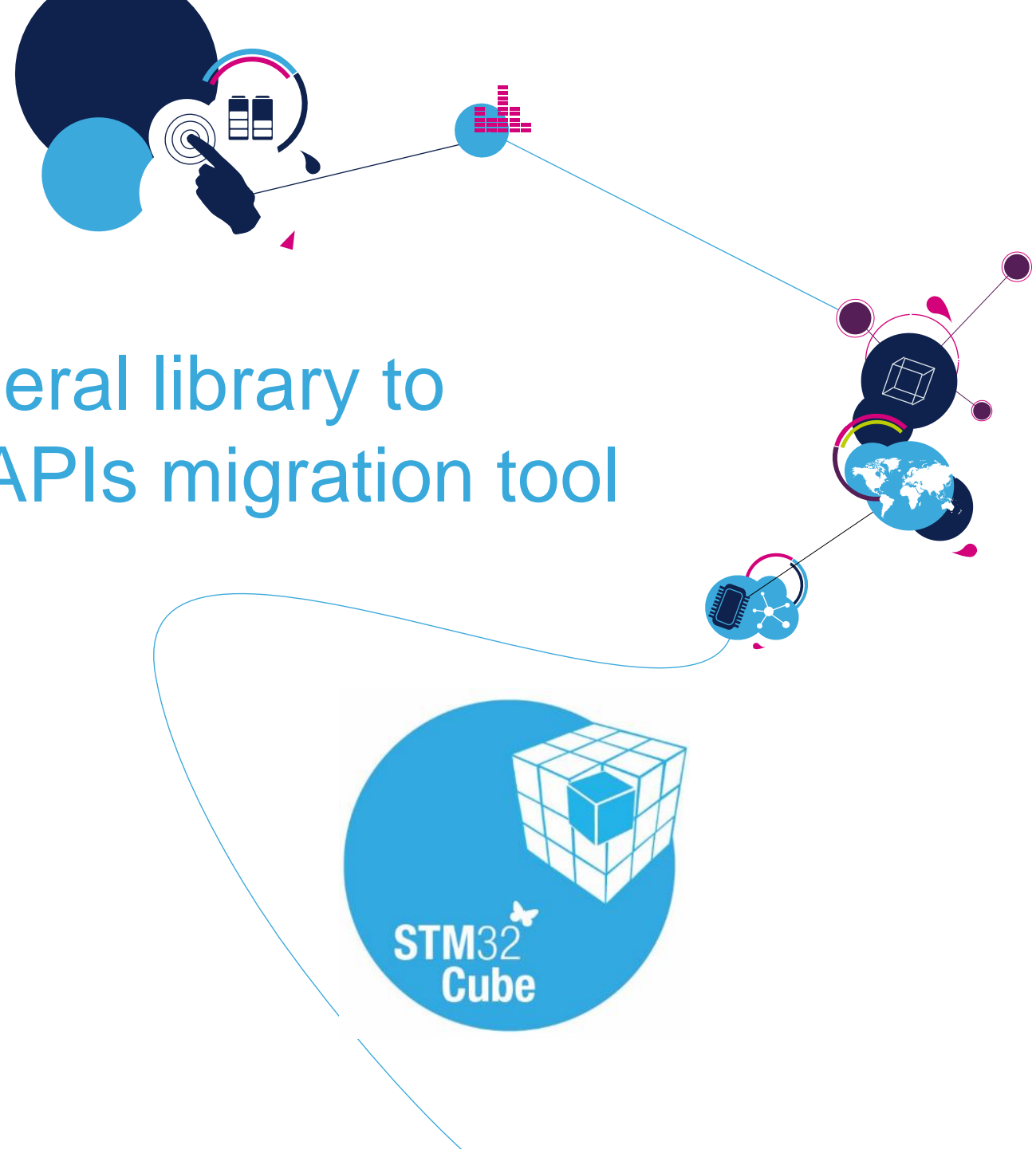
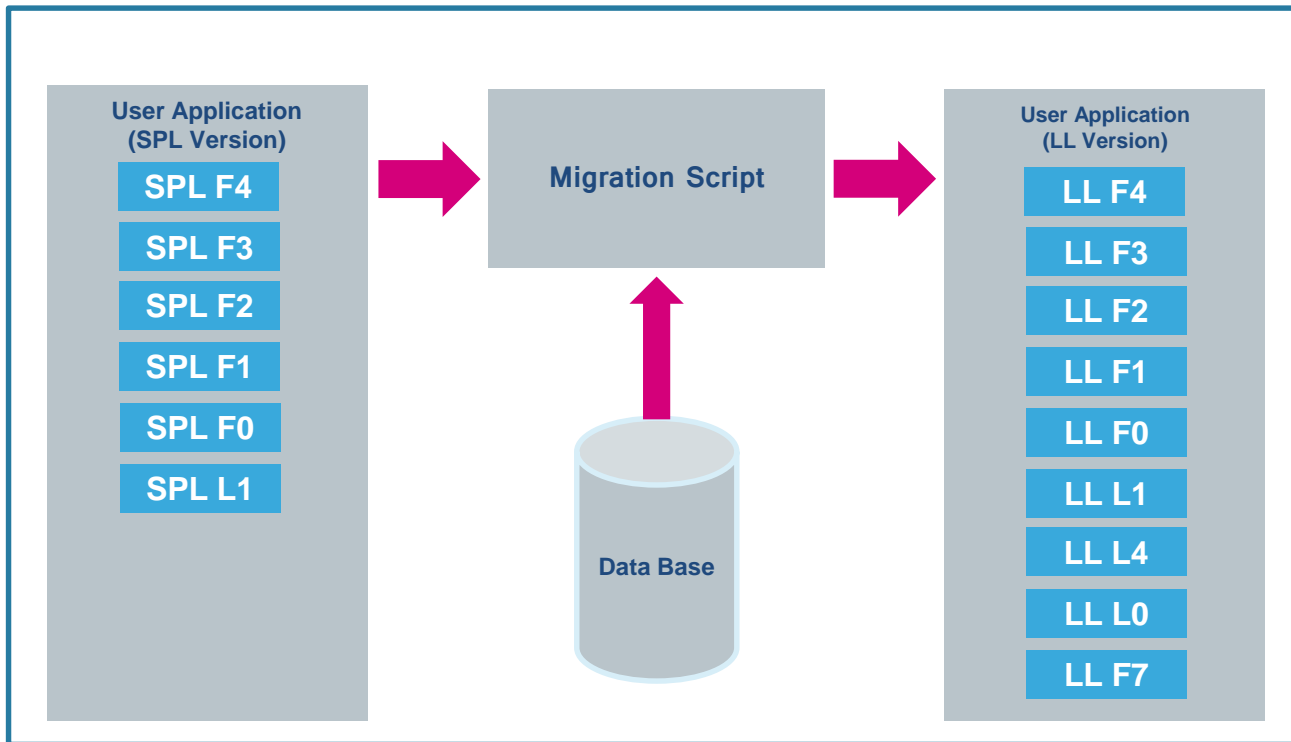


