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# WAY4 System Architecture

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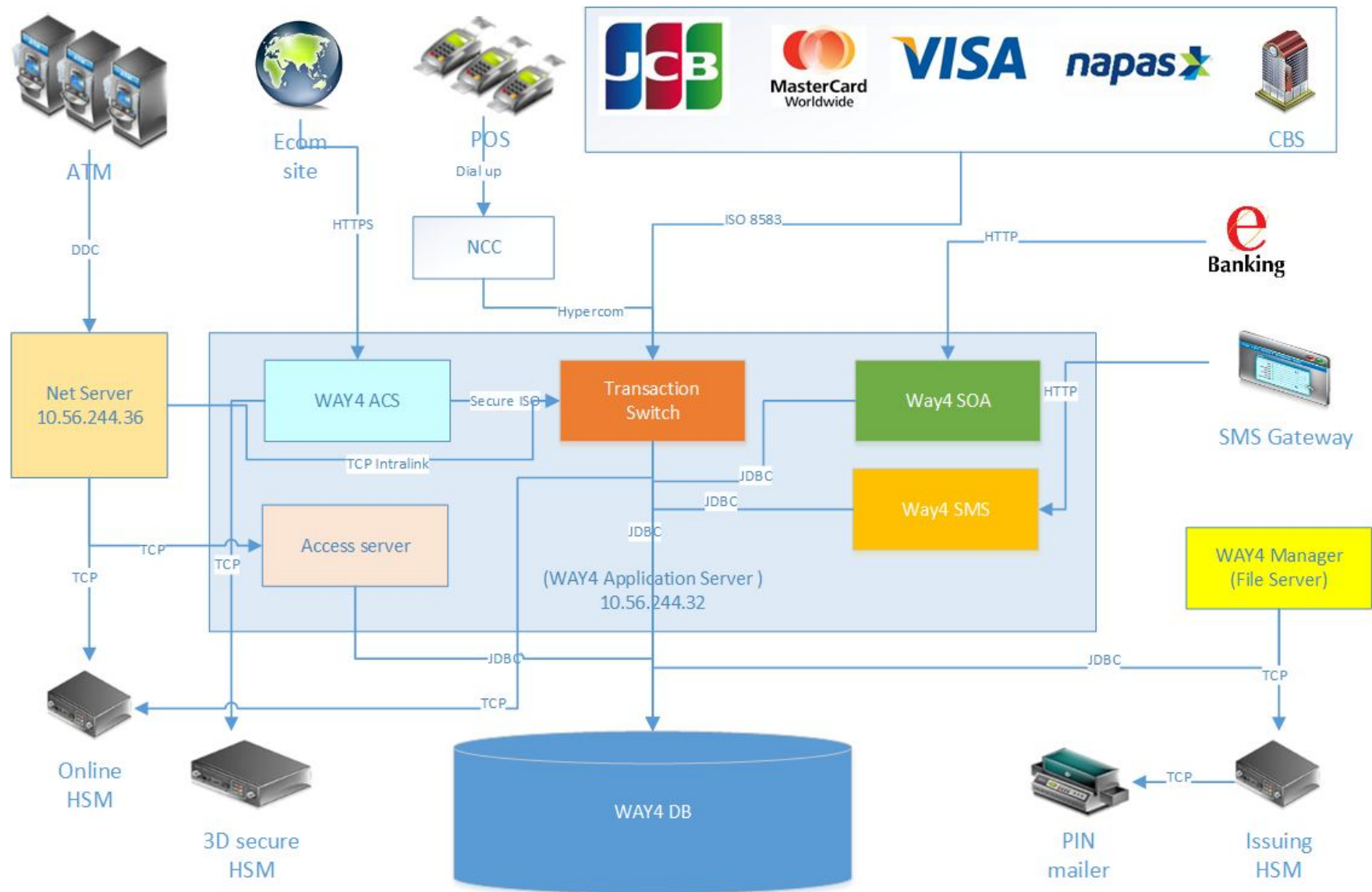
## Agenda:

- **WAY4 System Architecture**
  - **WAY4 Transaction Switch**
  - **WAY4 Net-server**
  - **WAY4 Manager**
- **Question?**



