

GT 01W Tangram with GT31 Modules (IP Gateway)





GT31 WISI Tangram IP gateway modules



The GT31 module is part of the Tangram product portfolio.

WISI Tangram is an FPGA technology based Headend for FTTx and HFC networks.

The Tangram platform shows very high density and is highly flexible for all kinds of networks

Features:

- Multi Transportstream reception for DVB signals
- 4 x DVB-S / -S2 / -T/T2 / -C input
- Gigabit Ethernet (SGMII) output for MPTS and SPTS signals
- 32 x MPTS or SPTS output today
- Demultiplex/ Remultiplex signals for SPTS/ MPTS transmission
- Modification of PSI /SI- Tables
- Block pid / pid remapping
- User friendly configuration via standard Web browser

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4. GT31 Module Status Information

Document Revision Information

Date	Document Rev.	GT31 SW	Description	Name
finished		Version		
2013-02-06	1.48-1.49	1.0	First GT31 draft	KD
2013-03-11	1.50-1.53	1.0	Review Inputs, Updates	KD
2013-04-17	1.54	1.1	GT11 changes, Reviewed Inputs	KD



1 Safety Instructions

1.1 ESD Protection

This product contains electrostatic sensitive devices. These devices can be damaged or effectively destroyed by electrostatic discharge (ESD) during unpacking, installation, removal, storage, or shipment if incorrectly handled. Please note that discharge might go unnoticed by a user. Always take normal static precautions when handling the equipment!

2 Technical Data / Mechanical Overview

2.1 GT31 Module Front View



GT31 module view





3 Installation, Configuration and Maintenance

3.1 Module Installation

The Tangram GTxx modules are single function modules. The modules are hotswappable and can be plugged into the chassis from the back. On the front side of the Tangram chassis there are the switch modules, the power supplies and the fan tray. The power supplies and the fan tray are situated behind the panels. Power supplies and the fan tray can be replaced during operation.

The physical installation of GTxx modules, power supplies and fan modules into Tangram GT01 chassis is described in detail in the GT01 & GTxx Installation Quick Guides, please refer to them in case you have to insert or remove a module.

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3.2 Tangram Front IP Ports

3.2.1 IP / Ethernet Ports at the Front of Tangram

Tangram has up to 9x GigE ports at the front side, 5x RJ-45 100/1000T with GT11 and optionally an additional 4x SFP ports with GT12 at the upside position (Slot 8).



Tangram equipped with GT11 & GT12 Switch modules

The numbering on Tangram ports is from down to up and from left to right, the first lower Port from the left ("MAN") on GT11 is dedicated for out-of-band management.

Status Setting	s Modules	Maint	tenance			
		Networ	rking			
Management IPv4: 10.12.1.70	Netmask: 255.255.255	5.0 Ga	ateway: 10	.12.1.11		
	NTP-Server:	172.17.2.60				
Car	icel				Sa	ve
	GT11 P	ort Group-N	Member set	ttings:		
	RJ 45	RJ 45	RJ 45	RJ 45	RJ 45	
	Port : MAN	1	2	3	4	
	Group ID:	Av	B 💌	CV	A 💌	
		Show current tra	ffic troughput			
Car	ncel				Sa	ve



3.3 Tangram Hardware : RF / Video Modules Slots

RF Modules and Ports at the Rear of Tangram

3.3.1 Chassis Slots GT01

Tangram has 6 module slots on the rear side.



Tangram rear view (Example)



The numbering of Tangram modules is always from down to up and from left to right, the first lower module on the left (seen from the back) is the first, second is above.

3.3.2 GT31 Modules Ports



The numbering of input ports is from left to right



3.4 Configuration of Tangram

3.4.1 The Tangram Web UI (GUI)

A standard web browser can be used to configure all settings on a Tangram chassis.

GT11-Control	Status	ettings Modules Maintenance 11.01.2013 10:38:15 UTC	
M1-GT21		Module identification	
		Tangram	
M2-GT42		GT11 Switch S/N : 0490112041200002 Hardware : 01.01.01.00 Firmware : 0.08.1.17	
M3-GT23			
M4-GT22		Status	
Manual A			
	Chassis :		
	Temperature:	35.0 C (high = +80.0 C, hyst = +75.0 C)	
M6-GT21	Fans:		
	Fan 1:	7680 RPM (min = 4500 RPM)	
	Fan 2:	7680 RPM (min = 4500 RPM)	
	Fan 3:	7680 RPM (min = 4500 RPM)	
	Fan 4:	7740 RPM (min = 4500 RPM)	
	Fan 5:	10800 RPM (min = 4500 RPM)	
	Fan 6:	7680 RPM (min = 4500 RPM)	
	Fan 7:	10920 RPM (min = 4500 RPM)	
	Fan 8:	7620 RPM (min = 4500 RPM)	
	Powersupply:		
	Voltage internal:	+12.06 V (crit min = +11.22 V, min = +11.52 V) +0.00 V (crit min = +11.22 V, min = +11.52 V) ALARM	

In the left field there are the Modules / Slots identified by the Chassis / Switch.

General information about the web interface structure

The Tangram Web UI is designed to get a logical structure for the user/ installer, and an overview of the device via the side tabs and module details via the top tabs.

The **GT11-Control & (optional) GT12** tab on the left contain settings about the chassis & switch such as main Status, main networking Settings, the modules identified & maintenance. The tabs below on the left side starting with **M1 (Module 1)** down to **M6 (Module 6)** are the links to the Tangram modules configuration settings:

After choosing a module on the left – the UI is changing to the **Module view** – and the Tangram modules can be configured in detail.

The main interface while managing services within the modules is the modules **SERVICE MANAGEMENT** tab. Here, you will have an overview of the configured inputs and outputs, and you will also manage the service selection and decryption with GT42.

Before you start managing the services on the modules, you should add and configure the inputs and configure the outputs in their respective tabs.



3.4.2 Connecting to the Default Management IP Address:

Supported web browsers

The Tangram web interface is verified for Firefox version 9 and higher. Other web browsers might work, but the functionality cannot be guaranteed.

