



## GLOSSARY

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### A

- action** A discrete function that is performed through a policy. Discrete functions include activate VTG, notification, VTG add participant, dial-out, and invite to VTG.
- activate VTG** An action that activates a preconfigured VTG; can also specify a duration. At the end of the specified duration, the VTG is deactivated. If no duration is specified, the VTG must be manually deactivated by the dispatcher from the VTG Management drawer in the Cisco IPICS administration console.
- activated** A state that indicates that the SIP (unicast) or multicast channel is fully operational. When a channel/VTG on the PMC is enabled and activated, all of the PMC buttons are operational.
- activating** A state that becomes effective when you click the **Activate** button on the PMC. The Activate button appears highlighted while the other PMC buttons remain in an inactive state as the system attempts to activate and connect.
- activation button** This button toggles activate and deactivate functionality on the PMC. Click this button on the PMC to activate a channel (to call out); click it again to deactivate the channel.
- active virtual talk group** A virtual talk group (VTG) becomes active when Cisco IPICS commits global resources, such as a multicast address and any necessary dial-in peers, so that the participants in the VTG can communicate with each other.
- Administration Console** The graphical user interface (GUI) in the Cisco IPICS server software through which authorized Cisco IPICS users can manage and configure Cisco IPICS resources, events and VTGs.

<b>alert tone</b>	An audible tone, such as a siren, warble or chirp, that is used to attract the attention of a radio listener.
<b>alert tone buttons</b>	Buttons on the PMC that can play out alert tones on one channel or multiple channels.
<b>all talk button</b>	Allows you to simultaneously talk on all of the channels that you selected.
<b>autonomous system</b>	A radio system under one administrative control; also known as a management domain. This system is usually mapped to an agency.

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## B

<b>backward compatibility</b>	The ability of newer radio equipment to operate within an older system infrastructure or to directly intercommunicate with an older radio unit. The term usually applies to digital radios that are also capable of analog signal transmission.
<b>bandwidth</b>	The difference between the highest and lowest frequencies that are available for network signals. The term also describes the rated throughput capacity of a specific network medium or protocol. Bandwidth specifies the frequency range that is necessary to convey a signal measured in units of hertz (Hz). For example, voice signals typically require approximately 7 kHz of bandwidth and data traffic typically requires approximately 50 kHz of bandwidth.
<b>base station</b>	A land station in the land mobile radio service. In the personal communication service, the common name for all the radio equipment that is located at one fixed location and used for serving one or several calls.

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## C

<b>CAI</b>	common air interface. The standard for the digital wireless communications medium that is employed for P25-compliant radio systems and equipment. The standard for P25 Phase I incorporates Frequency Division Multiple Access (FDMA) technology.
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<b>call</b>	Radio terminology that defines a call as beginning at the moment that you press the transmit key and concluding when you release the transmit key. The term “per call” implies that some form of control causes the radio to select a specific frequency before it transmits audio. Some radios may be configured to automatically return to a predefined RF channel when the call ends.
<b>call delay</b>	The delay that occurs when there is no idle channel or facility available to immediately process a call that arrives at an automatic switching device.
<b>call setup time</b>	The time that is required to establish a circuit-switched call between users or terminals.
<b>carrier</b>	A wave that is suitable for modulation by an information-bearing signal.
<b>CAS</b>	channel associated signaling. The transmission of signaling information within the voice channel. CAS signaling often is referred to as robbed-bit signaling because user bandwidth is being robbed by the network for other purposes.
<b>channel</b>	A communication path that is wide enough to permit a single RF transmission. Multiple channels can be multiplexed over a single cable in certain environments. There are many different types of channels in Cisco IPICS, including direct dial, 2-way, VTGs, and radio channels. Channels can be dynamically or statically allocated. Channels may have one or more channel connections that define the source for the channel. <i>See</i> PTT channel.
<b>channel capacity</b>	The maximum possible information transfer rate through a channel, subject to specified constraints.
<b>channel connection</b>	One or more methods by which a content stream can be obtained. For instance, a particular channel may be found on several different multicast addresses in different locations and also on several different radios at different locations.
<b>channel folder</b>	A logical grouping of channels
<b>channel select check box</b>	Provides the ability to select or deselect the specified channel on the PMC for audio transmission.
<b>channel spacing</b>	The distance from the center of one channel to the center of the next-adjacent-channel. Typically measured in kilohertz.

