i manager
“The Collaborative Platform”
iManager is a suite of powerful integrated applications delivering collaborative communication solutions, agile management and application interfaces that enable business to react to market and environmental events before their competitors. The iManager Communication Server is a powerful soft switch based communication platform built on open source technology that leverages SIP and SOA based architectures along with cloud technologies to enable deployment within customers existing environments or provide a rapid deployment of new green field sites.

Agile management is delivered via the iManager Centralised Management System (iCMS) which utilises the ubiquity of web browsers, to provide secure global management. iCMS offers global asset management, preventative maintenance, embedded configuration reports and audit tracking through the iManager portal.

iManager is standards based open application platform that encompasses API’s that enable 3rd party applications such as voice recording, billing and analytics to be integrated with iManagers collaborative communication solutions to provide comprehensive monitoring, cost control and communication workflow efficiencies.

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*Please contact your Speakerbus account manager for the SE 708’s availability.*
An Overview of iManager Communications Server

The iManager Communication Server (iCS) enables businesses of all sizes to deploy cost effective enterprise level collaborative communications. The iCS incorporates extensive collaborative communication applications enabling business to achieve a competitive edge through improved communication efficiencies and strengthened collaboration. Whilst enabling people to work effectively as teams across functional and geographical boundaries to facilitate rapid decision making and implementation of plans. It is built on a next generation SIP architecture, leveraging open standards and builds upon the best of breed capabilities from Microsoft and open source technology in a service orientated architecture (SOA).

The iManager suite of applications supports Telephony, Private Lines (ARD & MRD), Hoots, Intercoms and Group calls, catering for an extensive array of collaborative interactions. Whilst a comprehensive range of endpoint devices are available ensuring customers can match the correct device to individuals collaborative requirements.

Users Attributes
- Line sharing between turret users.
- Line barge and ad-hoc conferencing.
- Free seating with full profile retention.
- Extensive directory.
- Personalised Collaborative Experience - Call priorities, alert selection, customised directories and channel selection.
- Choice of endpoints

Business Attributes
- Single 1U platform that integrates with a host of market leading Unified Communications platforms.
- Collaborative Communication with access to a constant flow of information and a choice of interactions through the utilisation of SIP.
- iCS is highly scalable from low user count stand-alone solutions to global enterprise facilities.
- Detailed analytics and audit trail support.
- Open architecture for reporting asset monitoring.
- Policy based user, network and service settings.
- Provides on-line hot-hot business continuity.
- Available as a managed service, premises based or hosted solution.
- Multi-site deployments with centralised assets.
- Selection of companion endpoints for enterprise service coverage.
- Minimal user support costs.
- Distributed architecture and utilisation of SIP enables a flexible approach to Disaster Recovery solutions.
- Agile Business Management through centralised management.
- Green Credentials via a single platform, utilising minimal rack space along with reducing power and cooling consumption.
- Customers have a choice of voice recording options through vendor agnostic interfaces.
**Technical Attributes**

- Open Standards enable seamless interoperability with existing infrastructures utilising best of breed open source technology in a Service Orientated Architecture (SOA).
- iManager Portal provides centralised management through a secure, permissions based, graphical agnostic web portal.
- An active recording interface is supported, ensuring both new and existing recording solutions can integrate into iCS.
- Provides a full detailed CDR stream which can be disseminated to 16 different billing systems and call loggers simultaneously.
- Deployment on a single platform solution reduces ongoing training and support.
- Choice of Standards based multi service endpoint.
- Automated free seating with centralised profile storage.
- Background profile updates.
- Centralised Management System (iCMS) portal.
- Open voice recording and analytics API.
- Call billing details cover all complex voice transitions.
- Uses SIP, XML, TFTP and other familiar technologies.
- Remote diagnostics for 2nd and 3rd line support.
- Support separate QoS for media and call control.
iManager Communication Server Architecture
The iManager Communications Server (iCS) software provides voice applications and voice service management using Session Initiation Protocol (SIP). A variety of standard and specialist media transmission types are supported to facilitate collaborative call types and deliver low latency operation.

Development of the iCS powered applications has benefited from the extensive experience that Speakerbus has acquired over 28 years. Incorporating capabilities defined in conjunction with our financial intercom and command system customers, the next generation architecture leverages SIP's open approach by providing flexible and extensive interaction from an ecosystem of technology partners and Service Oriented Architecture (SOA) technologies.

