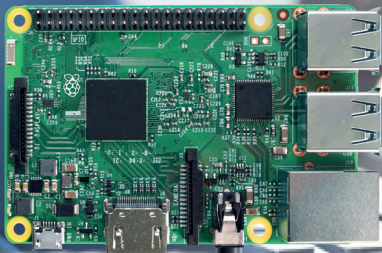# Secure Boot Solution for Raspberry Pi

Protecting the System Integrity of a Raspberry Pi Boot Media

Swissbit Secure Boot Solution for Raspberry Pi

The Swissbit Secure Boot Solution for Rasberry Pi allows encryption and access protection of data stored on the microSD card by various configurable security policies.

It protects the boot image and software installation against manipulation, unwanted copying, or removal of a system from a defined network.

The Swissbit Secure Boot Solution for Raspberry Pi consists of a Swissbit PS-45u DP microSD card "Raspberry Edition" and a Swissbit Secure Boot SDK for Raspberry Pi.

Getting started

Step 1: Check Prerequisites

Step 2: Get Swissbit Secure Boot Solution for Raspberry Pi:
- a) Swissbit microSD card "Raspberry Edition"
- b) Swissbit Secure Boot Solution SDK for Raspberry Pi

Step 3: Configure the Swissbit microSD card "Raspberry Edition" with Swissbit Secure Boot SDK by choosing your preferred security policy:
- PIN policy: PIN entry
- USB policy: USB as authentication dongle
- NET policy: Authentication through a network server

Step 4: Install U-Boot

Step 5: Activate protection
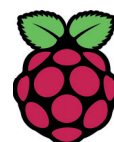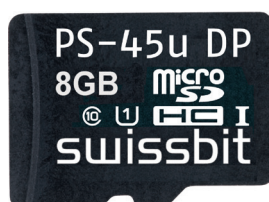
Swissbit PS-45u DP microSD card "Raspberry Edition"

Swissbit microSD card PS–45u DP "Raspberry Edition"

Features

■ Security policies with flexible and configurable authentication

■ Access protection with configurable retry counter

■ Authentication is performed during the Swissbit customized pre–boot phase to unlock access

■ Works with Rasperry Pi 2, 3B+, CM3+ and 4 (supports PIN and NET policy only)

Key Applications

■ IP Protection by locking microSD card

■ Theft protection by locking microSD card

Benefits

■ Easy–to–integrate CPU independent hardware security

■ Cost effective data protection and encryption

■ Easy–to–retrofit and future proof security solution

Function

■ Protecting Raspberry Pi boot loader

■ Encrypting user and boot code to protect license, know–how and IP

■ The boot image can be set as read–only to prevent unauthorized modification

■ Restricting the access to data on the card by various configurable security policies: PIN or USB or NET policy

Security Function	PIN POLICY	USB POLICY	NET POLICY
Know How protection	✓	✓	✓
IP & license protection	✓	✓	✓
Remote attestation	✓	✓	✓
Data protection	✓	✓	✓
Theft protection	✓		✓
Tamper protection			✓
Lock device			✓
Secure unattended boot		✓	✓

Security Policies and Requirements

PIN — PIN input =

Swissbit microSD card
PS–45u DP „Raspberry Edition"

USB — Authentication Dongle = +

Swissbit microSD card
PS–45u DP „Raspberry Edition"

Additional: Swissbit USB stick
PU–50n DP „Raspberry Edition"

NET — Authentication through a network server = + +

Swissbit microSD card
PS–45u DP „Raspberry Edition"

Additional: Raspberry Pi

Additional:
microSD card min. 8 GB
e.g. Swissbit S–45u