	_	_				III T	TANGR	AM
1-Control	St	atus	Settings	Modules	Maintenance			
ulo 1	7			M	odule status and settin	gs:		
	Module:	Type:	Power:	Status:	Redundancy mode:	Redundancy status:	Reset	Configuration
	1	unknown	OFF 👻				Reset	
-	2	GT42	ON 👻	ok			Reset	Restore
	3	unknown	OFF 👻	notcomm			Reset	
4	4	GT31	ON 👻	ok	None 👻	None	Reset	Restore
	5	unknown	ON 👻	unplugged			Reset	
	6	GT31	ON 👻	ok	Master 👻	Master	Reset	Restore
	7	GT11		ok			Reset	
	8	unknown	ON 👻	unplugged			Reset	
					ckup current module configurat ckup created: 11.04.2013 1			
				Cl	assis redundancy opti	on:		
					Enabled -			

The Tangram default IP address on the left front management "MAN" port is 192.168.1.20 (GT11 SW rel. <0.8.1.5 : 192.168.0.11)

To access the Tangram Web- Interface please set the IP address on your PC or Network adaptor to an address in the same address subnet & use same network mask.

3.4.3 GT11 SETTINGS Tab: Changing the IP Address to Your Own Network

It is recommended to change the IP to a unique IP address in your network. Please change the IP address under SETTINGS / NETWORKING.

Status Settings Modules Ma	intenance
	orking Sateway: 10.12.1.11
NTP-Server: 172.172.60	

Within the Network configuration following data has to be filled in completely: The IP address, the Netmask and the default gateway. A known NTP Server source can be used for the time-of-day sync, useful for the logs timestamp. When finished with the changes press the "Save" button to activate the changes..



3.4.4 IP / Ethernet Ports Groups (using internal VLAN IDs)

There are **Port Groups** to easily distribute video traffic of above 1 Gbit on Tangram. GT11 Port Group A is representing internal VLAN ID=2 up to Group H with VID=9 and they are available to choose in a pull-down menu. All external ports on Tangram are untagged ports.

Tangram reserved Groups (VIDs 10-15 & 16):

- GT11 MGMT Port 0 using VID=1: Connection to GT switch and module web UI.

- Internal Management net uses VID=16: reserved for internal control.

- The additional internal Groups "I- M" (VID=10-15) are reserved for internal stream distribution on Tangram.

Port Group-Member settings on GT11:

		GT11 P	ort Group-Me	ember settin	igs:		
							-1
		RJ 45	RJ 45	RJ 45	RJ 45	RJ 45	
	Port :	MAN	1	2	3	4	-
	Group ID:		Av	BV	C 💉	DV	
Can							sve

Port Group-Member settings on GT12:

	RJ 45	RJ 45	RJ 45	RJ 45
Port :	1	2	3	4
Group IE): E 🛩	E	E 😽	E

GT11 & 12 Port Group- Member settings in the Main Setting Tabs

Settings in the example:

GT11 Port 1: Connection to GT streaming net A (VID=2)
GT11 Port 2: Connection to GT streaming net B (VID=3)
GT11 Port 3: Connection to GT streaming net C (VID=4)
GT11 Port 4: Connection to GT streaming net D (VID=5)
GT12 Port 1: Connection to GT streaming net E (VID=6)
GT12 Port 2: Connection to GT streaming net E (VID=6)
GT12 Port 3: Connection to GT streaming net E (VID=6)
GT12 Port 4: Connection to GT streaming net E (VID=6)



3.4.5 GT11 SETTINGS Tab: Throughput measurement

Below of the Group-Member settings you find the button: **Show current traffic** *throughput*

Status Settings	Modules	Ma	aintenance			
		Netw	orking			
Management IPv4: 10.12.1.70	Netmask: 255.255.	255.0	Gateway: 10	.12.1.11		
	NTP-Server:	172.17.2.60				
Can	cel				Sa	ve
	GT11	Port Group	-Member se	ttings:		
	RJ 4	15 RJ 45	RJ 45	RJ 45	RJ 45	
	Port : MAI	N 1	2	3	4	
	Group ID:	A 🗸	B 💌	C 🗸	A 💌	
		Show current	traffic troughput			
Can	cel				Sa	ve

Sent & Received packets for each switch-port are shown, and Overflow packets and CRC errors can be checked per port:

		GT11 Front-Ports T	raffic-throughput :	
				£1
Port:	Sent:	Received:	ReceiveFifoOverrun:	SendFifoOverrunOrCrcError
1	50 Mbit/s	54 Mbit/s	Ö Ö	0
2	0 Mbit/s	0 Mbit/s	0	U
3	0 Mbit/s	0 Mbit/s	Ó	0
4	0 Mbit/s	0 Mbit/s	0	0
		GT11 Module Slots T	raffic throughput :	
	-	Received:	ReceiveFifoOverrun:	SendFifoOverrunOrCrcErro
Slott	Sents			
Slot:	Sent:		0	0
1	110 Mbit/s	0 Mbit/s	0	0
1 2	110 Mbit/s 59 Mbit/s	0 Mbit/s 52 Mbit/s	Ö	0
1 2 3	110 Mbit/s 59 Mbit/s 0 Mbit/s	0 Mbit/s 52 Mbit/s 0 Mbit/s	0	0
1 2	110 Mbit/s 59 Mbit/s	0 Mbit/s 52 Mbit/s	Ö	0



3.5 Tangram GT11 / 12 Switch Modules / Main Control Page

3.5.1 Main Status GT11- Control

On the Tangram GT11-Control Status Tab you can monitor overall stats like Alarms, Fans, Power, Temperature, Serial Number and main SW- Version of the Tangram

Status	ettings Modules Maintenance	11.01.2013	10:35:13 UTC
	Module identification		
	Tangram		
	GT11 Switch S/N : 0490112041200002 Hardware : 01.01.01.00 Firmware : 0.08.1.17		
	Status		
			1
Chassis :			
Temperature:	34.5 C (high = +80.0 C, hyst = +75.0	C)	
Fans:			
Fan 1:	7680 RPM (min = 4500 RPM)		
Fan 2:	7680 RPM (min = 4500 RPM)		
Fan 3:	7680 RPM (min = 4500 RPM)		
Fan 4:	7800 RPM (min = 4500 RPM)		
Fan 5:	10800 RPM (min = 4500 RPM)		
Fan 6:	7680 RPM (min = 4500 RPM)		
Fan 7:	10860 RPM (min = 4500 RPM)		
Fan 8:	7620 RPM (min = 4500 RPM)		
Powersupply:			
Voltage internal:	+12.06 V (crit min = +11.22 V, min =	+11.52 V) +0.00 V	(crit min =