The solution is built upon SIP providing a flexible approach to IP communications integrating with numerous endpoint devices and Unified Communications System, Gateway or Session Border Controllers (SBC’s) via a SIP trunk. SIP works with many other standards to foster open, reliable, rich multimedia communications. SIP’s openness means additional techniques to simultaneously connect multiple parties can be employed to deliver a comprehensive communication solution.

Solution Elements
- iManager Communications Server (iCS)
- iManager Centralised Management Server (iCMS)
- iManager Call Detail Records Service (iCDS)
- Third Party Unified Communication Server
- IP Converged Networking Infrastructure
- iSeries Gateways
- Speakerbus Endpoints – iTurret, iD712 and SE708

Solution elements architecture diagram.
iCS Functionality Overview
The iCS supports telephony, trader voice (private wires and hoot ‘n’ holler) and intercom functionality. Whilst a choice of endpoints is available to suit any type of organisations or individual requirements; ranging from sophisticated high end multiple call, multi function devices such as the iTurret through to entry level single channel intercom, hoot, and broadcast device, the iD712.

iCS supported feature set at a glance:

Connectivity
- SIP
- ISDN / PRI
- Analogue
- Private Circuit

Voice Nets
- Hoot
- Intercom
- PLAR / Crash Net

Remote Working
- SIP Call Routing
- Line Networking for Private Circuits

Telephony Functionality
- Inbound & Outbound Calling
- Caller ID and Conference Message
- Roll Over Lines with Seize and Privacy
- Hold
- Music On Hold
- Transfer: Attended, Unattended and Immediate Transfer
- Speed Dials, VPW’s and Directory Dialling

Line Sharing Functionality
- Common Lamping
- Barge-In
- Privacy

Intercom Functionality
- Point 2 Point
- Group Call
- Answerback Calls
- Hoot
iManager CS Hardware

The iManager Communication Server (iCS) is a Linux based 64-bit application platform where the intelligence resides to support a variety of standard and specialist media transmission types, to facilitate collaborative communication. A Linux based operating system ensures a robust, stable and secure platform for critical communication applications.

The iCS hosts the application, status, maintenance and monitoring elements which are built upon Session Initiation Protocol (SIP) and blended with other Speakerbus defined protocols (Speakerbus Real Time Protocol (SbRTP) and the Multicast Control Channel (MCC)), to provide a flexible, highly scalable, future-proof platform. The iCS utilises standards base networking techniques including DNS, IGMP, DHCP, TCP/IP, IPv4, SSH, HTTP, 802.1p/q and SNMP to seamlessly interoperate with existing infrastructures whilst utilising best of breed open source technology in a Service Orientated Architecture (SOA) ensuring seamless interoperability with existing unified communications platforms, cloud technologies and IP data infrastructures which aids the agile deployment of collaborative communications in today’s dynamic ecosystems.

Through the utilisation of SIP iCS can be deployed either as a on premises, hosted or cloud base environment. The solution uses standard Unicast G.711, G.722 and G.729 coded Real-Time-Protocol (RTP) streams for inter-site communication across the WAN.

iCS can be deployed using commercial off the shelf hardware either in a standard or virtualised environment. Speakerbus are also able to supply dedicated hardware appliances for customers who prefer a turnkey solution.

Two appliance models are available:

iManager S920 Appliance - Provides a full collaborative communication solutions, agile management and application interfaces on a single 1U server. It comes bundled with iCS, iCMS and iCDS preconfigured within a virtualised environment, using Microsoft Hyper V, with 20 predefined user profiles, ready to deploy within a customer’s own network environment. Resilience and redundancy is also catered for with RAID 1 and redundant PSU supplied as standard.

iManager S910 Appliance - Again provides a full collaborative communication solutions and application interfaces on a single 1U server. It also comes supplied out of the box with iCS and iCDS preconfigured within a virtualised environment, using Microsoft Hyper V, with 20 predefined user profiles, ready to deploy within a customer’s own network environment. Resilience and redundancy is also catered for with RAID 1 and redundant PSU supplied as standard. If management is required then either an S920 should be ordered or the iManager Centralised Management System (iCMS) can be ordered as a software only application. Speakerbus can supplied a turnkey iCMS turnkey solution, if required.
System Management

*iSeries Centralised Management Overview*

Speakerbus’ iManager Centralised Management (iCMS) System delivers information and control of your trader voice assets to your fingertips. Simplified global asset management, preventative maintenance, embedded configuration reports and audit tracking, help implement and maintain optimal results for your trader voice assets.

