Requirements

The software needs the Windows 10 OS.

Installation

To install testing software run the CapelonTestStationSetup.exe file. It is a simple installation, without changing any parameters during it.

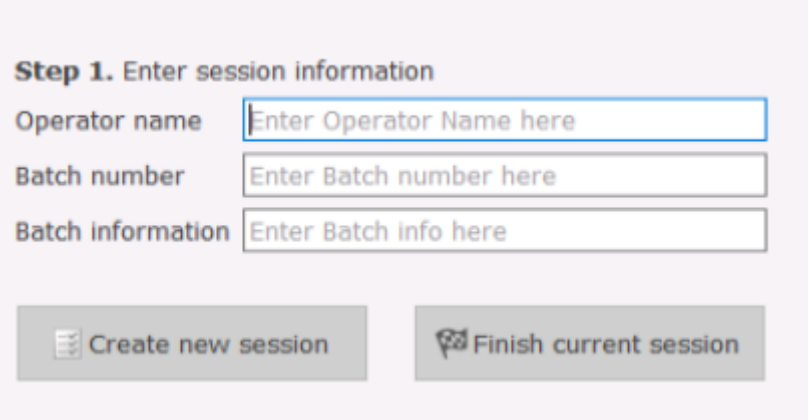
Software configuration

The data path of factory test software is C:\Users\<Username>\AppData\Local\Capelon AB\CapelonTestStation. There are several subdirectories and files:

- *reports* – folder to store protocol files with the testing results in text format.
- *sequences* – folder to store the testing sequences scripts and the software files in Intel HEX format to be downloaded to the controller.
- *labels* – folder to store label templates and printer command files.
- *settings.ini* – testing software configuration file.

Testing procedure

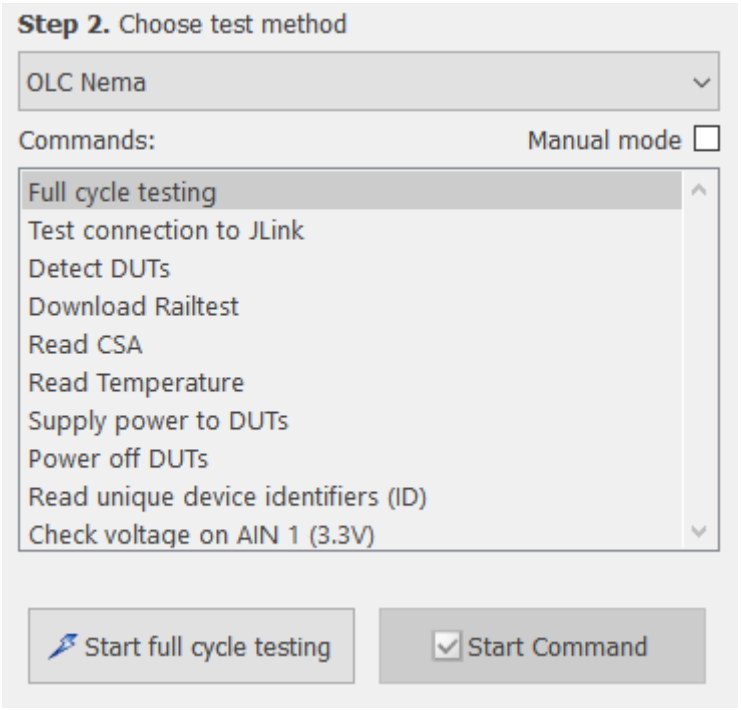
1. First, the operator should input his name. When the operator starts to print into the "Operator name" input box, a drop-down list with previous names appears. If currently printing name is absent in the list, it will be added to it automatically when a testing session starts. Then, a batch number should be inputted into the corresponding field. Then, the operator can start the new testing session by pressing "Create new session" button:



The “Batch information” field may contain some optional information about the batch.

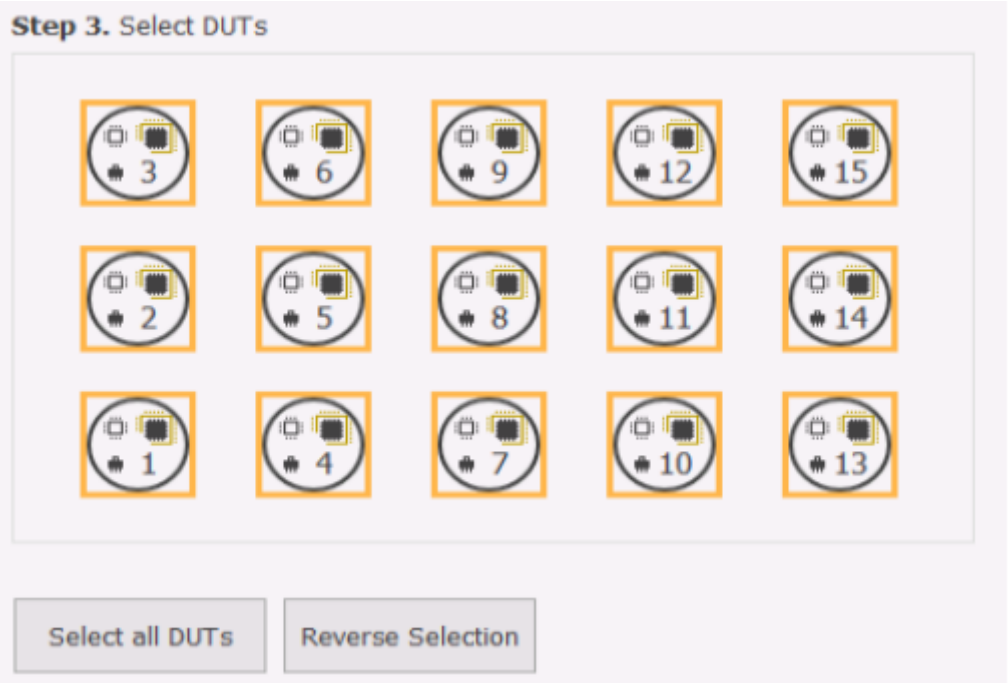
During the testing session it is not possible to change the operator's name and the batch number.

