



SEQUOIA MOSAIC 3000 CARDS PROCESSING PLATFORM

Systems requirements

System administrator's manual

Version 1.0

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Chapter 1. About the document

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1.1. Purpose of the document

This document describes the requirements for the systems and hardware implementation of the SM3000 processing platform. This document was prepared for administrators and technical engineers of the SM 3000 applications.

1.2. How to use this manual

The manual is designed to explicate the necessary hardware and systems to work to implement the SM3000 processing platform, that is described in the main chapter.

The terms, abbreviations and useful references to other documents about the SM 3000 system are provided at the final part of the document.

Terms and Abbreviations - A glossary of terms commonly used in the card processing and electronic funds transfer industry.

1.3. Classification

This document has been classified as External.

1.4. Document sheet

100900

1.5. Document contacts

In the case of questions or proposals about information presented in this document, you can contact Alfeba's Documentation Division by email doc@alfeba.com, by phone +598 2 208 31 42 or by mail, using the address: Av. Agraciada 2770, Montevideo, 11823, Uruguay.

1.6. Document history

Version	Date	Modification	Notes	Authors
1.0	28.05.2020	-	Init. Version	Natalia Bogorodskaya

Chapter 2. Business requirements

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2.1. General information

In this chapter we describe the technical and business requirements for the SM3000 processing platform implementation.

2.2. The SM3000 processing platform content

The SM3000 processing platform contains a number of the main processing applications:

- SM3000 EPS [ELECTRONIC PAYMENT SYSTEM] - a cards processing core and SWITCH;
- SM3000 RISK - a fraud prevention system;
- SM3000 PERSO [PERSONALIZATION] - cards personalization system;
- SM3000 PAYMENTS - credit and MO/TO processing system;
- SM3000 IAP [INTERNET ACQUIRING PLATFORM] - internet acquiring system.

2.3. The business requirements

The SM3000 Processing platform will be implemented on the base of the product requirements, provided in the table 2.3.0.0. The requirements are provided by the Customer needs.

Table 2.3.0.0. The customer business requirements description

Business directions	Payment systems	Operational Limit	Description
Cards issuing processing programs	MC, VS, CUP, MIR, DC	Doesn't exist	Cards issuing processing of the banks' programs
Cards acquiring processing programs	MC, VS, CUP, MIR, DC	Doesn't exist	Cards acquiring processing of the banks' programs
ATM processing programs	MC, VS, CUP, MIR, DC	Doesn't exist	ATM networks processing of the banks' programs
POS processing programs	MC, VS, CUP, MIR, DC	Doesn't exist	POS networks processing of the banks' programs
IAP processing programs	MC, VS, CUP, MIR, DC	Doesn't exist	Internet acquiring processing of the banks' programs
PAYMENTS, bonuses, credits and MO/TO processing programs	MC, VS, CUP, MIR, DC	Doesn't exist	Stand alone application to process payments, credits, bonuses and MO/TO transactions
*Cards Personalization programs	MC, VS, CUP, MIR, DC	Doesn't exist	Cards personalization programs for banks can be implemented by the Customer additional requirements
Fraud prevention programs	MC, VS, CUP, MIR, DC	Doesn't exist	Fraud prevention processing and filters

The information, provided in the Table 2.3.0.0., is calculated before the project implementation and can be clarified during the project management process.

2.4. The estimated processing volumes

The SM3000 Processing platform will be implemented on the base of the volumes requirements, provided in the table 2.4.0.0. The requirements are provided by the Customer needs.

Table 2.4.0.0. The customer volumes requirements description

Name	Volume	Unit	Description
A peak number of transactions per second	10	transaction	The maximum volume of the cards transactions per second
An average number of transactions per second	2	transaction	The average volume of the cards transactions per second
A peak number of transactions per day	1 000 000	transaction	The maximum volume of the cards transactions per one day
An average number of transactions per day	100 000	transaction	The average volume of the cards transactions per one day
Cards	30 000 000	card	The approximate cards volume for the processing
Cardholder profiles	15 000 000	profile/ registry	The approximate number of the cardholder profiles volume for the processing
Point-of-sale terminals	50 000	terminal	The approximate number of the POSs for the processing
Automated teller machines	10 000	machine	The approximate number of the ATMs for the processing
Banks and financial institutions	50	institution	The approximate number of the banks for the processing

The information, provided in the Table 2.4.0.0., is calculated before the project implementation and can be clarified during the project management process.

