



eft/pos 2000

**Business Use Case Specification:
ep2 Certification Process**

Version 8.1.0

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1 Introduction

1.1 Brief Description

This document contains the functional description of the 'Terminal Certification' and 'PSP Certification' process in the form of business use cases.

A business use case is a named sequence of actions performed in a business that produces a result of observable value to an individual actor of the business.

A business actor represents a role played in relation to the business by someone or something in the business environment.

An activity diagram is used to illustrate the workflow of the business use case.

A more detailed refinement of the business use case steps, which are solved technically in the *ep2* system, can be found in the '*ep2* Specification Books'.

1.2 Scope

Part I is applicable for attended and unattended card present terminals. Please note, that for unattended terminals (CAT) additional approval steps are necessary. They are described in the card activated terminal (CAT) supplementary specification.

Part II is applicable for e-commerce payment applications, virtual terminals or payment application providers (PSP).

1.3 Definitions, Acronyms and Abbreviations

All definitions, acronyms and abbreviations are explained in the '*ep2* Specification Books'.

1.3.1 Standard Error-List

The standard error-list summarizes all errors and unresolved issues of the *ep2* Certification Authority and acquirers sorted by different error classes. The following table defines the error classes:

Error Class	Description
1. high (financial effective)	The error(s) must be corrected before entering into the next phase.
2. medium (not financial effective)	The error(s) must be corrected before entering into the next phase.

Table 1 Error Classes

Error Class	Description
3. low (blemish)	The error must be corrected before issuing the <i>ep2</i> certificate ¹⁾
4. recommended	The Terminal Supplier is informed about possible improvement possibilities. The recommendations can be corrected within the next release / version of the software.

Table 1 Error Classes

1) for *ep2* upgrade certifications also these errors must be corrected before entering into the next phase.

1.4 References

- *ep2* Specification Books

2 Business Actors

2.1 Terminal Supplier

The terminal supplier sells or hires the terminal. The terminal supplier must provide a service center for his terminals. He triggers all processes and is responsible for an efficient fulfilment.

2.2 ep2 Certification Authority

The *ep2* Certification Authority is certifying *ep2* terminal hardware and part of the software. It operates the *ep2* certification system, test system and issues all *ep2* certificates. To guarantee an objective certification process the TeCo *ep2* members may decide to outsource the Certification Authority. For critical tasks the *ep2* Certification Authority will be staffed by employees of at least two different TeCo *ep2* member companies.

The *ep2* Certification Authority shall cover its costs by certification fees and is authorised by the TeCo *ep2* to fulfil the *ep2* HW-, SW- and upgrade certification and is the single point of contact concerning all *ep2* certification issues.

2.3 Primary Acquirer

The role of a primary Acquirer is represented by a TeCo *ep2* Acquirer, who has acquiring contracts for the corresponding terminal in certification. He performs the pilot and ensures

the required Mastercard and Visa card schemes end-to-end tests. The primary acquirer may request acquirer integration tests before starting the pilot.

2.4 TeCo ep2 Acquirer

The TeCo ep2 Acquirer is member of the Technical Cooperation ep2 association and processes electronic payment transactions according to the ep2 standard. Each TeCo *ep2* acquirer may request acquirer integration tests and/or pilot before going live with the terminal for his brands and cards. If he takes an active part in the certification process, all activities in the partition of the Primary Acquirer shall be fulfilled by the participating acquirer too.

2.5 TWG ep2 (Technical Working Group ep2)

The TWG *ep2* (Technical Working Group *ep2*) controls the *ep2* system, treats waiver requests and is the instance for important decisions. It supervises the *ep2* certification authority.

There are approximately four TWG *ep2* meetings each year, where waivers and critical certification issues may be treated. The final instance of the TeCo *ep2* association is the executive board.

The TWG *ep2* delegates for critical tasks employees/experts of at least two different TeCo *ep2* member companies.

2.6 PSP

The PSP (Payment Service Provider) is a third party offering chargeable payment solution (protocol and services). The PSP system is used to perform electronic payment transactions via internet (e-commerce). The PSP receives the cardholder data from the e-payment application, sends authorisation requests to the acquirers, stores transaction data and transmits them to the PMS.

The PSP shall provide a PMS and Service Center for his payment solution according to the *ep2* specifications. The following services shall be provided:

- 1st level hot-line and support,
- setup and change of configuration data,
- version management, software download,
- compilation of *ep2* global data.

2.7 Competencies and Responsibilities

2.7.1 Primary Acquirer

The role of a Primary Acquirer is represented by a TeCo ep2 Acquirer, who has acquiring contracts for the corresponding terminal/PSP system in certification.

The Primary Acquirer is responsible for his own integration tests (if requested) and the pilot coordination. He guarantees the testing of the main brands (Mastercard and Visa) and supervises the terminal or PSP system in the field (after completion of the certification process).

Following requirements and tasks shall be met by the Primary Acquirer:

- the main card brands Mastercard and VISA are supported
- at least one acquiring contract for the terminal or PSP system in certification during pilot and after pilot exists
- perform pilot
- processes all requests to other TeCo *ep2* acquirers concerning testing and certification details. The obligation to give information remains as long as the terminal model is active used in the field

2.7.2 ep2 Certification Authority

The *ep2* Certification Authority is authorised by the Technical Cooperation *ep2* Association to execute the HW-, SW- and upgrade certifications. The Certification Authority acts according to the definitions in the *ep2* specifications. Decisions about waivers are made by the TWG *ep2*. The *ep2* Certification Authority may only make recommendations.

The *ep2* Certification Authority gathers all information about terminals and PSP systems in certification and is the single point of contact for all *ep2* certification issues. It stays in contact with TWG *ep2* and Terminal Supplier/PSP. This centralised approach helps to accelerate the certification process and to avoid unnecessary duplication.

The test-/certification system and test cards are operated and maintained by the *ep2* Certification Authority. The owner of the system is the Technical Cooperation *ep2* Association.

Part I - Terminal Certification

3 Business Use Cases 'Terminal Certification'

3.1 Motivation and Goals

The certification process is based on a Primary Acquirer concept that allows explicit the delegation of certain certification steps to other acquirers. Following goals shall be met:

- radical shortage of the whole certification process. Therefore only a pilot has to be performed by the directly affected acquirers.
- market driven approach - only acquirers with merchant contracts for the corresponding terminal model are performing the certification.
- cost saving - the HW-Certification fee has been strongly reduced and only business relevant combinations will be tested.
- efficiency - the reworked certification process shall save time and cost for all involved stakeholders by keeping the quality & security level.

The main certification steps are:

1. HW-Certification performed by the ep2 Certification Authority
2. SW-Certification performed by the ep2 Certification Authority
3. Pilot with at least one Primary Acquirer



Figure 1 Main certification steps

For the first two steps the ep2 Certification Authority is responsible. For step 3 the Primary Acquirer is responsible. Finally all acquirers are responsible for their terminals in the field under their contract, thus every acquirer has the right to perform additional tests (e.g. integration tests) at any time and to deactivate terminals in critical situations.

3.2 Business Use Cases

The business use cases of Part I 'Terminal Certification' are described in the form of activity diagrams starting on page 23.

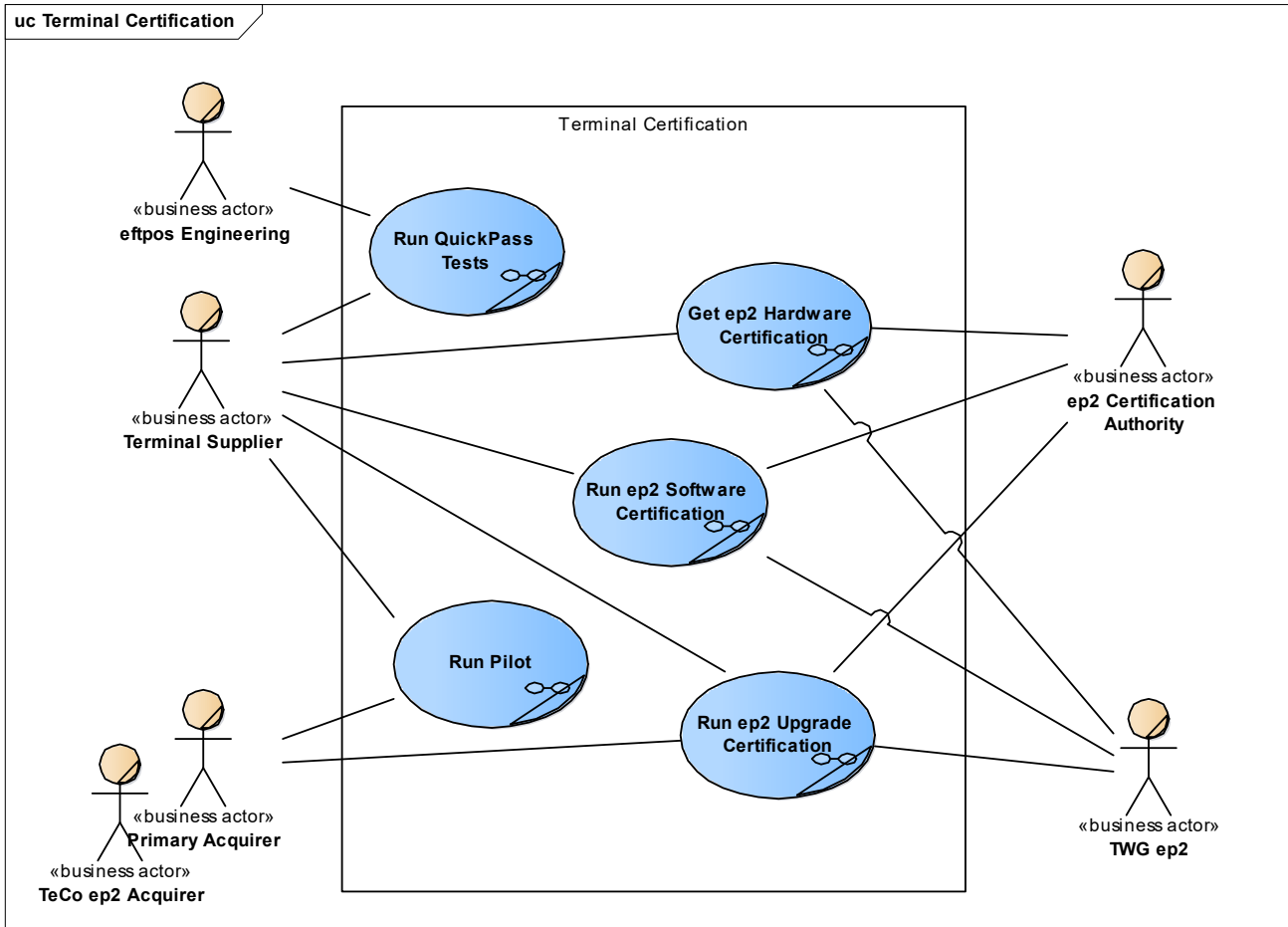


Figure 2 Overview Business Use Cases 'Terminal Certification'

3.3 Relations between the above Business Use Cases

To get the *ep2* certification, each terminal model has to pass successfully several certification steps. The following activity diagram shows the sequence between the business use cases and gives an overview about the complete terminal certification process.

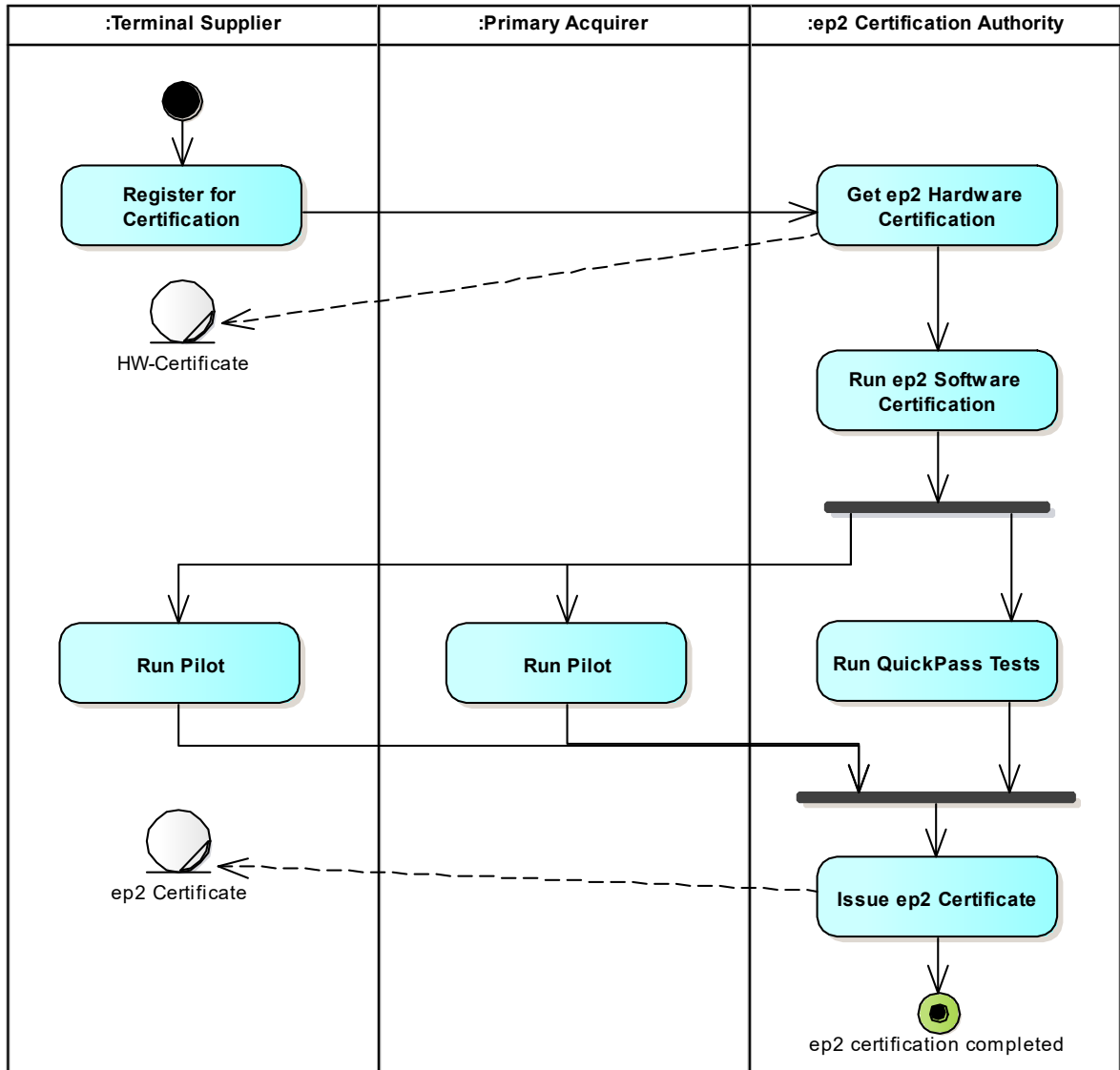


Figure 3 Overview Certification Process

For a detailed description of the above activities, read the information provided for each specific business use case in this document.