2. In step 2 the operator should connect DUTs to the testing fixture, choose appropriate testing method (according to the PCB's model) and press "Start full cycle testing" button to begin testing all connected devices:



It is possible to run some testing steps separately by choosing a step from the listing and double clicking on it (or pressing the "Start Command" button), but normally it is not necessary to use this option, it is needed for troubleshooting purposes only. To activate this option, check the “Manual mode” checkbox. For the description of manual commands see below.

When full cycle testing starts (or operator starts the “Detect DUTs” command manually), the application automatically finds all connected DUTs and displays them:



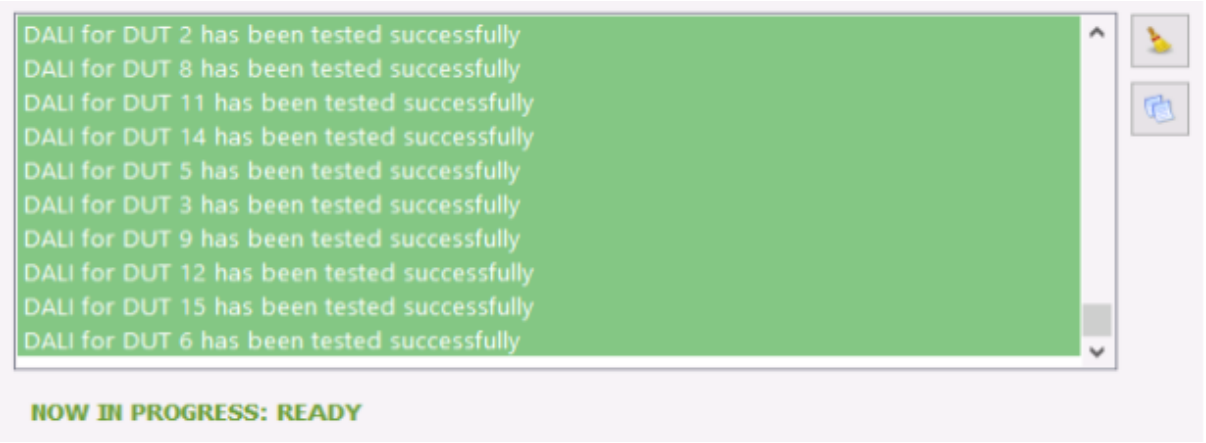
DUTs which have been selected for further testing, are marked by colored rectangles. By default, all DUTs found are selected. "Select All DUTs" and "Reverse Selection" buttons are used to fast DUTs selection. For example, the operator needs to select all DUTs excluding no 9. He presses "Select All" and "Reverse selection" to set all DUTs unchecked, and then clicks on DUT 9 and "Reverse selection", to select all except 9.

NOTE. Only info from full cycle testing is written to the log and the printer command file! The result of the manual command's execution is not logged until the "Check test completion" command is invoked. When starting a full test cycle, the application interface is blocked and the operator is not able to run commands in manual mode until the end of the cycle.

All full cycle test attempts are saved in the log files. Errors are highlighted by red, successes highlighted by green color.

Test results about already completed test runs are written to the logs immediately and the app starts to print labels for the devices that have been tested successfully. If the operator will try to close the app during the session running or label printing, a confirmation window will be shown to prevent possible data loss.

A current info about a testing procedure flow is displayed in the left output window and in the status bar:



Right output window displays debug messages containing additional information about the testing commands execution and errors occurred. To clear the content of output windows or to copy the content of the debug window operator should use appropriate buttons.