STM32 standard peripheral library to STM32Cube low-layer APIs migration tool

Overview



What to expect from the STM32 SPL to STM32Cube LL APIs migration tool?

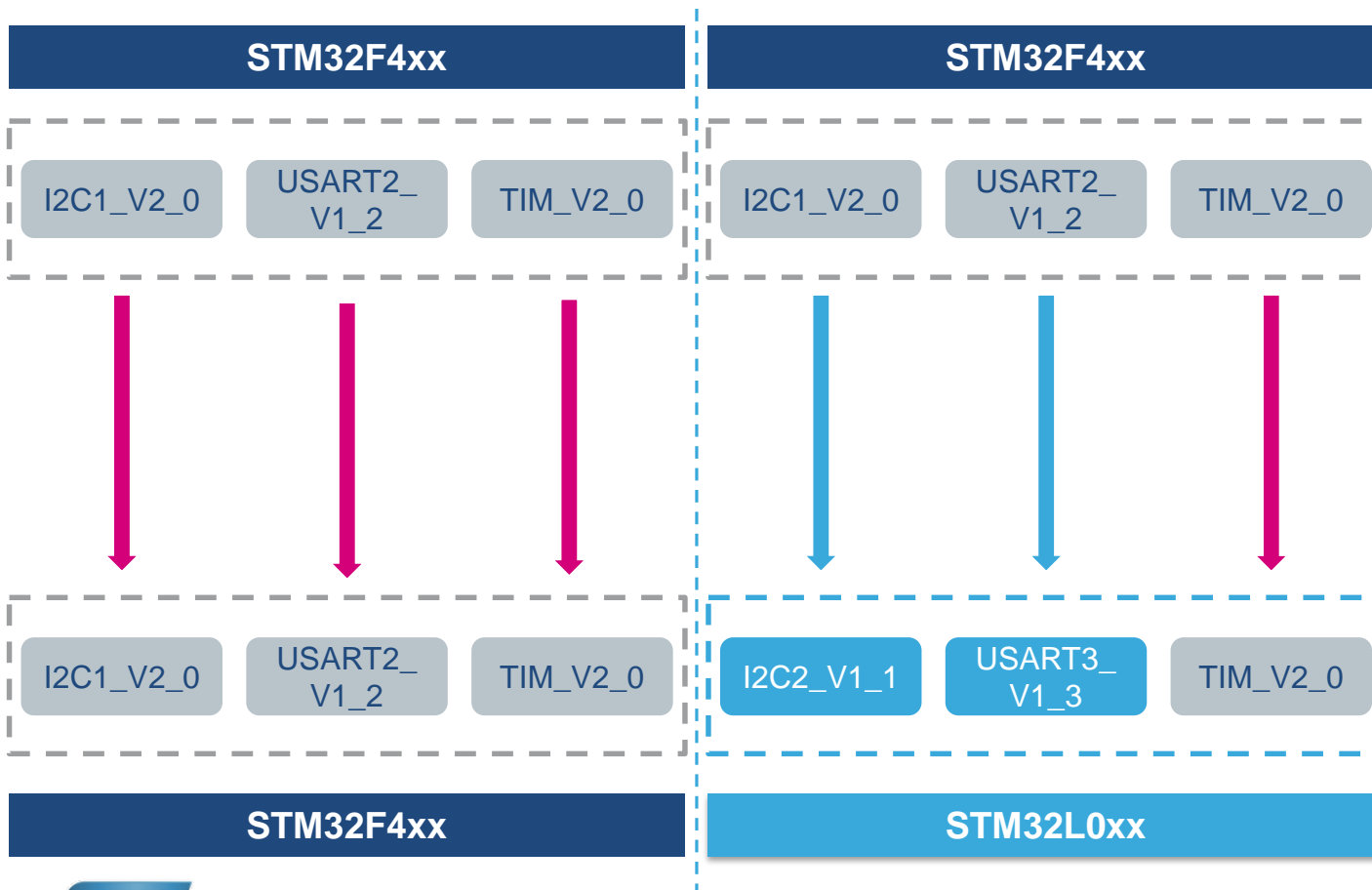


- Full or partial automated migration from STM32 SPL-based code to STM32Cube LL code depending on use case
- 54 possible migration use cases