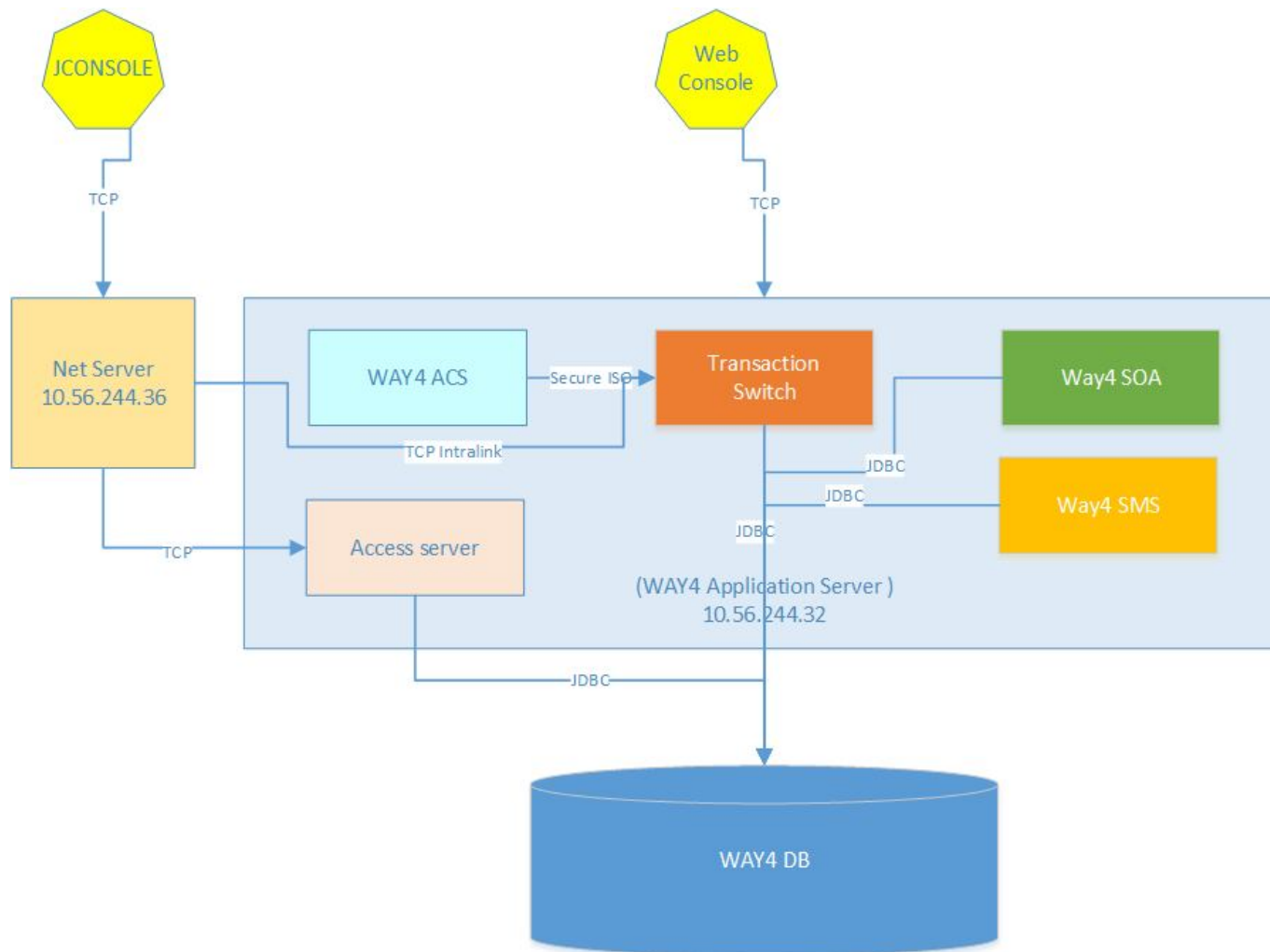
# WAY4 System Architecture

# WAY4 System Architecture



WAY4 System Architecture

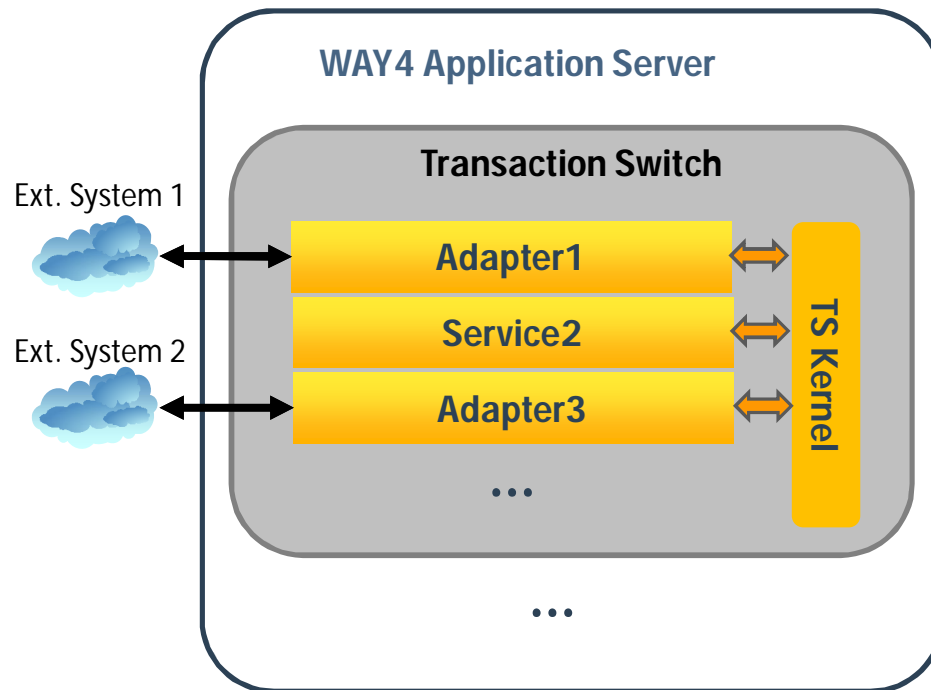
# WAY4 System Architecture





# WAY4 Transaction Switch

# WAY4 Transaction Switch - Architecture



- **Service** – separately manageable and configured unit. Service can implement internal *functions* which can be called by other services.
- **Adapter** is a service connected to a single external system.

# WAY4 Transaction Switch - Architecture

- Service can implement **functions**
- **Function** processes request and returns response

Function Name	e.g. "debit"
Request message type	e.g. "DebitRq"
Response message type	e.g. "DebitRs"