3.6 Tangram GT11 / 12 Internal Switch / Control Tab

3.6.1 Modules Tab on the GT11-Control

'11-Control	St	atus	Settings	Modules	Maintenance			
				M	odule status and settin	gs:	_	
	Module:	Type:	Power:	Status:	Redundancy mode:	Redundancy status:	Reset	Configuration
	1	unknown	OFF 👻	notcomm			Reset	
	2	GT42	ON 👻	ok			Reset	Restore
	3	unknown	OFF 👻	notcomm			Reset	
	4	GT31	ON 👻	ok	None 👻	None	Reset	Restore
1	5	unknown	ON 👻	unplugged			Reset	
	6	GT31	ON 👻	ok	Master 👻	Master	Reset	Restore
	7	GT11		ok			Reset	
	8	unknown	ON 👻	unplugged			Reset	
					ckup current module configurati ckup created: 11.04.2013 1			

3.6.2 Module Status and Settings

You can check and set the Modules on the Modules tab. You can switch them on /off and you can reset them remotely. Additionally you can optionally configure (n+1) Module Redundancy.



3.6.3 Maintenance Tab / Future GT11 & modules updates & upgrades

In future there may be additional functionality added to Tangram.

Firmware update^{*} or upgrade for the main switch and the moules can be applied very comfortable via the Maintenance tab since recent GT11 and module SW.

Status Settings	Modules Main	enance	
	Software and Entit	lement Upgrade	
Files uploaded: 10 Free space:	486MByte avail.		
GT21_1.5srA3.bin (11M) GT23_1.4srA1.bin (3.5M) GT24_1.1b1.bin (5.2M) GT42_1.1.bin (3.1M) GT31_1.1rc1.bin (3.8M) GT31_0550113032500001.backup (212K) gt11_0.08.1.23.tar (25M) gt11_0.08.1.23.tar (25M) gt11_1.00.1.26rc2.tar (25M) gt11_1.00.1.26rc3.tar (25M)			File upload: Durchsuchen
	Upgra	Ide	
Upgrade Modules			Upgrade GT11
	Log	I	
	Get GT1	1 Log	
	Scriț	its	
	Set IP-inputs to p	primary source:	
Module:	none	•	Start

Additional there is a syslog available and scripts can be executed through the Maintenance tab. Please ask your WISI representative about scripts available.

*IP addresses set and Group membership will survive a Firmware update as long as not stated differently in the release notes.



3.7 Configuration of Modules

3.7.1 Connecting to the Modules (GT 31 SW 1.1 or newer)

If your module has SW 1.0 or older please refer to 3.7.3 and upgrade the module.

The Tangram modules (SW >1.0) can be accessed through the front management port by just choosing the module on the left column in the Web UI.

(to access all modules with the same Management IP-address through the switch, please make sure that the IP ports 80 to 86 are opened with your Firewalls)

3.7.2 Adding additional IP Addresses to the Modules

To receive (e.g. event tables) and to send streams you need to setup streaming interfaces to the Internal Port. This can be configured through the NETWORKING tab.

As an option it is possible to put an unique IP management address to every module available through the Switch Management Port (e.g. Main address +1,+2, etc.). This can be used e.g. to get SNMP- traps directly from the Modules.

ETWORKING			
	Netwo	orking	
vailable ethernet ports on your devi	ce are listed below. F <mark>or</mark> each ethernet port you ca	n define and r	nanage its interfaces for communicating with that port.
Control Port		Status MAC	DISCONNECTED 00:03:98:07:1c:b4
Internal Port		Status MAC	CONNECTED 00:03:98:07:1c:b5
Add new interface			
Streaming			
Management			
Management			
Management	Interface name	(si	NMP Management
Management	Interface name Use DHCP	ON SI	NMP Management
Management		ON	
Management	Use DHCP	ON	OFF
Management	Use DHCP IPv4	ON	OFF 10.12.1.75 this is the interface used for accessing the web interface, you ust open the page again with the new address after saving.
Management	Use DHCP IPv4 Netmask	ON	OFF 10.12.1.75 this is the interface used for accessing the web interface, you ust open the page again with the new address after saving. 255.255.252.0
Management	Use DHCP IPv4 Netmask Gateway	ON	OFF 10.12.1.75 this is the interface used for accessing the web interface, you ust open the page again with the new address after saving. 255.255.252.0 10.12.1.11
Management	Use DHCP IPv4 Netmask Gateway IGMP		OFF 10.12.1.75 this is the interface used for accessing the web interface, you ust open the page again with the new address after saving. 255.255.252.0 10.12.1.11 ICMPv2 V
Management	Use DHCP IPv4 Netmask Gateway IGMP Use VLAN		OFF 10.12.1.75 this is the interface used for accessing the web interface, you us open the page again with the new address after saving. 255.255.252.0 10.12.1.11 IGMPv2 OFF OFF
Management	Use DHCP IPv4 Netmask Gateway IGMP Use VLAN System management		OFF 10.12.1.75 this is the interface used for accessing the web interface, you us open the page again with the new address after saving. 255.255.252.0 10.12.1.11 IGMPv2 OFF OFF OFF OFF
Management	Use DHCP IPv4 Netmask Gateway IGMP Use VLAN System management Web management		OFF 10.12.1.75 this is the interface used for accessing the web interface, you us open the page again with the new address after saving. 256.256.256.20 10.12.1.11 IGMPv2 OFF OFF OFF OFF OFF OFF



You can edit the IP addresses of a Module under SETTINGS / NETWORKING. Please always remove and configure new network- address, the net mask plus the default gateway. If you don't want to specify, put in 0.0.0.0 as gateway address.

3.7.3 Direct access to the Modules (backup Control Port)

As a further alternative or to recover a problem you may use the backup Control Port on the back of module with default address 192.168.1.20 and net mask 255.255.255.0.

