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IPLOOK MCPTT PRODUCT INFORMATION

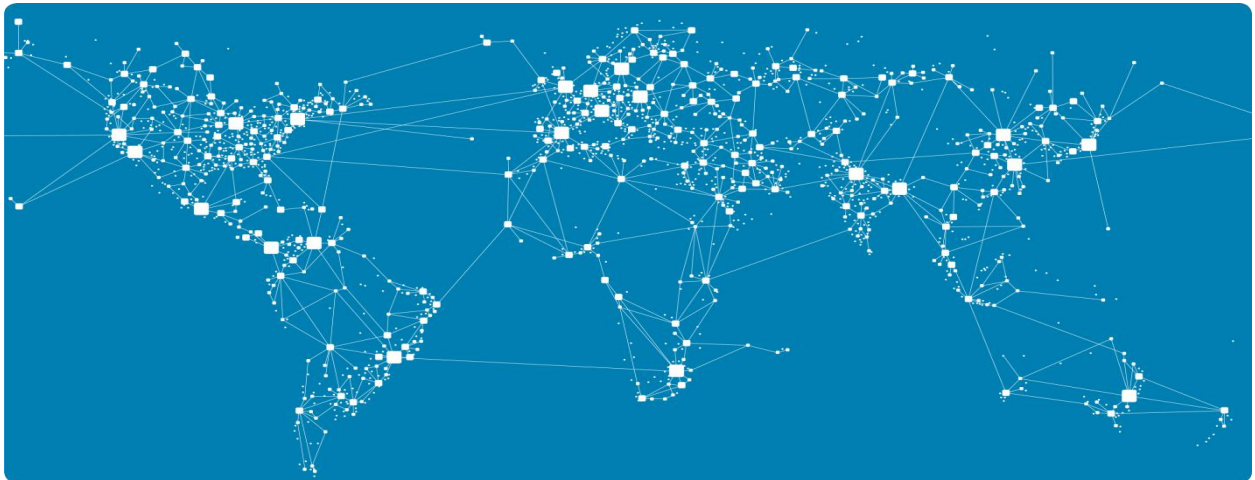
IPLOOK Technologies

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IPLOOK Dispatch Communication Solution Manual

(EN-Version)



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1 Overview

IPLOOK dispatch communication system is a new generation unified command dispatch communication platform launched by Guangzhou IPLOOK Network Technology Co., Ltd. This system integrates voice and data services, and its open product design concept and special technology can meet the requirements of various private network users for command, dispatch, and communication.

The system has a powerful dispatch & command function. It connects various intelligent dispatch stations and command stations via 2B+D/Ethernet/E1, and supports various functions required for dispatch and command, such as Push to Talk (PTT), Group Call, Individual Call, Force Call, Group Call; its openness, compatibility, and high-reliability design meets the networking needs of users in different industries, its flexible integrated access mode, personalized service customization capabilities, and advanced maintenance brings lasting and reliable application guarantee to customers. At present, the system has been successfully applied in the military, public security, railway, subway, petroleum, petrochemical, steel, coal, and other industries, as well as the "National Anti-Terrorism Center" of the Ministry of Public Security, PRC.

The dispatch communication system is important to ensure the reliable realization of services processes and improve management efficiency. According to the development trend of communication technology, it is very important to adopt reasonable solutions. The system solutions will follow the following principles: advanced, safe, reliable, practical, economical and scalability.



Figure 1 Overview

- **Advanced**

The system design reaches the international or national first-class level, feasible and easy to realize; follows international standards and relevant domestic and foreign regulatory requirements; Use international or domestic advanced and stable technology and standard systems; It conforms to the latest development trend of computer, network communication technology and multimedia technology, and is a mature technology.

- **Safe and Reliable**

The system hardware and software are designed with reliable technology, the operating system has high stability, and has the ability to complete the functions required by the user within the specified conditions and time, and can work stably for a long time.

- **Practical and Economical**

The system design should meet the actual needs of the project. The configuration emphasizes both advancement and practicability, redundancy and certain configuration,

and the economic effect of system configuration to achieve a comprehensive balance of user investment.