 - 6 in single family, ex: SPL F4 to LL F4
 - 48 cross-families, ex: SPL F4 to LL L4
- Available from www.st.com

Migration Script Scope

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Full migration vs partial migration depending on IP versioning and feature compatibility



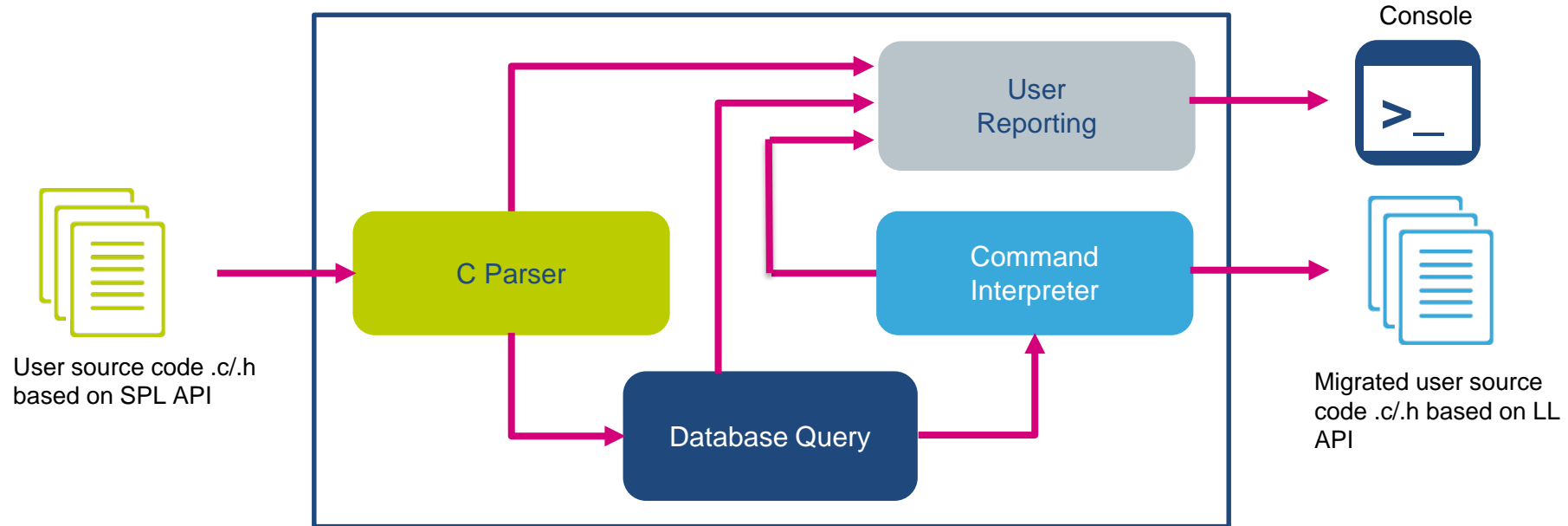
↓ Full migration is ensured if migrating within the same family

