

KAIROS DMR System

Release Note

IP Gateway KPG-1013GW Version 1.10

AVL/Dispatch System Software KAS-20 Version 3.00

OTAP MANAGER KPG-180AP Version 3.00

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1. Release Information

This document describes version up features for IP Gateway, Console and OTAP Manager that KAIROS system supports.

1.1. Product Version

Product version information is as follows:

Product	Supported Version in Release
IP Gateway	KPG-1013GW Version 1.10
Console	KAS-20S/KAS-20C Version 3.00
OTAP Manager	KPG-180AP Version 3.00

2. IP Gateway (KPG-1013GW)

IP Gateway (KPG-1013GW) supports to connect KAIROS S-Trunking system and Tier II conventional system. In addition, new functions are supported and voice logger feature is improved. This section introduces version up items for IP Gateway.

2.1. S-Trunking and Tier II Conventional

To enable PC Server as S-Trunking/Tier II Conventional is required a license activation. The software license keys are below. License is switchable on the web interface if multiple licenses are activated on the PC Server at the same time.

System Type	License
S-Trunking	KWD-1013ST
Tier II Conventional	KWD-1013T2

IP Gateway service specifications are different with each system. Comparison is as follows:

Item	S-Trunking	Tier III	Tier II
Unit ID Range	1 to 16776415		
Group ID Range	1 to 16776415		
Number of connectable system ^{*1}	1		N/A
Number of connectable conventional system ^{*2}	N/A		7
Number of configurable repeaters ^{*3}	5000		N/A
Maximum Number of connectable Voice Loggers	10		
Maximum Number of connectable Consoles	100		
Maximum Number of registrable Group IDs per one console ^{*4}	100		
Maximum number of sessions ^{*5}	1000		
Maximum Number of configurable Console IDs ^{*6}	100		
Maximum Number of configurable Group IDs ^{*7}	10000		
Number of storable communication logs ^{*8}	Depend on HDD capacity		N/A
Number of storable system logs	200000		

*1: IP Gateway connects one system.

*2: It recommends to connect with one KAIROS Gateway per a Tier II Conventional system.

*3: The number of repeaters that can be listed by web interface.

*4: 100 Group IDs can be performed group registration per one console.

*5: IP Gateway can process 1000 sessions simultaneously.

*6: The number of consoles that can be listed by web interface.

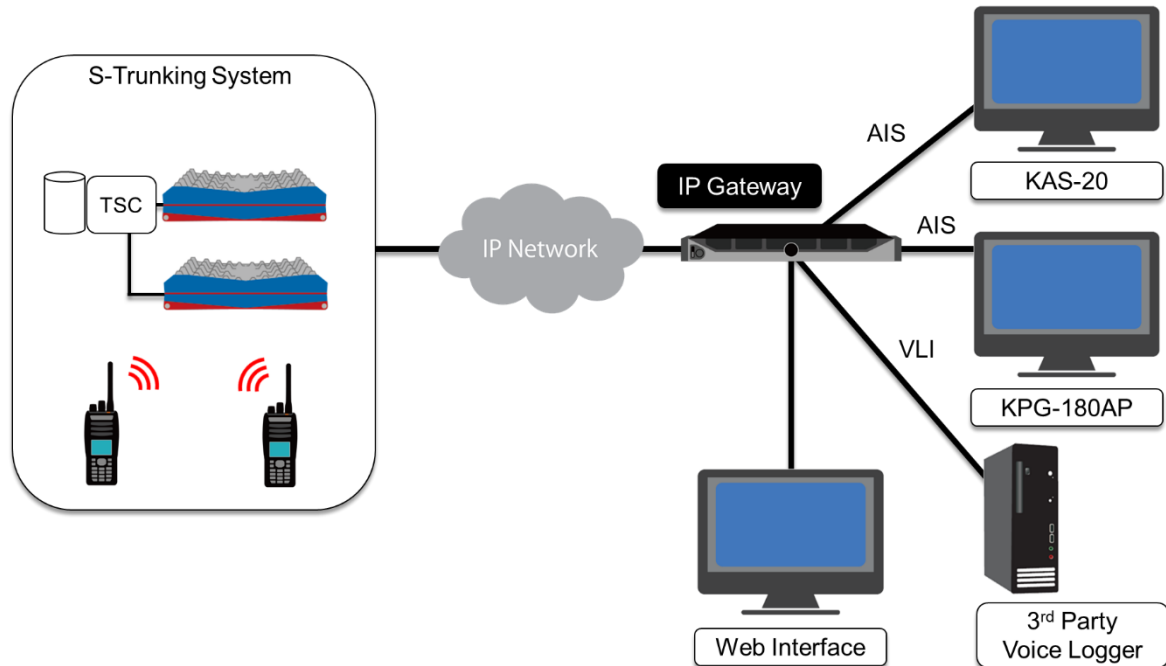
*7: The number of Group IDs that can be listed by web interface. The Group IDs are calculated by 100 console IDs and 100 registrable Group IDs.