As with the front port a standard web browser is used to connect by typing the IP address in the address field to get access from the Control Port on the back.

STATUS INPUTS OUTPUTS	SERVICE MANAGEMENT	TINGS
NETWORKING		
Netwo	rking	
available ethernet ports on your device are listed below. For each ethernet port you can	define and manage its interfaces for communicating with that port.	
Control Port	Status DISCONNECTED MAC 00:03:98:07:1c:b4	
Add new interface		
Default management		
Interface name	Default management	
Use DHCP	Off	
IPv4	192.168.1.20	
Netmask	255.255.255.0	
Gateway	0.0.0.0	
IGMP	IGMPv2	
SNMP	On	
Command line interface	On	
	EDIT	

If all address settings of Tangram are unknown or lost you can recover on the module control port by using the IP Supporter tool – it can be downloaded from the product portal.





3.8 Tangram & SW Options

3.8.1 Connect to WISI Portal & Activating the Output Modules:

The Tangram modules GT2x & GT31 (not the Tangram chassis, nor the GT11) must be registered at the WISI portal and activated through an entitlement file before they can be used or upgraded. You can get / download that from WISI Web-Portal:

The WISI Tangram portal

Portal URL: http://www.wisiconnect.tv

Connect to the WISI portal using the URL: http://wisiconnect.tv

(in case wisiconnect.tv is down / not available temporarily, you can use **http://www.chameleonconnect.tv** which offers the same functionality and data.

3.8.2 Serial Number / Linking to the Modules

The Tangram module to be activated can be accessed through the main management page of the module web UI. Please copy / write down the serial number displayed in the Status tab of the module to be activated.

3.8.3 Requesting Access to the wisiconnect.tv Portal

If you do not yet have a password for access to the portal, please click the <u>Request</u> access to <u>Tangram portal</u> link.

3.8.4 Login to the wisiconnect.tv / chameleonconnect.tv

Enter your e-mail address and password, and click Login. Only with the first module you have to register once for the Portal. Then after some time to generate your account or if you have forgotten your password & clicked the <u>Reset password</u> link, an e-mail will be sent to the entered e-mail address. The e-mail contains a hyper-link that you should follow to confirm the request for a new password.

3.9. Uploading SW Upgrade to your Tangram Module GT31

(via Tangram Web GUI)

Under **SETTINGS / SOFTWARE AND ENTITLEMENT UPDATE**, browse for the firmware file you previously downloaded to your computer. Click Upload, and reboot the module when the upload is ready /finished. Further information you can find in chapter 3.14.4.

To be able to apply an update to a Tangram module it must be first registered and activated through the entitlement file which is described in 3.10.



3.10 Registering Tangram Modules to the WISI Tangram Portal

If you do not have yet a password for access to the portal, please refer to chapter 3.8.3

3.10.1 Registering Modules

Register new Tangram

Please copy / write down the serial number out of the Status tab of the module to be activated

3.10.2 Downloading SW Options (entitlement file) to your PC

Go to the tab My Tangrams / Chameleons and enter the serial number of your Tangram module.

Module name:	
Firmware version:	
Vendor:	
Description:	
Register	

My Tangram list

Serial number:

Click the `Register Tangram / Chameleon` tab to start registering the Tangram GT31 module.

Enter the serial number of your module. Optionally, also enter Module name, Vendor, and Description (these fields are intended for your own use, to be able to track and maintain your installed base). The fields for SLA status and SW options are filled out automatically from the information stored in the WISI Unit Data Base. Click the `Register' button to register the Tangram module.

Go to the tab My Tangrams (or my Chameleons on Chameleonconnect), and click the serial number of the module to download SW options (entitlement file) for. In the Edit Tangram or Chameleon view, click Download file. Save the file to your computer

After login and choosing Register Tangram / Chameleon tab number for the module to download SW options (entitlement file). In the Edit Tangram view, choose Download file.

3.10.3 Uploading SW Options (Entitlement File) to your Tangram Module GT31

(via Tangram Web GUI)

Under SETTINGS / SOFTWARE AND ENTITLEMENT UPGRADE, browse for the entitlement file you previously downloaded to your computer. Click Upload, and reboot the module when the upload is ready.

3.10.4 Using the IP Supporter Tool

With the Tangram connected to your computer, and your computer connected to Internet, you can upload the entitlement file directly. Select your Tangram module, and check the Entitlement from WISI / a2b server, and click Upload.

Gerel	IP address	Finderer:
1420010063100000	172 18 0 119	[2] Entitiement from A2B server
MS0011010400001	172 18 0 105	The second second second second
MS00*1040100002	172 18 0 121	Bitfurnet W
54300 ID41530005	172.48 茶 筆	a state of the second s



3.11 Configuring Inputs

To receive DVB streams you need to setup the sources. This can be configured through the INPUT tab.

3.11.1 Defining / adding inputs

Add input:

Add new input			
Choses ique 1990	Ove-t2	Ð	
Nave	New Dill-T2ings	43	
Physical pert	These		
Burdelith	0.4 0	1	
Forgenus (Mkr)	61.3		
Product (Sec)	212.5		
NP	ANDTHIC	1.	

1. Click the INPUTS tab, and *Add new input*.

2. Choose Type and select the appropriate parameters and settings.

3. Click the SAVE button.

After clicking Save, the status of the input will be shown:

Add new input						
O DVB- 52 input 1	Looked, 4 services found. DND-52 RPF IS	ank Loo	13.0 dB - 57 dBm 72 dBpV	in.	<1.00-00	
O DVB- 52 input 2	Locked, 7 services Teand. DVB-S2 (97-2)	358 500	12.8 dB -59 68m 50 dByV	1115	<1.02-06	
O DVB-C imput 3 RTL	Unixoded, 8 services found. OVE-C dV 11	100 100	N/A -85 cBm 21 dByV		мла	
O DVB-52 input 4	Locked, 3 vervices found (XVB-S2 (8F-4)	1980 Level	12.8 d8 -45 d8n 64 d8yV	3.00	<1.0E-08	
	Name	DV6	SZ iegas: 4			
	Physical port	fear				
	LNE type	lines	real			
	Polarisation	Horiz	oreal .			
	22 kHz tone	or				
	Vallage	Off				
	Symbol rate (klaud)	2200	0			
	Transponder frequency (MHz)	1130	2			
	DrikingC report	None				

Status information

The status includes information about the interface (tuner etc.), and about services found.