- Maintenance-Friendly

Pay attention to convenience and comfort to achieve the purpose of improving work efficiency and saving manpower and material resources; Provide software, hardware, communication, network, operating system and data management system interfaces and tools that comply with international standards, so that the system has good flexibility and compatibility; The system parameter configuration is few, the adjustment is few, the automation degree is high, the use is convenient, the operation is simple.

- Scalability

The system design considers the user's future development, it can continue to do its job and perform effectively.

2 Function Description

2.1 Calling

Select the user you want to call, double-click the user or click the call button to call the selected user, and the call will start after the called user answers. If the called party does not answer, the call will be automatically ended after the timeout. Users cannot initiate calls to themselves.



Figure 2: Calling

2.2 Call Forwarding

When a user is on a call with the dispatcher, enter another number and click the transfer button to transfer the dispatcher's current call to another user. The call between the dispatcher and the previous user ends immediately (regardless of whether the transfer is successful or no).



Figure 3: Calling Forwarding

2.3 Monitor

Select the calling user and click the monitor button to hear the content of the selected user's call, and the monitored user cannot hear the listener's voice. Low-level dispatchers cannot use this function for high-level users or dispatchers.



Figure 4: Monitor

2.4 Force Release

Select the user who is currently on the call and click the forced release button to directly start a call with the selected user. The original caller with the selected user is disconnected from the call. The user can be forced to dismantle users in idle, roaming, and unknown states, and establish a call between the dispatcher and the user. Low-level dispatchers cannot use this function for high-level users or dispatchers.



Figure 5: Force Release

2.5 Forced demolition

Select the user who is currently on the call and click the forced release button to directly start a call with the selected user. The original caller with the selected user is disconnected from the call. The user can be forced to dismantle users in idle, roaming, and unknown states, and establish a call between the dispatcher and the user. Low-level dispatchers cannot use this function for high-level users or dispatchers.



Figure 6: Forced Demolition

2.6 Force insertion

After selecting the calling user, click the forced insertion button to insert into the call of the selected user to form a three-way call. It can perform forced insertion operations for users in idle, roaming, and unknown states to establish a call between the dispatcher and the user. Low-level dispatchers cannot use this function for high-level users or dispatchers.



Figure 7: Force Insertion

2.7 Alternative Answer

Select the user who is ringing and click the pickup button to answer the call instead of the selected user.



Figure 8: Alternative Answer

2.8 Answer & Group Answer

The dispatcher can select the incoming user to click answer to establish a call between the user and the dispatcher. When the dispatcher clicks on the group answer, a temporary conference is established to answer all current calls to the dispatcher station.



Figure 9: Answer & Group Answer

2.9 Dialpad

This area is specially prepared for calling the external number of the system. You can enter the number through the soft dialpad to call the external phone.

2.10 Recording

The real-time recording function can be activated for any wired or wireless extension that needs recording. Each call is recorded in real time. The recording file is stored in the dispatcher or a dedicated recording file storage. The recording management and queries can be completed through a dedicated external recording server, which can provide safer and more reliable management.



Figure 1 0: Recording

2.11 Night Service

Night service, also called as unconditional forwarding function, when it is not working hours, you can set the night service number to open the night incoming call and transfer it directly to another designated dispatching station or internal phone (such as an IP phone or FXS user on duty at night). After setting the night service number, the night service button becomes the cancel night service button, and the night service function will take effect; for this reason, any

call to the dispatcher will be directly transferred to the night service number extension, and the extension will ring.



Figure 1 1: Night Service

2.12 Queueing & Holding

Incoming calls to the dispatcher can be queued, and the queuing queue supports group answer; at the same time, the dispatcher can choose to hold and throw the current call user back to the queuing queue.

2.13 Tele-conference

The dispatcher switches to the group management interface, selects the group that will hold the meeting, and clicks the conference call. All users in the current group will receive the call to accept the meeting. The dispatcher can temporarily add meeting members, kick out meeting members, and at the same time Perform mute/unmute, quarantine/release quarantine operations. If the recipient uses a softphone, it will automatically answer the group call; if it uses an external phone, it will start ringing, and the user will begin to answer the group call after answering. The conference calls the moderator to exit (that is, the dispatcher), and the conference can continue.