3.4 **ep2 Certificates**

The *ep2* certification authority issues two certificates.

- *ep2* hardware certificate
- *ep2* certificate

3.4.1 **ep2 Hardware Certificate**

The *ep2* hardware certificate is issued as soon as a terminal passes the process 'Get *ep2* HW Certification' successfully.

The time frame between the *ep2* hardware certification and the beginning of the *ep2* software certification processes shall not last longer than 1.5 years. If the *ep2* software certification process is not passed successfully within this time period, the issued *ep2* hardware certificate will become invalid.

Sharing of *ep2* hardware certificates

ep2 hardware certificates may be shared by multiple companies, if the owner allows it. Before the *ep2* software certification a copy of the *ep2* hardware certificate and a confirmation letter signed by the owner shall be enclosed.

The above mentioned time frame of 1.5 years applies to the first software certification by any authorised company (not necessarily by the certificate owner).

3.4.2 **ep2 Certificate**

The *ep2* certificate is issued at the end of the whole *ep2* certification process. The conditions for this certificate are, that the terminal supplier has passed the following four steps successfully with his terminal model:

1. Get *ep2* HW Certification
2. Run *ep2* SW Certification
3. Run *ep2* Pilot
4. Run QuickPass Tests
5. Visa ADVT Tests passed

The *ep2* certificate allows to sell and operate the specific terminal model in the market. Following the issuance of the *ep2* certificate, the terminal supplier shall apply for a final homologation of the specific terminal model by each *ep2* acquirer. An acquirer may request an acquirer integration test, a pilot and additional level 3 card schemes tests (e.g. MCI-TIP, Visa ADV, etc.). The tests have to be performed by the acquirer or by the terminal supplier. The outcome of these tests may influence the activation or cause restrictions for the corresponding terminal model. Further details and descriptions of these level 3 tests, time frame and costs are not scope of the document.

3.4.3 **ep2 Renewal Certificate**

The *ep2* renewal certificate is issued at the end of the upgrade certification process. For more details see chapter 8 'Business Use Case: Run *ep2* Upgrade Certification' on page 43.

3.4.4 **Revoke ep2 Certificate**

The *ep2* Certificate may be revoked, if:

1. an acquirer detects a class 1 error in production after successful certification and the Terminal Supplier does not fix the problem immediately or cooperate with *ep2*. Such errors shall be reported to the *ep2* Certification Authority by the Primary Acquirer or any other TWG *ep2* member.
2. one of the following required card schemes approvals expires and was not renewed by the Terminal Supplier:
 - a. PCI-PTS POI (prior PCI PED)
 - b. EMV Type Level Approval 1 and 2

The TWG *ep2* supervises the validity of the approvals above. The TWG *ep2* will have to decide in such cases whether the *ep2* certificate shall be revoked or not. The *ep2* Certification Authority reports the decision by mail and letter to the concerning parties.

3.5 **Special Requirements**

3.5.1 **Terminal Supplier Support**

The *ep2* Certification Authority is responsible for the support till the pilot phase.

The Primary Acquirer and participating acquirers are responsible to support the pilot.

3.5.2 **Product Line Certifications**

A product line certification may be used to combine several equivalent terminal models to a family of products (product line) to accelerate the *ep2* certification process and reduce the certification costs for the terminal supplier.

To ensure an equal treatment of all terminal suppliers following criteria shall be fulfilled for a product line application:

1. Equivalent hardware architecture (processor, e.g. ARM)
2. Same operating system on all models with an existing hardware abstraction layer
3. Same EMV kernel (according to EMV Type Level Approval 2, without ICS Declaration)
4. The terminal class is irrelevant. Different reader types or attended/unattended terminal models may be combined
5. a product line consists of at least two terminal models at the first application

Product line extension - additional terminal models may be added to an existing product line, if following criteria are fulfilled:

1. Foundation is an existing product line, i.e. only existing product lines can be extended with additional terminal models that fulfil the product line criteria above and implement the same or less functionality as tested in the original product line certification. Individually certified terminals cannot be grouped later to a product line.
2. To add a terminal model of class AT-PED-ALL or UAT-PED-ALL, the existing product line has to be certified according to ep2 version 6.1.0 or higher. For all other terminal classes (contactless only terminals), the existing product line has to be certified according to ep2 version 6.2.0 or higher
3. A fast track recertification for the added terminal model is required and will be performed with the same version as for the existing product line (product line extension fee, duration 1 day)

3.5.3 Certification Duration

The complete duration of a **full ep2 certification** varies between 3 and 5 months. The list below shows the duration¹⁾ of the main steps:

1. Hardware Certification 7 days
2. Confirm Registration 14 days before start
3. Certification Slot 14 - 21 days²⁾
4. Acceptance Test 1 day (within 21 days)
5. Pilot approx. 35 - 70 days

The complete duration of an **ep2 upgrade certification** varies between 1 and 3 months. The list below shows the duration³⁾ of the main steps:

1. Confirm Registration 14 days before start
2. Certification Slot 14 days
3. Acceptance Test 1 day (within 21 days)
4. Pilot approx. 0 - 50 days

3.5.4 Certification Cost

The *ep2* hardware certification will be charged for each terminal model or product line to the Terminal Supplier.

The *ep2* gateway concept approval will be charged for each request to the applicant. Details are described in [ep2gwreq].

1) duration for the step pilot is a non-binding benchmark

2) duration depending on terminal class and testing complexity.

3) duration for the step pilot is a non-binding benchmark. If no acquirer requires a pilot, the step pilot may be discarded.

Each *ep2* SW- or upgrade certification run will be charged to the Terminal Supplier. If the Terminal Supplier fails (not passed), he has to apply again for a new certification run after solving the problem(s). Each certification run will be charged.

Details see the *ep2* certification price list, which can be downloaded on <http://www.ep2.ch>.

3.5.5 Proceeding in case of new Hardware Versions/Releases

If the Terminal Supplier makes changes of hardware parts or the security concept, he is obliged to inform the *ep2* Certification Authority about the changes by sending a letter (electronically as pdf-file). The TWG *ep2* decides if the terminal must be re-certified. Four possibilities exist:

1. The Terminal Supplier can use the new hardware without any tests.
2. The Terminal Supplier has to send one terminal to each acquirer for compatibility tests (specially in case the communication component was changed).
3. The Terminal Supplier should run an integration test and a pilot. If he passes the pilot successfully, the terminal hardware changes may be installed on all terminals.
4. The Terminal Supplier must request an *ep2* hardware re-certification. All full *ep2* certification has to be performed again. All certification steps will be charged again. Details see the *ep2* price list on the website <http://www.ep2.ch>.

After the introduction of a new version of the document 'Minimal Hardware Requirements for *ep2* Terminal', the TWG *ep2* decides about the expire date of the old document version. Normally new versions will become mandatory one year after the introduction. Changes of the document may be introduced at any time.

3.5.6 Proceeding in case of new Software Versions/Releases

If the Terminal Supplier changes the executable code of the *ep2* software certified application, he has to announce the changes to the *ep2* Certification Authority by sending the release notes. The TWG *ep2* decides about the need to re-certify the terminal. Three possibilities exist:

1. The Terminal Supplier can use the new software without any tests.
2. The Terminal Supplier should run an integration test and a pilot. If he passes the pilot successfully, the new terminal software release / version may be installed on all terminals.
3. The Terminal Supplier must request an *ep2* upgrade certification. If he passes the upgrade certification successfully, the new terminal software release / version may be installed on all terminals.

3.5.7 Publishing a new Version of the *ep2* Specification

In general the certification process is based on the latest version of the *ep2* specification. The TeCo *ep2* publishes one release per year and operates according to the following release plan:

1. A new specification release will be published once a year in November

2. The *ep2* test system supports the latest specification release in October of the subsequent year
3. The latest specification version shall be available on the productive acquiring systems on December 1st of the subsequent year.
4. For Service Centers and POS Management Systems (PMS) the availability depends on the versions/lifecycle of the managed terminals.

3.5.8 Certification Periods per Version

Software or upgrade certifications will be proceeded according to versions in the table below:

ep2 Version	From	To ¹⁾	Latest Registration Date
V.7.3.0	02.11.2020	30.04.2022	31.10.2021
V.7.4.0	01.11.2021	30.04.2023	31.10.2022
V.8.0.0	31.10.2022	30.04.2024	31.10.2023
V.8.1.0	30.10.2023	30.04.2025	31.10.2024

Table 2 Certification Periods per Version

1) ep2 Software Certification shall be started latest at this date.

3.6 Certification of Other Applications

Other terminal applications like proprietary electronic payment, petrol industry company cards or loyalty applications will not be certified by the *ep2* Certification Authority. The Terminal Supplier / service center is responsible, that the *ep2* application is not affected by any none *ep2* applications installed on *ep2* terminals.

Documentation, maintenance and certification of interfaces outside *ep2* (e.g. ECR integration) are not covered by the *ep2* Certification Authority. *ep2* recommends to homologate these interfaces by an authorised expert.

4 Business Use Case: Get ep2 Hardware Certification

4.1 Brief Description

This business use case describes the process of the *ep2* hardware certification of terminals. The *ep2* hardware certificate is a prerequisite for a terminal to be accepted in the *ep2* system. The *ep2* hardware certification ensures that certain hardware, usability and security standards are met.

4.2 Actors

- ep2 Certification Authority
- Terminal Supplier
- TWG ep2 (Technical Working Group ep2)

4.3 Overview

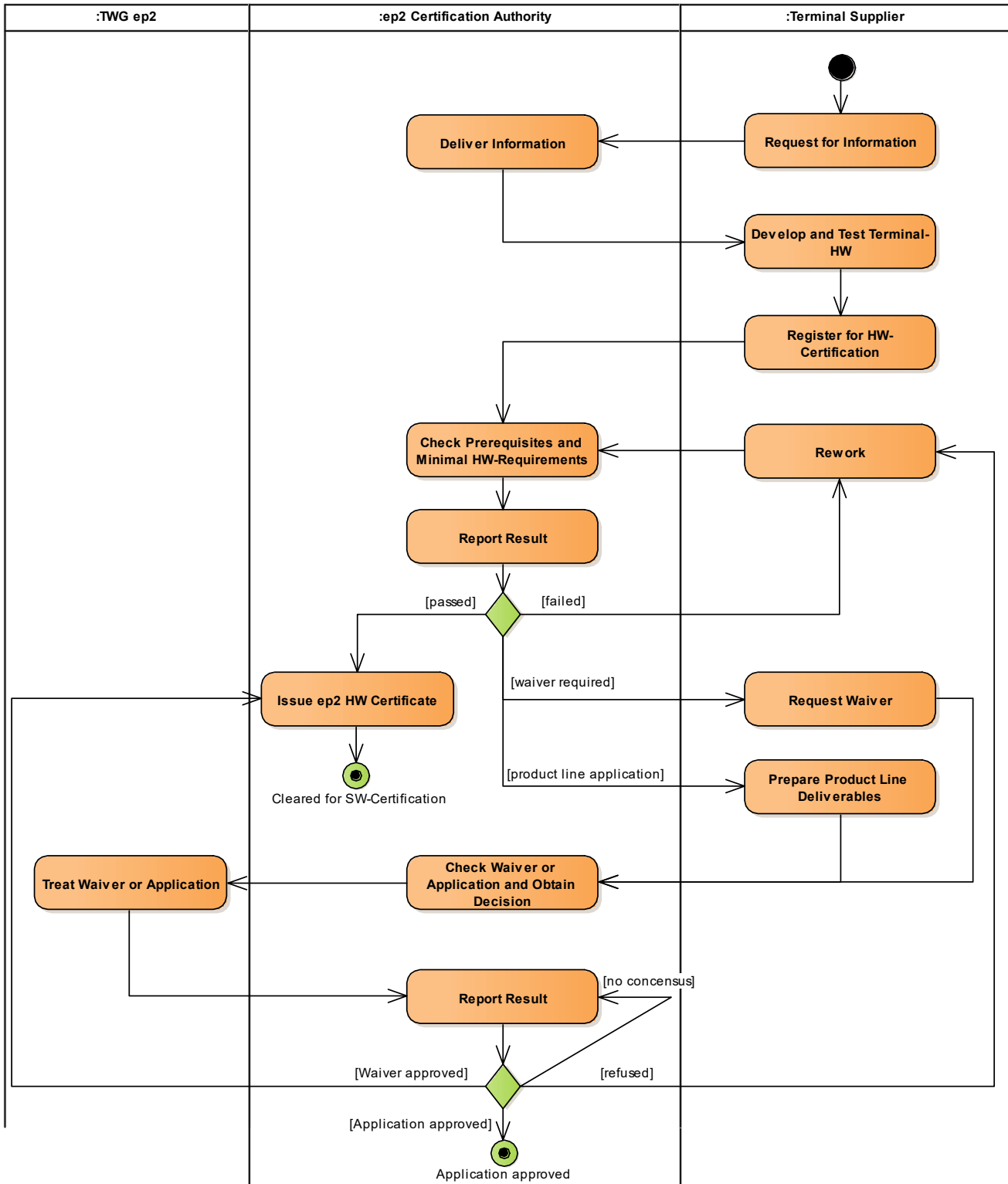


Figure 4 Business Use Case Activity Diagram: Get ep2 Hardware Certification

4.4 Basic Flow

4.4.1 Request for Information

The Terminal Supplier requests from the *ep2* Certification Authority the information needed for certification. All *ep2* registration forms are available on the *ep2* website <http://www.ep2.ch>.