<b>Cisco Unified Communications Manager (CallManager)</b>	The software-based call-processing component of the Cisco IP telephony solution. Cisco Unified Communications Manager (CallManager) extends enterprise telephony features and functions to packet telephony network devices, such as Cisco Unified IP Phones, media processing devices, VoIP gateways, and multimedia applications.
<b>Cisco IPICS</b>	Cisco IP Interoperability and Collaboration System. The Cisco IPICS system provides an IP standards-based solution for voice interoperability by interconnecting voice channels, talk groups, and VTGs to bridge communications amongst disparate systems.
<b>Cisco IPICS policy engine</b>	Integrated with the Cisco IPICS server, this component enables telephony dial functionality and is responsible for the management and execution of policies and user notifications.
<b>Cisco IPICS server</b>	Provides the core functionality of the Cisco IPICS system. The Cisco IPICS server software runs on the Linux operating system on selected Cisco Media Convergence Server (MCS) platforms. The server software includes an incident management framework administration GUI that enables dynamic resource management for users, channels, and VTGs. The server also includes the Cisco IPICS policy engine, which enables telephony dial functionality and is responsible for the management and execution of policies and user notifications.
<b>Cisco Unified IP Phone</b>	A full-featured telephone that provides voice communication over an IP network. A user can participate in a PTT channel or VTG by using a Cisco Unified IP Phone as a PTT device.
<b>Cisco Security Agent</b>	Provides threat protection for server and desktop computing systems (endpoints) by identifying, preventing, and eliminating known and unknown security threats.
<b>CLI</b>	command-line interface. An interface that allows the user to interact with the operating system by entering commands and optional arguments.
<b>codec</b>	coder-decoder.  <ol style="list-style-type: none"><li>1. Integrated circuit device that typically uses pulse code modulation to transform analog signals into a digital bit stream and digital signals back into analog signals.</li><li>2. In Voice over IP, Voice over Frame Relay, and Voice over ATM, a DSP software algorithm that is used to compress/decompress speech or audio signals.</li></ol>

<b>conference of conferences</b>	A conference that consists of two or more VTGs.
<b>conventional radio system</b>	A non-trunked system that is similar to telephone party-line in that the user determines availability by listening for an open channel.
<b>COR</b>	carrier operated relay. An electrical signal that is used to signal when a radio is receiving traffic.
<b>coverage</b>	In radio communications, the geographical area that is within the range of, or that is covered by, a wireless radio system to enable service for radio communications. Also referred to as service delivery area.

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**D**

<b>delay time</b>	The sum of waiting time and service time in a queue.
<b>decrypt</b>	Cryptographically restore ciphertext to the plaintext form it had before encryption.
<b>decryption</b>	Reverse application of an encryption algorithm to encrypted data, thereby restoring that data to its original, unencrypted state.
<b>dial engine scripts</b>	Scripts that the Cisco IPICS dial engine executes to provide the telephony user interface (TUI) for interaction with incoming and outgoing phone calls.
<b>dial-in</b>	A phone call that is dialed in to the policy engine.
<b>dial-in floor control</b>	A feature that allows one dial-in user, at a time, to talk in a VTG or a channel. The telephony user interface provides this dial-in floor control feature to support dial-in users. It does not provide support for floor control for other PTT users.
<b>dial number</b>	The phone number that is used by the policy engine and the SIP provider and configured in the Dial Information pane in the Ops Views window. Dialing this number provides user access to the telephony user interface.

<b>dial out invite</b>	<p>An action that invites selected user(s) to the selected VTG.</p> <p>A phone call that is dialed out by the policy engine to a phone user to invite the user in to a talk group.</p>
<b>dial peer</b>	<p>Addressable call endpoint. In Voice over IP, there are two kinds of dial peers: POTS and VoIP.</p>
<b>digit ID</b>	<p>A numeric identifier that is chosen by a Cisco IPICS user and stored in the user profile. Cisco IPICS uses this ID and a numeric password to authenticate a Cisco Unified IP Phone user.</p>
<b>digital modulation technique</b>	<p>A technique for placing a digital data sequence on a carrier signal for subsequent transmission through a channel.</p>
<b>discrete tone</b>	<p>Any tone that is sent without any summed or added tone. For example, adding a function tone with a low level guard tone may impact the recognition of the function tone. Contrast with mixed tones.</p>
<b>dispatcher</b>	<p>The Cisco IPICS dispatcher is responsible for setting up the VTGs, activating the VTGs to begin conferences, and adding and/or removing participants in inactive VTGs and active VTGs. The dispatcher also monitors the active VTGs and events, can mute and unmute PMC users, as necessary, and manages policies, which activate/deactivate VTGs based on specific criteria and designated intervals. Policy management activities include create/modify/delete policies, view policies, execute policies, and activate privileges.</p>
<b>DS0</b>	<p>digital service zero (0). Single timeslot on a DS1 (also known as T1) digital interface—that is, a 64-kbps, synchronous, full-duplex data channel, typically used for a single voice connection on a PBX.</p>
<b>DTMF</b>	<p>dual tone multi-frequency. The signal to the phone company that you generate when you press keys on a telephone keypad. With DTMF, each key that you press on your phone (0 through 9, ‘*’ and ‘#’) generates two tones of specific frequencies; one tone is generated from a high frequency group of tones and the other from a low frequency group. Voice gateways often strip these inband tones and present them out-of-band in SIP, H.323, or other messages.</p>