Add / Edit more inputs

Re-iterate the "Add input" process.



3.12 GT 31 Service Management

Click on the SERVICE MANAGEMENT tab to see available inputs and outputs.

STATUS	NPUTS	TS OF SERVICE MANAGEMENT	SETTINGS
Add new output			
BD MPTS	IPTV	Bitrate VBR Destination 239.0.0.2:1234	
BR Nord SPTS	IPTV	Bitrate 12 Mbit/s Destination 239.0.0.5:1234	
🕒 BR Süd SPTS	IPTV	Bitrate VBR Destination 239.0.0.6:1234	
Channel 21 SPTS	IPTV	Bitrate VBR Destination 239.0.0.14:1234	
DAS ERSTE MPTS	IPTV	Bitrate 40 Mbit/s Destination 239.0.0.3:1234	
Das Erste SPTS	IPTV	Bitrate 9 Mbit/s Destination 239.0.0.7:1234	

Service IDs and PIDS of received Input services are shown and can be checked

	STATUS		INPUTS		OUTPU	112		SERVICE	MANAGE	MENT		SETT	INGS
			1	Inputs	Services						ſ	Outputs	Services
INPUT	· *	TYPE					OUTPUT +	TSID	ONID	NID	LCN		
DVB-	S2 input	Tune	r		0		BD MPTS	17002	1	101	None		0
) PS	si/si pid +	TYPE	BITRATE			1	BR Nord SPTS	17005	1	101	None		0
0		PAT	3.14 kbit/s			į,	BR Süd SPTS	17006	1	101	None		e
1		CAT	3.14 kbit/s				Channel 21 SPT	17014	1	101	None		e
10	6	NIT	3.15 kbit/s			5	DAS ERSTE MPTS	17003	0	No id	None		e
15	7	SDT	8.51 kbit/s				Das Erste SPTS	17007	0	No id	None		e
14	8	EIT	853.33 kbit/s			k	hr-F. SPTS	17008	0	No id	None		e
20	0	TDT	597 bit/s				HSE 24 SPTS	17012	0	No id	None		e
20	0	тот	597 bit/s			5	MDR S.Anh. SPT	17028	0	No id	None		0
5	100	PMT	3.14 kbit/s			4	MDR Sachsen SP	17026	0	No id	None		e
5	110	PMT	3.14 kbit/s				MDR Thür. SPTS	17029	0	No id	None		e
5	120	PMT	3.28 kbit/s			1	Mediaspar SPTS	17013	0	No id	None		e
5	130	PMT	3.14 kbit/s			÷	n-tv SPTS	17015	0	No id	None		e
- SE	ERVICE -		SID				NDR F HH SPTS	17024	0	No id	None		0
⊧ ar	rte HD		10302		0		NDR F MV SPTS	17023	0	No id	None		e
⊳ Di	as Erste HD		10301		0		NDR F NDS SPTS	17025	0	No id	None		C
⊧ SV	WR BW HD		10303		O	÷	NDR F SH SPTS	17027	0	No id	None		e
SV	WR RP HD		10304		Ø	k	rbb Berlin. SP	17022	0	No id	None		e
DVB-	S2 input	Tune	r		0	8	rbb Brand. SPT	17021	0	No id	None		0
DVB-S	52 input 4	Tune	r		0		rbb MPTS	17004	0	No id	None		e

Service IDs shown in the Tab SERVICE MANAGEMENT

The INPUTs and their PIDs are shown starting from INPUT 0 to INPUT n, depending on how many Inputs are configured and received.



3.12.2 Service Selection and Filtering

Service management functionality and pre-requisites

The SERVICE MANAGEMENT tab is the main view for handling service selection, decryption, encryption and PID management. efore starting with the service management, the inputs and outputs must be defined.

2	TATUS		INPUTS		OUTPL	JTS		SERVICE	MANA	SEMENT	SE	TTINGS
				Inputs	Services						Output	ts Services
INPUT	Ŧ	TYPE					OUTPUT -	TSID	ONID	NID	LCN	
DVB-	S2 input	Tune			Θ		BD MPTS	17002	1	101	None	6
$\tau = \mathbf{PS}$	I/SI PID +	ТҮРЕ	BITRATE			÷	BR Nord SPTS	17005	1	101	None	6
0		PAT	3.28 kbit/s			Þ	BR Süd SPTS	17006	1	101	None	6
1		CAT	3.28 kbit/s			Þ	Channel 21 SPT	17014	1	101	None	6
10	ō	NIT	3.30 kbit/s			Ŧ	DAS ERSTE MPTS	17003	0	No id	None	6
17	7	SDT	7.51 kbit/s				Utilized bitrate:	27.46 Mbi	t/s (limi	t 40.00 Mbit/s,)	
18	3	EIT	854.15 kbit/s				 SETTING 			VALUE		6
20)	TDT	600 bit/s				TSID			17003		
20	5	тот	600 bit/s				ONID			0		
51	00	PMT	3.28 kbit/s				Network ID			No id		
51	10	PMT	3.14 kbit/s				Network name			Not set		
51	20	PMT	3.14 kbit/s				LCN			None		
51	30	PMT	3.28 kbit/s				* SERVICE *	PROV	VIDER	SID	LCN	
7 SE	RVICE -	3	ID				⊧ arte HD	ARD		10302	Not set	Ģ
⊳ ar	te HD	i	0302		Ð		» Das Erste HD	ARD		10301	Not set	6
н Da	as Erste HD	i	0301		Ø	F	Das Erste SPTS	17007	Q	No id	None	6
⊢ SV	VR BW HD	i	0303		Ð		hr-F. SPTS	17008	0	No id	None	6
⊧ SV	VR RP HD	i	0304		Ð	μ	HSE 24 SPTS	17012	0	No id	None	0
DVB-	S2 input	Tune			Θ	÷	MDR S.Anh. SPT	17028	0	No id	None	6
DVR-S	2 input 4	Tune			0		MDR Sachsen SP	17026	0	No id	None	6

Inputs, Outputs, and their available/ assigned services

The left part of the SERVICE MANAGEMENT view shows the Inputs with their available services. The right part shows Outputs with the names you have typed while configuring the output. By default, Output have no assigned services, no services has been added.