Note:

- The *ep2* specifications (incl. *ep2* developing licence) for terminal suppliers shall be requested at the *ep2* Registration Authority (please refer to the *ep2* website).
- Acquirers or network providers have to request a separate *ep2* licence at the TeCo *ep2* Business Management Office (please refer to the *ep2* website).
- The CAT-Specification (for unattended terminals or vending machines) should be requested separately at the *ep2* Registration Authority (please refer to the *ep2* website).

4.4.2 Deliver Information

The *ep2* Certification Authority delivers the necessary documentation and software:

- Document *eft/pos 2000* Minimal Hardware Requirements for *ep2* terminals (*)
- Registration form for *ep2* Specifications incl. *ep2* Developing Licence (*)
- Registration form for *ep2* Hardware Certification (*)
- List of prerequisites

(*) This information will be published on the website <http://www.ep2.ch>.

4.4.3 Develop and Test Terminal-HW

Based on the delivered certification information the Terminal Supplier is able to test and check the hardware regarding to the *ep2* certification requirements:

1. He may develop a new terminal hardware, adapt an existing terminal hardware or use an already existing terminal hardware.
2. Testing may include the involvement of external test laboratories, e.g. an EMVCo test laboratory for EMV type approval level 1 or a PCI laboratory for PCI-PTS POI security approvals.

Note: All required HW features must be implemented in the terminal before starting with the EMV type approval level 1 process.

4.4.4 Register for HW-Certification

The Terminal Supplier must obtain multiple certificates for his terminal before he can request the *ep2* hardware certificate. Together with the registration form he shall send following mandatory prerequisites to the *ep2* Certification Authority:

Prerequisite (Certificate)	Issuing Authority	ep2 Terminal Class
Electromagnetic compatibility	Recognised Certification Authority	all
CE Certificate	Recognised Certification Authority	all
EMV Type Approval Contact Terminal Level 1	EMVCo accredited Laboratory	only for: AT-PED-ALL UAT-PED-ALL
EMV Type Approval Contactless Terminal Level 1	EMVCo accredited Laboratory	all
PCI-PTS POI Approval	PCI-PTS accredited Laboratory	all
ep2 Developing License ¹⁾	ep2 Registration Authority	all
Concepts, product specifications, HW- and SW-architecture	Terminal manufacturer or Terminal Supplier (only if a product line shall be certified)	all
ep2 Terminal Feature List	Terminal Supplier / Applicant	all

Table 3 Prerequisites for ep2 HW-Certification

1) purchased together with the ep2 specifications

When all prerequisites are collected and checked, the Terminal Supplier can request the ep2 hardware certificate at the ep2 Certification Authority. The registration form will be provided with the 'Certification Information' and can be downloaded from the website <http://www.ep2.ch>.

4.4.5 Check Prerequisites and Minimal HW-Requirements

The ep2 Certification Authority checks the prerequisites according to Table 3 and verifies that the EMVCo and PCI requirements are fulfilled. Invalid requests due to missing, incomplete or invalid certificates or deliverables will be rejected.

The ep2 Certification Authority performs their own checks to verify the minimal hardware requirements.

4.4.6 Report Result

The ep2 Certification Authority summarizes the results in the HW-certification report. The result is communicated by mail to the Terminal Supplier and posted on the collaboration platform for the TeCo ep2 (TWG ep2) members.

If the HW-certification is passed, the ep2 HW certificate will be issued.

Otherwise the Terminal Supplier:

- has to rework (step 4.5.1 'Rework') or
- may request a waiver (step 4.5.2 'Request Waiver') or
- may apply for a product line (step 4.5.3 'Prepare Product Line Deliverables')

In case of special issues (e.g. waiver, product line), the *ep2* Certification Authority treats it together with the TWG *ep2* members based on the provided documentation.

If the Terminal Supplier submits incomplete or invalid documents twice during HW-certification, the HW-certification is failed and a second run has to be applied and paid.

4.4.7 Issue *ep2* HW Certificate

After passing the *ep2* hardware certification, the Terminal Supplier's terminal is granted the *ep2* hardware certificate. The hardware certificate will include the following:

- *ep2* hardware certificate
- Minimal Hardware Requirements (filled out by the *ep2* Certification Authority)

The time frame between the *ep2* hardware certification and the beginning of the *ep2* software certification processes shall not last longer than 1.5 years. If the *ep2* software certification process is not passed successfully within this time period, the issued *ep2* hardware certificate will become invalid.

The Certification Authority updates the information list on the website <http://www.ep2.ch>. This allows interested parties to inform themselves about the current certification status of a specific terminal.

4.5 Alternative Workflows

4.5.1 Rework

If the terminal fails a certification criteria, the Terminal Supplier has the opportunity to rework features and hardware. The reworked hardware or updated prerequisites shall be sent to the *ep2* Certification Authority.

4.5.2 Request Waiver

It might be necessary in some rare cases to allow some exceptions to the requirements specified, e.g. due to a special market situation.

The request for a waiver must be initiated by the Terminal Supplier and shall be provided electronically as pdf-document to the *ep2* Certification Authority.

4.5.3 Prepare Product Line Deliverables

For product line¹⁾ approvals following additional deliverables are mandatory:

- the terminals used in a product line shall be hardware certified
- a list of all communication components
- all card readers including all PCI-PTS POI and EMV type level 1 approvals
- hardware and software release management concept
- detailed product specifications (operating system, API, development environment, user interface specifications)
- concept about the hardware / software platform, hardware abstraction layer (HAL) and architecture

In case of product line request or any other special issues, the Terminal Supplier should convince the TWG *ep2* members and the *ep2* Certification Authority with facts and figures. The better the concept, the higher the chance for acceptance.

4.5.4 Check Waiver or Application and Obtain Decision

The *ep2* Certification Authority checks the waiver request or the request for a product line approval. If complete, the *ep2* Certification Authority forwards the request with its recommendation to the TWG *ep2* and obtains the decision by circular letter.

In case of product line approvals or special issues, the *ep2* Certification Authority may request a meeting with the terminal supplier.

4.5.5 Treat Waiver or Application

The waiver or application will be treated by the TWG *ep2* by circular letter within 14 days.

4.5.6 Report Result

The *ep2* Certification Authority summarizes the feedback concerning the circular request and informs the terminal supplier about the result.

- If consensus is reached by circular letter, the *ep2* Certification Authority communicates the approving or declining result to the Terminal Supplier by mail and posts the decision on the collaboration platform for the TeCo *ep2* (TWG *ep2*) members.
 - If a waiver is approved by the TWG *ep2* (and all open issues of the HW certification are closed), the business use continues with step 4.4.7 'Issue ep2 HW Certificate'.
 - If a waiver is refused by the TWG *ep2*, the Terminal Supplier has to rework his hardware according step 4.5.1 'Rework'.
 - If an application is refused by the TWG *ep2*, the Terminal Supplier has to rework his hardware or proceed according to the decision.

1) several terminal models with a common HW- and/or SW-architecture

- If no consensus is reached by circular letter, the request shall be addressed at the next TWG *ep2* meeting. This may take a month or more¹⁾ and this step will be repeated after the decision was made.

5 Business Use Case: Run ep2 Software Certification

5.1 Brief Description

This business use case describes the process of the *ep2* software certification of terminals. The *ep2* software certification ensures that certain minimal quality standards are met before starting with the pilot. To ensure an efficient certification process the Terminal Supplier has to register at least two months before starting the *ep2* Software Certification.

5.2 Actors

- ep2 Certification Authority
- Terminal Supplier
- TWG ep2 (Technical Working Group ep2)

1) in exceptional situations the ep2 CA may summon a meeting with at least two members from the TWG *ep2*

5.3 Overview

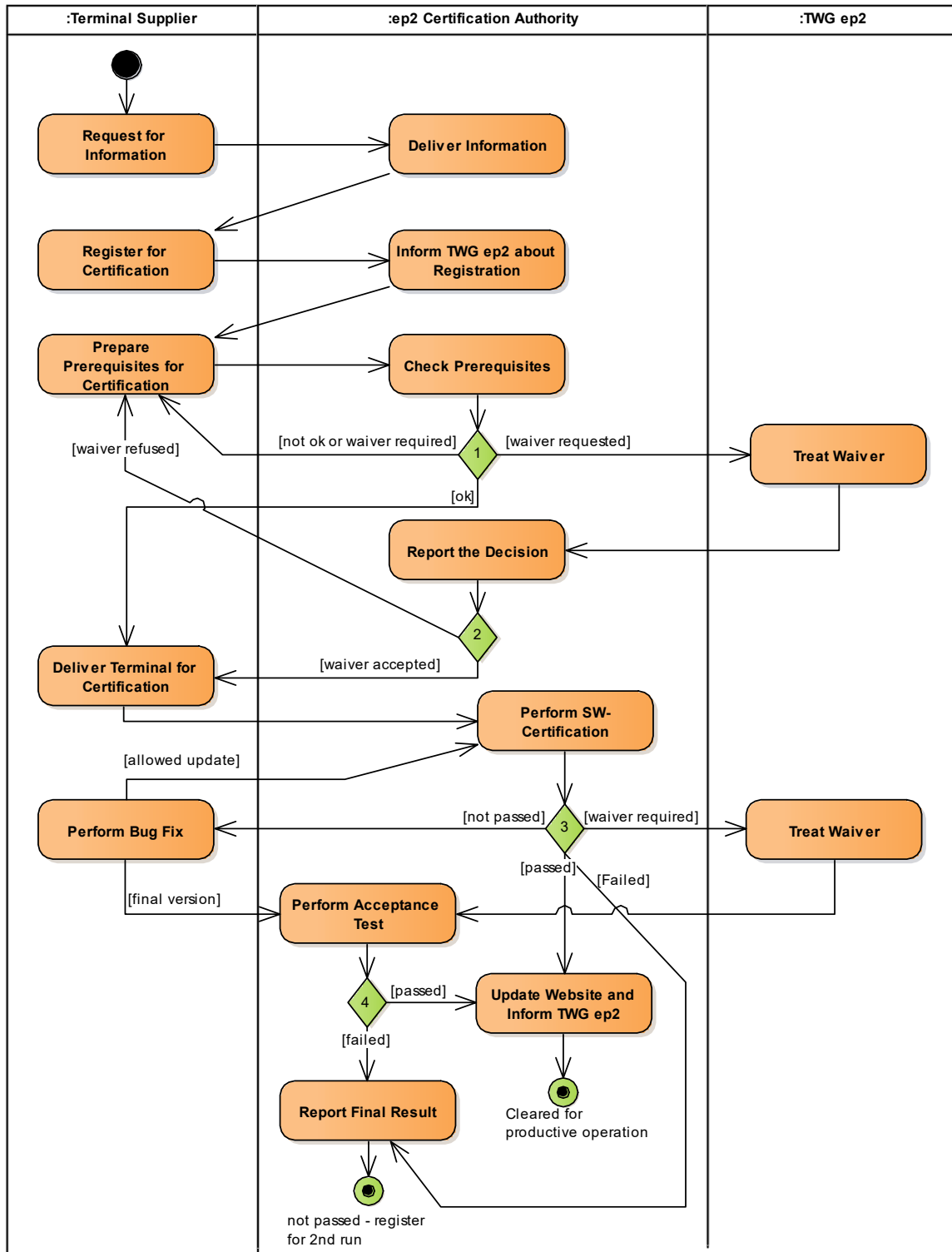


Figure 5 Business Use Case Activity Diagram: Run ep2 Software Certification

5.4 Basic Flow

5.4.1 Request for Information

The Terminal Supplier requests from the ep2 Certification Authority the information needed for certification.

5.4.2 Deliver Information

The *ep2* Certification Authority delivers the current version of the necessary documentation and software:

- List of *ep2* test cases for the *ep2* software certification(*)
- Information about Test-Cards / Keys (*)
- List of prerequisites (*)
- Template of the *ep2* software certification registration form (*)
- Mailing list for release notes and hardware changes (*)

(*) This information will be published on the website <http://www.ep2.ch>.

5.4.3 Register for Certification

The request for certification must be applied at least two months in advance by using the registration form published on the ep2 website. This is necessary to ensure the availability of the certification team on the ep2 Certification Authority as well as on the acquirer side. It is advisable to pass successfully the ep2 test cases on the ep2 test system before starting the ep2 certification.

Cancellations made less than 2 weeks before registered start date, will be charged with the full price and the Terminal Supplier has to apply for a re-certification. If a certification has to be postponed, the earliest start date is the next available certification slot (first in first out).¹⁾

5.4.4 Inform TWG ep2 about Registration

The *ep2* Certification Authority informs the TWG *ep2* about the registered software certification by a post on the collaboration platform.

