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**XLSIG-SMS**

## **Инструкция по установке**

Версия 1

08.11.2024



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## 1. Установка системы

Все команды должны выполняться от имени пользователя root. **Copy и paste. Соблюдайте точный порядок действий!**

### 1.1. Операционная система

#### 1.1.1 Поддерживаемая ОС

Версия DEBIAN >= 10

ASTRA Linux

Версия CentOS = 7

Рекомендуется: DEBIAN

#### 1.1.2 Directory структура

Variables (Переменные)

```
# set the name of top-level directory (Leave this line as it is for default.)  
XLSIG_SMSFW_DIR_DESTINATION="/"
```

Script (Скрипт)

```
# creating directory xlsig_smsfw in destination  
mkdir -p "${XLSIG_SMSFW_DIR_DESTINATION}xlsig_smsfw"  
  
# creating /xlsig_smsfw link  
if [[ ! -d "/xlsig_smsfw" ]]; then  
    ln -s "${XLSIG_SMSFW_DIR_DESTINATION}/xlsig_smsfw" "/xlsig_smsfw"  
fi  
  
# creating directory structure  
mkdir -p /xlsig_smsfw/bin/ifo_a  
mkdir -p /xlsig_smsfw/bin/ifo_b  
mkdir -p /xlsig_smsfw/bin/scripts  
mkdir -p /xlsig_smsfw/bulk  
mkdir -p /xlsig_smsfw/cdr/archive  
mkdir -p /xlsig_smsfw/cdr/local_a  
mkdir -p /xlsig_smsfw/cdr/tmp  
mkdir -p /xlsig_smsfw/export/local_a  
mkdir -p /xlsig_smsfw/log/ifo_a  
mkdir -p /xlsig_smsfw/tmp  
mkdir -p /xlsig_smsfw/trace
```



## 2. Системные модули

```
touch
/xlsig_smsfw/export/local_a/{carr_fas,carr_sk,carrier_list,category_section,destination_list,fas_prfx_crr}.csv
touch
/xlsig_smsfw/export/local_a/{holidays,info_presets,mnp_list,normalization,numbers_lists,parameter_list}.csv
touch
/xlsig_smsfw/export/local_a/{prefix_destination,regions,rules,state_domains,subs_data,time_templates,timezone}.csv
touch
/xlsig_smsfw/export/local_a/{xlstate_domain_settings,xlstate_profile,xlapi_auth,xlapi_bank_query,xlapi_iw_settings}.csv
touch
/xlsig_smsfw/export/local_a/{content_list,domain_distribution,parameter_list_smsfw}.csv
```

## 3. Установка XLSIG\_SMS

Распакуйте дистрибутив xlsig\_smsfw.tar.gz в директорию /home/xlsig\_smsfw\_vrf. Скопируйте из директории /home/xlsig\_smsfw\_vrf следующие файлы:

- xl\_main
- start
- stop
- xlsig\_smsfw

в папку /xlsig\_smsfw/bin/ifo\_a.

Выполните следующие команды (При необходимости создайте поддиректории):

```
chown root:root /xlsig_smsfw/bin/scripts/*
chmod +x /xlsig_smsfw/bin/scripts/*

chown root:root /xlsig_smsfw/bin/ifo_a/*
chmod +x /xlsig_smsfw/bin/ifo_a/*
```

### Первичный запуск.

a. Запустите сервис:

*./start*

b. Остановите сервис:

*./stop*

c. В появившемся файле XL\_MAIN.INI в поле APP:0 впишите 'xlsig\_smsfw':



```
GLB:LOGGING=1
GLB:LOG_GENERAL=2
GLB:LOG_MAX_SIZE_MB=1024
APP:0=xlsig_smsfw
```

Также в поле GLB:APP\_LOG впишите '/xlsig\_smsfw/log/ifo\_a/xl\_main\_log.csv'

```
GLB:APP_LOG=/xlsig_smsfw/log/ifo_a/xl_main_log.csv
GLB:LOGGING=1
```

d. Запустите сервис:

```
./start
```

## 2. Конфигурация XLSIG\_SMS

XLSIG\_SMS управляет с помощью правил и фильтров, которые настраиваются в файлах конфигурации модулей, перечисленных в главах ниже.