*8: 600GB HDD about 429GB (About 10 years / 480,000 calls per day)
1TB HDD about 800GB (About 19 years / 480,000 calls per day)
It takes about 12 minutes to download the communication log for one month.

System diagram is different between S-Trunking and Tier II Conventional with IP Gateway.

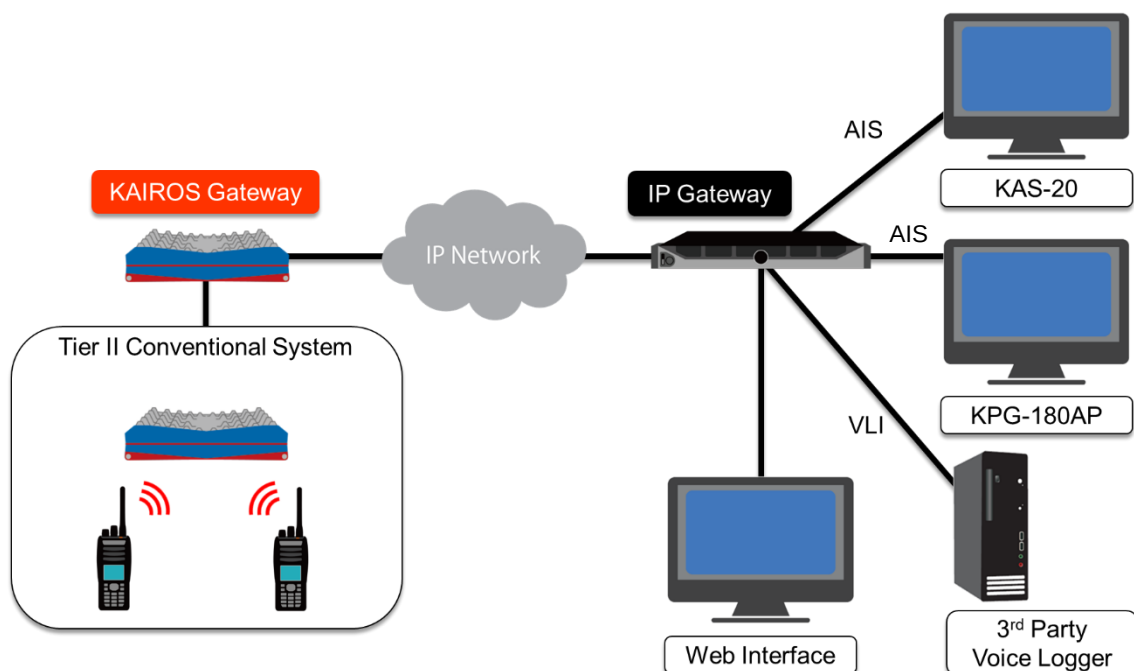
S-Trunking

The diagram is same as Tier III Trunking System.



Tier II Conventional

Tier II conventional system requires KAIROS Gateway to connect with IP Gateway. IP Gateway communicates the voice/data packet to KAIROS gateway.



2.2. Additional PC Server Information

In addition to DELL PowerEdge R340, Supermicro server is added as another option. The PC server requirement specification for IP Gateway is as follows:

PC Server Hardware: Supermicro SuperServer SYS-5019S-MR

Operating System (OS): CentOS 7.6

Requirement Specification:

CPU	Intel Xeon E3-1225 v5 (3.3GHz) or more
Memory	4GB or more
HDD	500GB or more
Optical Drive	DVD-ROM

Note:

- It's not allowed to downgrade from version 1.10 to version 1.00 using web interface because of software version 1.10 supports Supermicro SuperServer.