1) the waiting period depends on number of registered certifications and might be in rare case more than 2 months

5.4.5 Prepare Prerequisites for Certification

At least two weeks before the registered start date, the Terminal Supplier shall confirm his certification slot by mailing following deliverables:

Prerequisites	Issuing Authority	ep2 Terminal Class
1. <i>ep2</i> Hardware Certificate ¹⁾	<i>ep2</i> Certification Authority	all
2. List of <i>ep2</i> test cases	Signed test report of the <i>ep2</i> test system by the Terminal Supplier	all
3. EMV Type Approval Contact Level 2 incl. ICS Declaration	EMVCo accredited laboratory	only for AT-PED-ALL and UAT-PED-ALL
4. Request for a waiver if required	Signed by the Terminal Supplier	all
5. Letter of approval for contactless reader (4x)	Kernel 2 - MasterCard Kernel 3 - Visa Kernel 4 - AMEX Kernel 7 - UPI	all

Table 4 Mandatory Prerequisites for *ep2* Software Certification

1) All *ep2* Hardware Certification prerequisites shall be still valid and for hardware certificate sharing rules see Sharing of *ep2* hardware certificates on page 18

Incomplete requests will be rejected (missing type approvals or pilot plan).

To minimize the risk to fail during the certification run, the Terminal Supplier should come off the *ep2* test cases on the *ep2* test system using the final product (hardware and software). A remote access of the *ep2* test system is available on a charge base.

5.4.6 Check Prerequisites

The *ep2* Certification Authority checks the prerequisites according to table 4 on page 32. If not all prerequisites are met, the Terminal Supplier shall fulfil them before the software certification starts. It might be necessary in some rare cases to allow some exceptions to the requirements specified, e.g. due to a special market situation. In such cases the *ep2* Certification Authority will require a request for a waiver.

The invoice will be issued 2 weeks before the registered start date.

5.4.7 Deliver Terminal for Certification

The Terminal Supplier shall bring or send two preconfigured terminals for the *ep2* certification system at the registered start date. Following deliverables additionally needed at the certification start:

1. Software download concept (remote download of terminal software and terminal operating system is mandatory)
2. Operating manual either in German or in English

3. Confirmation about an available *ep2* service center that supports the COI-interface (must be operational latest before starting the pilot).
4. In case of the terminal has no incorporated printer, receipts including correct layout shall be accessible by other means (e.g. external printer, remote software etc.)

5.4.8 Perform SW-Certification

The *ep2* Certification Authority tests the terminal software according to the terminal class (according to the HW certification) and the corresponding set of the *ep2* test cases. These test cases build the base for the test process. It includes test cases for all defined interfaces (FE, BE, MI, SI) and security. The content of display messages and receipts will be checked relating to the *ep2* specification. Among the *ep2* test cases, the *ep2* Certification Authority carries out additional tests and combinations of test cases.

All tests will be executed within one certification slot, that lasts two weeks (duration max. 40 hours for this step)¹⁾. The Terminal Supplier will be informed regularly about the results. As many as possible errors should be fixed within these two weeks. Remote software updates are required and will be accepted till one day before the certification slots ends. At the end of the certification slot the results will be documented in the standard error-list.

If all errors of class 1 and 2 are rectified, the step 5.4.8 'Perform SW-Certification' is passed successfully and the terminal is cleared for the pilot phase. The use case continues with step 'The *ep2* Certification Authority is updating the certification list on the *ep2* website <http://www.ep2.ch> and informs the TWG *ep2* and the Terminal Supplier about the next steps. The terminal is now in the certification state "pilot".'.

Otherwise, the step 5.4.10 'Perform Acceptance Test' is necessary and the Terminal Supplier has to rectify the errors within 21 days. The check is carried out within the acceptance test.

The *ep2* Certification Authority may drop out of the certification and range as failed, if one of the following points applies:

- After 6 hours, the communication does not work and the terminal can neither be configured nor initialized.
- Within 40²⁾ hours of testing, not all of the tests could be carried out (because of failure maturation of the terminal software).
- After the closing of the two test weeks, there are more than 10 errors of class 1 and/or 2 open.

If the terminal fails, a re-certification is necessary. For a re-certification the Terminal Supplier has to fill out again the registration form and each additional run will be charged.

5.4.9 Perform Bug Fix

Bug fixing is allowed:

1. During the step 5.4.8 'Perform SW-Certification' and

1) In case of a platform / family certification, the certification slot will be extended by one day for each additional family member.
2) for class AT-PED-ALL 50h and for UAT-NON-PED 20h

2. at the end of step 5.4.8 'Perform SW-Certification' if not failed. Note, this is the final version.

5.4.10 Perform Acceptance Test

The acceptance test will be executed within one day (duration max 6 hours).

Terms for the acceptance test:

- The acceptance test shall take place within 21 days (duration max. 6 hours).
- The *ep2* Certification Authority examines primary all open errors of class 1 and/or 2. Errors of class 3 are examined if all of the class 1 and 2 errors have been rectified and the *ep2* Certification Authority has the time required.
- Even passed tests or combinations of them, are random carried out within the acceptance test by the *ep2* Certification Authority (to verify that the corrections have no side effects).
- For the acceptance test, the Terminal Supplier is allowed to supply only one software version (final version).
- The acceptance test will be successfully passed if no errors of class 1 or 2 occur. Otherwise a re-certification will be necessary.

If the terminal passes the acceptance test, it is cleared for pilot and productive operation.

Otherwise the terminal fails, a re-certification is necessary. For a re-certification the Terminal Supplier has to fill out again the registration form and each additional run will be charged. A new certification slot shall be reserved at the *ep2* Certification Authority.

5.4.11 Update Website and Inform TWG ep2

The *ep2* Certification Authority is updating the certification list on the *ep2* website <http://www.ep2.ch> and informs the TWG ep2 and the Terminal Supplier about the next steps. The terminal is now in the certification state "pilot".

5.5 Alternative Workflows

5.5.1 Treat Waiver

It might be necessary in some rare cases to allow some exceptions to the requirements specified, e.g. due to a special market situation. The TWG ep2 will have to decide in such cases, whether the exception is acceptable or not.

The request for a waiver must be initiated by the Terminal Supplier and shall be provided electronically as pdf-document to the *ep2* Certification Authority. The *ep2* Certification Authority informs the TWG ep2 by forwarding the request with their recommendation.

The waiver will be treated by the TWG ep2 at next TWG meeting or by mail. This may take a month or more.

5.5.2 Report the Decision

The ep2 Certification Authority reports the decision by mail or letter.

If the TWG ep2 refuses the waiver, the Terminal Supplier will have to rework his software according to the ep2 requirements and will have to pass the corresponding test case(s) in the corresponding step again.

5.5.3 Report Final Result

The *ep2* Certification Authority reports the final result by mail and letter. If the terminal fails through the step 5.4.8 'Perform SW-Certification' or 5.4.10 'Perform Acceptance Test' the Terminal Supplier has to apply for a re-certification. Every certification run (re-certification) will be charged again and a new certification slot shall be reserved¹⁾.

1) the earliest start date will be the next available certification slot

6 Business Use Case: Run QuickPass Tests

6.1 Brief Description

This business use case describes the process of the UPI Scheme tests for terminal suppliers. The tests are performed by eftpos Engineering and are valid for all UPI implementations based on ep2.

This process shall be successfully finished till pilot end and is part of the ep2 certification process.

eftpos Engineering takes on central operations of a laboratory in Switzerland for the acceptance of UPI QuickPass certifications. The certification is offered to the terminal suppliers as a downstream module for the official ep2 acceptance. This means that all terminals can be accepted from a single source, in a prompt and cost-effective manner.

Please note, QuickPass tests will be mandatory from November 5, 2018 for version 7.1.0 terminals.

6.2 Actors

- eftpos Engineering
- Terminal Supplier

6.3 Overview

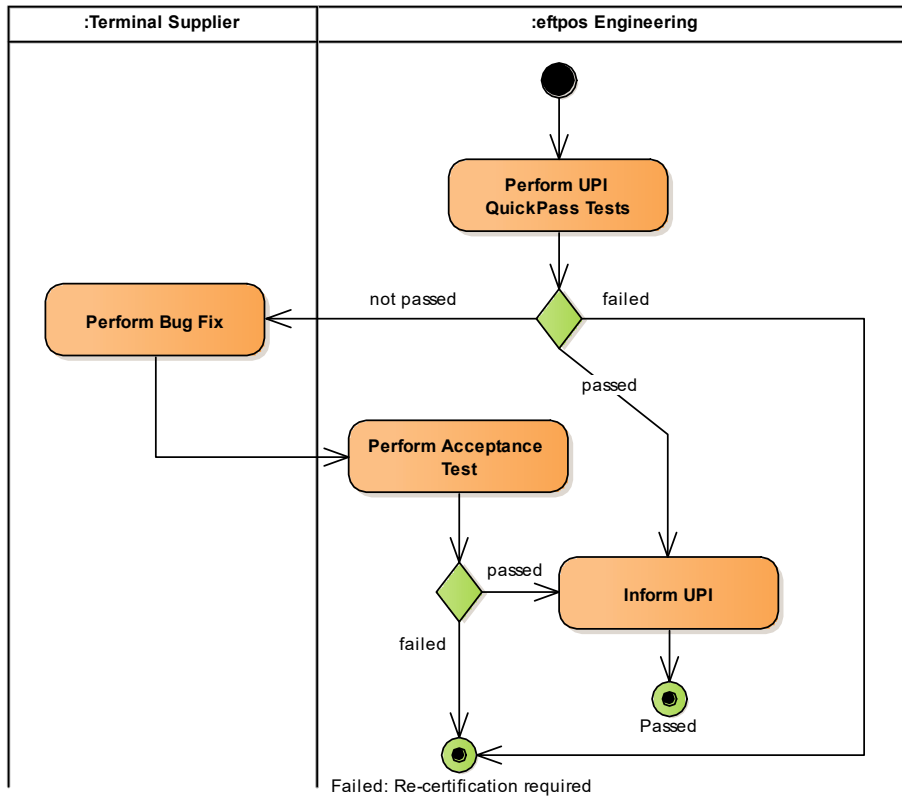


Figure 6 Business Use Case Activity Diagram: Run QuickPass Tests

6.4 Basic Flow

6.4.1 Perform UPI QuickPass Tests

Based on the existing ep2 test system, eftpos Engineering will test the requirements of UPI QuickPass Testing Guide. The test cases are available for terminal supplier for free to prepare beforehand.

All tests will be executed within certification slot of 1 week (duration max. 8 hours for this step). At the end of the certification slot the results will be documented in a separate error-list.

If no errors are found, the step 6.4.1 'Perform UPI QuickPass Tests' is passed successfully. Otherwise, the step 6.4.3 'Perform Acceptance Test' is necessary and the Terminal Supplier has to rectify the errors within 2 days. The check is carried out within the acceptance test.

eftpos Engineering may drop out of the certification and range as failed, if one of the following points applies:

- Within 8 hours of testing, not all of the tests could be carried out (because of failure maturation of the terminal software).

If the terminal fails, a re-certification is necessary. For a re-certification the Terminal Supplier has to fill out again the registration form.

6.4.2 Perform Bug Fix

1. Bug fixing is allowed at the end of step 6.4.1 'Perform UPI QuickPass Tests' if not failed.

6.4.3 Perform Acceptance Test

The acceptance test will be executed within one day (duration max 3 hours).

Terms for the acceptance test:

- The acceptance test shall take place within 2 days (duration max 3 hours).
- Even passed tests or combinations of them, are random carried out within the acceptance test by eftpos Engineering (to verify that the corrections have no side effects).
- For the acceptance test, the Terminal Supplier is allowed to supply only one software version (final version).
- The acceptance test will be successfully passed if no errors occur. Otherwise a re-certification of the QuickPass module will be necessary.

If the terminal passes the acceptance test, the QuickPass module is passed.

Otherwise the terminal fails, a re-certification is necessary. For a re-certification the Terminal Supplier has to fill out again the registration form. A new certification slot shall be reserved with eftpos Engineering.

6.4.4 Inform UPI

eftpos Engineering informs UPI about the successful certification.

7 Business Use Case: Run Pilot

7.1 Brief Description

This business use case describes the process of running a pilot for an *ep2* terminal. The start conditions for a pilot are:

- The terminal is *ep2* hardware certified and passed successfully the software certification
- The pilot must be run with 5 to 50 terminals (attended terminals)
- The pilot for unattended terminals must be run with 3 to 50 unattended terminals (vending machines)

The Terminal Supplier organises the pilot phase. The locations and merchants shall be chosen in order to fulfil the required minimal number of transactions within approx. 2 - 3 months.