<b>dynamic radio channel (dynamic control)</b>	The controls that are used to preset radio characteristics so that channels are available to clients.
<b>dynamic regrouping</b>	A trunking system feature that allows multiple radios to be placed upon a specific talk group without manual manipulation of the programming of the radios. Dynamic regrouping is initiated through a system control console and transmitted to the radio via the trunking systems control channel.
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<b>E</b>	
<b>E &amp; M</b>	<p>recEive and transMit (or ear and mouth). As the analog interface between a radio and the LMR gateway, the E&amp;M interface provides voice signals from radio channels, which are then mapped to IP multicast or unicast. The E&amp;M interface provides the most common form of analog trunking.</p> <ol style="list-style-type: none"> <li>1. Trunking arrangement that is generally used for two-way switch-to-switch or switch-to-network connections. Cisco's analog E&amp;M interface is an RJ-48 connector that allows connections to PBX trunk lines (tie lines). E&amp;M also is available on E1 and T1 digital interfaces.</li> <li>2. A type of signaling that is traditionally used in the telecommunications industry. Indicates the use of a handset that corresponds to the ear (receiving) and mouth (transmitting) component of a telephone.</li> </ol>
<b>e-lead</b>	The ear portion of the E & M interface. The e-lead is the receive path of the LMR gateway.
<b>encipher</b>	To convert plain text into an unintelligible form by using a cipher.
<b>encode</b>	To modify information into the required transmission format.
<b>encryption</b>	Application of a specific algorithm so as to alter the appearance of data and make it incomprehensible to unauthorized users.
<b>event</b>	An active VTG in the Cisco IPICS solution.

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**F**

<b>FDM</b>	frequency-division multiplexing. Technique whereby information from multiple channels can be allocated bandwidth on a single wire based on frequency.
<b>FDMA</b>	frequency-division multiple access. A channel access method in which different conversations are separated onto different frequencies. FDMA is employed in narrowest bandwidth and multiple-licensed channel operations.
<b>FLEXIm</b>	Cisco software that enforces licensing on certain systems; FLEXIm ensures that Cisco IPICS software will work only on the supported and licensed hardware.
<b>floor control</b>	The standard mechanism for Push-to-Talk speaker arbitration.
<b>frame</b>	A logical grouping of information sent as a data link layer unit over a transmission medium. Often refers to the header and the trailer, used for synchronization and error control, that surround the user data contained in the unit. The terms cell, datagram, message, packet, and segment also describe logical information groupings at various layers of the OSI reference model.
<b>frequency</b>	For a periodic function, frequency represents the number of cycles or events per unit of time. Frequency is used in several different contexts. For example, transmission frequency (the band on which the radio sends signals) or the frequency of an audible signal measured in hertz (Hz). All tone control operations require audible tones that fall within a narrow band of a specific frequency and at a specific volume (amplitude).
<b>frequency assignment</b>	Assignment that is given to a radio station to use a radio frequency or radio frequency channel under specified conditions.
<b>frequency hopping</b>	The repeated switching of frequencies during radio transmission according to a specified algorithm, intended to minimize unauthorized interception or jamming of telecommunications.
<b>frequency modulation</b>	Modulation technique in which signals of different frequencies represent different data values.

- frequency sharing** The assignment to or use of the same radio frequency by two or more stations that are separated geographically or that use the frequency at different times.
- function tone** A tone that follows the high level guard tone and causes the radio to perform a specific function, such as selecting a new transmit frequency. Function tones are often referred to as F1, F2, F3, and so on. *See* preamble and high level guard tone.

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## G

- gateway** Device that performs an application-layer conversion of information from one protocol stack to another. In Cisco IPICS, the gateway component includes LMR gateways, which functionality is usually installed as an additional feature in a supported Cisco router. LMR gateways provide voice interoperability between radio and non-radio networks by bridging radio frequencies to IP multicast streams.
- GRE** generic routing encapsulation. Tunneling protocol that can encapsulate a wide variety of protocol packet types inside IP tunnels, creating a virtual point-to-point link to Cisco routers at remote points over an IP internetwork. By connecting multiprotocol subnetworks in a single-protocol backbone environment, IP tunneling that uses GRE allows network expansion across a single-protocol backbone environment. GRE is generally used to route multicast traffic between routers.
- guard tone** The most common guard tones are the high level guard tone (HLGT) and the low level guard tone (LLGT). The HLGT is used to alert the radio that a function tone follows. The LLGT is used as a hold tone or keying tone. *See* tone keyed.

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## H

- H.323** Defines a common set of codecs, call setup and negotiating procedures, and basic data transport methods to allow dissimilar communication devices to communicate with each other by using a standardized communication protocol.