2.3. GPS Polling

KAIROS system GPS Polling configuration menu is added on web interface. KAIROS system supports Unified Single Block Data (USBD). Because an exclusive slot for GPS is assigned on the system, GPS capacity can be increased. It expects a theoretical maximum capacity of 1000 radios per minute at full rate. USBD packet from the KAIROS system is sent to a console via IP Gateway. IP Gateway sends to the target console UID configured on the web interface. This function is supported with Tier III Trunking.

2.4. Improvement Voice Logger feature

IP Gateway is improved to assign multiple ports on each Voice Logger ID. IP Gateway has the range of the port for talk path and voice packets are sent to each port continuously. Therefore, multiple voice calls can be recorded at the same time. The limitation of talk path is configured by "Maximum Number of Talk Path". If the port by voice call is released, the next voice call is assigned to the released port.

2.5. Call Interruption

IP Gateway supports Call Interruption. This function is supported with Tier III Trunking and S-Trunking.

2.6. Long Data Call

IP Gateway supports Long Data Call. With supporting this function, OTAP is available with KAIROS system via IP Gateway.

3. AVL/Dispatch System Software (KAS-20S / KAS-20C)

KAS-20 AVL/Dispatch System Software version 3.00 has added new features below.

3.1. Overview of new features

Below new features are available from this version.

- New Licenses : KWD-20S-ST
This is license to use "protocol S-Trunking". KAS-20S Server Software needs this license to connect the S-Trunking System.
- Connect to KAIROS DMR based S-Trunking System.
KAS-20S Version 3.00 is able to connect to S-Trunking System.
- Supported connection to Tier II Radio with serial communication.
KAS-20S is able to connect to Radio which is belong DMR Tier 2 system with serial connection.
- Long data message is available.
When connecting to DMR based Trunking System (S-Trunking or Tier III Trunking), KAS-20C is available Long Data Message function.
- Transmit interrupt (Call Interruption) is available on the KAIROS Tier III or Tier II or S-Trunking System.
- Encryption ARC4 is available on KAIROS Tier III Trunking System or Tier II Conventional System.

3.2. Features

KAS-20 AVL/Dispatch System Software 3.00 works bellow functions on the IP Network System.

Features		S-Trunking	DMR Tier III	DMR Tier II
Group Call		✓	✓	✓
Individual Call		✓	✓	✓
Broadcast Call		✓	✓	✓
All Call		✓	✓	✓
Status Message		✓	✓	✓
Emergency Status Message		RX Only	RX Only	RX Only
Short Data Message		✓	✓	✓
GPS Data Message		RX Only	RX Only	RX Only
Voice with GPS Report		RX Only	RX Only	RX Only
<u>Long Data Message</u>		✓	✓	✓
<u>Enhanced (ARC4)</u>		N/A	✓	✓
<u>Transmit Interrupt</u> <u>(Call Interruption)</u>		✓	✓	N/A
Priority Call		✓	✓	N/A
Emergency Call		RX Only	RX Only	RX Only
Emergency Alarm		RX Only	RX Only	RX Only
Dialing (Fleet Dialing Plan)		RX Only	RX Only	N/A
Radio Check		TX Only	TX Only	TX Only
Remote Control (Stun/Kill/Revive)		TX Only	TX Only	TX Only
Remote Monitor (Ambient Listening)		TX Only	TX Only	TX Only
Over-the-Air Alias		✓	✓	✓
Patch	Same Protocol	✓	✓	N/A
	Different Protocol	✓	✓	N/A
	Patch On/Off	✓	✓	N/A
Voice Logging		✓	✓	N/A
Map function (AVL Window)		✓	✓	✓

3.3. License

“KWD-20S-ST” is license to connect S-Trunking System. A few notes to use this License is below.

