Router, fail to rejoin and continue when Router powered off

To do, optimize AN1245 to make end device OTA continue when parent Router powered off.

## 3 Public v2000 – 5-Mar-2020

Public release for DK006: JN5189 / JN5188 / K32W061 / K32W041.

### 3.1 Public v2000: Compatibility

The software provided with this Application Note has been tested with the following evaluation kits and SDK versions. The supplied makefiles are configured to compile for JN5189 chips on the JN5189DK6 SDK which was also used to create the pre-built binaries, there is information on the main Application Note document on how to compile for different chips/SDKs.

Product Type	Part Number	Version	Supported Chips
JN518x Development Kit	JN518x-DK006	-	JN5189 / JN5188
K32W061 Development Kit	K32W061-DK006	-	K32W061 / K32W041
MPCXpresso –Toolchain		v11.1.0 build 3209	JN5189 / JN5188 K32W061 / K32W041
Development Kit – SDK	JN5189DK6	v2.6.0 build 110	JN5189 / JN5188 K32W061 / K32W041

### 3.2 Public v2000: Memory Usage

The applications of this Application Note have the following memory footprints:

```

text data  bss    dec filename
180024 1656 18880 200560 ColorSceneController_OM15082
210372 1836 21252 233460 ColorSceneController_NtagIcode_Ota_RamOpt_OM15082
159016 1560 17648 178224 DimmerSwitch_OM15082
184216 1736 19996 205948 DimmerSwitch_NtagIcode_Ota_RamOpt_OM15082
39264 208 3724 43196 GpEhSwitch_OM15082

```

### 3.3 Public v2000: End Device RAM Retention

The End Devices in this Application Note retain the following RAM during sleep:

```

retain spare kb    banks filename
16264 120 16 -----567 ColorSceneController_OM15082
3816 280 4 -----7 ColorSceneController_NtagIcode_Ota_RamOpt_OM15082
15000 1384 16 -----567 DimmerSwitch_OM15082
3496 600 4 -----7 DimmerSwitch_NtagIcode_Ota_RamOpt_OM15082

```

### 3.4 Public v2000: New Features

None – first release.

### 3.5 Public v2000: Bug Fixes

None – first release.

### 3.6 Public v2000: Known Issues

#### artf726309 : JN-AN-1245: Time interval large than 5s from OTA Upgrade End Response to Rejoin in ColorSceneController

To do, seems to be about 9 seconds, OTA completes successfully.

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