- Except in case of IP version discrepancy

↓ Only common features are migrated cross-families

Migration Script Overview

SPL to LL migration Perl script block diagram



C Parser

Parses source code line by line, identifies C syntaxes (includes, comments ...) then passes found expression to database query module.

Database Query

Search LL equivalence from database. It returns LL expression w/ their parameter commands, message user, feature series availability ...

Command Interpreter

Execute commands provided from database in order to migrate functions correctly.

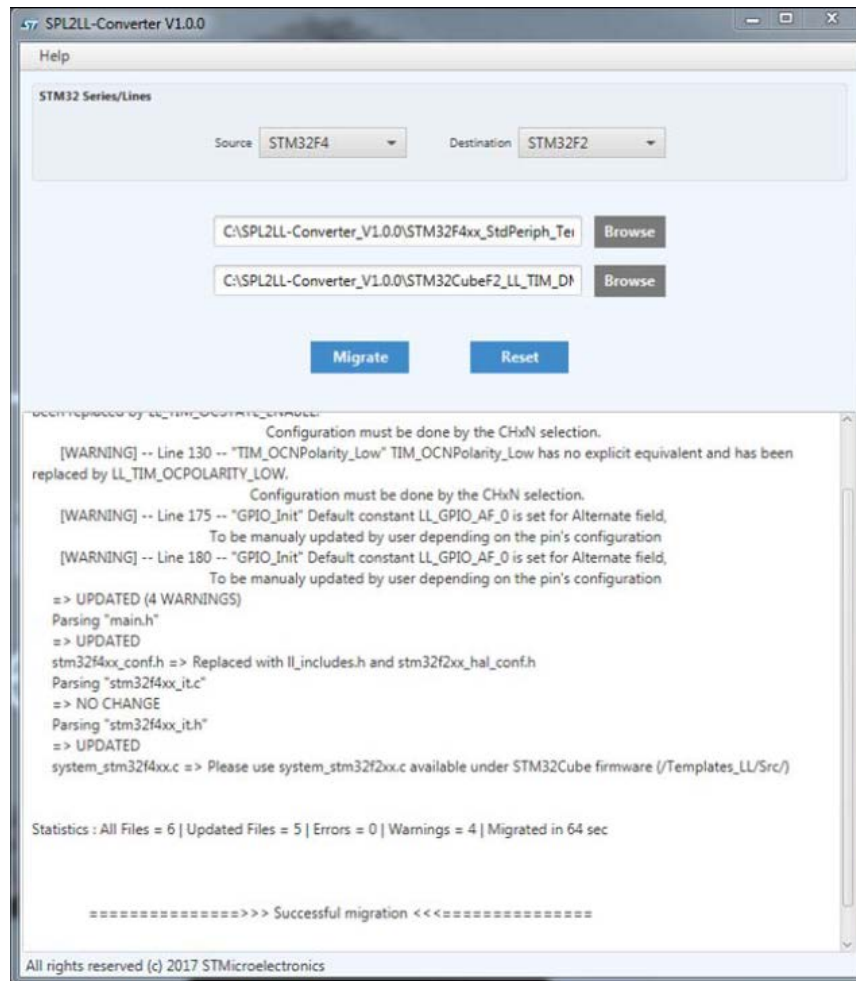
User Reporting

Provides user all information regarding migration process. Types can be file migration status, expression warnings and errors, statistics ...