7.2 Actors

- *ep2* Certification Authority
- Primary Acquirer (other TeCo *ep2* acquirers may participate if required)
- Terminal Supplier

7.3 Overview

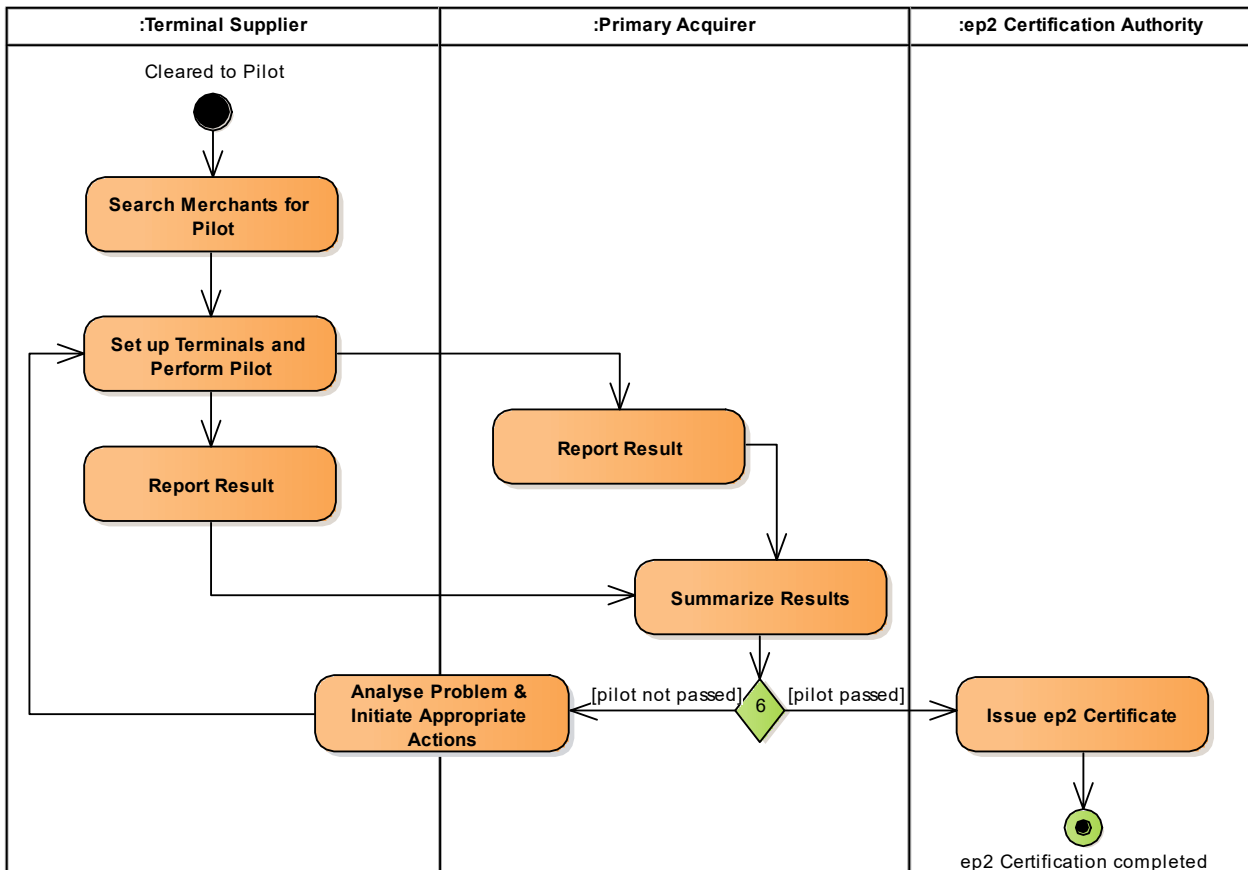


Figure 7 Business Use Case Activity Diagram: Run Pilot

7.4 Basic Flow

7.4.1 Search Merchants for Pilot

The Terminal Supplier searches for merchants, who are willing to run a pilot on their site. The locations and merchants shall be chosen in order to fulfil the required minimal number of transactions within approx. 2-3 months.

7.4.2 Set up Terminals and Perform Pilot

The Terminal Supplier shall organise the pilot and set up his terminals at the merchant site.

Note:

To start a pilot, at least one primary acquirer has to be involved. Non-participating acquirers may request a pilot at the moment of the first initialisation request for this terminal model.

As soon as the pilot terminals are configured and initialised, the pilot may start. The Terminal Supplier is responsible for the pilot and single point of contact for the pilot merchants.

7.4.3 Report Result

The Terminal Supplier and the acquirers should report monthly all relevant events to each other.

This includes the following information:

- Transaction statistics (number of transactions performed, types of transactions, etc.)
- Error situations using the standard error list (misbehaviour of terminal or other system components)
- Unresolved issues (events/behaviour, which can not be explained or seems special).

7.4.4 Summarize Results

The primary acquirer collects all reported results and produces a summary.

The summary includes the information listed in 7.4.3 'Report Result' and shows all errors and unresolved issues sorted by different error classes (dependent on how severe an error has been rated). The error classes are defined Table 1 'Error Classes' on page 9.

The terminal remains in the pilot phase until the conditions below are fulfilled or the primary acquirer closes the pilot. As soon as the terminal has passed the pilot phase, the primary acquirer shall inform the *ep2* Certification Authority by e-mail.

Passing Criteria

The pilot phase ends as soon as the below mentioned pass criteria are fulfilled:

- Minimal duration is 5 weeks
- Each transaction type has been run at least once
- The following transaction numbers shall be covered (only correct and financial effective transactions will be counted):

Brands	Number of Transactions	
	attended	unattended
MasterCard and/or Maestro	1'000	500
VISA and/or V-Pay	1'000	500

Table 5 Minimal number of transactions

The Terminal Supplier shall note that the pilot phase may not last more than three months.

7.4.5 Issue ep2 Certificate

If the pilot is completed successfully and all errors of error class 3 (ep2 CA) are rectified as well as the UPI and Visa level 3 tests are passed, the *ep2* Certification Authority issues the *ep2* certificate¹⁾. This allows the Terminal Supplier to sell and operate the specific terminal model in the market.

The *ep2* Certification Authority informs the Terminal Supplier and the TWG *ep2* members and puts the terminal onto the list of *ep2* certified terminals. This list will be published on the website <http://www.ep2.ch>.

A pilot may be requested by an acquirer that did not run the pilot during the certification. This pilot won't be part of the official certification process, but the Terminal Supplier and/or the acquirer should inform the *ep2* Certification Authority. The conditions for subsequent pilots are:

- The terminal is *ep2* certified and no pilot was run with the corresponding acquirer
- Further pilot conditions shall be settled between acquirer and Terminal Supplier (e.g. number of pilot terminals for un/-attended and transaction numbers)
- The *ep2* Certification Authority shall be informed about the pilot result

7.5 Alternative Flows

7.5.1 Analyse Problem/Initiate Appropriate Actions

The primary acquirer analyses the remaining problems together with the terminal supplier.

Different outcomes are possible:

- If a problem of error class 1 appears the pilot will be stopped immediately. This may happen at each step of the pilot phase
- The Terminal Supplier has not implemented the *ep2* specification correctly. The error has to be fixed by the Terminal Supplier.
- An acquirer has not implemented the *ep2* specification correctly. A work around has to be found and implemented.
- The *ep2* specification has not clearly specified a certain situation, which leaves room for different interpretations. A change request shall reported to the *ep2* registration authority. A work around may be necessary on Terminal Supplier and/or acquirer side.

1) The *ep2* certificate validity depends on valid PCI-PTS POI and EMV Type Level Approvals

8 Business Use Case: Run ep2 Upgrade Certification

8.1 Brief Description

This business use case describes the *ep2* upgrade certification process of card present terminals. If the TSU decides to upgrade from major version to another major version (e.g. from version 6.2.0 to 7.0.0), it is mandatory to pass this upgrade certification. This certification verifies the PCI DSS compliance and ensures that all change requests since the prior major version are correctly implemented. Please note, that an upgrade certification over two major versions is not allowed (e.g. from version 5.3.0 to 7.0.0). In this case a full certification is required again.

The *ep2* upgrade certification corresponds approximately to 60% of a full *ep2* software certification and should be performed in a time box of less than 40 hours (includes all steps fulfilled by the *ep2* Certification Authority).

To ensure an efficient certification process the Terminal Supplier has to register at least two months before starting the *ep2* upgrade certification. After registration the *ep2* Certification Authority fixes a 2 week certification slot with the terminals supplier.



Figure 8 Main Steps of the Upgrade Certification

8.2 Actors

- ep2 Certification Authority
- Primary Acquirer (other TeCo *ep2* acquirers may participate if required)
- Terminal Supplier
- TWG *ep2* (Technical Working Group *ep2*)

8.3 Overview

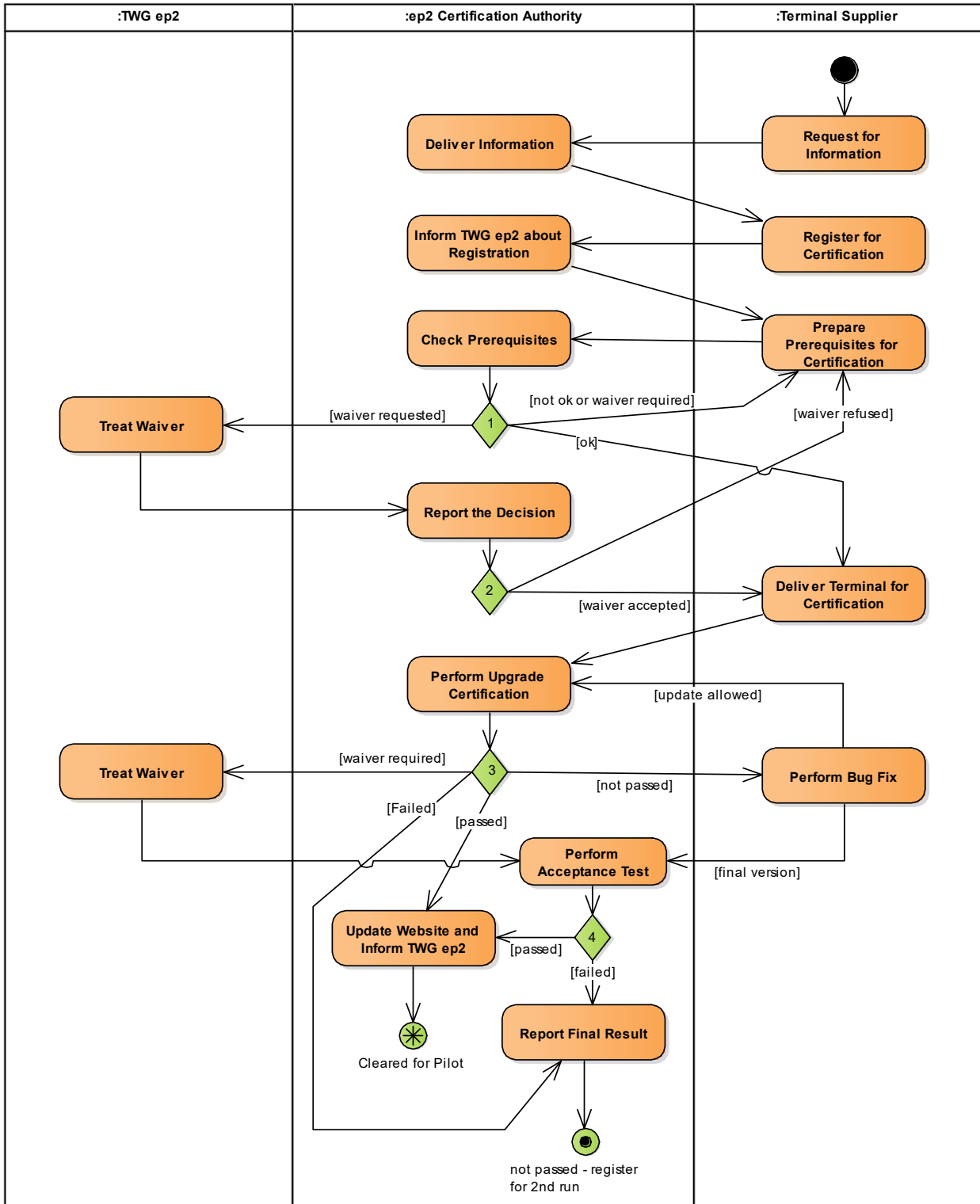


Figure 9 Business Use Case Activity Diagram: Run ep2 Upgrade Certification

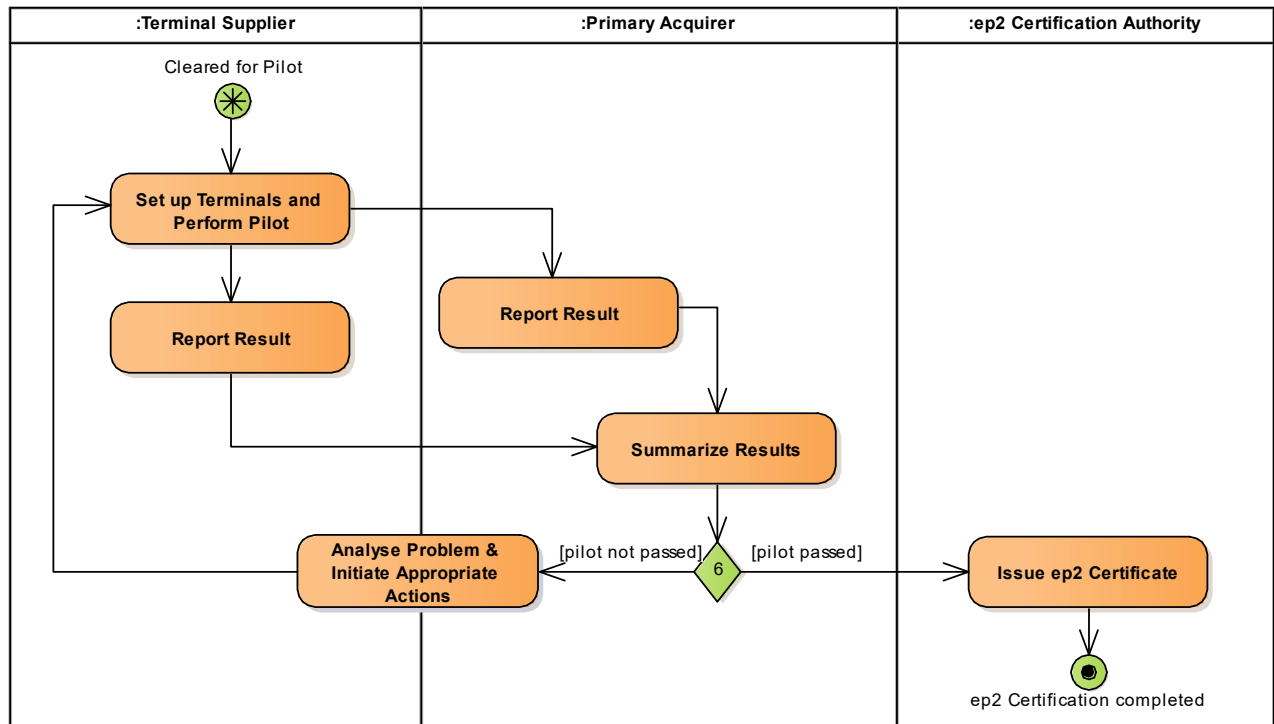


Figure 10 Business Use Case Activity Diagram: Run ep2 Upgrade Certification

8.4 Basic Flow

8.4.1 Request for Information

The Terminal Supplier requests from the ep2 Certification Authority the information needed for certification.