To see the services in the inputs or in the outputs, expand the input (or output) by clicking the heading plus sign.

The PIDs of each input service can be shown by clicking the + to expand the service.



Service Selection and Filtering (cont.)

3.12.3 Structure of the available/assigned services under INPUTS and OUTPUTS

Input: Each Input/service has 3 columns;

Name (service names), SID (service id), and an edit arrow ">" for adding to output.

		Inputs						Outputs		
N	AME - 1	YPE			NAME V		TSID		D LCN	
) IP	TV input 1 If	239.255.175.99:1234	0	Add	all services to			0	Nordig	3
-		Services			ect transparently	y to)	New IPT	V output 1)	
5	NAME V	SID	8				_	Services		
0	Bayerisches FS Nord	28110	0		NAME V		PROVIDE	R SID	LCN	
0	Bayern 1	28400	0		Das Erste		ARD	28106	ō 1	0
0	Bayern 2	28401	0				(1999) (1999)		- LM	
0	BAYERN 3	28402	0					PIDS		
0	BR-KLASSIK	28403	0				~~~~~			
0	Das Erste	28106	0		IN V	OUT	TYPE	BLOCKED	STATE	
0	hr]	28419	0		101	101	H	NO		0
0	hr2	28420	0		102	102	J	NO		0
	hr3	28421	0		103	103	D	NO		0

Assigning services from the inputs to the outputs is done by clicking the arrow > and selecting the output to add the service to in the appearing pop-up boxes.

Outputs: Each Output has 6 columns; Name (mux names), TSID (transport stream id),

ONID (Original Network id), NID (Network id), LCN (LCN type) and the edit arrow ">"

	Outputs								
	NAME 🔻	TSID	ONID	NID	LCN	_			
•	QAM 1	0	0	No id	None	Ø			
	Network Name:	Not set							

Each **Output Service** has 5 columns; **Name** (service name), **Provider** (service provider name), **SID** (service id), **LCN** (service LCN number) and the edit arrow ">" .

Every Name & ID can be changed by clicking on the entry in the table or resetted / removed by clicking the arrow ``>''

set	set		its	Outp			
Edit	Edit	LCN	NID	ONID	TSID		
Reset values Remove		None 💌 🥑 😣	65535		0	QAM 1 Network Name:	0
			0.0000				



3.12.4 Adding and Removing Services to/from IP Outputs

Adding services to the outputs

1. Click the edit arrow tailing an <u>input service</u>. When you click the arrow, an "Add / Connect" pop-up will appear.

2. Move the mouse pointer to the Add pop-up.

3. Select the **Output** to add the service.

		Inputs						Outputs		
N	AME ~ 1	YPE			NAME 🗸		TSID) LCN	
) IP	TV input 1 II	239.255.175.99:1234	0	Add a	Il services to	,		°'''	Nordig	3
		Services	2		ct transparentl	y to 🔾	New IPT	V output 1		
S	NAME V	SID	10				_	Services		
0	Bayerisches FS Nord	28110	0		NAME V		PROVIDE	R SID	LCN	
0	Bayern 1	28400	0	C	Das Erste		ARD	28106	1	0
0	Bayern 2	28401	0						195	
0	BAYERN 3	28402	0					PIDS		
0	BR-KLASSIK	28403	0		-			72112222	1212212122	
0	Das Erste	28106	0		IN V	OUT	TYPE	BLOCKED	STATE	
0	hr1	28419	0		101	101	目	NO		0
0	hr2	28420	0		102	102	Л	NO		Θ
-										

Adding all services to the outputs

1. Click the edit arrow tailing an input. When you click the arrow, an pop-up will appear with "Connect transparently to" and "Add all services to".

2. Select "Add all services to", and select the **Output** to add services to.

STATUS		INPUTS	оитя	PUTS		SE	RVICE	MANAGEM			SETTINGS	
	1	nputs	_	Г			_	Outp	uts	_		
NAME 🕶	ТҮР	E			NAME 💌	т	SID	ONID	NID	LCN		_
OS NGN 1	IP	239.255.175.99:1234	Ø	C	QAM 1	0	_	0	No id	None		Ø
	_			dd al	I services to	;		0	No id	None		۲
			C	Connect transparer		ſ			No id	None		Ø
			Ľ				QAM 1 QAM 2		No id	None		Ø

Removing services from the outputs

Removing a single service from an output

- 1. Click the edit arrow > of an <u>output service</u>.
- 2. Click "Remove" in the pop-up window.

Removing all services from an output

- 1. Click the edit arrow > of an <u>output</u>.
- 2. Click "Remove services" in the pop-up window.





3.13 Service Decryption (with optional GT42 module)

With one additional GT42 module its possible to decrypt services via four different CI slots. Each CI slot can be handled individually regarding settings of input source and bit rate for the used CAM.

Up to four IP inputs can be created (SPTS or MPTS). For the output, up to four IP outputs can be used (SPTS or MPTS).

A more detailed description of Service Decryption can be found in the separate GT42 manual.

C 172.19.99.105//mpub	1			\$
GT42		_	_	
STATUS:		SERVE	CE MANAGERE	NT SETTINGS
🕒 Add new input				
C THOR 10934 HD	2 services found. PTV (UCP)	Measured birane Matteau address	44.997 Mbit/ 239.0.0.42.2	
	Name	(THOR 1093	AHD]	
	Protocol	LOP		
	Bitrate mode	CER Automatic		
	Network Interface	Streaming	Ŀ	Manage Interfactor
	Routing scheme	Multicast	2	
	Multicast address	239.0.0	42	
	Port	2000		
REMOVE			le la	CANCEL
O THOR 11216 SD	If services found. IPTV (JUP)	Mencured hitrare Medicaer address	44.997 Mbit/ 239.0.0.43-2	
O THOR 11862	6 services found PTV (UDP)	Measured birrare Methods address	39.997 Mbit/ 239.0.0.45:2	
O VIASAT HD	3 services found. PTV (JDP)	Management, Korrana Michigan and drama	49.999 Mbit/ 239.0.0.44-2	