<b>high-band frequency</b>	Refers to the higher frequency levels in the VHF band, typically 138-222 MHz.
<b>HLGT</b>	high level guard tone. Also known as awake tone. This tone is set at high volume and is usually the first tone in a preamble. It is used to alert the radio that another tone, usually a function tone, will follow. <i>See</i> guard tone.
<b>Hoot 'n' Holler (Hootie)</b>	<p>A communications system where the loudest and most recent talker or talkers are mixed into one multicast output stream. Also known as hootie, these networks provide “always on” multiuser conferences without requiring that users dial in to a conference.</p> <p>Cisco enables the Cisco Hoot 'n' Holler feature in specific Cisco IOS versions.</p>
<hr/> <b>I</b>	
<b>idle tone</b>	The tone that a radio may deliver on the m-lead to signal the LMR gateway that there is no incoming traffic. When the idle tone is removed, the LMR gateway deems all signals to be valid voice traffic.
<b>inactive VTG</b>	A VTG that is stored for use. The Cisco IPICS server stores inactive VTGs with the information that you enter so that they can be automatically activated by a policy or manually activated by a dispatcher.
<b>inband</b>	Traffic that is sent inband is included in the same stream as the real-time traffic protocol (RTP). Inband signals can be encoded signals and RFC 2833 signals.
<b>incident management framework</b>	A software framework that includes an adaptable GUI to facilitate resources, such as users, radio channels, cameras, and sensor information, for delivery that is based upon policy or incident needs.
<b>informix linux group</b>	Members of this group have full permission to Cisco IPICS server folders, files, and scripts that are related to the Informix database application. Members of this group include the informix and ipicsdba users. In addition, the informix user has full administrative permissions to the Informix database instance.

- informix user ID** The Cisco IPICS Linux user that belongs to both the informix linux group, which includes full permission to the Cisco IPICS database server folders, files, and scripts, and the ipics linux group, which includes permission to Cisco IPICS application-related folders, files, and scripts. In addition, this user has full administrative permission to the Informix database instance. Cisco IPICS creates this Linux system user ID and generates the password during the software installation process. The password for this user ID never expires.
- To access the informix user, log in to the Cisco IPICS server by using the root user ID; then, enter **su - informix** (superuser from root).
- interference** The effect of unwanted energy due to one or a combination of emissions, radiation, or inductions upon reception in a radio communication system, manifested by any performance degradation, misinterpretation, or loss of information, which could be extracted in the absence of such unwanted energy.
- interoperability** The capability of equipment manufactured by different vendors to communicate with each other successfully over a network.
- invitation policy** A policy that can be invoked only through the telephony user interface and can include only the invite to VTG action. After joining a talk group, a user can access the breakout menu and invoke invitation policies. The talk group that this user has joined is the talk group that the invited users join.
- invite to VTG** A version of the dial out invite action where users to be invited are preconfigured but the VTG that they are invited to depends on which VTG the invoker of the policy is dialed into.
- ipicsadmin user ID** The Cisco IPICS Linux user that, as part of the ipics linux group, has full permission to the Cisco IPICS server folders, files, and scripts that are related to the Cisco IPICS application and database backup and restore operations. In addition, the ipicsadmin user has permission to read and write data from and/or to the Informix database. Cisco IPICS creates this Linux system user ID during the software installation process. The password for this user ID never expires.

- ipicsdba user ID** The Cisco IPICS Linux user that belongs to both the informix linux group, which includes full permission to the Cisco IPICS database server folders, files, and scripts, and the ipics linux group, which includes permission to Cisco IPICS application-related folders, files, and scripts. In addition, the ipicsdba user has permission to read data, write data, create tables, and create databases in the Informix database instance. Cisco IPICS creates this Linux system user ID and generates the password during the software installation process. The password for this user ID never expires.
- To access the ipicsdba user, log in to the Cisco IPICS server by using the root user ID; then, enter **su - ipicsdba** (superuser from root).
- ipics linux group** Members of this group have full permission to Cisco IPICS server folders, files, and scripts that are related to the Cisco IPICS application and database backup and restore operations. Members of this group include the ipicsadmin, ipicsdba, and informix users.
- ipics user ID** The Cisco IPICS application-level user ID that can perform all administration-related tasks via the Cisco IPICS Administration Console. Cisco IPICS creates this web-based user ID during the software installation process.
- IPSec** IP Security. A framework of open standards that provides data confidentiality, data integrity, and data authentication between participating peers. IPSec provides these security services at the IP layer. IPSec uses IKE to handle the negotiation of protocols and algorithms based on local policy and to generate the encryption and authentication keys to be used by IPSec. IPSec can protect one or more data flows between a pair of hosts, between a pair of security gateways, or between a security gateway and a host.
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- K**
- keepalive** A message that is sent by one network device to inform another network device that the virtual circuit between the two devices is still active.

- key** The parameter that defines an encryption code or method.
- Key (a radio) causes the radio to transmit. *See* tone keyed.
- kilohertz (kHz)** A unit of frequency that denotes one thousand Hz.

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**L**

- latch** The PMC functionality that allows a Cisco IPICS user to lock in a PTT channel.
- linear modulation** A radio frequency transmission technique that provides the physical transport layer of a radio system. This technology is compatible in digital and analog system environments and supports channel bandwidths of 5 kHz to 50 kHz.
- LLGT** low level guard tone. This tone is used as a hold tone or keying tone. *See* guard tone.
- LMR** Land Mobile Radio. A Land Mobile Radio (LMR) system is a collection of portable and stationary radio units that are designed to communicate with each other over predefined frequencies. They are deployed wherever organizations need to have instant communication between geographically dispersed and mobile personnel.

This term is often used interchangeably between a handheld or vehicle-mounted device and a stationary transmitter. Stationary devices are typically referred to as base stations.