2.5. The estimated information technology infrastructure

The SM3000 Processing platform will be implemented on the base of the IT infrastructure requirements, provided in the table 2.5.0.0. The requirements are provided by the Customer needs.

Table 2.5.0.0. The customer IT infrastructure requirements description

Name	Volume	Unit	Description
A number of the production platforms	1	platform	The number of the production platform, implemented for the Customer
A number of the non-production platforms	2	platform	The number of the non-production platform, implemented for the Customer
A non-production platform/ production platform rate	1/10	units	An index of the non-production platform usage
Production platform location	Customer physical equipment, main Data Center	location	Location of the main production platform
Non-production platform location	Customer physical equipment, main Data Center	location	Location of the secondary/ non-production platforms
Main platform cluster	Yes	cluster	Availability of the cluster technology
BackUp digital technology archivation	Yes	BackUp	Availability of the BackUp archivation technology
Hardware monitoring	Yes	monitoring	Availability of the systems monitory technology
Hardware platform	x86 64	core	The core characteristics
PCI DSS requirements	Yes	infrastructure	The PCI DSS requirements availability

The information, provided in the Table 2.5.0.0., is calculated before the project implementation and can be clarified during the project management process.

2.6. The estimated platform usage

The SM3000 Processing platform will be used on the base of the usage description, provided in the table 2.6.0.0. The requirements are provided by the Customer needs.

Table 2.6.0.0. The estimated platform usage by the Customer

Name	EPS	RISK	PAYMENTS	IAP	Description
Retention period for logs plain (days)	1	1	1	1	
Retention period for data plain (days)	365	365	365	365	
Retention period for logs gzipped (days)	14	14	14	14	
Retention period for transactions	365	365	365	365	
NonStop - Connection to external systems	0	0	0	0	
Total number of users	50	50	50	50	
Total number of concurrent users	40	40	40	40	
Cards added per day	50 000	50 000	50 000	50 000	

The information, provided in the Table 2.6.0.0., is calculated before the project implementation and can be clarified during the project management process.

Chapter 3. System architecture

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3.1. General information

This Chapter contains the system architecture short description.

3.2. About the architecture

We recommend to create the processing infrastructure core using x86 hardware represented by HPE DL300 series or analogs for 2 FC and 2 Ethernet adapters that can be installed. Cluster technology will be applied for the main production platform.

For all of the SM3000 applications we recommend to use the Oracle Virtualization scheme, but it depends on the Customer decisions. All of the SM3000 applications and databases must be protected by hypervisor software in Active/Passive mode using Oracle VM HA. All of the GUI applications are presented in one virtual machine. All of the Internet related servers (proxy server etc) must be located inside of the DMZ using virtual machines but reside on the same physical servers.