Figure 1 2: Tele-Conference

2.14 Group Calls

After selecting a group, click the group call button, and all users in the selected group will be notified of accepting the group call. If the recipient uses a softphone, the group call will be automatically answered; if an external phone is used, the ringing will begin, and the user will begin to answer the group call after answering. Only the initiator of the group call can speak, others can only listen. The host of conference call leaves (that is, the dispatcher), and the group call ends.



Figure 1 3: Group Calls

2.15 Call-All

In a multi-party conversation, the dispatcher speaks, and many groups can listen. All users in the group can be called at one time. The dispatcher under the same center number can only initiate one call-all at the same time.



Figure 1 4: Call-All

3 Common Requirements Description

3.1 Camera/Video platform

Currently, the system provides two access mode: Hikvision NVR and Hikvision streaming media platform IVMS8700 are (IVMS8700 platform is preferred).

3.2 AREA ASSOCIATION SYSTEM AND SOFTWARE

Camera, positioning (area positioning and precise positioning), security monitoring, vehicle scheduling, external relay communication number, SMS linkage.

3.3 Area-specific functions

- Telephone single call, group call.
- Areas with WIFI and 4G numbers are automatically added, single call and group call functions.
- Safety monitoring sensors are normal, offline, early warning, and alarm status. Double-click a single sensor icon to display its curve and value.
- The current number of people in the mine and the number of people in the current area for personnel positioning. After double-clicking the area, the current area personnel, department, and location information will pop up, which can be displayed by department.
- Information about the number of vehicles are underground and the number of vehicles in the current area. Double-click the area vehicle, and a pop-up window will display the vehicle number, type, department, and vehicle station number. Vehicle display can be classified by type.
- Click to view and browse the regional video.
- Regional one-key all-call fixed-line, mobile, and personnel positioning functions.

3.4 Detailed description of multiple scheduling

- Support the function of multiple dispatching stations (3 or more dispatching stations).

- Two modes for Multiple dispatching stations: master-slave mode (primary-secondary mode) and master-master mode (primary-primary mode / equal mode):
 - master-slave mode (primary-secondary mode): The general dispatch station has the dispatch resources of all mine numbers, and the sub dispatch station has partial numbers or a certain type of number resources. Dial the service number of the master controller, the master controller will ring, dial the service number of the distributor, the distributor handle will ring. There is no interdependence between the master tone and the sub tone.
 - Master-master mode (primary mode / equal mode): dial a unified dispatch service number, multiple dispatch console handles ring at the same time, and connect to any dispatch station's dispatch number, all of which can realize dispatch answer transfer, forced insertion and other dispatch functions. Different dispatching stations can have all the same number icon display resources, or a certain part of the number icon display resources.

3.5 User Carrying Capacity:

- The number of user allocations: 1000 - 20000
- Base stations: 100-2000
- All calls: 1000-20000 (every time).
- Recording: 100-2000 pairs (every time).
- Voice concurrent: 100-1200 channels (every time).
- Video concurrent: 100-800 channels (every time).
- Group SMS: 100-5000 (every time).
- Total export terminal flow: 1G-2G.
- Conferences Concurrent: 8 conferences (a single conference with a maximum of 16 people) (every time).

- The current point-to-point video of the video conference.

3.6 Version Update

- The system gives priority to ensuring the stability, reliability, response, and timeliness of the internal fixed telephone functions.
- A relatively complete and rapid update of the scheduling software to ensure the unity of scheduling functions and versions. When a single project only uses a certain function, it can be configured to hide to achieve the scheduling software function of a single system.

3.7 Other functions

- The off-hook and on-hook actions of the internal fixed-line phone are completed within 1 second within the current display page.
- Key actions such as online and offline of mobile terminal numbers such as mobile phones are completed in no more than 5 seconds.
- The page turning display is smooth, and the status refreshes in time when turning the page (within 2 seconds).