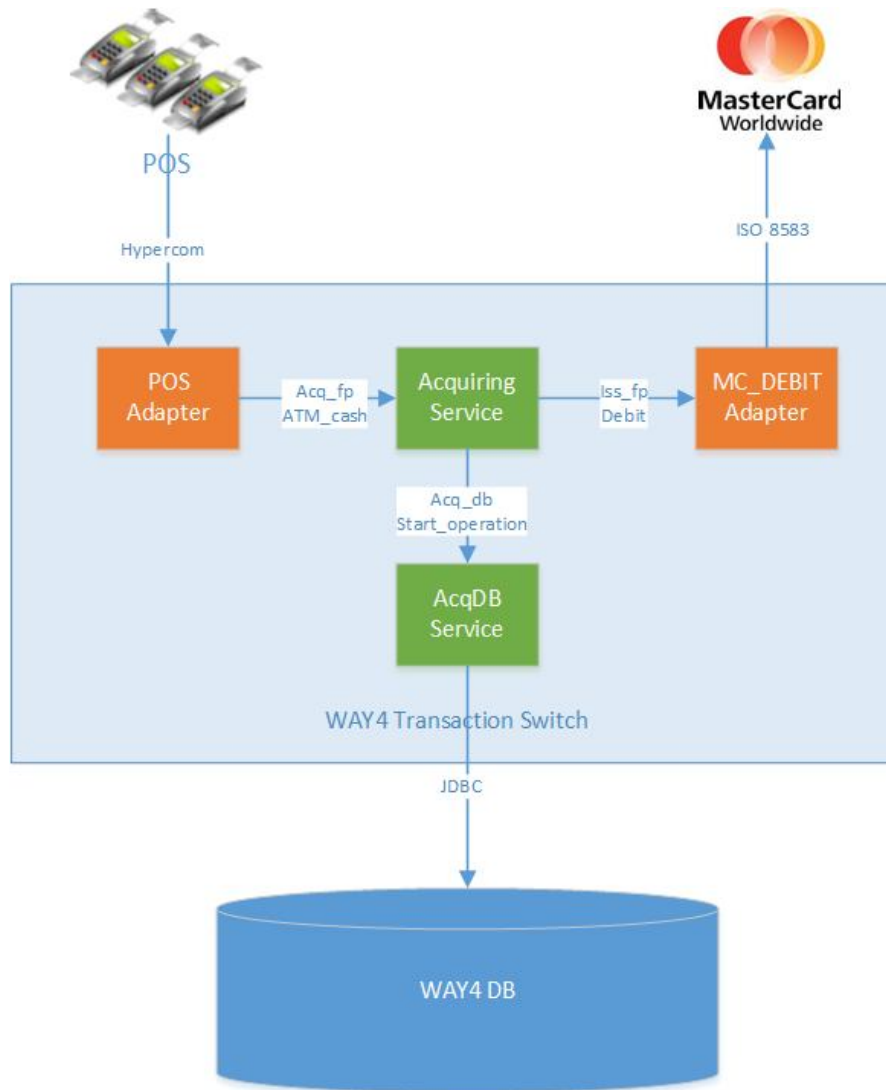
- **Protocol** = group of related functions

"acq_fp"	Acquiring Financial Protocol (credit, debit, bill_payment, mini_statement, p2p, ...)
"iss_fp"	Issuing Financial Protocol (credit, debit, mini_statement, pin_change, ...)
"hsm"	HSM Functions Protocol

- Each service must implement one and only one protocol.
- Service may implement a subset or superset of protocol functions.

