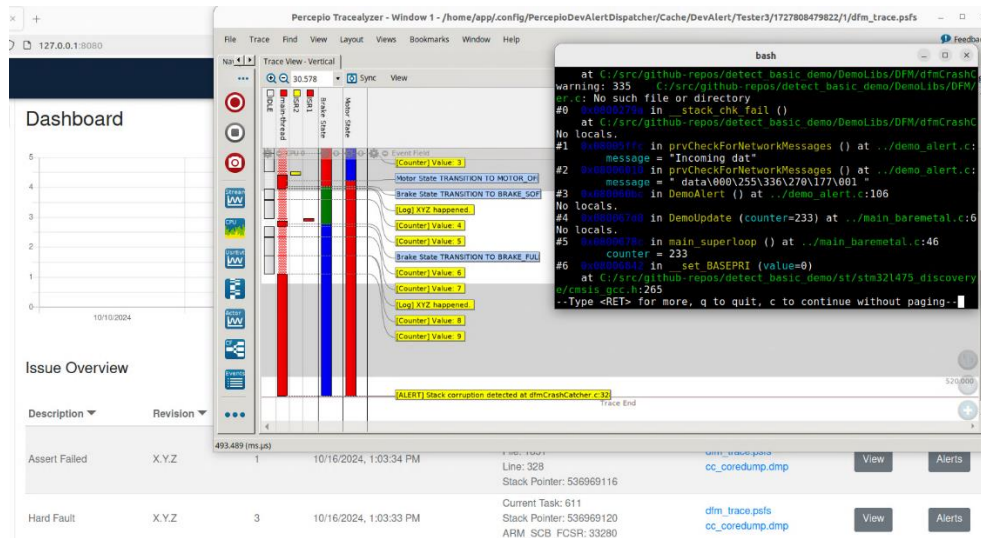


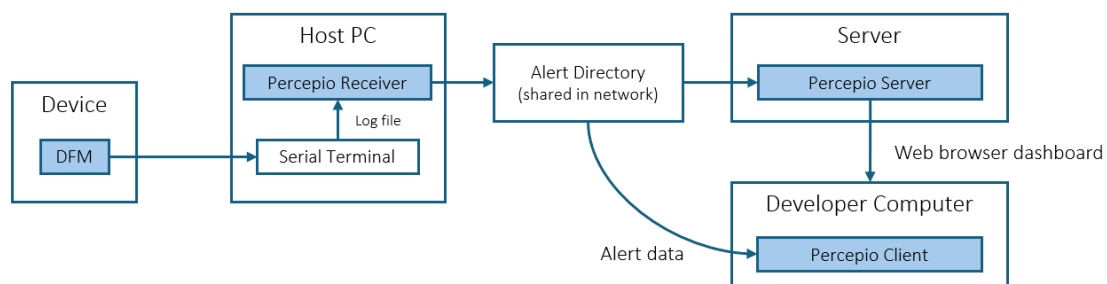
Percepio Detect Demo Guide (Windows)

Percepio Detect™ is the new addition to Percepio's portfolio of continuous edge observability tools for embedded systems, specifically targeting embedded test monitoring.



This is designed to capture crashes, errors and anomalies, also sporadic issues that otherwise are difficult to analyze, and provide deep observability to simplify debugging.

The Percepio Detect solution consists of four parts, as described below.



- **Percepio DFM**, a C library for use in the device software. This outputs "alert data" to a host computer, for example via a serial port. The device output should be saved to a log file on the host computer.
- **Percepio Receiver** ("Receiver"). Reads the log files from the device, extracts the alert data and saves it as alert files. This typically runs on a lab computer or developer computer, directly connected to the device via serial, ethernet or similar.
- **Percepio Detect Server** ("Server"). Reads alert files from Receiver and presents a summary in the web browser (the "Dashboard"). Provides access to alert payloads (e.g. traces and core dumps) for deeper analysis/debugging.
- **Percepio Payload Viewer Client** ("Client"). An integrated set of developer tools for debugging alerts, including Tracealyzer and tools for viewing core dumps. Runs on each user's computer to make it easy to debug reported issues.