### 2.1. Описание файлов конфигурации XLSIG\_SMS

Файлы конфигурации хранятся в таблице файлов XLSIG\_SMS в форматах INI и CSV. Некоторые из них обязательны, а некоторые генерируются автоматически при запуске программы XLSIG\_SMS, если они не существуют, но их необходимо правильно отредактировать вручную. Все файлы конфигурациичитываются при запуске XLSIG\_SMS. Если вы измените содержимое файла Rules.csv, XLSIG\_SMS будет читать и использовать все файлы конфигурации во время работы XLSIG\_SMS. Однако некоторые параметры требуют перезапуска XLSIG\_SMS и отмечены в этих таблицах. Выходные файлы и файлы журналов автоматически генерируются XLSIG\_SMS.

Default Filename	Required	Type	Description
/xlsig_smsfw/export/local_a/fas_prfx_crr.csv	Yes		Prefix File (number prefix to carrier map)
/xlsig_smsfw/export/local_a/mnp_list.csv	Yes	mnp_update.sh	MNP list (number transfers)
/xlsig_smsfw/export/local_a/subs_data.csv	Yes	mnp_update.sh	Subscriber data
/xlsig_smsfw/export/local_a/timezone.csv	Yes	Static file (copied)	Timezone descriptions (global)
/xlsig_smsfw/export/local_a/normalization.csv	Yes	Copied/manually edited	Normalization descriptions (global)
/xlsig_smsfw/export/local_a/info_presets.csv	Yes	Manually edited	Presets for Info field exporting to State server
/xlsig_smsfw/export/local_a/state_domains.csv	Yes	Manually edited	State domains description
/xlsig_smsfw/export/local_a/suspend_state.csv		Autogenerated	Status of suspended rules
/xlsig_smsfw/cdr/local_a/cdr.csv		Output	CDR output (CDR file for import to database) (optionally periodically moved to timestamped file)
/xlsig_smsfw/export/local_a/ifo_hash.csv		Output for xlmon	MD5 hashes and age of loaded files (for xlmon)
/xlsig_smsfw/log/ifo_a/ifo_log.csv		Log	Log (M3UA, SCCP)
/xlsig_smsfw/log/ifo_a/ifo_app.csv		Log	Log (GENERAL, RULE, TCAP, SIP)



Default Filename	Required	Type	Description
/xlsig_smsfw/log/ifo_a/sctp_log.csv		Log	Log (SCTP)
/xlsig/log/ifo_a/event_log.csv		Log	Event log (rule activation, TCG update)