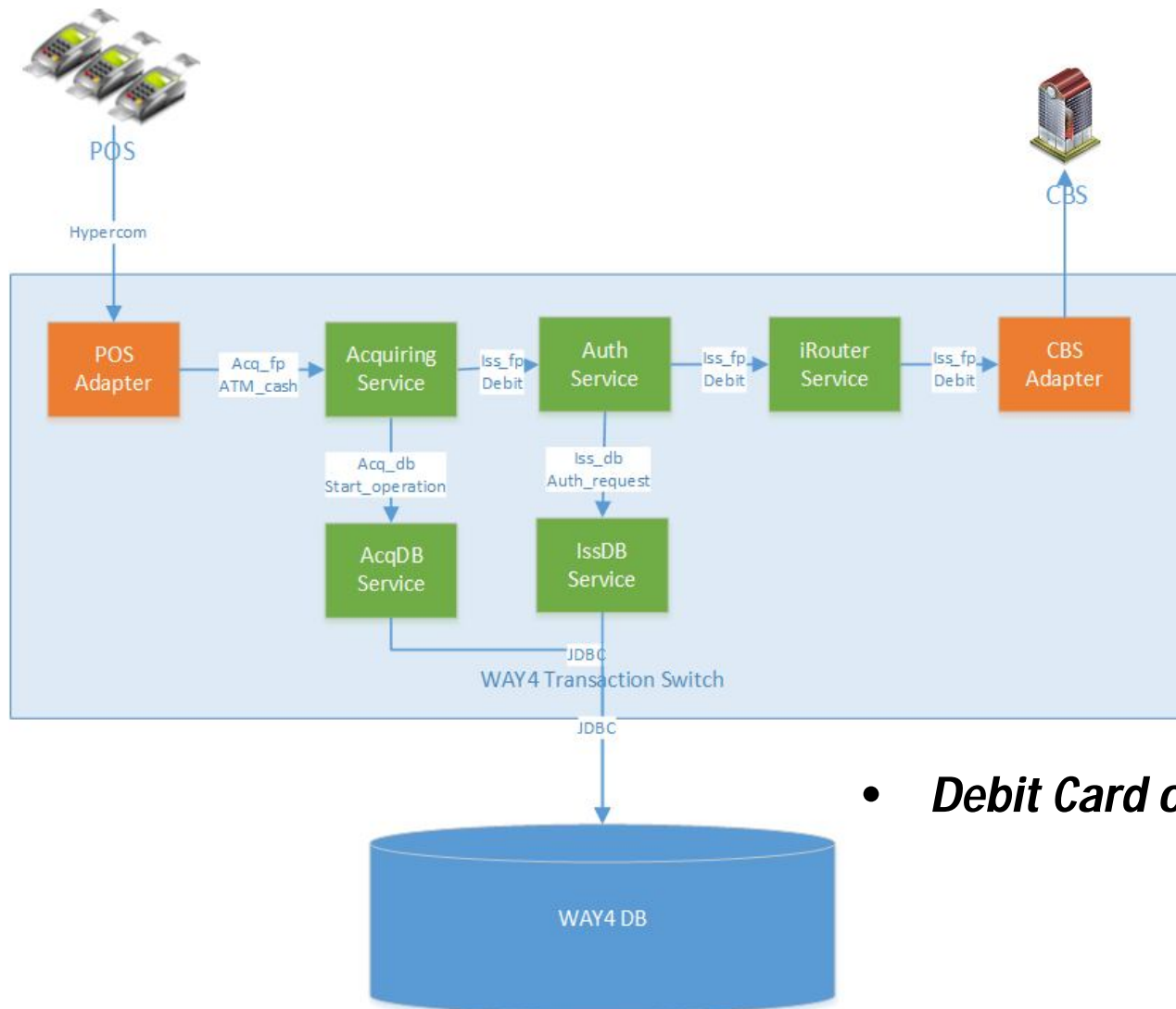


# WAY4 Transaction Switch - Example



- *MasterCard on our POS*

# WAY4 Transaction Switch - Example

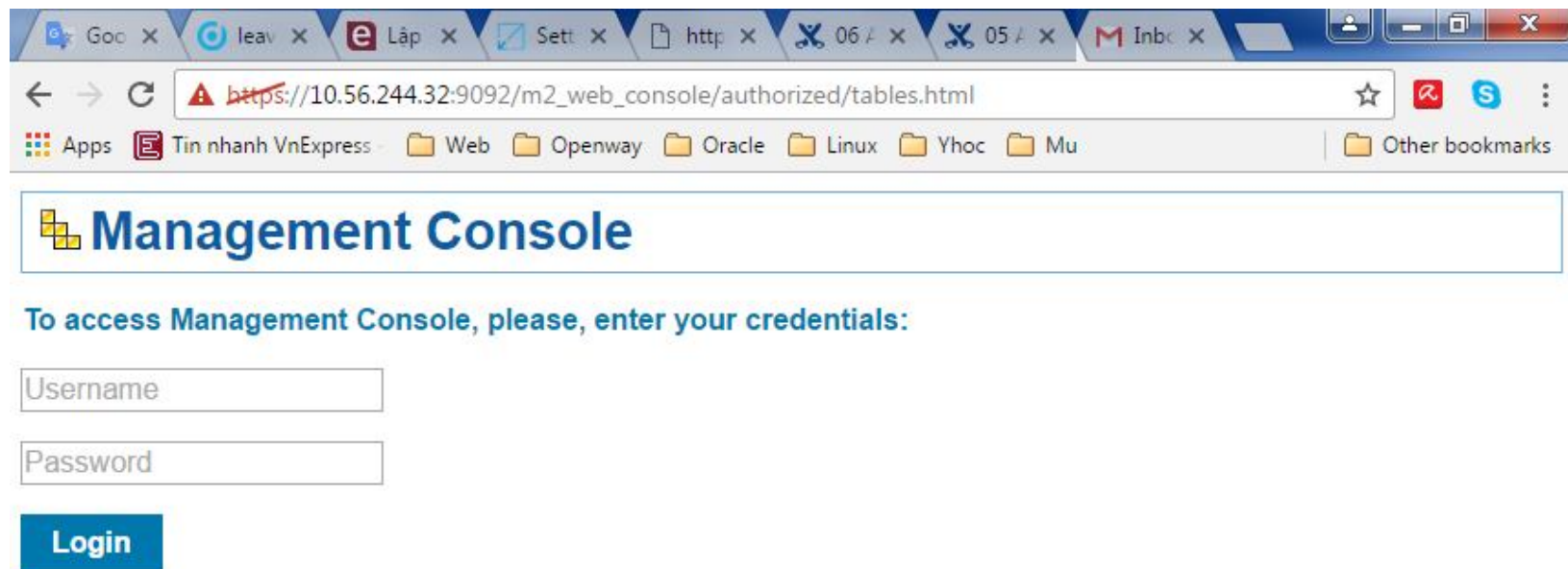


- ***Debit Card on our POS***

# WAY4 Transaction Switch - Monitoring

http://<server\_ip>:9090/m2\_web\_console

https://<server\_ip>:9092/m2\_web\_console



The screenshot shows a web browser window with multiple tabs. The active tab displays a URL starting with `https://10.56.244.32:9092/m2_web_console/authorized/tables.html`. The page content includes a header with the text "Management Console" and a prompt: "To access Management Console, please, enter your credentials:". Below this prompt are two input fields labeled "Username" and "Password", and a blue "Login" button.

# WAY4 Transaction Switch – Monitoring

Application

Service

Configuration

Log

 Management Console

[admin logout](#)

[Applications](#) > [ts\\_1-1-135 on transactionSV](#) > [Logs](#) > [ext\\_20161012165303.log](#)

ext\_20161012165303.log

```
2016-10-12 17:53:29.295 M System Tr.timer DatagateAdapter.ExtTaskProvider.checkSender: channels=0
2016-10-12 17:53:29.838 M Intranet In.oller [WAY4DB] G_main: # capture C_main2
2016-10-12 17:53:29.838 D Intranet In.oller Raw connection context got: C_main2 (1309409209)
2016-10-12 17:53:29.838 M Intranet In.oller Executing soft_intra.CHECK_MAIL
      addressto=[998]
2016-10-12 17:53:29.840 M Intranet In.oller Executed soft_intra.CHECK_MAIL
      qrec=[0]
2016-10-12 17:53:29.840 M Intranet In.oller Raw connection context to be released (action 1): 1309409209
2016-10-12 17:53:29.841 M Intranet In.oller [WAY4DB] G_main: # release C_main2
2016-10-12 17:53:30.841 M Intranet In.oller [WAY4DB] G_main: # capture C_main2
2016-10-12 17:53:30.842 D Intranet In.oller Raw connection context got: C_main2 (1309409209)
2016-10-12 17:53:30.842 M Intranet In.oller Executing soft_intra.CHECK_MAIL
      addressto=[998]
2016-10-12 17:53:30.843 M Intranet In.oller Executed soft_intra.CHECK_MAIL
      qrec=[0]
2016-10-12 17:53:30.844 M Intranet In.oller Raw connection context to be released (action 1): 1309409209
2016-10-12 17:53:30.844 M Intranet In.oller [WAY4DB] G_main: # release C_main2
2016-10-12 17:53:31.359 M System J_srv1 [WAY4DB] get service S_groupTasks0 period=10s run=-100000000
2016-10-12 17:53:31.359 M System J_srv1 [WAY4DB] < done service S_groupTasks0 period=10s run=-100000000
2016-10-12 17:53:31.845 M Intranet In.oller [WAY4DB] G_main: # capture C_main2
2016-10-12 17:53:31.845 D Intranet In.oller Raw connection context got: C_main2 (1309409209)
2016-10-12 17:53:31.845 M Intranet In.oller Executing soft_intra.CHECK_MAIL
      addressto=[998]
2016-10-12 17:53:31.846 M Intranet In.oller Executed soft_intra.CHECK_MAIL
      qrec=[0]
2016-10-12 17:53:31.846 M Intranet In.oller Raw connection context to be released (action 1): 1309409209
2016-10-12 17:53:31.847 M Intranet In.oller [WAY4DB] G_main: # release C_main2
2016-10-12 17:53:32.346 M System Tr.timer POS1.ExtTaskProvider.checkSender: channels=1
2016-10-12 17:53:32.390 D System po.ead-1 POS1 > bytes=0, channel=Xchannel [id: 0x6371a9a9, /10.56.244.32:8083 => /138.229.11.70:60486]: xoff=false, reading=false,
writing=false, nr=0, active=true, open=true
```