Typical Setups

Percepio Detect is designed to be a team solution that runs on a local server, where all team members have easy access to the data. All data stays on the local server. However, the whole solution can easily be deployed on a single computer if so desired.

- **Single-user setup:** All parts of the solution run on the same computer, except for the DFM library on the device. This is suitable for small projects where a single user is sufficient, and for a first test of the solution.
- **Multi-user setup:** The Server runs on a shared server computer. Each user runs the Client on their local development computer. The Receiver runs on a "lab computer", connected to the device with a serial terminal or similar. To monitor multiple devices, you can have multiple Receivers running on the same computer. If needed, you can also run the Receiver on multiple lab computers, each monitoring one or multiple devices.

This guide walks you through setting up a single-user setup of Percepio Detect to try the demo on your local computer. This document assumes Windows is used.

Preparation Steps

1. Install Docker Desktop from <https://www.docker.com/>.
2. Make sure Python (v3.x) is installed.

Running the Demo

After you have completed the preparation steps above, follow these steps to run the demo.

1. Download the Percepio Detect zip file from link provided by Percepio. Before you extract the contents, **unblock it by right-clicking on the zip file and check the "Unblock" checkbox**.
2. Open the server start script, **percepio-server.ps1**, in a text editor and locate the assignment of the LICENSE variable. Update this with your Percepio Detect license key and save the file.

```
$LICENSE="ABCD-ABCD-ABCD-ABCD"
```

Note that Tracealyzer and Detect Server have separate license keys, don't mix them up!

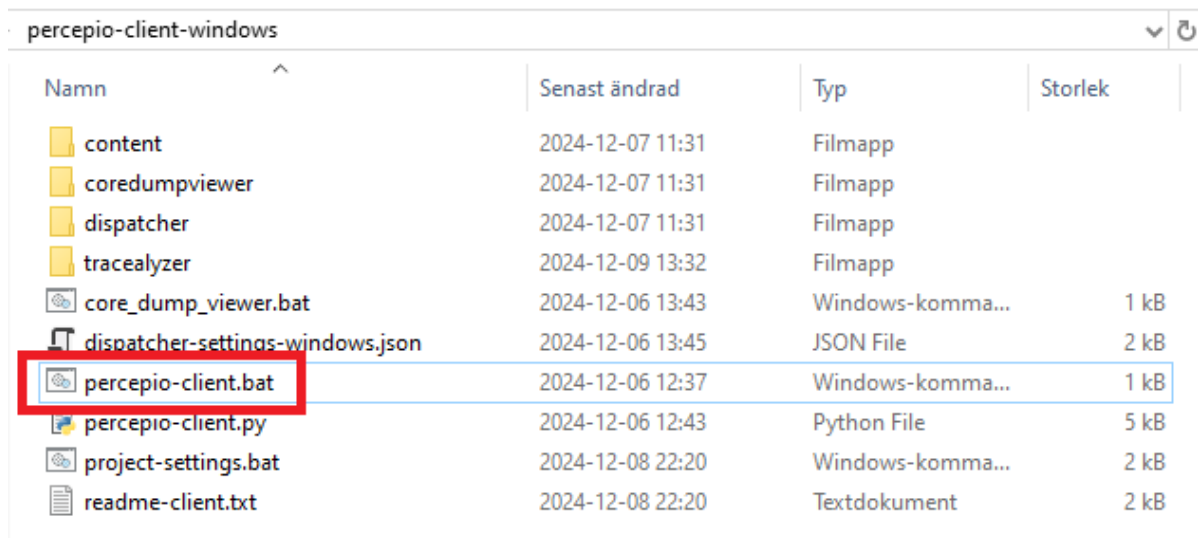
3. Start Docker Desktop. Make sure it states "Engine Running" in the bottom left corner. In case the Docker Desktop GUI doesn't open, it might already be running. (Check for a Docker icon in the taskbar icons.)