### 2.1.1 XLSIG\_CFG.INI

Parameter	Description	Must set	Need restart
GLB:MACHINE_LEARNING_EXPORT_FILE=/xlsig/cdr/local_a/xlsigearn_export.csv	export file for data for processing by machine learning process (xlsigearn)		
GLB:SMSFW_SIGNALLING_CDR=/xlsig/cdr/local_a/smsfw_signalling_cdr.csv	CDR file for SMSFW signalling		
GLB:SRI4SM_STORAGE_MAX_SIZE=100000	storage capacity for SRI4SM		
GLB:IMSI_STORAGE_MAX_SIZE=15000000	storage capacity for IMSI		
GLB:FSM_STORAGE_MAX_SIZE=30000	storage capacity for FSM		
GLB:FSM_PACKET_STORAGE_MAX_SIZE=60000	storage capacity for FSM packet		
GLB:SMSFW_FSMQUIRES_SRI4SM=0	if 0 also process FSMs for which there is no SRI4SM/RRL SRI4SM session found (with those parameters empty), if 1 only process FSM for which there is an SRI4SM session		
GLB:SMSFW_SRI4SM_TIMEOUT=60	SRI4SM timeout		
GLB:SMSFW_SRI4SM_CACHE_TIMEOUT=14400	SRI4SM cache timeout		
GLB:SMSFW_FSM_TIMEOUT=900	FSM timeout		
GLB:SMSFW_FSM_NO_RRL=1	if 1 don't wait for RRL, send RRL, all FSMs and write CDR		
GLB:SMSFW_USE_OWN_GT_SRI4SM=0	if 1 insert OWN GT as calling GT in forwarded SRI4SM		
GLB:SMSFW_USE_OWN_GT_FSM=0	if 1 insert OWN GT as calling GT in forwarded FSM		
GLB:SMSFW_OWN_SERVER_ID=0	ID of servers, IDs should start with 0 and increase by 1 for each next server		
GLB:SMSFW_SERVER_COUNT=1	number of servers		
GLB:SMSFW_DISCARD_ANONYMOUS_FSM=1	if > 0 and no IMSI or MSISDN, discard the MO-FSM		
GLB:MT-FSM_FOREIGN_GT=1	in case of CalledGT != ownGT: 0 = let through without dehoming, 1 = silent discard		



GLB:HOME_ZONE_ROUTING=1	0/1: disable/enable home zone routing (changing of IMSI in variable and buffer for further processing from fake to original)		
GLB:SMSFW_USE_OWN_OPC_DPC_IN_REPLY=1	if > 0 use SCTP association's OPC and DPC in FSM replies (and other packets)		
GLB:SMSFW_FORWARD_MULTIPART=0	if > 0 enable forwarding of multipart FSM without processing		
GLB:SMSFW_SYNC_SRI4SM_BETWEEN_SERVERS=0	if > 0 enable synchronization between smsfw servers		

### 2.1.2 XLSIG\_PROXY.INI

Parameter	Description	Must set	Need restart
GLB:SMSFW_INPUT_TT=-1	if >= 0 provides an input filter for TT		
GLB:SMSFW_PROXY_NON_PROCESSED=1	if 0 don't proxy packets that don't enter rule processing (useful for debug and testing)		

### 2.1.3 XLSIG\_SMPP.INI

Parameter	Description	Must set	Need restart
General:SERVER_PORT=9000	server port		
General:SERVER_SYSTEM_ID=	server system ID		
General:SERVER_SYSTEM_PWD=PWD	server system password		
General:CLIENT_HOST_PEER=1.1.1.1	client host peer IP address		
General:CLIENT_HOST_OWN=0.0.0.0	client host own IP address		
General:CLIENT_PORT_PEER=9000	client peer port		
General:CLIENT_PORT_OWN=3000	client own port		
General:CLIENT_CLIENT_ID=SMPP	client client ID		
General:CLIENT_SYSTEM_PWD=PWD	client system password		
General:CLIENT_BIND_TYPE=9	client bind type: 2 = transmitter, 9 = transciever		
General:CLIENT_HEARTBEAT_S=5	client heartbeat in seconds		



General:CLIENT_ACTIVITY_TIMEOUT_S=10	client activity timeout in seconds; for configuring SMPP client connection restart (0 to disable)		
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## 2.1.4 XLSIG\_SS7.INI