8.4.2 Deliver Information

The ep2 Certification Authority delivers the current version of the necessary documentation and software:

- List of ep2 test cases for the ep2 upgrade certification(*)
- Information about Test-Cards / Keys (*)
- List of prerequisites (*)
- Template of the ep2 upgrade certification request form (*)
- Mailing list for release notes and hardware changes(*)

(*) This information will be published on the website <http://www.ep2.ch>.

8.4.3 Register for Certification

The request for certification must be applied at least two months in advance by using the registration form published on the *ep2* website. This is necessary to ensure the availability of the certification team on the *ep2* Certification Authority as well as on the acquirer side. It is advisable to pass successfully the *ep2* test cases on the *ep2* test system before starting the *ep2* certification.

Cancellations made less than 2 weeks before registered start date, will be charged with the full price and the Terminal Supplier has to apply for a re-certification. If a certification has to be postponed, the earliest start date is the next available certification slot¹⁾ (first in first out).

8.4.4 Inform TWG ep2 about Registration

The *ep2* Certification Authority informs the TWG *ep2* about the registered upgrade certification.

8.4.5 Prepare Prerequisites for Certification

At least two weeks before the registered start date, the Terminal Supplier shall confirm his certification slot by mailing following deliverables:

Prerequisites	Issuing Authority	ep2 Terminal Class
1. Valid <i>ep2</i> Certificate ¹⁾	<i>ep2</i> Certification Authority	all
2. List of <i>ep2</i> test cases	Signed test report of the <i>ep2</i> test system by the Terminal Supplier	all
3. EMV Type Approval Level 2 incl. ICS Declaration	EMVCo accredited laboratory	only for: AT-PED-ALL UAT-PED-ALL UAT-NON-PED-ALL
4. Request for waiver if required	Signed by the Terminal Supplier	all
5. Letter of approval for contactless reader (4x)	Kernel 2 - MasterCard Kernel 3 - Visa Kernel 4 - AMEX Kernel 7 - UPI	all

Table 6 Mandatory Prerequisites for Upgrade Certification

1) all *ep2* Hardware Certification prerequisites shall be still valid

Incomplete requests will be rejected (missing type approvals or pilot plan).

1) the waiting period depends on number of registered certifications and might be in rare case more than 2 months

To minimize the risk to fail during the certification run, the Terminal Supplier should come off the *ep2* test cases on the *ep2* test system using the final product (hardware and software). A remote access of the *ep2* test system is available on a charge base.

8.4.6 Check Prerequisites

The *ep2* Certification Authority checks the prerequisites according to table 6 on page 46. If not all prerequisites are met, the Terminal Supplier shall fulfil them before the upgrade certification starts. It might be necessary in some rare cases to allow some exceptions to the requirements specified, e.g. due to a special market situation. In such cases the *ep2* Certification Authority will require a request for a waiver.

The invoice will be issued 2 weeks before the registered start date.

8.4.7 Deliver Terminal for Certification

The Terminal Supplier shall bring or send two preconfigured terminals for the *ep2* certification system at the registered start date. Following deliverables additionally needed at the certification start:

1. Software download concept (remote download of terminal software and terminal operating system is mandatory)
2. Operating manual either in German or in English

8.4.8 Perform Upgrade Certification

The *ep2* Certification Authority tests the terminal software according to a reduced set of the *ep2* test cases. These test cases build the base for the test process. It includes test cases for all defined interfaces (FE, BE, MI, SI) and security with focus on PCI and the change requests since the last major version. The content of display messages and receipts will be checked relating to the *ep2* specification. Among the *ep2* test cases, the *ep2* Certification Authority carries out additional tests and combinations of test cases.

All tests will be executed within one certification slot, that lasts two weeks (duration max. 30 hours for this step). The Terminal Supplier will be informed regularly about the results. As many as possible errors should be fixed within these two weeks. Remote software updates are required and will be accepted till one day before the certification slots ends. At the end of the certification slot the results will be documented in standard error-list.

If all errors of class 1, 2 and 3 are rectified, the step 8.4.8 'Perform Upgrade Certification' is passed successfully and the terminal is cleared for pilot phase. The use case continues with step 8.4.11 'Update Website and Inform TWG ep2'.

Otherwise, the step 8.4.10 'Perform Acceptance Test' is necessary and the Terminal Supplier has to rectify the errors within 21 days. The check is carried out within the acceptance test.

The *ep2* Certification Authority may drop out of the certification and range as failed, if one of the following points applies:

- After 4 hours, the communication does not work and the terminal can neither be configured nor initialized.
- Within 20 hours of testing, not all of the tests could be carried out (because of failure maturation of the terminal software).
- After the closing of the two test weeks, there are more than 10 errors of class 1 and/or 2 open.

If the terminal fails, a re-certification is necessary. For a re-certification the Terminal Supplier has to fill out again the registration form and each additional run will be charged.

8.4.9 Perform Bug Fix

Bug fixing is allowed:

1. During the step 8.4.8 'Perform Upgrade Certification' and
2. at the end of step 8.4.8 'Perform Upgrade Certification' if not failed. Note, this is the final version.

8.4.10 Perform Acceptance Test

The acceptance test will be executed within one day (duration max 6 hours).

Terms for the acceptance test:

- The acceptance test shall take place within 21 days (duration max. 6 hours).
- The *ep2* Certification Authority examines primary all the open errors of class 1 and/or 2. Errors of class 3 are examined if all of the class 1 and 2 errors have been rectified and the *ep2* Certification Authority has the time required.
- Even passed tests or combinations of them, are random carried out within the acceptance test by the *ep2* Certification Authority (to verify that the corrections have no side effects).
- For the acceptance test, the Terminal Supplier is allowed to supply only one software version (final version).
- The acceptance test will be successfully passed if no errors of class 1, 2 or 3 occur. Otherwise a re-certification will be necessary.

If the terminal passes the acceptance test, it is cleared for pilot and productive operation.

Otherwise the terminal fails, a re-certification is necessary. For a re-certification the Terminal Supplier has to fill out again the registration form and each additional run will be charged. A new certification slot shall be reserved at the *ep2* Certification Authority¹⁾.

1) the earliest start date will be the next available certification slot

8.4.11 Update Website and Inform TWG ep2

The *ep2* Certification Authority is updating the certification list on the *ep2* website <http://www.ep2.ch> and informs the TWG *ep2* and the Terminal Supplier about the next steps. The terminal is now in the certification state "pilot".

If no acquirer registers for integration tests and pilot, the renewal certificate will be issued and business use case continues with step 8.4.15 'Issue ep2 Renewal Certificate'.

8.4.12 Set up Terminals and Perform Pilot

The Terminal Supplier shall organise the pilot and set up his terminals at the merchant site.

As soon as the pilot terminals are configured and initialised, the pilot may start. The Terminal Supplier is responsible for the pilot and is single point of contact for the pilot merchants.

8.4.13 Report Result

The Terminal Supplier, the Primary Acquirer and the participating acquirers report monthly all relevant events to each other.

This includes the following information:

- Transaction statistics (number of transactions performed, types of transactions, etc.)
- Error situations using the standard error list (misbehaviour of terminal or other system components)
- Unresolved issues (events/behaviour, which can not be explained or seems special).

8.4.14 Summarize Results

The primary acquirer collects all reported results and produces a summary once a month.

The summary includes the information listed in 8.4.13 'Report Result' and shows all errors and unresolved issues sorted by different error classes (dependent on how severe an error has been rated). The error classes are defined Table 1 'Error Classes' on page 9.

The terminal remains in the pilot phase till the conditions below are fulfilled or the primary acquirer closes the pilot. As soon as the terminal has passed the pilot phase, the primary acquirer shall inform the *ep2* Certification Authority by e-mail.

Passing Criteria

The pilot phase can be stopped as soon as the following pass criteria are fulfilled:

- Minimal duration is 5 weeks
- The transaction numbers are defined by the acquirer(s) for the participating brands. *ep2* recommends 300 (attended) or 150 (unattended) transactions per participating brand

The Terminal Supplier shall note that the pilot phase may not last more than three months.

8.4.15 Issue ep2 Renewal Certificate

As soon the pilot phase is successfully completed the *ep2* Certification Authority issues the *ep2* renewal certificate¹⁾. This allows the Terminal Supplier to sell and operate the specific terminal model in the market according to the latest *ep2* version. The *ep2* Certification Authority informs all involved parties (Terminal Supplier and TWG *ep2* members) and publishes on the web site <http://www.ep2.ch> that the terminal is *ep2* certified according to the latest *ep2* version (renewal).

8.5 Alternative Workflows

8.5.1 Treat Waiver

It might be necessary in some rare cases to allow some exceptions to the requirements specified, e.g. due to a special market situation. The TWG *ep2* will have to decide in such cases, whether the exception is acceptable or not.

The request for a waiver must be initiated by the Terminal Supplier and shall be provided electronically as pdf-document to the *ep2* Certification Authority. The *ep2* Certification Authority informs the TWG *ep2* by forwarding the request with their recommendation.

The waiver will be treated by the TWG *ep2* at next TWG meeting or by mail. This may take a month or more.

8.5.2 Report the Decision

The *ep2* Certification Authority reports the decision by mail or letter.

If the TWG *ep2* refuses the waiver, the Terminal Supplier will have to rework his software according to the *ep2* requirements and will have to pass the corresponding test case(s) in the corresponding step again.

8.5.3 Report Final Result

The *ep2* Certification Authority reports the final result by mail or letter. If the terminal fails through the step 8.4.8 'Perform Upgrade Certification' or 8.4.10 'Perform Acceptance Test' the Terminal Supplier has to apply for a re-certification. Every certification run (re-certification) will be charged again and new certification slot shall be reserved²⁾.

8.5.4 Analyse Problem/Initiate Appropriate Actions

The primary acquirer analyses the remaining problems together with the terminal supplier.

Different outcomes are possible:

1) The *ep2* certificate validity depends on valid PCI-PTS POI and EMV Type Level Approvals

2) the earliest start date will be the next available certification slot

- If a problem of error class 1 appears the pilot will be stopped immediately. This may happen at each step of the pilot phase
- The Terminal Supplier has not implemented the *ep2* specification correctly. The error has to be fixed by the Terminal Supplier.
- An acquirer has not implemented the *ep2* specification correctly. A work around has to be found and implemented.
- The *ep2* specification has not clearly specified a certain situation, which leaves room for different interpretations. A change request shall reported to the *ep2* registration authority. A work around may be necessary on Terminal Supplier and/or acquirer side.

Part II - PSP System Certification

9 Business Use Cases 'PSP Certification'

9.1 Motivation and Goals

The reworked certification process now includes all TeCo *ep2* acquirers into the certification process and the philosophy has been changed from "all or nothing" to a Primary Acquirer concept that allows explicit the delegation of certain certification steps to other acquirers. Following goals shall be met:

- market driven approach - only acquirers with merchant contracts with the corresponding PSP are performing the certification
- efficiency - the reworked certification process shall save time and cost for all involved stakeholders by keeping the quality & security level.

The main certification steps are:

1. Acquirer Integration Test with at least one TeCo *ep2* Acquirer
2. Pilot with at least one TeCo *ep2* Acquirer

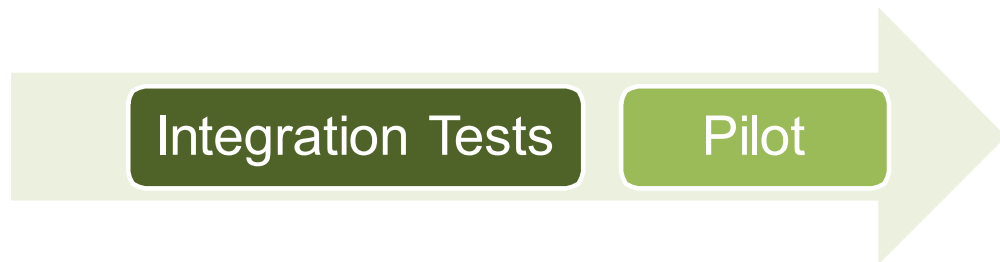


Figure 11 Main PSP Certification Steps

9.2 Business Use Cases

The business use cases 'PSP Certification' are described in the form of activity diagrams starting on page 60.