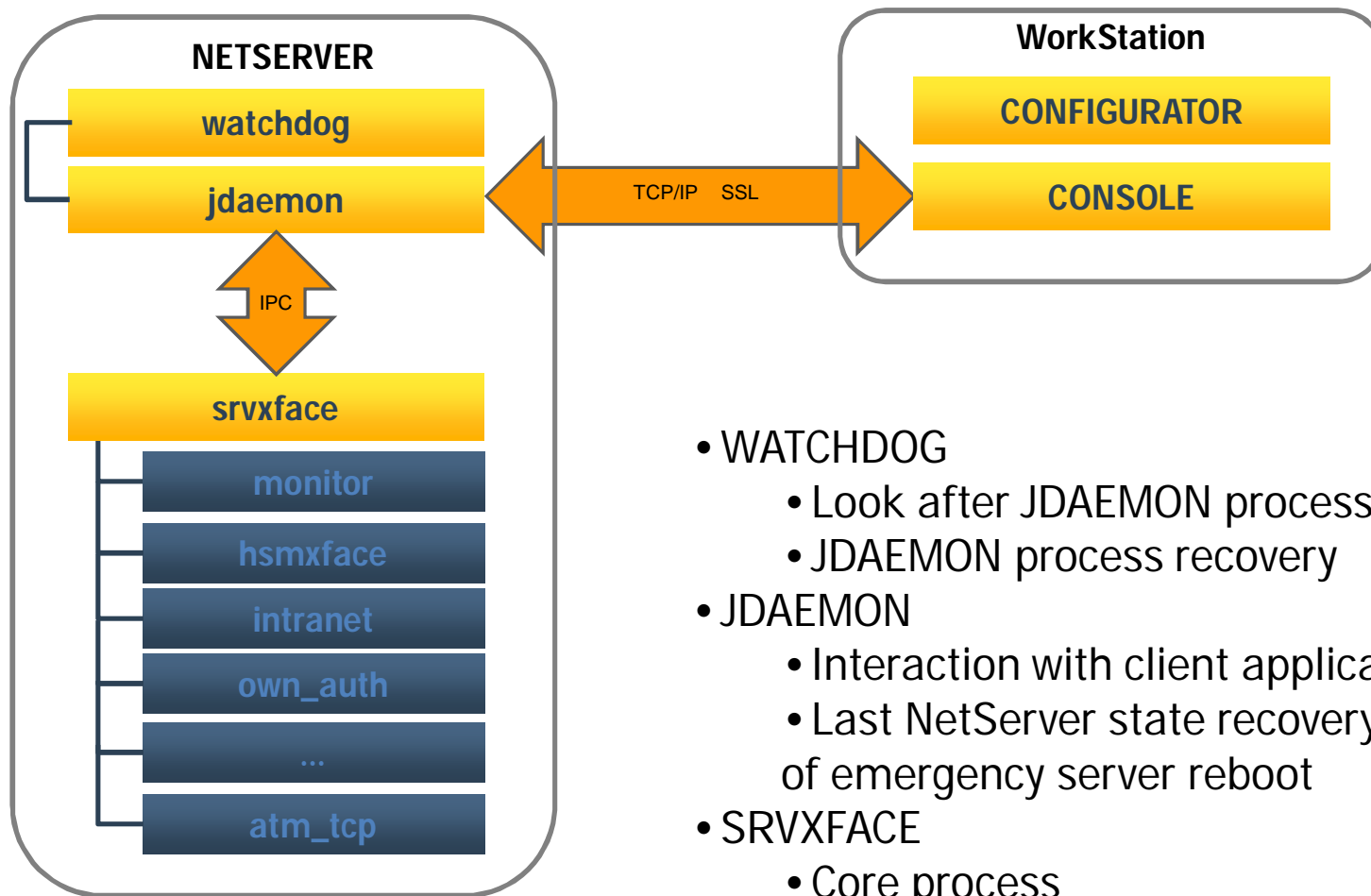
[Download](#)

Copyright © OpenWay, 2016. All rights reserved. Management Console version 1.0.1764. Application Server version: 1.6.1141.