Parameter	Description	Must set	Need restart
GLB:OWN_GT=0123456789	GT global title used as CallingGT in outbound self-initiated packets or replies to packets depending on GLB:GT_OVERRIDE	Yes	
GLB:GT_OVERRIDE=1	1 - means that the system will answer with reversed GTs to the received message (regardless of the GT on which the message arrives, it will answer from this address). SCCP header in replies will have CallingGT and OPC from input packet (from CalledGT, DPC) 0 - means that it accepts a message to any address and in the answer writes its address, as is specified in SS7INI. It will use data from our configuration (GLB:OWN_GT and ASSOC#n:OPC)	Yes	
GLB:DPC_OVERRIDE=1	if 1 SCCP header in replies will have DPC from input packet (from OPC), if 0 it will use data from our configuration (ASSOC#n:DPC)	Yes	
GLB:ATI_SCF=0123456789	SCF-Address number used in ATI requests (HLR check). Write the GT number	Yes	
GLB:ATI_ALLOWED_PREFIX=*	Prefix which is allowed for ATI requests		
GLB:ATI_TT=0	Destination TT for ATI requests		
GLB:HLR_CHECK_USE_ATI=1	if 0 use SRI4SM for HLR check, 1 = use ATI for current carrier, 2 = like 1 but for other carriers send SRI4SM		
GLB:HLR_CHECK_ASSOC=	Comma separated list of indices (1-based) of associations to be used for HLR check, if empty (default) incoming association of IDP is used. Associations are used equally using round-robin.		
GLB:OWN_CARRIER_ID=0[,1,2...]	1 or more comma separated carrier IDs used for HLR check	Yes	
GLB:TIMER_ACTIVITY=10	If no RX on assoc for this many seconds, reinitialize SCTP assoc		
GLB:TIMER_HB=5	If no RX on assoc for this many seconds, send a heartbeat		
GLB:RRBE_ENABLE=0	0 = disable RRBE in general, > 0 enable		
GLB:RRBE_EVENTS=7,9	A list of RRBE events, default: answer, disconnect, if empty, RRBE events are not added		
GLB:RRBE_EVENTS_INTERRUPT=	A list of RRBE events (must be enabled in RRBE_EVENTS also) to use interrupt monitor mode		
GLB:RRBE_APPLICATION_TIMER=0	value > 0: add applicationTimer criteria with specified value into O_NOANSWER RRBE, 0 = not included		
GLB:SYNC_STATE_SUBSCRIPTION_ASSOC=-1	(xlsig_smfw_ro only) if > 0, index of association for the 2nd xlsig_smfw_ro with which it is necessary to synchronise Call progress tracking (State subscription) - necessary in installations where ERB events can arrive at a different xlsig_smfw_ro instance than the initial IDP for the same call		Yes
GLB:RRBE_EVENTS_IVR=7,9	RRBE events in case of IVR action		
GLB:RRBE_EVENTS_INTERRUPT_IVR=	RRBE events with interrupt in case of IVR action		
GLB:RRBE_APPLICATION_TIMER_IVR=0	Application timer value in case of IVR action		
GLB:RRBE_LEG_ID=1	if > 0 add LegID parameter into RRBE message		
GLB:SCTP_ASSOC_COUNT=1	Number of SCTP Associations. <b>Verify if this number is the same as the number of associations that are written in this same file</b>	Yes	Yes