GT42 INPUT menu:



GT 42 OUTPUT MENU:

GT42			TANGRAM
			IENT
Add new output			
THOR 11216	IFTV	Dirais 55 Mbit/s Decisionas 239.0.0 55 3600	
	Output anable	ed ON TOFF	
	Nam	Ne THOR 11216	
	Protoc	01 UCP	
	Bitrate mo	de l <u>Cax</u>	
	Bitzate (MBit/	a (<u>s</u>)	
	Time to live (T1	u <u>26</u>	
	Network interfa	ce (Streaming 🕑	Manage interfaces
	Destination addre	ss 239.0.0.55	
	Pe	nt	
REMOVE			CANCEL
O THOR 11862	PTV	Strees 55 Nbit/s Destruction 239.0.0.54 3000	
C THOR 12015 HD	PTV	Irrate SS Mbit/x	

In the service management menu one chose decryption for the wanted services to be decrypted and also connect the decrypted (and not decrypted) services to the created outputs.

NOTE! The number of services that can be decrypted simultanously is depending on the used CAM and smartcard.

GT42				_	_				I TAN	GRAM	77
atens.		(now		Cour	anta 🔪	588	nce ww	VACENENT	D	Carries	•)
		(eput).				_		Outpi	115		
BANET	T	PE			NAME -		TSID	0910	NID.	LCR	
0 011100031082	Ċ1				O THOR YOUR		17004	100	100	Norma	
O CI 2 THOM 12011	0						37002	100	100	Narrang	- 0
C C 3 10-00 1121#	0				O THOR 12013	HD	17002	100	100	Marding	0
100000000000000000000000000000000000000					O VIII567 1248	7H0 H	17001	100	100	Northy	- 6
		Service	5		Sector management			A.A.S.	22.452		
NAME -		SID									
O suret spectrum	-	2706			1.						
O Sten		2108	1	- 23	Add	- #E	THORT	2016			
O SWIE/SVIZA		2705	1	- 2	Partove descrentifier		THOR 11				
G Trit		1603	3	0		_	THORIS		- 84		
C TEXTAGO		2710		0				3437 HD ut			
C Detfin		2704	- A.	0		2	110000.0		·		
C TV4Sport		2707	1	0							
C TYTI		2107	ď	0							
O G AVINERHD	-										
O THOR LOOSA HD	IP		42 2000	-	3						
O THOR 1121630	11										
O THORITINE2	12		45 2000 l								
OH TANK O	ir.	2390.0	44 2000	- 4							



3.14 Tangram overall module settings

Under the module SETTINGS tab - module specific settings are managed:

STATUS INPUTS OUTPUTS OUTPUTS SERVICE MANAGEMENT SETTINGS
▼ NETWORKING
▼ HEADEND SYSTEM MANAGEMENT
▼ DATE AND TIME
▼ SNMP
▼ USER MANAGEMENT
▼ SOFTWARE AND ENTITLEMENT UPGRADE
▼ MAINTENANCE
▼ LOG

NETWORKING

Networking settings for defining and configuring IP interfaces, and for setting the capabilities for the defined IP interfaces.

Note: Every Tangram module has an extra IP port on the Tangram back for separate 10/100 Ethernet management ("Control Port", default IP 192.168.1.20/24), the module internal GigE port is switched through GT11 switch for streaming & main management.

There are no IP addresses defined for the GigE streaming per default and they have to be set accordingly to customer network.

Networ	king		
available ethernet ports on your device are listed below. For each ethernet port you can	define and m	nanage its interfaces for communic	ating with that port.
Primary DNS	172.17.	2.60	
Primary DNS Secondary DNS	0.0.0.0	2.60	
Secondary Dis	0.0.0.0		
			EDIT
Control Port	Status MAC	DISCONNECTED 00:03:98:07:15:56	
Internal Port	Status MAC	CONNECTED 00:03:98:07:15:57	
 Add new interface Streaming 			
Streaming			
Streaming	Streamir	ng	
Streaming Interface name Use DHCP	Off		
Streaming Interface name Use DHCP IPv4	Off 192.168	8.2.12	
Streaming Interface name Use DHCP	Off	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask	Off 192.168 255.255	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask Gateway	Off 192.168 255.255 192.168	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask Gateway IGMP	Off 192.168 255.255 192.168 IGMPv2	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask Gateway IGMP Use VLAN	Off 192.168 255.255 192.168 IGMPv2 On	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask Gateway IGMP Use VLAN VLAN ID	Off 192.164 255.255 192.164 IGMPv2 On 2	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask Gateway IGMP Use VLAN VLAN ID System management	Off 192.164 255.255 192.164 IGMPv2 On 2 On	8.2.12 5.255.0	
Streaming Interface name Use DHCP IPv4 Netmask Gateway IGMP Use VLAN VLAN ID System management Web management	Off 192.168 255.255 192.168 IGMPv2 On 2 On 0 n	8.2.12 5.255.0	

Example of Networking setup



3.14.1 Add and configure Network interfaces

- 1. Click on NETWORKING in the SETTINGS tab
- 2. Click Add new interface
- 3. Type a name for the interface
- 4. Enter the IPv4 address, the Netmask and the Gateway
- 5. Select the capabilities needed for the interface (e.g. for Streaming the VLAN ID)
- 6. Click SAVE

Internal Port	Status CONNECTED MAC 00:03:98:07:1f:98
G Add new interface	
Streaming	
Interface name	Streaming Interface
Use DHCP	ON OFF
IPv4	192.168.2.20
Netmask	255.255.255.0
Gateway	0.0.0.0
Use VLAN	ON OFF
VLAN ID	2
System management	ON OFF
Web management	ON OFF
SNMP	ON OFF
Streaming	ON OFF
Command line interface	ON OFF
REMOVE	SAVE CANCEL
G Management	



3.14.3 Setting up DATE AND TIME

To synchronize Tangram modules with a time source you can either use NTP protocol through the IP interfaces or Time information delivered by the received MPTS- Streams.