- License ” KWD-20S-ST”
If KAS-20 AVL/Dispatch System Software connects to S-Trunking System, “KWD-20S-ST” License is required.
- In case of multi-client KAS-20C
Case of multi-client KAS-20C, one computer for KAS-20S Server Software is required and new License must be installed this License on the computer.
- In case of multiple S-Trunking
In case of multiple-systems of KAIROS S-Trunking, KAS-20S server computer must be installed number of new Licenses, KWD-20S-RS and another KWD-20S-ST for additional systems. (Up to 8 systems)

Target software	License Key	Type of License	Description
KAS-20C (Client)	KWD-20C-LM	Location Management License	License that permits use of AVL Window.
	KWD-20C-VD	Voice Dispatch License	License that permits use of Dispatch Window.
	KWD-20C-VP	Voice Path License	License that allows one voice transmission / reception
KAS-20S (Server)	KWD-20S-VR	Voice Record License	License that allows recording and playback of audio.
	KWD-20S-MC	Multi-Client License	License that allows one additional client to connect to the server.
	KWD-20S-RS	RF System License	A license that allows one more system connection.
	KWD-20S-T3	DMR TIER III Trunking License	A license that allows to use the DMR based Tier III Trunking System Protocol.
	KWD-20S-ST	S-Trunking License	A license that allows to use the DMR based S-Trunking System Protocol. New License

4. OTAP MANAGER (KPG-180AP)

KPG-180AP OTAP Manager Software Version: V3.00 for KAIROS System

4.1. Overview of new features

Below features are available from this version.

- **Additional New Licenses**
OTAP Manager is added new licenses of serial connection and IP connection for Tier II and Tier III and S-Trunking. In addition, OTAP Manager is added new license to increase more 25 management radios on OTAP Manager.
- **DMR Tier II Conventional System compatible**
OTAP Manager is available to operate on the DMR Tier II system.
- **DMR Tier III Trunking System and DMR based S-Trunking System compatible**
OTAP Manager is available to operate on the DMR Tier III Trunking System and S-Trunking System.
- **DES Encryption is available. (The data communication part is DES encrypted.)**

4.2. Licenses

License Key	Type of License	Description
KWD-AP5025	Radio Management License	Additional 25 Radios New License
KWD-AP5100	Radio Management License	Additional 100 Radios
KWD-AP5250	Radio Management License	Additional 250 Radios
KWD-AP5500	Radio Management License	Additional 500 Radios
KWD-AP1-CA	Protocol License	Serial Connection for NXDN Radio
KWD-AP2-CP	Protocol License	IP Connection for NXDN System
KWD-AP3-P25	Protocol License	IP Connection for P25 System
KWD-AP4-DA	Protocol License	Serial Connection for Tier II DMR Radio New License
KWD-AP5-DP	Protocol License	IP Connection for DMR based System New License

After installation, the following default licenses are activated and 50Units can be managed.