Cisco IPICS leverages the Cisco Hoot 'n' Holler feature, which is enabled in specific Cisco IOS versions, to provide radio integration into the Cisco IPICS solution. LMR is integrated by providing an ear and mouth (E&M) interface to a radio or other PTT devices, such as Nextel phones. Configured as a voice port, this interface provides the appropriate electrical interface to the radio. You configure this voice port with a connection trunk entry that corresponds to a voip dial peer, which in turn associates the connection to a multicast address. This configuration allows you to configure a corresponding channel in Cisco IPICS, using the same multicast address, which enables Cisco IPICS to provide communication paths between the desired endpoints.

<b>LMR gateway</b>	Land Mobile Radio gateway. Refers to the router E&M interface that converts IP traffic from digital to analog for use by radios.
<b>location</b>	In Cisco IPICS, location signifies reachability; meaning, channels or users who are associated with the same location can communicate with each other without additional network configuration. Location may refer to a physical or virtual location, as defined in the server.
<b>low-band frequency</b>	Lower frequency levels in the VHF band, typically 25–50 MHz.

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## M

<b>megahertz (MHz)</b>	A unit of frequency denoting one million Hz.
<b>mixed tone</b>	Two tones that are mixed together. DTMF is an example of a mixed tone. To be transmitted properly, tone signals must be mixed with the LLGT. <i>See</i> DTMF.
<b>m-lead</b>	The mouth portion of the E&M interface. The m-lead is the transmit path of the LMR gateway.
<b>modulation</b>	The process, or result of the process, of varying a characteristic of a carrier in accordance with an information-bearing signal.
<b>multicast</b>	Single packets that are copied by the network and sent to a specific subset of network addresses. Multicast refers to communications that are sent between a single sender and multiple recipients on a network.
<b>multicast address</b>	A single address that may refer to multiple network devices.
<b>multicast address/port</b>	Cisco IPICS uses this type of connection to enable the PMC to directly tune in to the multicast channel. Multicast address/port combinations are also used by gateways and RMS components.
<b>multicast pool</b>	Multicast IP addresses that are defined as part of a multicast pool. Cisco IPICS allocates a multicast address from this pool of resources when a dispatcher activates a VTG.

<b>multiplexing</b>	The combination of two or more information channels on to a common transmission medium. In electrical communications, the two basic forms of multiplexing are time-division multiplexing (TDM) and frequency-division multiplexing (FDM).
<b>multipurpose policy</b>	A policy that can include any of the supported actions; may be invoked through the telephony user interface or the Cisco IPICS administration console.
<b>multiselect buttons</b>	Provides the ability to select or deselect all channels on the PMC for audio transmission.
<b>mute</b>	The functionality that enables a dispatcher to mute a PMC user from talking or transmitting voice on one or more channels. The dispatcher can mute the microphone of the user or both the microphone and the speaker.
<b>mutual aid channel</b>	A national or regional channel that has been set aside for use only in mutual aid interoperability situations. Restrictions and guidelines governing usage usually apply.

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## N

<b>narrowband channels</b>	Channels that occupy less than 20 kHz.
<b>National Public Safety Planning Advisory Committee</b>	The committee that was established to conduct nationwide planning and allocation for the 821–824 MHz and 866–869 MHz bands.
<b>National Telecommunication and Information Administration</b>	The United States executive branch agency that serves as the principal advisor to the president on telecommunications and information policies and that is responsible for managing the federal government’s use of the radio spectrum.
<b>near end</b>	The device or devices that are physically connected to the Ethernet or an RS-232 link. Compare with far end, which refers to devices on the other side of the broadcast. A base station that is connected to an LMR gateway is a near end device while a handheld radio that receives over-the-air signals from the base station is a far end device.

<b>network</b>	An interconnection of communications entities.
<b>NAT</b>	Network Address Translation. Provides a mechanism for translating addresses that are not globally unique into globally routable addresses for connection to the Internet.
<b>not activated</b>	A VTG state that becomes effective when the Activate button is clicked a second time (to deactivate the channel) or if the connection terminates. No PMC buttons appear highlighted.
<b>notification</b>	<p>An action that notifies selected user(s) via email, SMS, pager, or phone. The necessary IDs and phone numbers are configured in the communication preferences for each user. Notifications that are sent via the phone require user authentication before the notification prompt is heard.</p> <p>An email, SMS, pager, or phone call that is placed to a user for the purpose of sending a notification message.</p>

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## O

<b>offline mode</b>	When the connection to the server goes offline, the PMC enters offline mode. Offline mode enables continuous communication during periods of server downtime. Using offline mode requires at least one successful login to the server.
<b>operator</b>	The Cisco IPICS operator is responsible for setting up and managing users, configuring access privileges, and assigning user roles and ops views.
<b>ops view</b>	operational view. A Cisco IPICS feature that provides the ability to organize users, user groups, channels, channel groups, VTGs, and policies into different user-definable views across multiple organizations or agencies that normally would not share resources. While ops views are maintained separately by the Cisco IPICS system administrator and/or ops view administrator, this functionality also allows multiple entities to use one Cisco IPICS server to enable resource sharing across multiple ops views, according to business need.

**ops view administrator** The ops view administrator capabilities include managing and monitoring the activity logs that are filtered by ops views and accessible in the Administration Console (**Administration > Activity Log Management**) window.