3.8 Description of other details

- customers can customize the style: Software style layout, status icons, presentation status. Distinguish between WIFI phone icon and 4G phone (can makes video calls) icon. The number of cameras in a single area can be limited to less than 10; if limited by image loading or the performance of the dispatching station, the total number of videos for a single dispatching station can be limited to 40.
- The category tab on the right side is based on the 6+1 architecture (or 6+1+1 architecture, one more reserved): dispatch telephone (choose one of internal wired telephone/external trunk number), mobile phone, video dispatch (4g mobile phone and

Dispatch station), visual dispatch (wired phone + video), vehicle dispatch, regional dispatch.

3.9 Dispatching network management development situation

- Support all configuration items on the WEB page of 4G core voice switch equipment.
- Support dual-system hot backup.
- Support backup and recovery of configuration.

4 Solution features and advantages

4.1 Compared with traditional dispatch system:

1. Flexible deployment: If there is a network, the dispatch system can be deployed, which completely breaks through the geographical restrictions. The dispatch phone can truly achieve centralized management and distributed networking. The deployment of the dispatch terminal is completely out of the concept of region. If it can be connected to an IP network, the user terminal can be deployed in a centralized or distributed manner, which is flexible and convenient.
2. Hierarchical scheduling: supports three-tier hierarchical scheduling, each level can work in coordination, independent of each other and form a unified whole.
3. Virtual scheduling function: The entire scheduling system can be virtually divided into multiple independent scheduling systems to undertake different scheduling services.
4. Dispatching station sound and light alarm: dispatching extension or any other telephone dials into the dispatching station through the emergency number, and the dispatching station sounds and light alarms and emergency ringing.
5. Wired and wireless integrated dispatching: The system can accurately know the call, idle, online, and offline status information of all wired and wireless users in the entire network

and display it in the dispatch station in real time. It supports simultaneous access by wired and wireless users, and the wireless terminal implements all the same scheduling functions as the wired terminal. Support the interconnection and intercommunication of the dispatching wired system, realize the wired and wireless dispatching functions of the whole network, and provide reliable guarantee for the on-site dispatching command.

6. Audio and video linkage scheduling: digital cameras or analog cameras can be bound to fixed-line terminals and mobile terminals, combined with the personnel positioning system, to realize that when the platform is talking with the terminal, the bound camera automatically performs the on-site operation of the terminal Monitoring, capturing pictures, video recording, etc., and the monitoring screen is displayed on the large screen of the command center. It can display and realize the integrated command and dispatch function of audio and video.
7. Built-in meeting management: The dispatching console has built-in meeting management software, which can invite meeting members, or perform operations such as muting, isolating, and kicking out participants. The dispatcher can add any queued user to the current call at any time to hold a conference.
8. Whole network recording: Support the whole recording of all wired and wireless mobile phones in the whole network.
9. Dispatch station fault tolerance: After the dispatching station fails, the dispatching phone queues up the call, and the dispatcher can still dispatch through the phone.
10. Multi-standard access: The integrated communication system can not only realize internal communication, but also can interconnect with a variety of traditional voice communication networks through the core platform, and realize the connection with PSTN fixed-line telephone, GSM/3G mobile phone, PBX communication private network, NGN Traditional communication networks such as communication platforms are interconnected. This enables the system to quickly access non-system personnel into

the system, realize unified dispatch and command, and meet the needs of multi-departmental collaborative work.

11. Graphical: The dispatching console is fully graphical, which improves the command efficiency and humanized management of large-scale deployment and is more intuitive and simpler to operate.
12. High compatibility and scalability: it can be integrated with traditional telephone systems and dispatch systems to realize unified dispatch and joint communication; it provides developed API interfaces to meet the customization needs of users for different services.
13. A more stable system: The central dispatching platform can perform dual-machine mode to achieve hot backup, and can be placed in different locations to achieve remote cross backup; each SA600 series dispatching switch has dual power supplies, dual main control boards, dual network boards, Dual network ports, realizing the function of active/standby switching, both the relay board and the EMU board have multi-board load sharing. To provide guarantee for the safe and stable operation of the system, the dispatching terminal can provide dual registration for registration. While registering to the central IP dispatching machine, it can also register to the local dispatching machine or IP-PBX as required, at the line level to the greatest extent The upper guarantees the smooth communication between the upper and the underground.