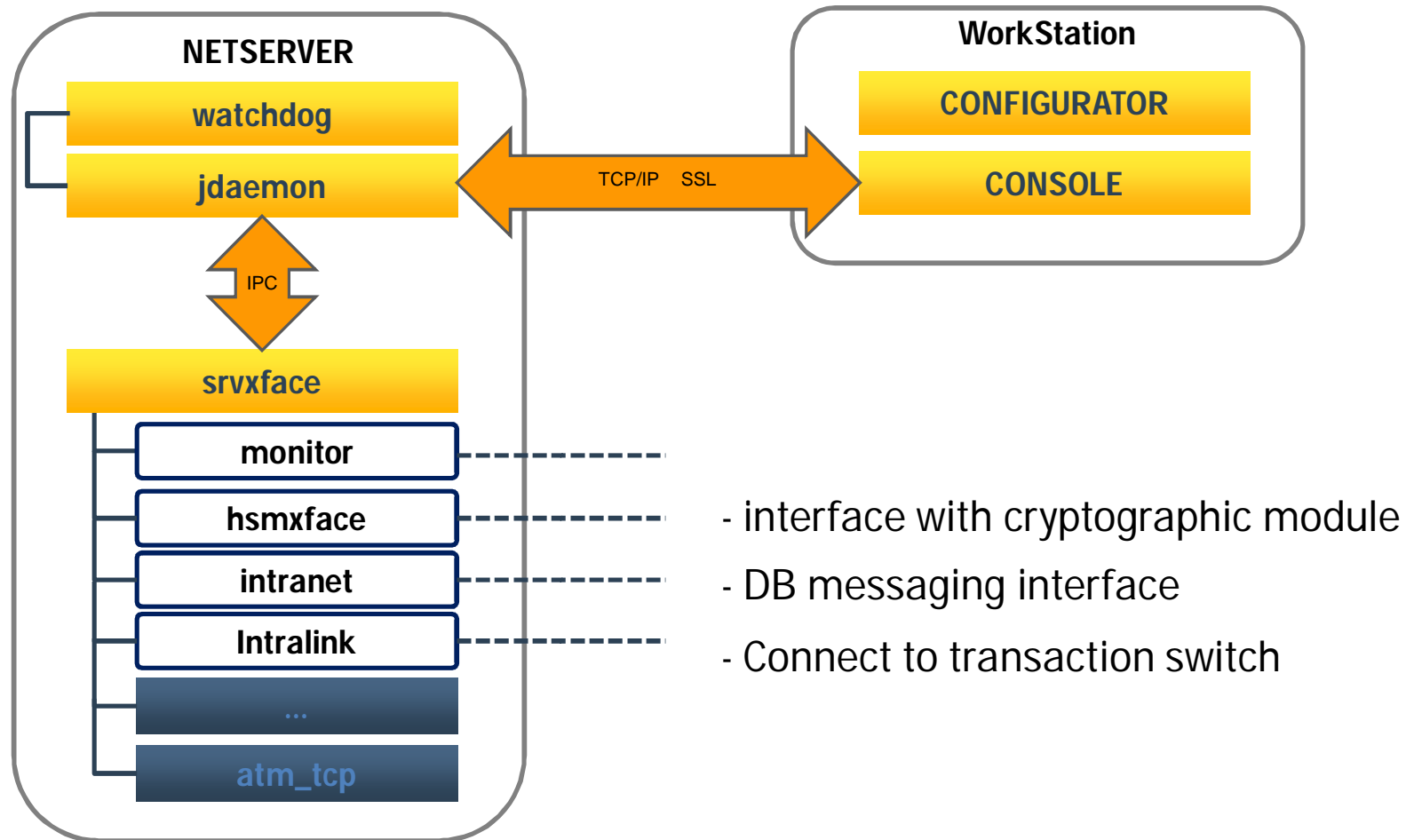
# WAY4 Net-Server

# WAY4 Netserver - Architecture

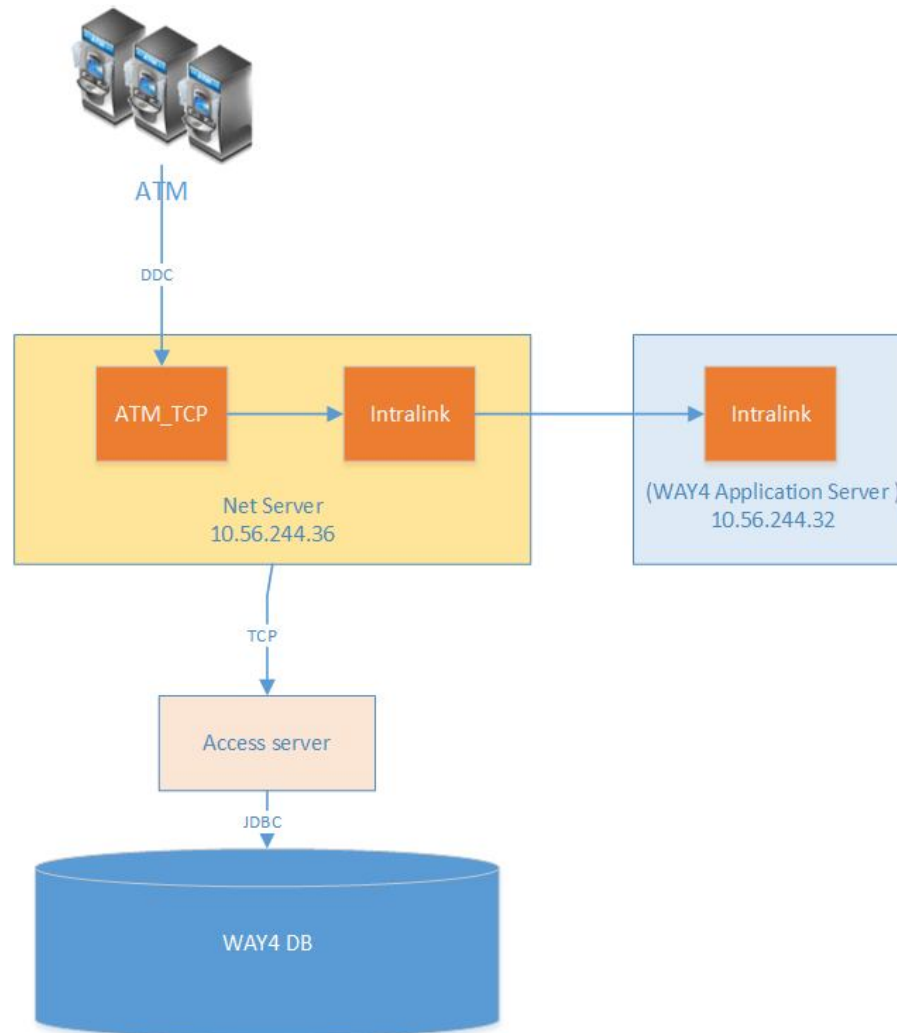


- **WATCHDOG**
  - Look after JDAEMON process
  - JDAEMON process recovery
- **JDAEMON**
  - Interaction with client applications
  - Last NetServer state recovery in case of emergency server reboot
- **SRVXFACE**
  - Core process
  - Control channel processes