ASSOC#n: <b>DISPLAY_NAME</b> =ASSOC	Display name for this association	Yes	
ASSOC#n: <b>ASSOCIATION_ACTIVE</b> =0	1 = enable this association	Yes	Yes
ASSOC#n: <b>SERVER</b> =1	0 = perform as client (send INIT), 1 = perform as server (wait for INIT)	Yes	Yes
ASSOC#n: <b>PORT_LOCAL</b> =0	Port number on this machine to use	Yes	Yes
ASSOC#n: <b>PORT_REMOTE</b> =0	Port number on the remote machine to use	Yes	Yes
ASSOC#n: <b>IP_LOCAL1</b> =0.0.0.0	First IP to use on this machine	Yes	Yes
ASSOC#n: <b>IP_LOCAL2</b> =0.0.0.0	Second IP to use on this machine (or 0.0.0.0 to disable multihoming)	Yes	Yes
ASSOC#n: <b>IP_PEER1</b> =0.0.0.0	First IP to use on the remote machine	Yes	Yes
ASSOC#n: <b>IP_PEER2</b> =0.0.0.0	Second IP to use on the remote machine (or 0.0.0.0 to disable multihoming)	Yes	Yes
ASSOC#n: <b>ROUTING_CONTEXT</b> =0	Routing context value if enabled	Yes	
ASSOC#n:TRAFFIC_MODE=2	Value of traffic mode in ASPAC and ASPAC_ACK messages		
ASSOC#n: <b>NETWORK_APPEARANCE</b> =0	if > 0, add Network Appearance parameter in replies with the specified value	Yes	
ASSOC#n:ADDRESS_IND=67	Unused		
ASSOC#n: <b>SSN</b> =252	Calling (Own) SSN if GT_OVERRIDE=0	Yes	
ASSOC#n: <b>OPC</b> =1	Originating Point Code	Yes	
ASSOC#n: <b>DPC</b> =15033	Destination Point Code	Yes	
ASSOC#n:SEND_DAUD=1	if 1 send DAUD during association init sequence		
ASSOC#n:SEND_DAVA=1	if 1 send DAVA during association init sequence		
ASSOC#n:SEND_ASUP=1	Unused		
ASSOC#n:SEND_NTFY=1	if 1 send NTFY during association init sequence after ASPAC_ACK		
ASSOC#n:SEND_NTFY_DOWN=1	Unused		
ASSOC#n:SEND_RC=0	if 1 add Routing Context parameter to data replies and DAVA		
ASSOC#n:NETWORK_INDICATOR=3	M3UA header Network Indicator value		
ASSOC#n:NP_CALLING=1	SCCP header CallingGT Numbering Plan value (if GT_OVERRIDE=0) - 1 = ISDN		
ASSOC#n:NP_CALLED=1	SCCP header CalledGT Numbering Plan value		
ASSOC#n:NP_CALLING_ATI=1	SCCP header CallingGT Numbering Plan value for ATI messages		
ASSOC#n:NP_CALLED_ATI=1	SCCP header CalledGT Numbering Plan value for ATI messages		
ASSOC#n: <b>STATE_SERVER</b> =0	1 = Association to primary State server, 2 = to secondary State server, 10 = internal Callback association. <b>If this is about XLSTATE association it should be set to 1</b>	Yes	Yes
ASSOC#n:DIAMETER=0	1 = This association receives DIAMETER protocol		
ASSOC#n:IW_GROUPS=1	0 or more comma separated IW_GROUPS for this association (to which IW groups it belongs to, values 0-19). <b>For associations STATE_SERVER=1 it should be empty;</b> Default value is empty if STATE_SERVER is a number other than zero, else the default value is 1		
ASSOC#n:RRBE_SINGLE_DISCONNECT=0	if 1, in RRBE send only a single Disconnect event request		
ASSOC#n:MULTIHOMED_MODE=0	if 1, accept packets with any src dst combination (including IP_PEER2 to IP_LOCAL1 or IP_PEER1 to IP_LOCAL2)		



ASSOC#n:HISTORY_PACKET_MAX_SIZE=500	History buffer for resend (outgoing) buffer size; Default value is 1700 if STATE_SERVER >0 else 500		Yes
ASSOC#n:HISTORY_PACKET_COUNT=2000	History buffer for resend (outgoing) number of buffers		Yes
ASSOC#n:QUIT_ON_SEND_HISTORY_FAILURE=1	If 1, quit if resend of history fails (requested packet not found in history)		
ASSOC#n:SMSFW_SERVER_ID=-1	SMSFW server ID		