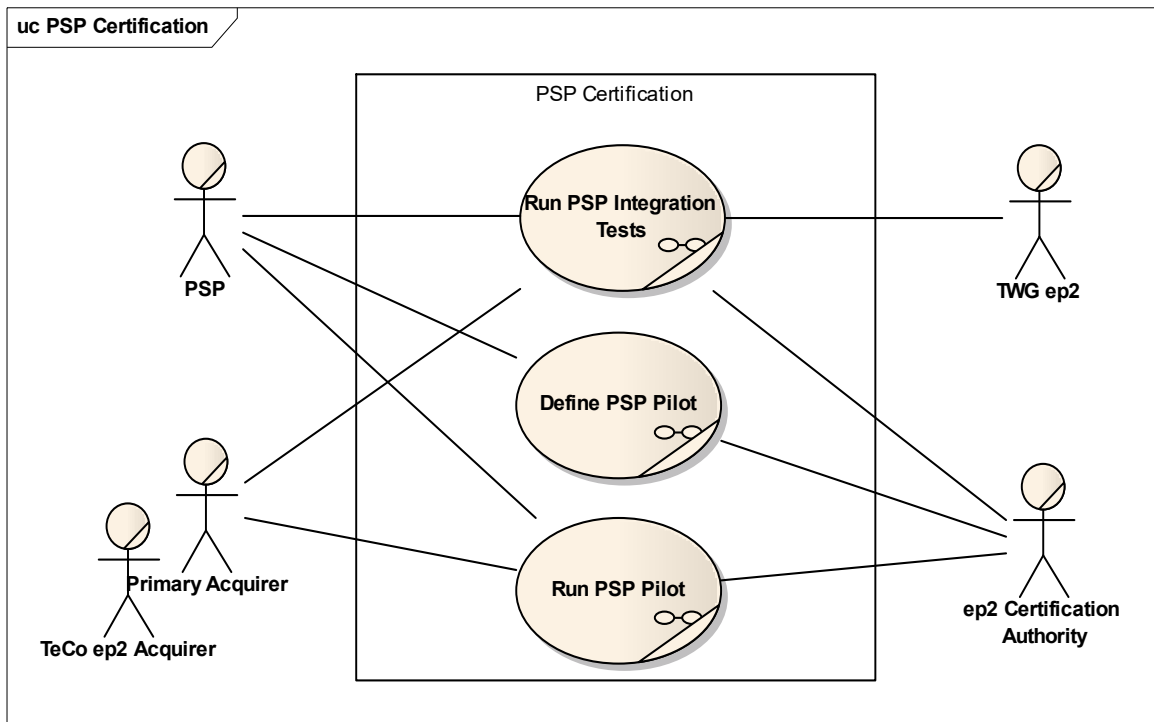


Figure 12 Overview Business Use Cases 'PSP Certification'

9.3 Relation between the above Business Use Cases

To get the *ep2* certification, each PSP system has to pass successfully several certification steps. The following activity diagram shows the relations and dependencies between the business use cases (blue coloured and with thicker frame) and gives an overview about the complete PSP certification process.

For a detailed description of the activities below, read the information provided for each specific business use case in this document.

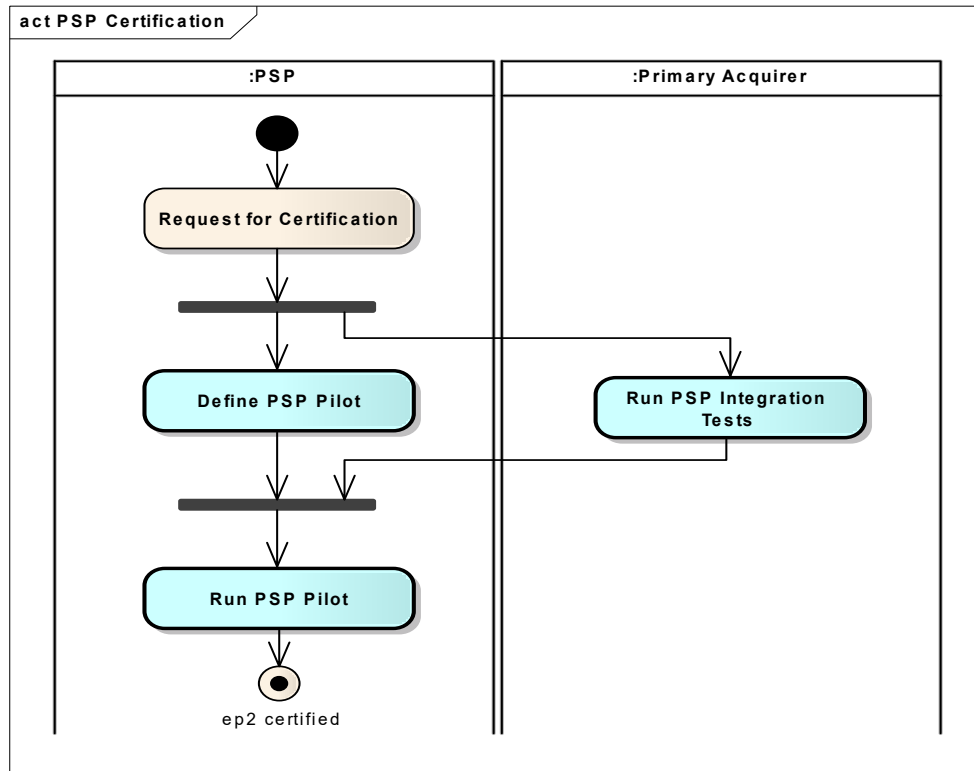


Figure 13 Overview PSP Certification Process

9.4 ep2 Certificate

The *ep2* certificate is issued at the end of the whole PSP certification process. The conditions for this certificate are, that the PSP has passed the following two steps successfully with his payment application:

- Business Use Case: Run PSP Integration Tests
- Business Use Case: Run PSP Pilot

The *ep2* certificate allows to sell and operate the specific terminal model in the market. Following the issuance of the *ep2* certificate, the terminal supplier shall apply for a final homologation of the specific terminal model by each *ep2* acquirer. An acquirer may request an acquirer integration test, a pilot and additional level 3 card schemes tests (e.g. MCI-TIP, Visa ADV, etc.). The tests have to be performed by the acquirer or by the terminal supplier. The outcome of these tests may influence the activation or cause restrictions for the corresponding terminal model. Further details and descriptions of these level 3 tests, time frame and costs are not scope of the document.

9.5 Special Requirements

9.5.1 Standard Error-List

The standard error-list shows all errors and unresolved issues sorted by different error classes (see Table 1 'Error Classes' on page 9).

9.5.2 Certification Cost

Each participant pays his own costs.

9.5.3 PSP Support

During the PSP certification the Primary Acquirer is responsible for the PSP support.

9.5.4 Publishing a new Version of the ep2 Specification

In general the certification process is based on the latest version of the *ep2* specification. The TeCo *ep2* publishes one release per year and operates according to the following release plan:

1. A new specification release will be published once a year on November 1st
2. New certifications will be proceeded according to the latest specification release on October 1st of the subsequent year
3. Integration Tests according the latest specification release are available in October of the subsequent year
4. The latest specification release shall be available on the productive acquiring systems on November 1st of the subsequent year.

9.5.5 Proceeding in case of new Software Versions/Releases

If the PSP changes the executable code of the *ep2* software certified application, he has to announce the changes to the *ep2* Certification Authority by sending the release notes. The TWG *ep2* decides about the need to re-certify the PSP system. Three possibilities exist:

1. The PSP can use the new software without any tests.
2. The PSP must run a pilot (see chapter 12 on page 67). If the pilot passes successfully, the new PSP system software release / version may be installed for all merchant accounts.
3. The PSP must request an *ep2* re-certification. A complete PSP system certification must be performed ('Business Use Case: Run PSP Integration Tests' and 'Business Use Case: Run PSP Pilot'). If these steps are passed successfully, the new PSP system software release / version may be installed on all merchant accounts.

9.6 Certification of Other Applications

Other PSP applications/services (e.g. a loyalty application of a specific merchant) will not be certified by the *ep2* Certification Authority. The PSP is responsible, that the *ep2* application is not affected by any none *ep2* applications installed on the *ep2* PSP system.

ep2 does not define any rules for other (none *ep2*) applications.

10 Business Use Case: Run PSP Integration Tests

10.1 Brief Description

This business use case describes the process of running acquirer integration tests for an *ep2* PSP system to ensure a certain minimal quality standard before starting with the pilot. To ensure an efficient certification process the PSP has to register at least two months before starting the *ep2* PSP Certification.

The PSP system will be tested during the integration test phase against the Primary Acquirer host and the specific cards of the corresponding acquirer (Mastercard and Visa required). Further TeCo *ep2* acquirer may require integration tests too. Pre-conditions for an acquirer integration test are:

- The PSP system is PCI PA DSS certified
- The PSP prepares the testing environment for each participating acquirer

10.2 Actors

- Primary Acquirer (other TeCo *ep2* Acquirers may participate if required)
- *ep2* Certification Authority
- TWG *ep2* (Technical Working Group *ep2*)
- PSP

10.3 Overview

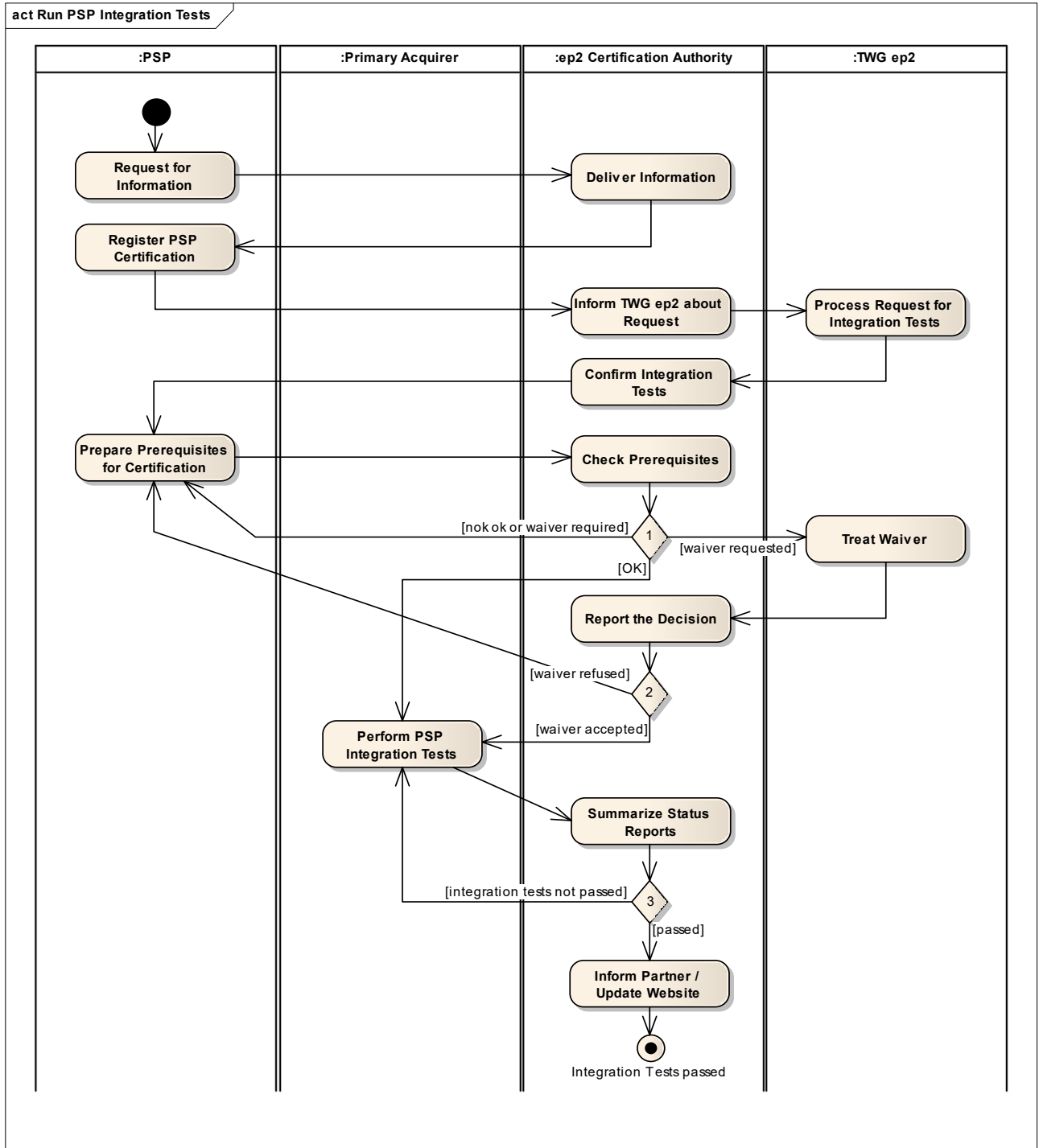


Figure 14 Business Use Case Activity Diagram: Run PSP Integration Tests

10.4 Basic Flow

10.4.1 Request for Information

The PSP may download certification information and the contact address list on the *ep2* website (<http://www.ep2.ch>). The *ep2* specifications may be requested on this site too.

For further information the PSP may contact the *ep2* Certification Authority.

10.4.2 Deliver Information

The *ep2* Certification Authority delivers the current version of the necessary documentation:

- List of prerequisites
- Contact addresses for PSP integration tests

(*) This information will be published on the website <http://www.ep2.ch>.

10.4.3 Register for PSP Certification

The request for PSP certification shall be applied by the *ep2* Certification Authority at least two months in advance by sending the PSP certification registration form.

10.4.4 Inform TWG *ep2* about Registration

The *ep2* Certification Authority informs the TWG *ep2* about the registered PSP certification by communicating the contact address of the PSP and requests the registration for the acquirer integration tests.

10.4.5 Prepare Prerequisites for Certification

Every acquirer shall process the request for acquirer integration tests and pilot within one week. The acquirer may waive or delegate the integration tests to another acquirer.

If the acquirer does not process the request, he waives the integration tests.

10.4.6 Confirm Integration Tests

The *ep2* Certification Authority gathers all registrations from the acquirers, informs the PSP and all TWG *ep2* members about the participating acquirer(s) and which acquirer is the primary.

The *ep2* Certification Authority may send one reminder if the acquirers do not respond.

10.4.7 Prepare Prerequisites for Certification

For preparation, the PSP shall test his PSP system against the acquirer test systems.

Following deliverables are needed before starting with the *ep2* e-commerce acquirer integration tests:

Prerequisites	Issuing Authority
1. <i>ep2</i> service center confirmation ¹⁾	Signed by the PSP
2. PCI PA DSS Certificate	Recognised PCI Test Laboratory
3. Remote Test Access to the PSP System ²⁾	Confirmed by the PSP

Table 7 Mandatory prerequisites for PSP Integration Tests

- 1) Confirmation about an available *ep2* service center (may be integrated) that supports the COI-Interface before starting Pilot Phase
- 2) shall be set up for the Primary Acquirer and each participating acquirer (fulfilment shall be confirmed to the *ep2* Certification Authority)

10.4.8 Check Prerequisites

The *ep2* Certification Authority checks the prerequisites according to table 7 on page 63. If not all prerequisites are met, the PSP shall fulfil them before the PSP integration tests start.