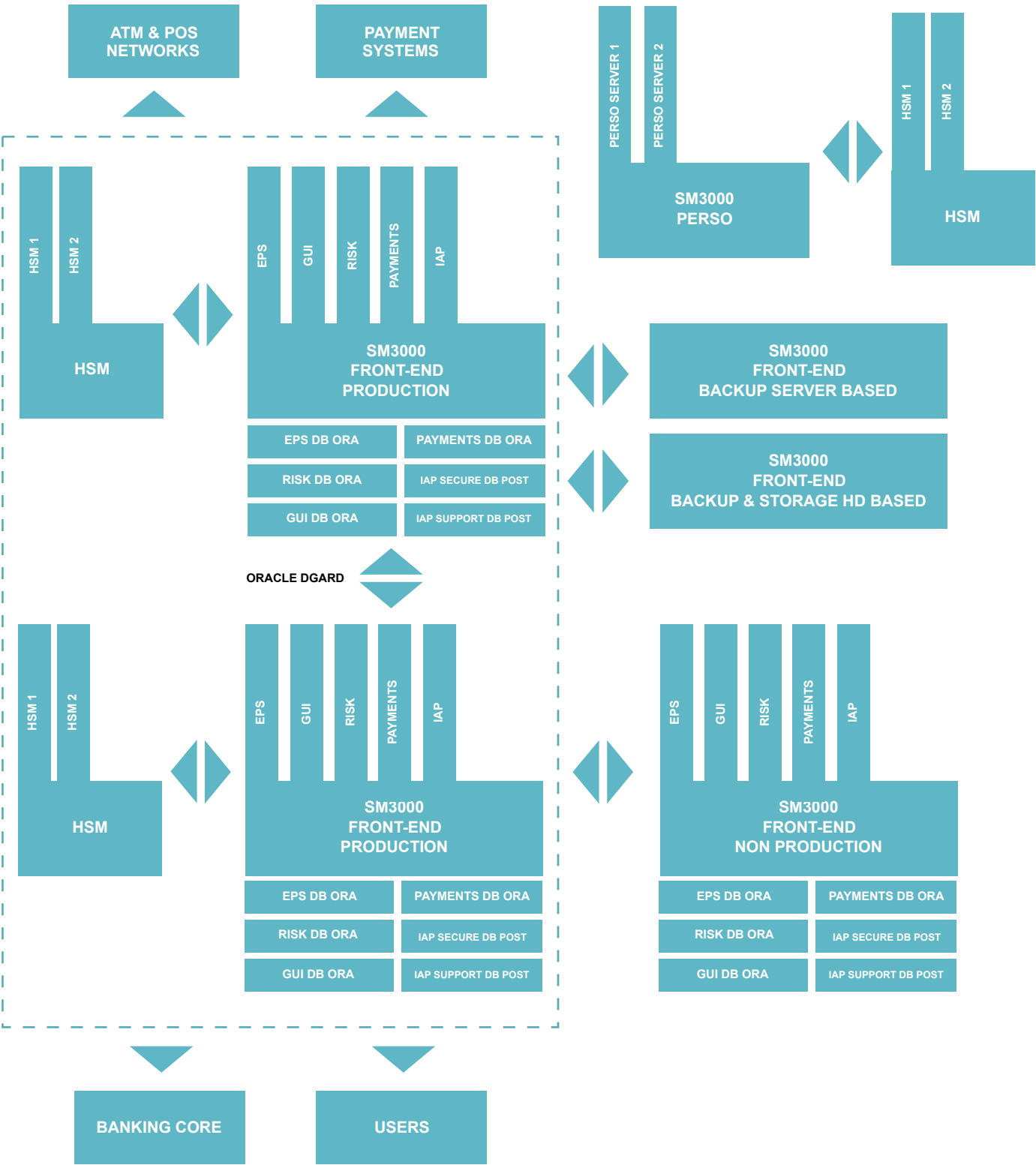
Test (non-production) environments must be installed on additional servers and must have the same design as production platform.

The virtualizing is provided in the recommendation purposes and depends on the Customer team decisions.

3.3. Architecture scheme

The principal system architecture is provided in the Picture 3.2.0.0.

Picture 3.2.0.0. The estimated system architecture



Chapter 4. Software requirements

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4.1. General information

In this chapter we describe which software the Customer has to use to implement and maintain the SM3000 processing platform.

4.2. Software requirements

For the EPS, PAYMENT, RISK and GUI of the SM3000 the Customer has to use the software, mentioned in the Table 4.2.0.0.

Table 4.2.0.0. The software requirements description

Name	Version	Notes
Virtualization	Oracle VM 3.4	
OS	Oracle Enterprise Linux 7.6	
Cluster	Oracle VM HA	
Application Server	WebLogic 12c Standard Edition 12.2.1.3	
Database	Oracle 18c Enterprise Edition 18.7.0.0.0	
Backup solution	Oracle secure backup	
BackUp digital technology archivation	Yes	
Hardware monitoring	Yes	
Hardware platform	x86 64	
PCI DSS requirements	Yes	

For the IAP DB the Customer should use the PosgreSQL 10.9.

For the GUI application the Customer should use the MS Windows server.

4.3. Software licenses

For the Production the Customer should use the licenses mentioned in the Table 4.3.0.0.

Table 4.3.0.0. The software production licenses description

Name	Metric	DC Site	DR Site	Total	Core factor	Licenses	Notes
Oracle Database Enterprise Edition	Processor	8	8	16	0,5	8	
Oracle Advanced Security	Processor	8	8	16	0,5	8	
Partitioning	Processor	4	4	8	0,5	4	
Diagnostic Pack	Processor	8	8	16	0,5	8	
WebLogic Server Standard Edition 12c	Socket	2	2	4	None	4	

For the non-production the Customer should use the licenses mentioned in the Table 4.3.0.1.

Table 4.3.0.1. The software non production licenses description

Name	Metric	DC Site	DR Site	Total	Notes
Oracle Database Enterprise Edition	NUP	175	0	175	
Oracle Advanced Security	NUP	175	0	175	
Partitioning	NUP	25	0	25	
Diagnostic Pack	NUP	175	0	175	
WebLogic Server Standard Edition 12c	NUP	50	0	50	

Additionally the Customer should use the licenses mentioned in the Table 4.3.0.2.