4. Start the Detect **server** by running the start script with argument "start" in a Powershell window. Docker will download the Detect Server images from Docker Hub and start the server.

```
.\percepio-server.ps1 start
```

Note: To run unsigned powershell scripts, you may need to change the execution policy using "Set-ExecutionPolicy Unrestricted", by running PowerShell as Administrator.

5. Start the Percepio Detect client by running **percepio-client.bat**, found in the percepio-client-windows folder. You can start the client by simply double-clicking the .bat file in File Explorer.



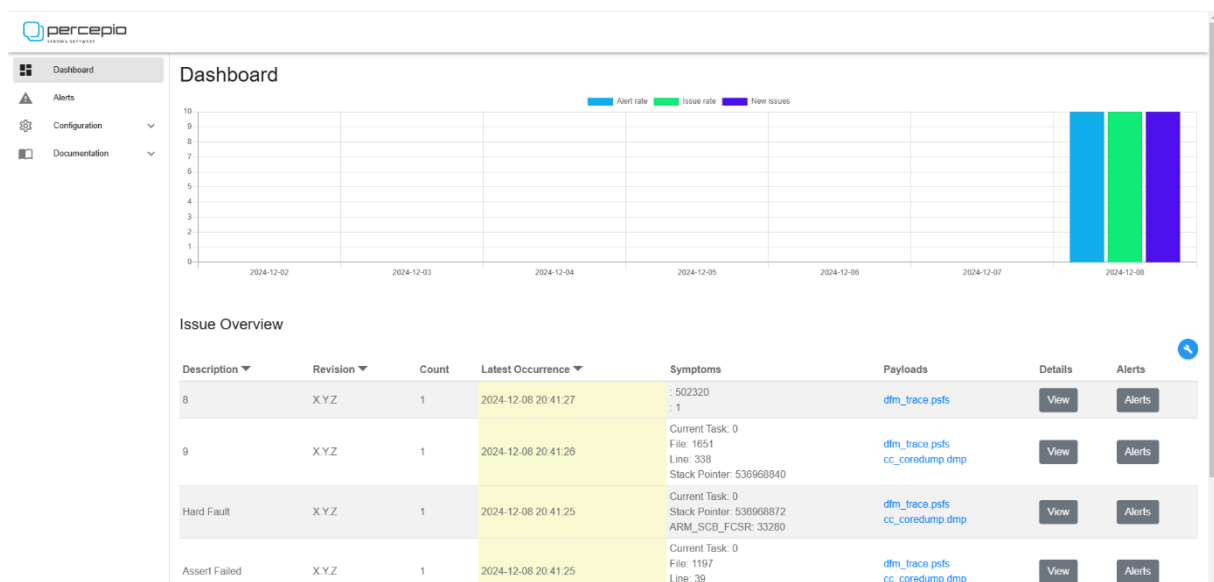
Namn	Senast ändrad	Typ	Storlek
content	2024-12-07 11:31	Filmapp	
coredumpviewer	2024-12-07 11:31	Filmapp	
dispatcher	2024-12-07 11:31	Filmapp	
tracealyzer	2024-12-09 13:32	Filmapp	
core_dump_viewer.bat	2024-12-06 13:43	Windows-komma...	1 kB
dispatcher-settings-windows.json	2024-12-06 13:45	JSON File	2 kB
percepio-client.bat	2024-12-06 12:37	Windows-komma...	1 kB
percepio-client.py	2024-12-06 12:43	Python File	5 kB
project-settings.bat	2024-12-08 22:20	Windows-komma...	2 kB
readme-client.txt	2024-12-08 22:20	Textdokument	2 kB



```
C:\WINDOWS\system32\cmd... x + - □ ×  
Percepio Detect Client starting...  
Ready.  
|
```