**OTAR** over-the-air re-keying. Provides the ability to update or modify over radio frequency the encryption keys that are programmed in a mobile or portable radio.

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## P

**packet** A logical grouping of information that includes a header that contains control information. Usually also includes user data.

**packet switching** The process of routing and transferring data by using addressed packets so that a channel is occupied during the transmission of the packet only. Upon completion of the transmission, the channel is made available for the transfer of other traffic.

**PIM** Protocol Independent Multicast. Multicast routing architecture that allows the addition of IP multicast routing on existing IP networks. PIM is unicast routing protocol independent and can be operated in two modes: PIM dense mode and PIM sparse mode.

**PIM dense mode** One of the two PIM operational modes. PIM dense mode is data-driven and resembles typical multicast routing protocols. Packets are forwarded on all outgoing interfaces until pruning and truncation occurs. In dense mode, receivers are densely populated, and it is assumed that the downstream networks want to receive and will probably use the datagrams that are forwarded to them. The cost of using dense mode is its default flooding behavior. Sometimes called dense mode PIM or PIM DM.

<b>PIM sparse mode</b>	One of the two PIM operational modes. PIM sparse mode tries to constrain data distribution so that a minimal number of routers in the network receive it. Packets are sent only if they are explicitly requested at the RP (rendezvous point). In sparse mode, receivers are widely distributed, and the assumption is that downstream networks will not necessarily use the datagrams that are sent to them. The cost of using sparse mode is its reliance on the periodic refreshing of explicit join messages and its need for RPs. Sometimes called sparse mode PIM or PIM SM.
<b>PMC</b>	Push-to-Talk Management Center. A standalone PC-based software application that simulates a handheld radio to enable PTT functionality for PC users. This application enables Cisco IPICS PMC end-users, dispatch personnel, and administrators to participate in one or more channels/VTGs at the same time.
<b>PMC ID</b>	The unique ID that the Cisco IPICS server generates for each PMC to track requests between the PMC and the server and to verify and manage concurrent PMC usage for licensing requirements.
<b>policy</b>	Policies include one or more actions that execute sequentially and can be manually activated via the Cisco IPICS administration console or the telephony user interface. Cisco IPICS provides support for multiple policy types.
<b>policy channel</b>	A channel that can be set up by the dispatcher and configured as a designated channel; that is, a channel that is always open to enable your interaction with the dispatcher.
<b>policy execution status</b>	An indicator of policy execution success or failure. The Cisco IPICS administration console provides a status for each action under a policy.
<b>portalization</b>	A web programming paradigm for customizing the interface and functionality of a client application.
<b>preamble</b>	The sequence of tones that precede a transmission. The preamble generally includes the HLGT and the function tone.
<b>protocol</b>	A set of unique rules that specify a sequence of actions that are necessary to perform a communications function.

<b>PTT</b>	Push-to-talk. A signal to a radio transmitter that causes the transmission of radio frequency energy.  The action that keys a radio or causes the radio to transmit. On the Cisco router, the e-lead, or key tone, is used to signal the radio to transmit.
<b>PTT channel</b>	A channel consists of a single unidirectional or bidirectional path for sending and/or receiving signals. In the Cisco IPICS solution, a channel represents one LMR gateway port that maps to a conventional radio physical radio frequency (RF) channel.
<b>PTT channel button</b>	The button on the PMC that you click with your mouse, or push, and hold to talk. You can use the latch functionality on this button to talk on one or more channels at the same time.
<b>PTT channel group</b>	A logical grouping of available PTT channels that can be used for categorization.

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## Q

<b>QoS</b>	quality of service. A measurement of performance for a transmission system, including transmission quality and service availability.
<b>queue</b>	Represents a set of items that are arranged in sequence. Queues are used to store events occurring at random times and to service them according to a prescribed discipline that may be fixed or adaptive.
<b>queuing delay</b>	In a radio communication system, the queuing delay specifies the time between the completion of signaling by the call originator and the arrival of a permission to transmit to the call originator.

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## R

<b>radio channel</b>	Represents an assigned band of frequencies sufficient for radio communication. The bandwidth of a radio channel depends upon the type of transmission and its frequency tolerance.
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- radio control service** The logical element in the Cisco IPICS system that can tune a radio to the desired channel without manual intervention. Refers to a serial control entity.
- radio equipment** Any equipment or interconnected system or subsystem of equipment (both transmission and reception) that is used to communicate over a distance by modulating and radiating electromagnetic waves in space without artificial guide. This equipment does not include microwave, satellite, or cellular telephone equipment.
- receive indicator** The indicator on the PMC that blinks green when traffic is being received.
- remote connection** Cisco IPICS uses this type of connection to provide SIP-based trunking into the RMS component, which is directly tuned into the multicast channel.
- RF** radio frequency. Any frequency within the electromagnetic spectrum that is normally associated with radio wave propagation. RF generally refers to wireless communications with frequencies below 300 GHz.
- RFC 2833** The Internet Engineering Task Force (IETF) specification that describes how to carry DTMF signaling, other tone signals, and telephony events in RTP packets. Using RFC 2833 a packet can be compactly composed to play a series of tones, including DTMF, in a specific sequence that includes specified durations and volume levels.
- RF repeater** An analog device that amplifies an input signal regardless of its nature (analog or digital). Also, a digital device that amplifies, reshapes, retimes, or performs a combination of any of these functions on a digital input signal for retransmission.
- RMS** router media service. Component that enables the Cisco IPICS PMC to remotely attach to a VTG. It also provides support for remotely attaching (combining) two or more VTGs through its loopback functionality.
- The RMS mixes multicast channels in support of VTGs and it also mixes PMC SIP-based (unicast) connections to a multicast channel or VTG. The RMS can be installed as a stand-alone component (RMS router) or as an additional feature that is installed in the LMR gateway.