4.2 Hardware Configuration

- Multi-media Dispatch Server
 - Based on Embedded Linux System, support Dual-server hot back-up.
 - Suitable for establishing a multimedia dispatching system with less than 1000 lines.
 - Maximum: 120 lines concurrent, support 90 lines conference.

- Adopting carrier-class design, high reliability, and powerful processing capabilities



Figure 1 5: Multi-Media Dispatch Server

- Dispatcher

- Scheduling:
 - Call, forced barge, forced release, pickup, monitor, group call, transfer, conference, emergency call
- Monitoring:
 - Able to indicate user status through icon color and text: call, ring, call
- Multimedia scheduling:
 - Emergency plan, radio broadcast.



Figure 1 6: Dispatcher

- Media Gateway

Provide a relay channel for incoming and outgoing equipment in the system to realize intercommunication with the public network. In addition, the voice gateway can also provide interfaces such as E1/FXO/FXS to connect the user's original telephone system, integrate the original voice network and the multimedia dispatch platform, and realize interconnection, mutual backup, and mutual supplementary unified dispatch.



Figure 1 7: Media Gateway

- IP Dispatcher

Each department can choose to use IP dispatch telephone. The IP phone provides an RJ45 interface to connect to the network switch, and exchanges information with the dispatching host through the IP network of each management department, and the phone provides a PC interface. The PC can be connected to the PC interface on the phone to connect to the network without occupying the network switch interface. It can complete voice calls and multi-party conference calls. Can receive the text command display of the dispatch system. It can be interconnected with the monitoring system.



Figure 1 8: IP Dispatcher

- Mining explosion-proof dispatching telephone

- Shell: metal panel, strong riot resistance.
- Handle: special ABS engineering plastic, integral structure, waterproof, dustproof, anti-crack, anti-knocking, anti-tension.
- All accessories of the handle transmitter and receiver, keyboard, buzzer, circuit board, and shell adopt multi-layer waterproof and dust-proof structure; the phone has good stability and strong anti-interference ability, which meets national standards.
- The shell has a grounding device and is completely electrically isolated from the internal circuit, which has a certain electromagnetic shielding effect.
- During the call, the voice is clear, the voice is loud, and there is no feedback howling.



Figure 1 9: Mining explosion-proof dispatching telephone

5 Advantages

5.1 Cases

IPLOOK is currently cooperating with Shenhua Group's Shendong Coal Mine, which is second to none in the national coal industry. The IPLOOK dispatching communication system solution has rich practical application experience and extremely high stability. At the same time, the services are based on the C language and C++ language, and runs on the dispatch communication system of the Windows 10 system. Its advanced system architecture ensures the high reliability of the system during operation. The internal/external call completion rate is

≥99.999%, and the design of separating the call center system and the services system ensures the stable operation of the system.

5.2 Provide Multiple Services in one System

With the support of CTI platform and IVR system, the call center system can provide multiple service functions such as queuing machine service. The main services capabilities currently supported are as follows:

1. IVR Services:

Provide a multi-level IVR automatic services system, which can configure corresponding automatic services processes according to different services needs of users. Support users to input corresponding content in the IVR process, and complete data exchange with the user's services system.

2. Multiple queuing strategies:

Through CTI, six types of ringing strategies can be realized: all ringing, alternate ringing, recently connected, least connected, random ringing, and memory ringing. With one-button operation interface, users can adjust the system ringing strategy at any time according to their own needs.

3. Call access, agent service representative and media resource functions:

It supports HTTP and UDP protocol interfaces to realize the docking with the CTI platform. Provide manual and automatic services in various fields. Provide VoIP connection, IVR automatic voice service, missed call reminder, voice mail, recharge, manual service, customer service (services consulting, services acceptance, complaint suggestions, etc.), integrated information services, outsourced call center services, and IP agents, etc. .