License Information

Software Upgrade License

KWD-AP1-CA	1
KWD-AP2-CP	1
KWD-AP4-DA	1
KWD-AP5-DP	1

Maximum Communication Profile

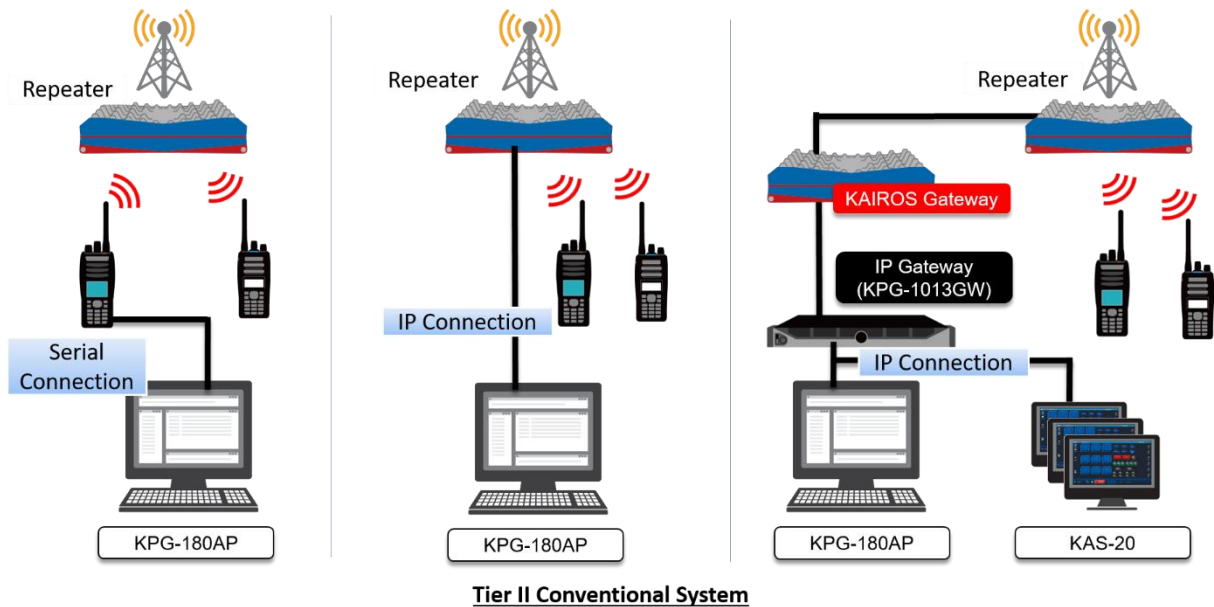
4

Maximum Units

50

4.3. OTAP Manager for Tier II Conventional System

- System Structure (Serial connection or IP connection)

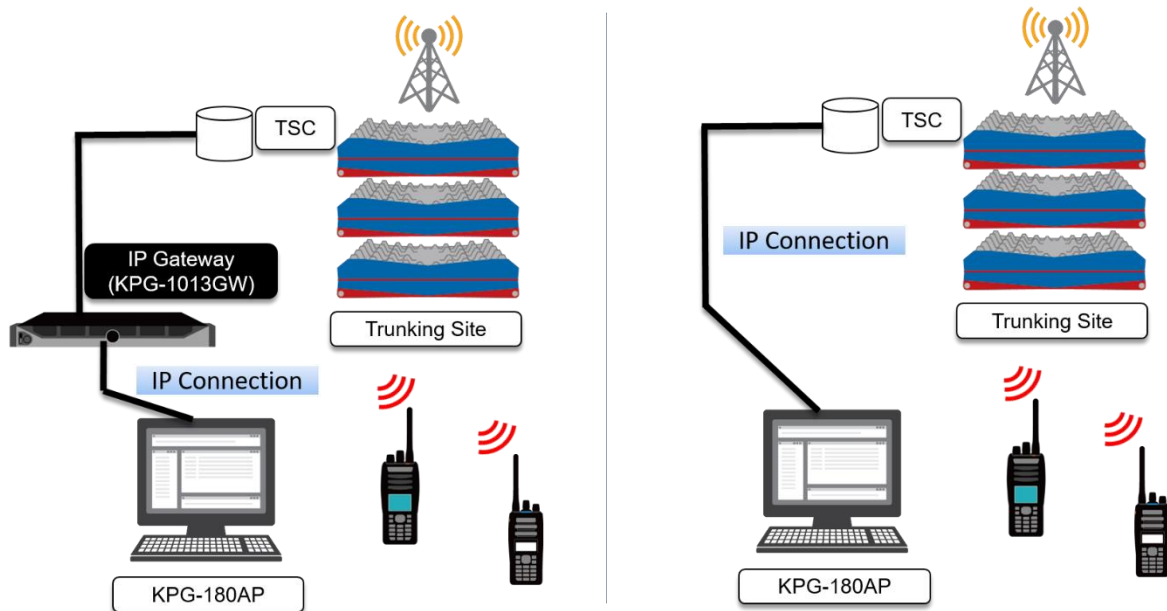


OTAP Manager can connect to the type of two system of Tier II Conventional, one is "Serial", and another is "IP Network".

- Serial Connection to Tier II Radio
- Direct IP Connection to KAIROS Repeater.
- IP Connection to IP Gateway "KPG-1013GW".

4.4. OTAP Manager for DMR based Trunking System

- System Structure (IP Gateway or Trunking Controller)



Tier III Trunking System / S-Trunking System

OTAP Manager can connect to the DMR Tier III Trunking and DMR based S-Trunking System. Each system type have different type of connection, one is IP Gateway “KPG-1013GW”, and another is Direct IP Connection to KAIROS Trunking Site Controller.

Note: If it choice “Direct IP Connection to TSC”, then it is up to 100 Channels to configure on the OTAP Manager.

4.5. DES Encryption

When using DMR IP Profile, OTAP Manager can set 4 DES encryption keys.