Table 4.3.0.2. The software non production licenses description-1

Name	Metric	DC Site	DR Site	Total	Notes
Oracle Linux Basic, 1y	System	7	4	11	
Oracle VM x86 Premier Limited 1y	System	4	1	5	

The list and quantity of the ORACLE licenses can be optimized after the project creation and authorization by the Customer.

The virtualizing is provided in the recommendation purposes and depends on the Customer team decisions.

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Chapter 5. Hardware requirements

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5.1. General information

In this chapter we describe the hardware requirements to implement the SM3000 Processing platform.

5.2. Hardware requirements

The hardware requirements are provided in the Table 5.2.0.0.

Table 5.2.0.0. The hardware requirements for the SM3000

Model name	Component name	CPUs / Cores	Memory	Main Site	DR Site
HPE ProLiant DL380 Gen10 Intel Xeon-Gold 6254 two 2-port 8/16Gb Fiber Channel adapters two 4-port 1/10Gb Ethernet adapters Hardware RAID controller 3*Internal disk (2 for RAID1 + 1 hot spare)	EPS, PAYMENT, RISK, GUI	2/36	256	2	1
HPE ProLiant DL360 Gen10 Intel Xeon-Silver 4210 one Fiber Channel adapter one Ethernet adapter Hardware RAID controller 2*Internal disk RAID1	Non production applications and DB	2/20	192	1	None
HPE DL360 Gen10 Intel Xeon-Bronze 3104 hardware RAID controller 2*Internal disk RAID1	OVM Manager	1/6	16	1	1
HPE DL360 Gen10 Intel Xeon-Bronze 3104 hardware RAID controller 2*Internal disk RAID1	Zubbix	1/6	32	1	1
HPE DL360 Gen10 Intel Xeon-Bronze 3104 Fiber Channel adapter hardware RAID controller 2*Internal disk RAID1	BackUp Server	1/7	32	1	1
Storage system HPE MSA\3PAR or similar after RAID10: at least 8 770 GB without Oracle FRA at least 13 210 GB with Oracle FRA at least 2 400+ IOPS	Storage	None	None	1	1
Brocade 6505 FC SAN Switch 16Gb SFP+ (Brocade OEM partners: IBM, ORACLE, DELL EMC, HPE, HUAWEI) exact model and licensing requirements should be clarified during BoM preparation	SAN SWITCH	None	None	2	2
Cisco Nexus 3548x or Extreme Networks X690 Series or similar	Ethernet SWITCH	None	None	2	2
Cisco Firepower 2120 or similar	FireWall	None	None	2	2

5.3. HSM requirements

The SM3000 supports THALES and FUTUREX HSMs. The Customer can choose the HSM equipment depending on its own decision but not less than 60 CPX/ SEC for the production HSM and 25 CPX/SEC for the non-production HSM.

Chapter 6. Attachments

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6.1. Terms and abbreviations

3

3D-Secure Is an XML-based protocol designed to be an additional security layer for online credit and debit card transactions.

A

API Application programming interface

Authorization Is an approval from a card issuer, usually through a credit card processor, that the customer has sufficient funds to cover the cost of the transaction.

B

Banking core The principal banking core system

C

Cardholder A person who owns a card, such as a cardholder of a credit card or debit card

E

EPS Electronic payment system, the SM3000 processing authorization core

F

FE Front-end, of the SM3000 IAP, where the cards authorizations are processed in on-line mode

I

IAP Internet acquiring platform. The Platform created as a separate application for the Payment operators and Payment facilitators.

M

MasterCard MasterCard International payment system

Merchant A legal entity carrying out trading activities on the Internet using the software provided by the system

MPI Merchant Plug-in

P

PAN	Primary account number, or simply a card number, is the card identifier found on payment cards, such as credit cards and debit cards, as well as stored-value cards, gift cards and other similar cards.
Payment System	Payment system between users, financial organizations and business organizations. Allows you to pay, bills and purchases, transfer money.

S

SM3000	Sequoia Mosaic 3000. The processing platform of the cards issuing and acquiring processing, ATMs, POSs, e-commerce and m-commerce processing
System	A payment system that allows you to transfer money, accept payment for goods and services through various payment gateways.

T

Transaction	Within the framework of this service, a completely completed data exchange operation with a payment system, including debiting / crediting funds to an end user account.
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V

VISA	VISA International payment system
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6.2. External documents references

The manual doesn't have any reference to external documentation.