5.3 Highly integrated development interface

This system has the industry's leading third-party development interface, and can be flexibly connected with various CRM, ERP, OA systems seamlessly. Whether the user's services system is based on the B/S architecture or the C/S architecture, the docking method is flexible and simple. The workload is small.

5.4 Flexible Networking and Easy Maintenance

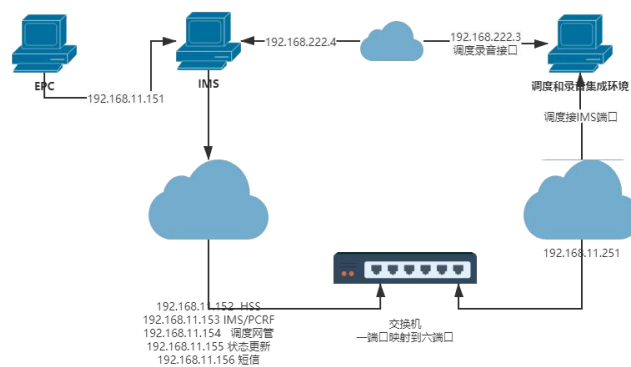


Figure 2-0: Topology of the System

This system supports PRI (Primary Rate Interface) narrowband signaling protocol and SIP (Session Initiation Protocol) broadband signaling protocol, with powerful and flexible networking capabilities.

- The system supports VoIP mode, remote access, and easy maintenance.
- There is no need to change the original line layout, and the internal switch (intranet) can archive the communication connection.

6 After-Sales Services

6.1 Serving Hours:

Since the day, the system goes online, the company provides 24/7 online warranty and system maintenance services for the system. Achieve timely response to failures and minimize downtime losses.

6.2 Service area

Follow the contract.

7 Way of Services

7.1 Services Procedure

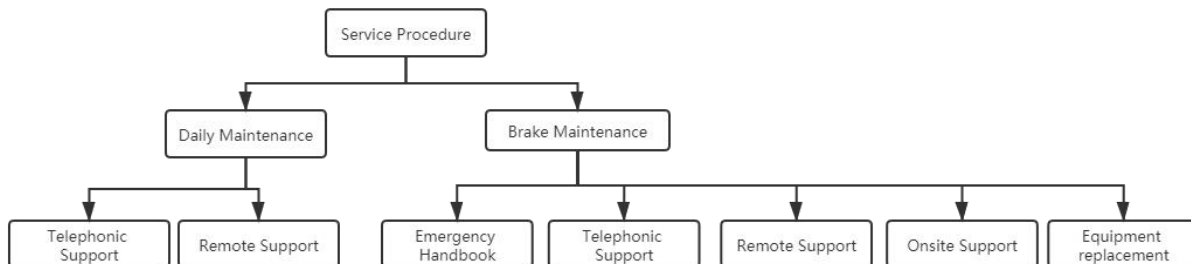


Figure 2 1 : Services Procedure

Daily Maintenance:

1. Telephonic Support:

The company has no less than one telephone communication with the maintenance person in charge of the customer every two months to ensure rapid discovery and troubleshooting.

2. Remote support:

When the customer allows remote service, the company's technical staff can quickly perform inspections and version upgrades of the system through remote dial-in.

Brake Maintenance:

1. Emergency Handbook: The maintenance personnel of the customer shall diagnose the cause of the initial failure according to the *"Calling Center System Emergency Handbook"* provided by the company and do the corresponding treatment.
2. Telephonic Support: The customer dials 020-28906963 to notify the company's technical support personnel, and both parties will conduct fault diagnosis and troubleshooting through telephone or network assistance.
3. Remote Support: When the customer agrees to turn on the remote service access, the technicians can quickly diagnose and troubleshoot the system through remote dial-in.
4. Onsite Support: The company assigns engineers to the customer site for troubleshooting and repair.
5. Equipment replacement: If a serious failure of the hardware equipment happens during the warranty period causes the call center to fail to work normally, which affects the normal services of the customer, the company provides customers with emergency solutions and timely provides customers with corresponding emergency hardware equipment to restore normal services. The customer will hand over the damaged equipment to our company. After we return the repaired equipment, the customer will return the emergency replacement equipment provided by our company.