- 1. Click on DATE AND TIME in the SETTINGS tab
- 2. Click EDIT

3. Select the Time zone, automatic or manual daylight saving timer and the reachable NTP servers (separate by adding a comma after each address)

4. Click SAVE

5. If no NTP is available/ configured a Stream source including that information can be used to synchronize the date & time of Tangram modules

(*Note*: NTP servers can be connected from the modules external or internal GigE ports and switched through GT11 switch. There are no IP addresses defined for the internal Interface for NTP use per default and they and the gateway have to be set for every module accordingly to customer management network.)

STATUS	INPUTS	оит	PUTS	SERVICE MANAGEMENT SETTINGS	\supset				
▼ NETWORKING									
▲ DATE AND TIME									
Date and time settings									
		UTC	time	2012-12-03 12:58:39					
		Loca	l time	2012-12-03 13:58:39 (CET)					
		Time	zone	(UTC+01:00) Amsterdam, V (CET-1CEST,M3.5.0,M10.5.0/3)					
	Adjust automatically for da	aylight saving	time	ON OFF					
		NTP ser	ver(s)	172.17.2.60 Separate addresses by adding a comma (*,*) after each address. SAVE CANCEL					
			Time sou	rces					
NAME 💌	TIME	USED	ENABLED						
NTP	2012-12-03 12:59:09	YES	On		0				
OS DVB-C1		NO	Off		0				

Example of a Date & time setting using a NTP server





3.14.4 Module Software and SW options (Entitlement)

If a module is shipped from factory it has no License / Entitlement for operation. Both FW and SW options are uploaded via SOFTWARE AND ENTITLEMENT UPGRADE in the **SETTINGS** tab. Additionally, there is status information available about the running software version, and if a new software is uploaded, also about the latest uploaded (not yet running) software version.

You must select a fil	le you want to upload
	Auswählen
UPLOAD	CANCEL

Uploading software options / Entitlement

•Click UPLOAD. Click "Browse" in the pop-up to browse for the software options file (*.ent) for this specific Tangram module

Note: The SW options file will have the format <serial number>.ent. If you need to, you can download the entitlement file from the Wisiconnect.tv portal or please ask your WISI representative

•Locate the software options file on your PC, and select it •Click the Upload button

NETWORKING	
SOFTWARE AND ENTITLEMENT UPGRADE	
Software and entitlement upgrade	
uploading a new firmware/emittement cantake up to a few minutes to complete, Rebooting the unit during an uploa advase/emittement service is uploaded the unit need to be reborned for the upgrade to be complete.	d can result in faulty operation, After a new
enterer/entererer an extra apresent of a set them to be interest for the opprove of the set compares.	
Latest uploaded version 1.0rc2	

Uploading new Firmware

•Click UPLOAD. Click "Browse" in the pop-up, and select the software file (*.bin file) to be uploaded from your PC

Click the Upload button

- •Wait for the upload complete message before rebooting the module
- •Reboot the module in your maintenance window



3.14.5 Module maintenance

Module maintenance functions are available within the Maintenance tab:

▼ SNMP					
▼ USER MANAGEMENT					
▼ SOFTWARE AND ENTITLEMENT UPGRADE					
A MAINTENANCE					
Maintenance					
There are several different functions for maintaining your device. Read more about the available options below.					
REBOOT					
Some operations, such as upgrading the software, requires a reboot. Push the reboot button below to reboot the module.					
REBOOT					
FACTORY RESET					
Resets all parameters, except the IP address, to the original factory settings.					
FACTORY RESET					
BACKUP AND RESTORE					
You can choose to make a backup of the settings in the module or restore the settings here.					
BACKUP					
▼ LOG					

Reboot of the module

Some operations, such as upgrading the software, require a reboot to get it active.

Click the **Reboot** button to reboot the unit.

Rebooting

During the rebooting process, "Rebooting" will be shown.

After rebooting, the web GUI will go automatically to the **STATUS** tab.



3.14.6 Configuration Backup / Restore

Factory reset

The Tangram module can be reset to the same status as when delivered from the factory. Go to the SETTINGS tab, and MAINTENANCE.

Before you Click on FACTORY RESET please always do a backup of your last configuration as described below ! It may help you to save time & effort to get back to your original setup.

-	 		FAC	FORY RESET	8		 	
	Resets all	parameters, e	except the IP	address, to th	e original fact	ory settings.		
							FACTORY F	ESET

Backup and restore (saving & restoring configuration)

The backup and restore functionality gives you the possibility to save the complete configuration of a Tangram / module to your PC. The stored config file is in readable xml format.

The backup file can be used for e.g. copying /clone configurations between different installations, or keeping a possibility to upload back the original configuration to a module after a change.

You can choose	to make a backup of the settings in the unit or restore t	he settings here.	
		BACKUP	RESTOR
-			
	Select the file you want to restore.		
	Durchsuchen		



4. GT31 Module Status Information

The *STATUS* tab gives a general overview over the Tangram module. This page is also the starting page for the Module UI.

STATUS INPUTS OUTPUTS	SERVICE MANAGEMENT SETTINGS				
MODULE IDEN	ITFICATION				
Serial	0550113032500003				
Hardware revision	1001				
Name					
Location					
Description					
	EDIT				
CONFIGURATION					
Software version 1.1					
Software options	GTFEC, GTM3, GT31HW				
STA	rus				
Uptime	1d 04h 46m 21s				
Temperature	36.5 °C				
SERVICE LICENSE A	AGREEMENT (SLA)				
Registered	Yes				
Expires	2016-03-29				

MODULE IDENTIFICATION

Serial number and the HW version is shown. Further, there are three editable fields; Name, Location and Description. Choosing **EDIT** below the box enables you to save your own selected information about this Tangram module.

CONFIGURATION

The configuration box shows you the Operation mode, the Software version, and the enabled SW options. A warning will be shown if no operation mode is selected.

STATUS

Uptime (from last reboot), and current module temperature.

SERVICE LICENCE AGREEMENT

Shows if the Tangram is registered at the WISI portal, and the expiry date of the service level agreement.



5. Support and further information

For further information and help, please contact our support organisations:

E-mail: support_headend@wisi.de Telephone: +49 (0)7233 / 66-621

User manual and installation guide updates

Updates to the user manual and the installation guide are available at the Website <u>www.wisi.de</u> and through the wisiconnect Portal.





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