<b>root user ID</b>	The Cisco IPICS Linux user that has access to all files in the Cisco IPICS server. Strong passwords are enforced and Linux operating system password expiration rules apply to this user ID.
<b>RTCP</b>	Real-time Transport Control Protocol. The standard for notifying senders and receivers of important events or transmission statistics. The most common forms of RTCP are the sender report and the receiver report.
<b>RTP</b>	Real-Time Transport Protocol. Commonly used with IP networks to provide end-to-end network transport functions for applications that transmit real-time data, such as audio, video, or simulation data, over multicast or unicast network services.
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<b>S</b>	
<b>scanning</b>	A subscriber unit feature that automatically allows a radio to change channels or talk groups to enable a user to listen to conversations that are occurring on different channels or talk groups.
<b>script prompts</b>	The audio prompts that the dial engine scripts play out during execution and which callers hear when they are interacting with the telephony user interface.
<b>secure channel</b>	<p>A channel that is connected to a radio that provides secure (encrypted or scrambled) communications on the Common Air Interface (CAI) side of the radio. (The level of security that is configured in the data network determines the security of the communications between the LMR gateway and a network attached device, such as a PMC or Cisco Unified IP Phone.)</p> <p>An attribute that is set in the server to indicate that a channel is secure. A PTT channel that is configured as secure cannot be combined with unsecure channels in a VTG.</p>
<b>serial controlled radio</b>	A type of control for a radio that uses out-of-band signaling (usually RS-232). <i>See</i> radio control service.
<b>service delivery area</b>	<i>See</i> coverage.
<b>signal</b>	The detectable transmitted energy that carries information from a transmitter to a receiver.

<b>skin</b>	Skins form the appearance of the PMC. In Cisco IPICS, skins are customizable and available in various options, including 4-channel and 8-channel mouse and touch screen formats.
<b>speaker arbitration</b>	The procedure that is used to determine the active audio stream in a Push-to-Talk system.
<b>spectrum</b>	<p>The usable radio frequencies in the electromagnetic distribution. The following frequencies have been allocated to the public safety community:</p> <p>High HF 25–29.99 MHz Low VHF 30–50 MHz High VHF 150–174 MHz Low UHF 406.1–420/450–470 MHz UHF TV Sharing 470–512 MHz 700 MHz 764–776/794–806 MHz 800 MHz 806–824/851–869 MHz.</p>
<b>spoken names</b>	The recorded names that are used for entities, such as channels, channel groups, VTGs, users, user groups, ops views, and policies. The names can be recorded through the policy engine or externally-recorded .wav files that can be uploaded into the system.
<b>squelch</b>	An electric circuit that stops input to a radio receiver when the signal being received is too weak to be anything but noise.
<b>statically configured tone control</b>	Every stream of data that flows to the LMR gateway can be applied with a preamble and/or guard tone by using a static configuration in the LMR gateway. When traffic is sent on a multicast address, the radio automatically switches (because of the preamble) to the specific radio channel that is requested by the tone control sequence.
<b>stored VTG</b>	Also referred to as inactive VTG.
<b>subchannel</b>	A channel that shares the same multicast address as another channel or channels. These multiple source streams (channels) may be present on a single radio channel. On the PMC, you access these channels by pressing the channel selector buttons on the radio channel.
<b>subscriber unit</b>	A mobile or portable radio unit that is used in a radio system.

<b>system administrator</b>	The Cisco IPICS system administrator is responsible for installing and setting up Cisco IPICS resources, such as servers, routers, multicast addresses, locations, and PTT channels. The system administrator also creates ops views, manages the Cisco IPICS licenses and PMC versions, and monitors the status of the system and its users via the activity log files.
<b>system architecture</b>	The design principles, physical structure, and functional organization of a land mobile radio system. Architectures may include single site, multi-site, simulcast, multicast, or voting receiver systems.
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<b>T</b>	
<b>T1</b>	Digital WAN carrier facility. T1 transmits DS-1-formatted data at 1.544 Mbps through the telephone-switching network, using alternate mark inversion (AMI) or binary 8 zero suppression (B8ZS) coding.
<b>T1 loopback</b>	Allows mapping from multicast to unicast so that unicast phone calls can be patched into an LMR or into other multicast audio streams. A loopback is composed of two of the available T1 interfaces.
<b>talk group</b>	A VTG or a channel.  A subgroup of radio users who share a common functional responsibility and, under normal circumstances, only coordinate actions among themselves and do not require radio interface with other subgroups.
<b>TCP</b>	Transmission Control Protocol. A connection-oriented transport layer protocol that provides reliable full-duplex data transmission. TCP is part of the TCP/IP protocol stack.
<b>TDMA</b>	time division multiple access. Type of multiplexing where two or more channels of information are transmitted over the same link by allocating a different time interval (“slot” or “slice”) for the transmission of each channel; that is, the channels take turns to use the link.
<b>terminal</b>	A device capable of sending, receiving, or sending and receiving information over a communications channel.