6. Open your web browser and go to <http://127.0.0.1:8080>.

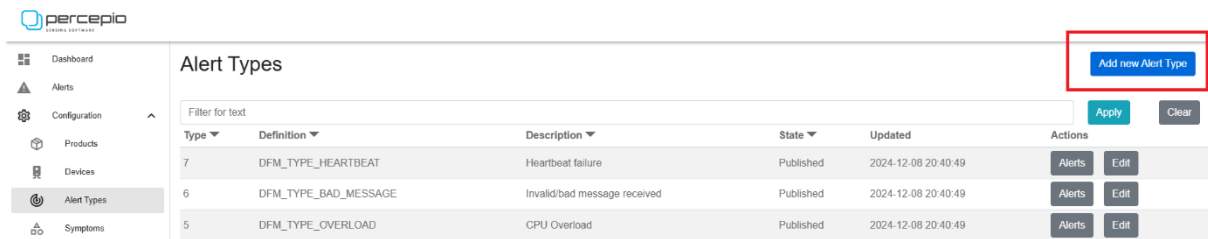
You should now see the Detect Server dashboard.



The demo uses some custom "alert types" and "symptom" IDs, that are not defined in the Server by default. As a result, you see numeric values in the Description column and in the Symptoms.

To add the missing definitions, follow the steps below:

6.1. Open **Configuration** -> **Alert Types**. Select **Add new Alert Type** (button in top right corner)



We need to add two additional Alert Types. For the first, use

Definition: **DFM_TYPE_STOPWATCH** and Description: Stopwatch alert

Click "Submit"

Add another new alert type for the stack integrity alerts.

Definition: **DFM_TYPE_STACK_CHK_FAILED** and Description: Stack corrupted

Click "Submit"

The screenshot shows the 'New Alert Type' form in the Percepio software. The left sidebar is the same as in the previous screenshot. The main content area has a 'Back' button at the top left. The form fields are: 'Definition' with the value 'DFM_TYPE_STOPWATCH', 'Description' with the value 'Stopwatch alert', and 'Severity' with the value '1'. At the bottom of the form is a large blue 'Submit' button.

6.2. Open **Configuration** -> **Symptoms** and select **Add new Symptom** (top right corner).

Use Definition: **DFM_SYMPTOM_HIGH_WATERMARK** and Description: High watermark

Click "Submit"

Add a second symptom:

Use Definition: **DFM_SYMPTOM_STOPWATCH_ID** and Description: Stopwatch ID

Click "Submit".

Dashboard

Alerts

Configuration

Products

Devices

Alert Types

Symptoms

Code Export

Documentation

Back

New Symptom

Definition

DFM_SYMPTOM_HIGH_WATERMARK

Description

High watermark

Data type

Decimal

Significant

No

Submit

A symptom is an attribute of the alerts, set by the device, mainly used for grouping the alerts.

Note that the “Definition” only affects the name used in the Code Export (for creating dfmCodes.h). You can use other names if you like. Just make sure the IDs match the alert data.

6.3. Open Code Export and select Generate Header File (blue button).

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LicenseSpring Platform

<http://127.0.0.1:8080/headers>

perceptio

SENSING SOFTWARE

Dashboard

Alerts

Configuration

Products

Devices

Alert Types

Symptoms

Code Export

Documentation

Code Export

This function exports the Alert and Symptom definitions as a header file for the DFM library. Make sure to regenerate and replace the original dfmCodes.h (dfm\includes) with the new file if new Alerts or Symptoms are added.

☒ Include Non-Published
 ☐ Include Retired

Generate Header File

Preview

```

/* Alert Types */
/* The following Alert Types are not yet published and could be changed without prior
notification. Use with care. */
#define DFM_TYPE_STACK_CHK_FAILED (9) /* Stack corrupted */
#define DFM_TYPE_STOPWATCH (8) /* Stopwatch alert */

/* The following Alert Types are published and will not change. */
#define DFM_TYPE_HEARTBEAT (7) /* Heartbeat failure */
#define DFM_TYPE_BAD_MESSAGE (6) /* Invalid/bad message received */
#define DFM_TYPE_OVERLOAD (5) /* CPU Overload */
#define DFM_TYPE_MANUAL_TRACE (4) /* User invoked alert */
          
```