Migration Script Overview

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A simple and intuitive GUI is available to pass the required arguments to the script and run it



- Perl environment is required for the GUI and migration script
 - You can download it from Activestate website

<https://www.activestate.com/activeperl/downloads>

Migration Script Overview

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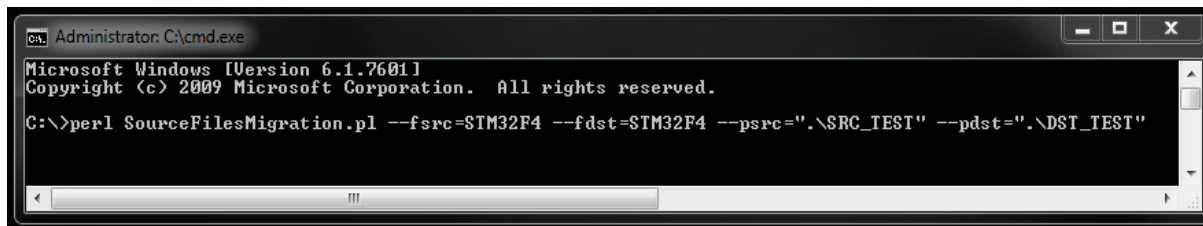
Alternatively, only a simple command line is enough to run the script to ease automation of the process

- Command line arguments:

```
perl SourceFilesMigration.pl --fsrc=<STM32_Source_Family> --fdst=<STM32_Destination_Family>  
--psrc=<STM32_Source_Directory> --pdst=<STM32_Destination_Directory>
```

- `--fsrc` : STM32 family/device target source
- `--fdst` : STM32 family/device target destination
- `--psrc` : user source code directory path (based on SPL)
- `--pdst` : user destination code directory path (based on LL)

- Example:



```
Administrator: C:\cmd.exe  
Microsoft Windows [Version 6.1.7601]  
Copyright (c) 2009 Microsoft Corporation. All rights reserved.  
C:\>perl SourceFilesMigration.pl --fsrc=STM32F4 --fdst=STM32F4 --psrc=". \SRC_TEST" --pdst=". \DST_TEST"
```

- For more details, execute the script with option `--help`

Migration Script Overview

Exhaustive reporting mechanism reflecting the conversion process outcome

```
=====
MIGRATION TOOL V0.1.0 <BETA>
=====
FAMILY : from STM32F4 to STM32F4
SOURCE DIRECTORY : ..\SPL_SRC_TEST
DESTINATION DIRECTORY : ..\LL_SRC_TEST

Updating user files ...
adc.c => UPDATED
crc.c => UPDATED
gpio.c => UPDATED
main.c => NO CHANGE
main.h => UPDATED
[WARNING] -- Line 69 -- "NUIC_Init" User needs to maintain manually this code, HAL API is used !
[WARNING] -- Line 73 -- "NUIC_SetVectorTable" No LL API exist, migration is ensured by using direct access register
[WARNING] -- Line 76 -- "NUIC_SetVectorTable" No LL API exist, migration is ensured by using direct access register
misc.c => UPDATED <0 ERRORS | 3 WARNINGS>
[WARNING] -- Line 80 -- "RTC_CalibOutputCmd" No LL API exist, migration is ensured by using direct access register
[WARNING] -- Line 84 -- "RTC_SetTime" Can't upgrade directly to LL framework, need an implementation for that
[WARNING] -- Line 92 -- "RTC_GetTime" Can't upgrade directly to LL framework, need an implementation for that
rtc.c => UPDATED <0 ERRORS | 3 WARNINGS>
[WARNING] -- Line 107 -- "SPI_SSOutputCmd" No LL API exist, migration is ensured by using direct access register
[WARNING] -- Line 110 -- "SPI_SSOutputCmd" No LL API exist, migration is ensured by using direct access register
spi.c => UPDATED <0 ERRORS | 2 WARNINGS>
tim.c => UPDATED
usart.c => UPDATED
[WARNING] -- Line 262 -- "SPI_SSOutputCmd" No LL API exist, migration is ensured by using direct access register
[WARNING] -- Line 265 -- "SPI_SSOutputCmd" No LL API exist, migration is ensured by using direct access register
[WARNING] -- Line 270 -- "SPI_SSOutputCmd" No LL API exist, migration is ensured by using direct access register
user.c => UPDATED <0 ERRORS | 3 WARNINGS>

Statistics : All Files = 11 | Updated Files = 10 | Errors = 0 | Warnings = 11

=====>>> Successful migration <<=====
```

User file

File migration status

Warning line number

Upgrading options

Warns user regarding the update

Overall process status

Warning message



Thank you !

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