## 2.1.5 XLSIG\_SIP.INI

Parameter	Description	Must set	Need restart
GLB:SIP_COUNT=0	Count of SIP associations (associations for Callback)		Yes
GLB:SIP-I_SK_ALGORITHM=1	1 = SIP-I messages with Called number beginning with E..., decode service key from the number, 0 = don't		
GLB:SIP-I_COUNT=0	Count of SIP-I associations (associations for receiving calls, eg. INVITE etc.)		Yes
GLB:SIP-I_USE_GLB_PREFIX=0	1 = for redirect prefix Redirect number with SIP-I_GLB_PREFIX, 2 = advanced method		
GLB:SIP-I_GLB_PREFIX=00	Prefix value for redirect		
GLB:SIP_ALLOWED_PREFIX=*	MSISDN filter for Callback Active Check SIP call		
GLB: <b>SIP_OWN_ADDRESS</b> =127.0.0.1	Own IP address	Yes	Yes
GLB:SIP_OWN_ALIAS=127.0.0.1	Own alias		
GLB: <b>SIP_OWN_PORT</b> =5060	Own port	Yes	Yes
GLB: <b>SIP_PEER_ADDRESS</b> =127.0.0.1	Peer IP address	Yes	
GLB: <b>SIP_PEER_PORT</b> =5060	Peer port	Yes	
GLB:SIP_VIA_ADDRESS=127.0.0.1	Via address for SIP call and OPTIONS		
GLB:SIP_VIA_PORT=5060	Via port for SIP call and OPTIONS		
GLB:SIP_REDIRECT_IP_ADDRESS=127.0.0.1	Unused		
GLB: <b>SIP_TEST_NUM</b> =0123456789	From number for SIP call and OPTIONS	Yes	
GLB: <b>SIP_OPTIONS_TO_NUM</b> =79101111111	Where to send OPTIONS (heartbeat) to	Yes	
GLB: <b>SIP_DISPLAY_NAME</b> =TRUNKGROUP	Association display name	Yes	
GLB:SIP_DEFAULT_SK=99	Unused		
GLB:SIP_PROCESSING_METHOD=1	Unused		
GLB: <b>SIP-I_OWN_ADDRESS</b> =127.0.0.1	Own IP address	Yes	Yes
GLB: <b>SIP-I_OWN_PORT</b> =5060	Own port	Yes	Yes
GLB: <b>SIP-I_PEER_ADDRESS</b> =127.0.0.1	Peer IP address	Yes	
GLB: <b>SIP-I_PEER_PORT</b> =5060	Peer port	Yes	
GLB:SIP-I_VIA_ADDRESS=127.0.0.1	Via address for OPTIONS		
GLB:SIP-I_VIA_PORT=5060	Via port for OPTIONS		



Parameter	Description	Must set	Need restart
GLB:SIP-I_REDIRECT_IP_ADDRESS=127.0.0.1	Redirect IP used if SIP-I_PROCESSING_METHOD=2 instead of Peer IP address		
GLB: <b>SIP-I_TEST_NUM</b> =0123456789	From number for OPTIONS	Yes	
GLB: <b>SIP-I_OPTIONS_TO_NUM</b> =79101111111	Where to send OPTIONS (heartbeat) to	Yes	
GLB: <b>SIP-I_DISPLAY_NAME</b> =TRUNKGROUP	Association display name	Yes	
GLB:SIP-I_DEFAULT_SK=99	SK to use if SK not specified in SIP message		
GLB:SIP-I_PROCESSING_METHOD=1	1 = BASE method, 2 = VARIANT1 (RedirectIP etc.)		
GLB:SIP-I_IDENT_METHOD=0	if 1 read SK from Contact field (number, tgrp, trunk_context)		
GLB:SIP-I_PROXY_MODE=0	if 1 enable Proxy mode (and read more parameters), don't send replies, forward packets		Yes
GLB:SIP-I_PROXY_OWN_HOSTNAME=	if set use this hostname (besides own address) when doing substitutions and removals in SIP packets when proxying		
GLB:SIP-I_PROXY_OWN_ADDRESS=127.0.0.1	Proxy connection (peer 2) our address		Yes
GLB:SIP-I_PROXY_OWN_PORT=5060	Proxy connection (peer 2) our port		Yes
GLB:SIP-I_PROXY_PEER_ADDRESS=127.0.0.1	Proxy connection (peer 2) their address		
GLB:SIP-I_PROXY_PEER_PORT=5060	Proxy connection (peer 2) their port		
GLB:SIP-I_IVR=0	if 1 this trunk is used for proxying calls to IVR		Yes