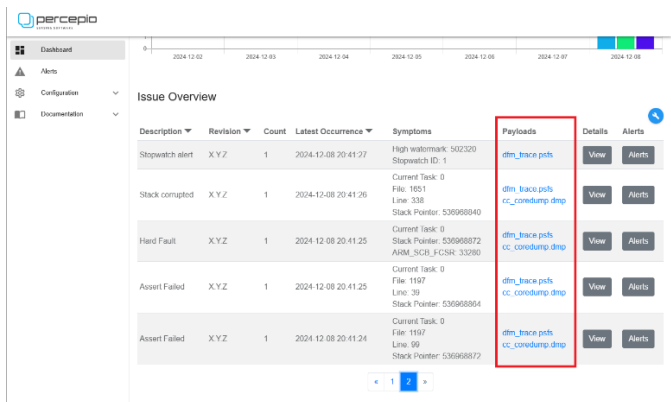
Download File

Inspect the code in Preview and verify that the right numeric IDs have been set, so they match the already created alert data in the demo. (If not, you can rename the entries by selecting Edit).

- DFM_TYPE_STACK_CHK_FAILED should be (9)
- DFM_TYPE_STOPWATCH should be (8)
- DFM_SYMPTOM_STOPWATCH_ID should be (9)
- DFM_SYMPTOM_HIGH_WATERMARK should be (8)

When adding new alerts and symptoms, copy these definitions to DFM/include/dfmCodes.h. But in this case, dfmCodes.h is already updated.

7. In the lower part of the dashboard, you find "Issue Overview" showing the reported issues, including the names added in the previous step.



Description	Revision	Count	Latest Occurrence	Symptoms	Payloads	Details	Alerts
Stopwatch alert	X.Y.Z	1	2024-12-08 20:41:27	High watermark: 502320 Stopwatch ID: 1	dfm_trace.psfs	View	Alerts
Stack corrupted	X.Y.Z	1	2024-12-08 20:41:26	Current Task: 0 File: 1651 Line: 338 Stack Pointer: 536968840	dfm_trace.psfs cc_coredump.dmp	View	Alerts
Hard Fault	X.Y.Z	1	2024-12-08 20:41:25	Current Task: 0 Stack Pointer: 536968872 ARM_SCB_ICSR_33280	dfm_trace.psfs cc_coredump.dmp	View	Alerts
Assert Failed	X.Y.Z	1	2024-12-08 20:41:25	Current Task: 0 File: 1197 Line: 39 Stack Pointer: 536968864	dfm_trace.psfs cc_coredump.dmp	View	Alerts
Assert Failed	X.Y.Z	1	2024-12-08 20:41:24	Current Task: 0 File: 1197 Line: 99 Stack Pointer: 536968872	dfm_trace.psfs cc_coredump.dmp	View	Alerts

The "Payloads" column provides links to the alert payloads, i.e., the debugging data included with the alerts from the DFM library on the device.

Note that "Issue Overview" is an aggregated view. All alerts with the same alert type and symptoms are considered as the same "issue" and represented by one row in the Issue Overview. The payload links point to the latest alert of each issue. (You can see all individual alerts on the "Alerts" page.)

8. Click on one of the Payload links. This will notify the Client to show the selected data in the appropriate tool. The tools are included in the Client and ready to run.

- Percepio Tracealyzer for showing TraceRecorder traces (the "dfm_trace.psfs" links)
- Core dump viewer for showing CrashCatcher core dumps (the "cc_coredump.dmp" links)

9. To install your Tracealyzer license key, first click on a "dfm_trace.psfs" trace link to start Tracealyzer. On the welcome screen, select the option "Activate License". Enter your Tracealyzer license key, close the application and click the link again to verify that it works.

Note: If you want to update Tracealyzer, make sure to overwrite the bundled Tracealyzer installation in the `percepio-client-windows/tracealyzer` directory.

More information on how to set up and customize Percepio Detect is found in:

- `readme.txt`
- `percepio-client-windows/readme-client.txt`
- `percepio-server/readme-server.txt`
- `percepio-receiver/readme-receiver.txt`

For assistance and technical questions, please contact support@percepio.com.

For sales and licensing questions, please contact sales@percepio.com.

See <https://percepio.com/detect/> for more information about Percepio Detect.

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