<b>throughput</b>	The number of bits, characters, or blocks passing through a data communications system, or a portion of that system.
<b>TIA/EIA-102 standards</b>	A joint effort between government and industry to develop voice and data technical standards for the next generation of public safety radios.
<b>tone control</b>	The process of using inband tone sequences to change the behavior of a radio end point. An inband tone can be used to control functions, such as modifying (retuning) the radio frequency (RF channel), changing the transmit power level, and monitoring a channel. The most basic form of tone control (tone keyed) is used to key the radio. With the Cisco IPICS solution, the radio that is being controlled is directly connected to the LMR gateway E&M leads.
<b>tone frequency</b>	A specific form of a function tone. The tone that is used to signal the radio to select a frequency. These audible tone frequencies are generated in the router and combined in a specific sequence to perform a tone control function.
<b>tone keyed</b>	A tone keyed radio requires the presence of a specific tone on the incoming analog (e-lead) port. Without this tone, the radio cannot transmit. The tone is generally used to prevent spurious transmission that may occur because of injected noise.
<b>tone signaling</b>	Any form of over-the-air audible signals that are intended to terminate at the far end. Examples include alerting tones, DTMF tones, and paging tones.
<b>transmit indicator</b>	On some of the PMC skins, this indicator blinks red when traffic is being transmitted.
<b>trigger</b>	A time-based event that invokes a policy on a scheduled basis, without manual intervention.
<b>trunk</b>	A physical and logical connection between two switches across which network traffic travels. In telephony, a trunk is a phone line between two central offices (COs) or between a CO and a PBX.
<b>trunked (system)</b>	Systems with full feature sets in which all aspects of radio operation, including RF channel selection and access, are centrally managed.

- trunked radio system** Integrates multiple channel pairs into a single system. When a user wants to transmit a message, the trunked system automatically selects a currently unused channel pair and assigns it to the user, decreasing the probability of having to wait for a free channel.
- TUI** telephony user interface. The telephony interface that the dial engine provides to enable callers to perform tasks, such as joining talk groups and invoking policies.
- tune (a radio)** To change the current send and receive frequencies on a radio. This task is usually accomplished via a preset with some form of radio control.

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## U

- user** The Cisco IPICS user may set up personal login information, download the PMC application, customize the PMC skin, and specify communication preferences that are used to configure audio devices. By using a predefined user ID and profile, the user can participate in PTT channels and VTGs by using the PMC, supported models of Cisco Unified IP Phones, and the Public Switched Telephone Network (PSTN) via the telephony dial functionality of the Cisco IPICS IP policy engine. Users may have one or more Cisco IPICS roles, such as system administrator, ops view administrator, operator or dispatcher.
- unicast** Specifies point-to-point transmission, or a message sent to a single network destination.

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## V

- VAD** Voice Activity Detection. When VAD is enabled on a voice port or on a dial peer, only audible speech is transmitted over the network. When VAD is enabled on Cisco IPICS, the PMC only sends voice traffic when it detects your voice.
- virtual channel** A virtual channel is similar to a channel but a radio system may not be attached. By creating a virtual channel, participants who do not use physical handheld radios to call into a VTG become enabled by using the PMC application or a supported Cisco Unified IP Phone model.

<b>voice interoperability</b>	Voice interoperability enables disparate equipment and networks to successfully communicate with each other.
<b>voice replay</b>	A feature that allows the PMC user to replay buffered audio on a per channel basis.
<b>VoIP</b>	Voice over Internet Protocol. By digitalizing and packetizing voice streams, VoIP provides the capability to carry voice calls over an IP network with POTS-like functionality, reliability, and voice quality.
<b>volume indicator</b>	The volume indicator on the PMC that shows the current volume level on the channel in a graphical format.
<b>volume up/down buttons</b>	The buttons on the PMC that let you control the volume level.
<b>VOX</b>	Voice-operated transmit. A keying relay that is actuated by sound or voice energy above a certain threshold and sensed by a connected acousto-electric transducer. VOX uses voice energy to key a transmitter, eliminating the need for push-to-talk operation.
<b>VTG</b>	virtual talk group. A VTG can contain any combination of channels, channel groups, users, and user groups. A VTG can also contain other VTGs.
<b>VTG add participant</b>	An action that adds selected participant(s) to the selected VTG.

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**W**

<b>wavelength</b>	The representation of a signal as a plot of amplitude versus time.
<b>wideband channel</b>	Channels that occupy more than 20 kHz.