# WAY4 Netserver - Architecture



# WAY4 Netserver - Example





# WAY4 Netserver - Monitoring

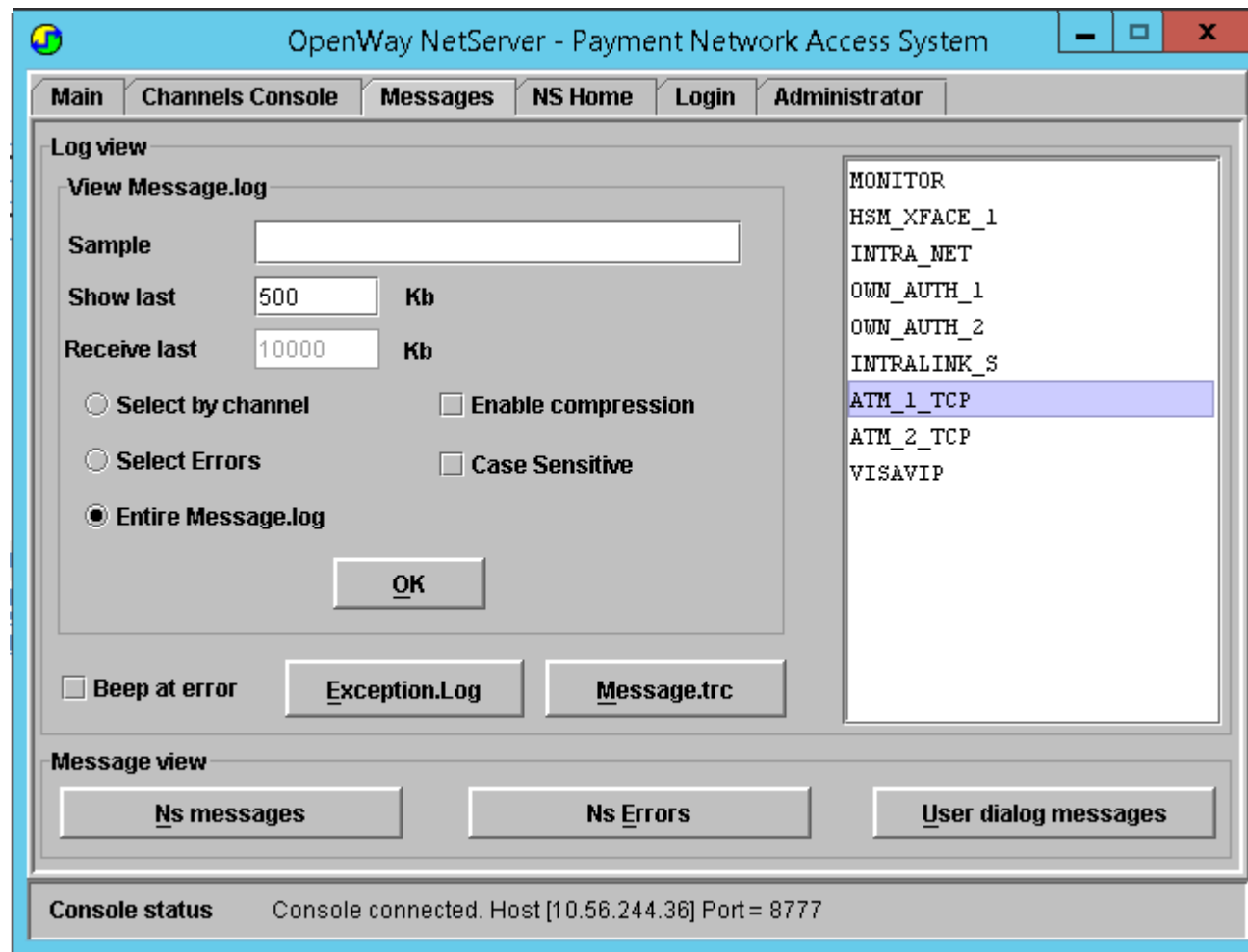
Log in

Main

Configuration

Channel

Message





# WAY4 Manager

# WAY4 Manager – All doc

All doc

Full Info

Error

DB Manager - ACBWAY4 / SUPERUSER

File Database Edit View Data Special Tools Window Help

PIN Management Jobs All Docs

Errors for All Docs

ID	Message Title	Type	Date	Object Type	Object ID
33	END USG_LIM	Trace	10/11/16 9:11:18 PM	DOC	1744
34	END USG_ADD	Trace	10/11/16 9:11:18 PM	DOC	1744
35	UsageOVL: 0.00 (USD)	Trace	10/11/16 9:11:18 PM	DOC	1744
36	ResidueAmount: 99853182.14 (USD)	Trace	10/11/16 9:11:18 PM	DOC	1744
37	ResidueNumber: 99990	Trace	10/11/16 9:11:18 PM	DOC	1744
38	CurrentAmount: 164853.57 (USD)	Trace	10/11/16 9:11:18 PM	DOC	1744
39	CurrentNumber: 11	Trace	10/11/16 9:11:18 PM	DOC	1744
40	UsedAmount: 18035.71 (USD)	Trace	10/11/16 9:11:18 PM	DOC	1744
41	USG_ADD: Transactions.A_FR ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
42	END USG_ACTIVITY_CHK	Trace	10/11/16 9:11:18 PM	DOC	1744
43	END USG_CONDITION_CHK	Trace	10/11/16 9:11:18 PM	DOC	1744
44	USG_CONDITION_CHK ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
45	USG_ACTIVITY_CHK: Transactions.A_FR ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
46	USG_LIM: Transactions.A_FR ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
47	USG: UsageType = Transactions ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
48	END USG: RC = 0	Trace	10/11/16 9:11:18 PM	DOC	1744
49	USG: UsageType = Transactions ( Contract=900-P-855206 )	Trace	10/11/16 9:11:18 PM	DOC	1744
50	CHECK_LIMIT: UsageType=Transactions; BlockedAmount=505000.00 (VND);	Trace	10/11/16 9:11:18 PM	DOC	1744
51	END GET_BLOCKED_AMOUNT: BaseAmount=500000.00 (VND); BlockedAmount=505000.00 (VND);	Trace	10/11/16 9:11:18 PM	DOC	1744
52	END AUTH RULE	Trace	10/11/16 9:11:18 PM	DOC	1744
53	AUTH_BT: RULE=, BASE_BT=AVAILABLE, BASE_AMOUNT=500000.00 (VND)	Trace	10/11/16 9:11:18 PM	DOC	1744
54	AUTH_APPLY: [ACNT=359002;BT=;BTC=AVAILABLE;EFF_BT=AVAILABLE;CAT=;ACC=;SERV=465604;TRF=;CURR=704;BASE=50000000;FEE=500000;]	Trace	10/11/16 9:11:18 PM	DOC	1744
55	AUTH_CHECK: [ACNT=359002;BT=;BTC=AVAILABLE;EFF_BT=AVAILABLE;CAT=;ACC=;SERV=465604;TRF=;CURR=704;RQ_AM=505000000;AV_AM=995...	Trace	10/11/16 9:11:18 PM	DOC	1744
56	AUTH RULE: NCheckRules=1	Trace	10/11/16 9:11:18 PM	DOC	1744
57	GET_BLOCKED_AMOUNT: 500000.00 (VND) ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
58	END TARGET_SERVICE_SEARCH: Service found: ATM(900-Our Priv EC/MC)	Trace	10/11/16 9:11:18 PM	DOC	1744
59	Accepted: ATM(900-Our Priv EC/MC) (Pack Priority=999; )	Trace	10/11/16 9:11:18 PM	DOC	1744