The *ep2* Certification Authority informs the TWG *ep2* about the result.

10.4.9 Perform Integration Tests

The PSP shall provide a remote access to his PSP system for the Primary Acquirer and each participating acquirer. The Primary Acquirer shall test all functional and non functional requirements defined in the PSP specifications against his own test system and with his specific cards (Mastercard and Visa required).

The Primary Acquirer and each participating acquirer report their test results to the *ep2* Certification Authority and to the PSP using the standard error-list at least once per month.

10.4.10 Summarize Status Reports

One month after the integration tests with the Primary Acquirer, a status report will be delivered by the *ep2* Certification Authority to the PSP and the TWG *ep2* members. Further status reports will provided on a monthly base.

Pilot Clearance

If all class 1 and 2 errors are fixed by the Primary Acquirer, the pilot with the Primary Acquirer may be started. The PSP integration test phase will be completed successfully, if all class 1 and 2 errors of each participating acquirer are fixed. The pilot clearance will be issued by the *ep2* Certification Authority.

Otherwise the terminal remains in the acquirer integration phase.

10.4.11 Update Website and Inform TWG ep2

The *ep2* Certification Authority issues the pilot clearance and updates the information list on the *ep2* website <http://www.ep2.ch>. This will ensure that all participants are informed.

10.5 Alternative Workflows

10.5.1 Treat Waiver

It might be necessary in some rare cases to allow some exceptions to the requirements specified, e.g. due to a special market situation. The TWG *ep2* will have to decide in such cases, whether the exception is acceptable or not.

The request for a waiver must be initiated through the PSP and shall be provided electronically as pdf-document to the *ep2* Certification Authority. The *ep2* Certification Authority informs the TWG *ep2* by forwarding the request with their recommendation.

The waiver will be treated by the TWG *ep2* at next TWG meeting or by mail. This may take a month or more.

10.5.2 Report the Decision

The *ep2* Certification Authority reports the decision by mail or letter.

If the TWG *ep2* refuses the waiver, the PSP will have to rework his software according to the *ep2* requirements.

11 Business Use Case: Define PSP Pilot

11.1 Brief Description

This business use case describes the process of defining the *ep2* pilot and selecting the Primary Acquirer. The focus lays on organisational issues.

To ensure an efficient certification process the PSP has to provide a pilot list inclusive the pilot brands and pilot acquirers together with his registration.

Post condition:

- the pilot shall be run with at least one TeCo *ep2* acquirer and the brands MasterCard/Maestro and Visa.

11.2 Actors

- *ep2* Certification Authority
- PSP

11.3 Overview

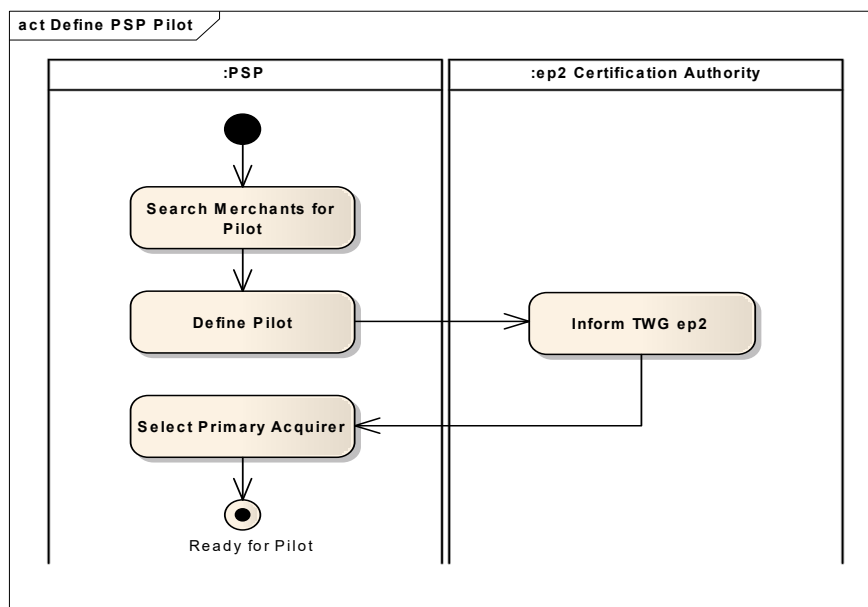


Figure 15 Business Use Case Activity Diagram: Define PSP Pilot

11.4 Basic Flow

11.4.1 Search Merchants for Pilot

The PSP searches for merchants, who are willing to run an e-commerce pilot. The merchants shall be chosen in order to fulfil the required minimal number of transactions within approx. 2-3 months.

11.4.2 Define Pilot

The PSP defines and organises the pilot, i.e. checks that all conditions are met and informs the *ep2* Certification Authority by sending the pilot plan containing following information:

- Pilot acquirers
- Pilot brands
- Pilot merchants
- Number of planned merchant accounts in the pilot phase

11.4.3 Inform TWG ep2

The *ep2* Certification Authority checks and approves the pilot plan.

If the pilot plan is approved by the *ep2* Certification Authority, the TWG *ep2* will be informed by mailing the pilot plan. The approved pilot plan is a decisional base for the Primary Acquirer and pilot acquirer selection.

Otherwise the Terminal Supplier has to rework the pilot plan and shall provide the reworked version to the *ep2* Certification Authority again.

If the Primary Acquirer is already defined, the *ep2* Certification Authority inform the TWG *ep2* by mailing the pilot plan. In this case, the business use case ends.

Otherwise the step 11.4.4 'Select Primary Acquirer' shall be performed.

11.4.4 Select Primary Acquirer

The PSP selects one of the pilot acquirers as Primary Acquirer, which meets his requirements best. If the inquired acquirer accepts, he needs to warrant the duties defined in chapter 2.7.1 'Primary Acquirer'. If the acquirer refuses to stand in, the PSP shall select another acquirer as Primary Acquirer.

12 Business Use Case: Run PSP Pilot

12.1 Brief Description

This business use case describes the process of running a pilot for a PSP system. The start conditions for the pilot phase are:

- The PSP system has passed successfully the 'Business Use Case: Run PSP Integration Tests'
- The pilot plan is provided to the *ep2* Certification Authority
- The pilot must be run with 1 to 10 merchant accounts

The PSP organises the pilot phase. The merchants shall be chosen in order to fulfil the required number of transaction within approx. 2-3 months.

12.2 Actors

- Primary Acquirer (other TeCo *ep2* Acquirers may participate if required)
- *ep2* Certification Authority
- PSP

12.3 Overview

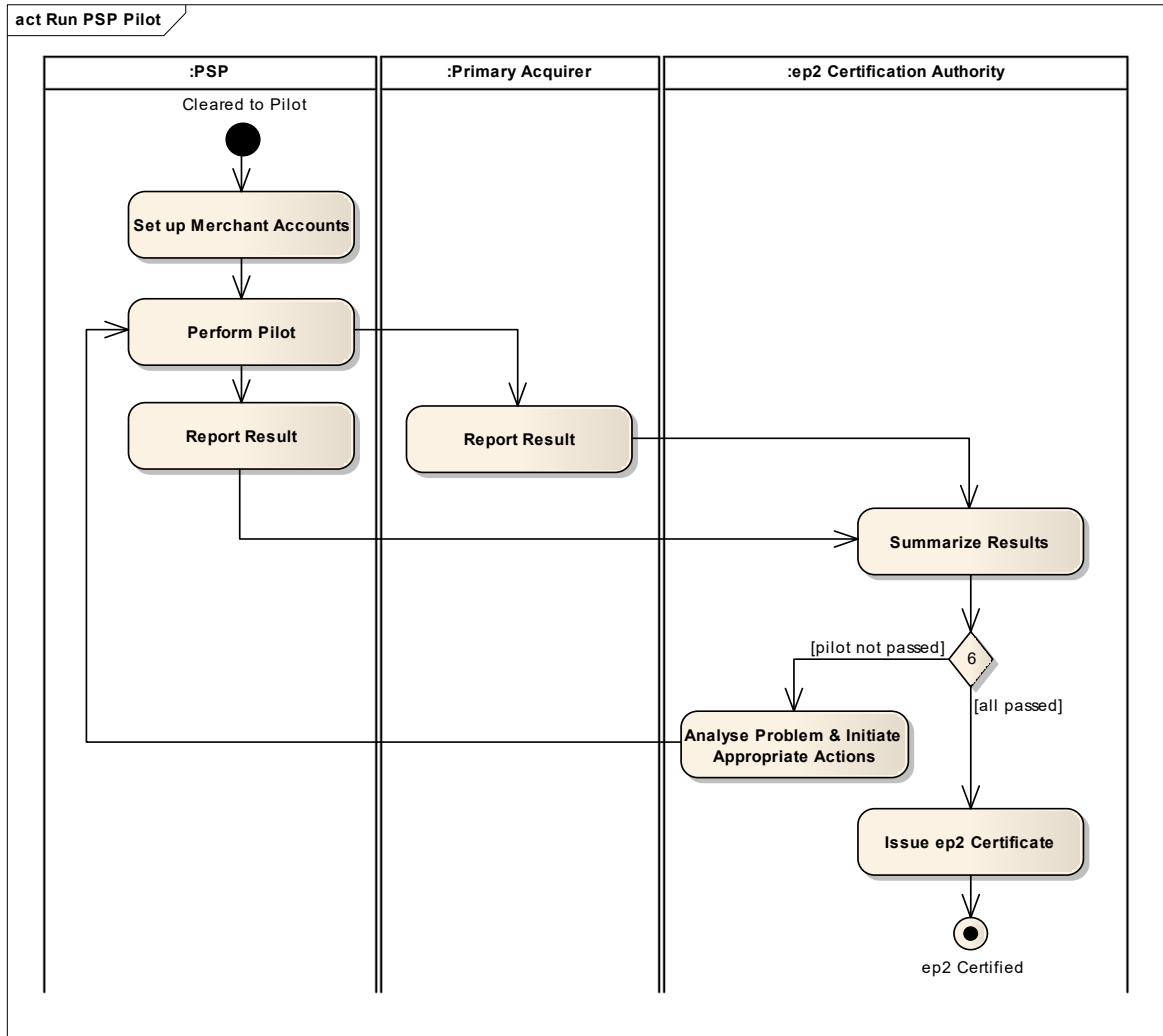


Figure 16 Business Use Case Activity Diagram: Run PSP Pilot

12.4 Basic Flow

12.4.1 Set up Merchant Accounts

The PSP shall organise the pilot and set up the PSP system (preconfiguration) and the merchant accounts (configuration).

12.4.2 **As soon as the pilot terminals are configured and initialised, the pilot may start. The Terminal Supplier is responsible for the pilot and single point of contact for the pilot merchants.**

As soon as the pilot merchant accounts are configured and initialised, the pilot may start. The PSP is responsible for the pilot and is single point of contact for the pilot merchants.

12.4.3 **Report Result**

The PSP and the acquirers report monthly all relevant events to the *ep2* Certification Authority using the standard report form. They supervise the PSP system and check that it is working properly and that the transactions are processed correctly by taking spot tests.

This includes the following information:

- Transaction statistics (number of transactions performed, types of transactions, etc.)
- Error situations using the standard error list (misbehaviour of system components)
- Unresolved issues (events/behaviour, which can not be explained or seems special).

12.4.4 **Summarize Results**

The primary acquirer collects all reported results and produces a summary once a month.

The summary includes the information listed in 12.4.3 'Report Result' and shows all errors and unresolved issues sorted by different error classes (dependent on how severe an error has been rated). The error classes are defined Table 1 'Error Classes' on page 9.

The PSP system remains in the pilot phase till the conditions below are fulfilled.

Passing Criteria

The pilot phase can be stopped as soon as the following pass criteria are fulfilled:

- Minimal duration is 5 weeks
- Each transaction type has been run at least once
- It is recommended to proof different currency types
- All errors of error class 1, 2 or 3 are rectified
- The following transaction numbers must be covered (only correct and financial effective transactions will be counted)

Brands	Number of Transactions
MasterCard	1'000
VISA	1'000

Table 8 Minimal number of transactions

The PSP shall note that the pilot phase may not last more than three months.

12.4.5 Issue ep2 Certificate

If the pilot phase was completed successfully, the *ep2* Certification Authority issues the *ep2* certificate¹⁾. This allows the PSP to sell and operate unlimited merchant accounts in the market.

The *ep2* Certification Authority informs all involved parties (acquirers, PSP and TWG *ep2* members) and publishes it on the website <http://www.ep2.ch>.

A pilot may be requested by an acquirer that does not run the pilot during the certification. This pilot won't be part of the official certification process, but PSP or acquirer should inform the *ep2* Certification Authority by e-mail. The conditions for subsequent pilots are:

- The PSP system is *ep2* certified and no pilot was run with the corresponding acquirer
- Further pilot conditions shall be settled between acquirer and PSP (e.g. transaction numbers)
- The *ep2* Certification Authority shall be informed about the pilot result

12.5 Alternative Flows

12.5.1 Analyse Problem/Initiate Appropriate Actions

The *ep2* Certification Authority analyses the remaining problems together with the terminal supplier.

Different outcomes are possible:

- If a problem of error class 1 appears the pilot will be stopped immediately. This may happen at each step of the pilot phase
- The PSP has not implemented the *ep2* specification correctly. The error has to be fixed by the PSP.
- An acquirer has not implemented the *ep2* specification correctly. A work around has to be found and implemented.
- The *ep2* specification has not clearly specified a certain situation, which leaves room for different interpretations. A change request shall reported to the *ep2* registration authority. A work around may be necessary on PSP and/or acquirer side.

1) The *ep2* certificate validity depends on a valid PCI PA DSS approval