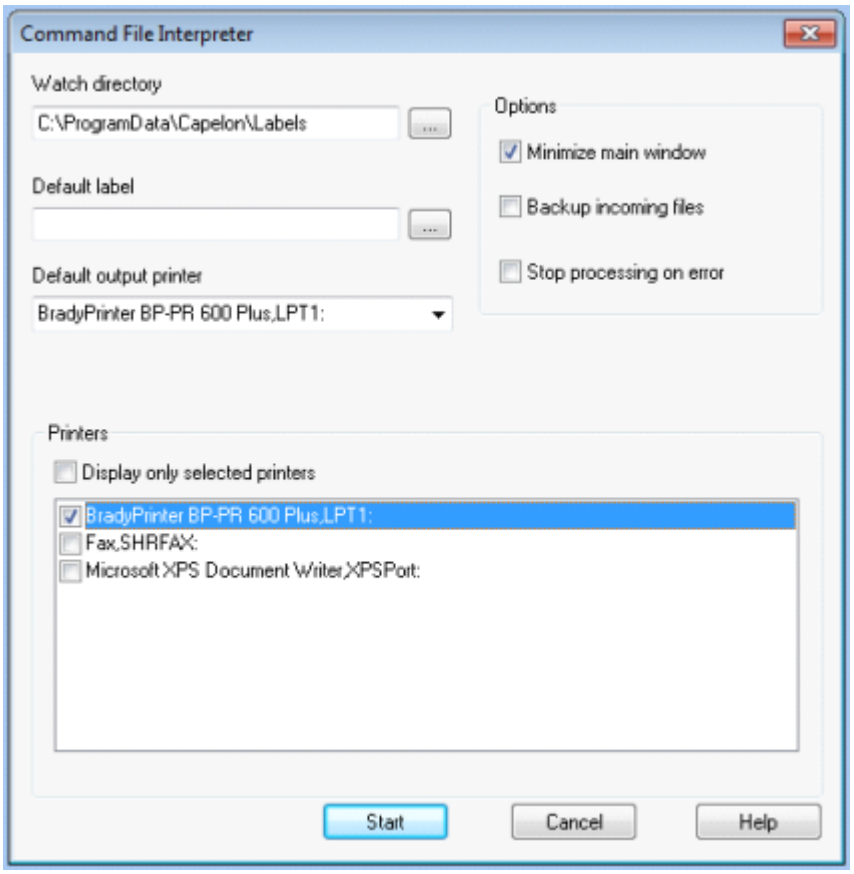
When the testing cycle finishes, the operator can place another PCBs into the test fixture and begin a new test run or finish the current section and start a new one (with new operator's name and batch number).

Labels printing

The operator must run “CodeSoft 10 Pro” software and run “Command File Interpreter” mode before testing starts. Set watch directory to C:\Users\<user_name>I\AppData\Local\Capelon AB\CapelonTestStation\labels and a proper default printer. Check “Minimize main window” and push “Start”. The printing software will catch label files that are generated by testing software, and will print automatically. Users can configure some printing properties. Open testing software INI file and find the next lines:

```
[Label]
fileName=labels/printLabel.cmd
labelName=CapelonLabel.lab
quantity=1
deviceRevision=1.0
```

The operator can set a command file name, name of a file with label template and number of labels printed for each tested device.



Report files

Information about all full cycle testing runs is written to CSV-formatted files in the C:\Users\<Username>\AppData\Local\Capelon AB\CapelonTestStation\reports directory. These files can be opened by a simple text editor or by a special program that supports CSV file format (Microsoft Excel, for example). There are two types of files: full and brief, both of them containing the date and the time when testing had been done in the filename. In full file (name starts with “ALL_” prefix) the following info is presented:

- Serial number of the device;
- Device's unique ID;
- Position of device in the testing fixture (slot’s number);
- Test run serial number (within current session);
- Batch number;
- Test method name;
- Operator’s name;
- Date and time of testing;
- Testing result (PASSED or FAILED);
- If FAILED, short description of failed testing steps.

In the brief file only info about serial number of the device, device's ID, slot’s number, test run serial number and testing result is written.

Manual commands usage

As was said above, the manual commands execution is needed only for debugging and troubleshooting, not for regular usage. To activate this option, check the “Manual mode” checkbox. To run a single command choose it from the listing and double click on it (or press the "Start Command" button).

- "Test connection to JLink" - performs testing of JLink programmators connected to the testing fixture;
- "Establish connection to sockets" - connects the application to the physical sockets in which DUTs placed;
- "Detect DUTs" - automatically finds all DUTs placed in the testing fixture. NOTE: These first 3 commands should be run before others.
- "Erase chip" - erases the chip flash memory;
- "Download Railtest" - downloads the Railtest software into the chip flash and runs it (needed for further testing);
- "Read CSA" - reads current consumption of the measuring boards in the test fixture (in mA);
- "Read Temperature" - reads current temperature of the measuring boards in the test fixture (in raw ADC values);
- "Supply power to DUTs" - switch on all DUTs found;
- "Power off DUTs" - switch off all DUTs found;
- "Read unique device identifiers (ID)", "Test accelerometer", "Test light sensor”, "Test radio interface", "Test DALI", “Test GNSS” - perform tests using the Railtest software.
- "Check Testing Completion" - checks test completion for the selected DUTs according to the current test method’s requirements. NOTE: Use this command with care! It writes info in the reports files and sends labels to the printer.
- "Download Software" - downloads the software into the flash memory and locks it. Can be performed only when the "Check Testing Completion" command finished successfully.