60	Service pack: 900-Our Priv EC/MC	Trace	10/11/16 9:11:18 PM	DOC	1744
61	TARGET_SERVICE_SEARCH: TransType=ATM:Our ATM==>Our MasterCard; Date=2016-08-30; ( Contract=545968 9436 (EMV Prepaid) )	Trace	10/11/16 9:11:18 PM	DOC	1744
62	END GET_SOURCE_TARGET: Doc RC=0	Trace	10/11/16 9:11:18 PM	DOC	1744
63	NextChannel =	Information	10/11/16 9:11:18 PM	DOC	1744
64	rContract.id = 359002	Information	10/11/16 9:11:18 PM	DOC	1744
65	CUST_CHECK_CONTRACT!	Information	10/11/16 9:11:18 PM	DOC	1744
66	OnUsSource : 90000001	Trace	10/11/16 9:11:18 PM	DOC	1744
67	Target contract found: Contract=545968 9436 (EMV Prepaid);	Trace	10/11/16 9:11:18 PM	DOC	1744
68	GET_SOURCE_TARGET	Trace	10/11/16 9:11:18 PM	DOC	1744
69	POST_REQ_AUTH is processing...	Trace	10/11/16 9:11:18 PM	DOC	1744
70	END UPD_SENT_SCRIPT	Trace	10/11/16 9:11:18 PM	DOC	1744
71	CredHistID=; IsSetBit=Y; DataValue=0002;	Trace	10/11/16 9:11:18 PM	DOC	1744
72	CredHistID=; IsSetBit=Y; DataValue=0010;	Trace	10/11/16 9:11:18 PM	DOC	1744
73	UPD_SENT_SCRIPT: ToStatus=U; NcndOK=0; ScriptRef=; ActionType=;	Trace	10/11/16 9:11:18 PM	DOC	1744
74	PROCESS_AUTH: RequestCategory=Request; StartCode=0; ServiceClass=Transaction; DocDsc=[PSCR=Y0;CVR=A00001220000;TVR=8000040000;SEQV_N=007...	Trace	10/11/16 9:11:18 PM	DOC	1744

Document Msg Desc Full Info

Principal: [30/08/2016] (Private Resident)

10/12/16 6:32:12 PM

# WAY4 Manager – Not safe Log

Internal key

Log field

DB Manager - ACBWAY4 / SUPERUSER

File Database Edit View Data Special Tools Window Help

PIN Management Jobs All Docs Online Log - Not Safe x

Online Log - Not Safe <Filtered\*> 1 of 2

	Record Date	Logical Channel	Physical Channel	Internal Key	Card Number	Type	Subtype	Dir	RD	Information	External Key	Julian Time	NS ID	NW Slot	Int Slot	Buf Len	
1	10/11/16 9:11:18 PM	AT	01:ATM_1_TCP	G2860103NN1F	545968*****9436	0100	0	Inward		010000	900000*****4077	1476238229	G2860103NN1G	18	18	929	G28601**
2	10/11/16 9:11:18 PM	AT	01:ATM_1_TCP	G2860103NN1F	545968*****9436	0110		Outward	00	010000	900000*****4077	1476238230	G2860103NN1J	19	18	801	G28601**

Cr.Log Flds Log Fields

Log Fields for Online Log - Not Safe 1 of 55

	Name	Value
	MTID	0100
2	000	ATM_CT**_ISO
3	001	0
4	002	545968*****9436
5	003	010000
6	004	000050**0000
7	007	1012021029
8	011	034077
9	012	091029
10	013	1012
11	014	1708
12	018	6011
13	019	704
14	022	051
15	023	000
16	032	9900
17	035	545968*****0000
18	037	628601**4077
19	041	90000001

Principal: [30/08/2016] (Private Resident)

10/12/16 6:37:57 PM

Net Server.pdf

Administering\_WAY4\_Application\_Server.pdf

M2\_Web\_Console\_Operation\_manual.pdf

Transaction\_Switch\_Setup\_2.pdf

# Question

Thanks you for your attention

Do you have any question?