**iCMS supported features at a glance:**

**Compliance**

- Multiple management roles ensures access to sensitive information is strictly controlled, in line with corporate compliance.
- Management of sophisticated voice recording interfaces, ensuring adherence to regulatory financial reforms.
- Permission based access control split by User Groups, Geography or Voice Services - optimum compliance using granular based permissions.

**Deployment**

- Live updates prevents service interruption during operational hours.
- Administrative defined device updates helps manage the risks associated with incremental updates.
- Staggered rollout of new functionality and upgrade patches segregated by trading group, geographical location or individual user.
- Device auto announcement delivers intelligent endpoint awareness for pre-staging and pre-configuration of iSeries devices.

**Interface**

- Simple and secure web based management application.
- Visual representation of iSeries devices and voice network services.
- Logical grouping of End Users and Trading Markets.

**Monitoring**

- Integration with industry standard SNMP network monitoring tools simplifying network management duties allowing you to focus on more challenging tasks.
- Live graphical device statuses, alerts administrators to proactively troubleshoot potential configuration conflicts.
- A suite of embedded reports enables administrators to analyse trader voice assets and make informed decisions on system resources and licenses.

**Security**

- Dedicated Security Administrator controls management access, using predefine roles.
- Audit Logs track when, whom and what configuration changes were undertaken whilst providing an historical record, ensuring corporate accountability.

**Workflow**

- Central management of Private Wires, Hoot Circuits, iSeries Devices and Gateways.
- Policies Based Management ensuring order, security and consistency.
- Configuration through a single portal saves time and associated costs in comparison to traditional standalone site configurations.
The Speakerbus iCMS Centralised Management System is a powerful and sophisticated management portal that is tightly integrated with your collaborative communication assets. Speakerbus iCMS management suite simplifies the process of configuring and deploying global collaborative assets, whilst providing the business with efficient time critical management and comprehensive monitoring.

iCMS has been designed with security and compliance in mind with role based access levels controlled through a designated security administrator. Access to specific management functions, services and groups can be strictly controlled and aligned to customers' privacy and confidentially requirements through authentication and security role mapping, embedded in the iCMS database.

iCMS is built on foundation technologies from Microsoft. The database is built upon on a centralised database structure, utilising either Microsoft SQL 2005 or 2008 R2, administrators can define database maintenance plans, shielding them from the complexity of SQL. Profiles are maintained per user and are stored in the database, retaining user preferences and device specific information. When updates are made to the profile from either the iCS endpoint or through iCMS, appropriate checks are then conducted to reconcile the changes avoiding any conflicting updates, ensure data integrity.

iCMS browser interface is certified for Internet Explorer (I.E.) and Mozilla Firefox and has been tailored to be agnostic delivering a slick workflow management process, whether this be a specific function or an enterprise configuration. The browser interface is non-flash based removing the need for unsecure plug-in's whilst enabling simultaneous access for multiple geographical located administrators.

Embedded tools have been developed within iCMS to lessen the need for a hands on administrative approach, allowing system administrators to focus on more challenging tasks. 'Live' updates ensure automatic synchronisation between iCS endpoints and iCMS is maintained, whilst preventing service interruption during operational hours. Each individual endpoint device is able to auto announce itself to iCMS and if a profile is already preconfigured within the iCMS database, the device profile will be automatically configured, including ongoing directory synchronisation to device keys, again reducing the administration overhead. In addition upgrade patches can be applied incrementally across the enterprise, ensuring risk management is contained.

Centralised real time and historically monitoring of collaborative assets across deployments provides a consolidated approach to proactive administration. Various status management alarms provide administrators with visual indication of potential issues. Whilst historical reports provide analysis of assets and the associated infrastructure, streamlining monitoring and troubleshooting.
Integrated API’s - iCDS & iCTI

iManager communications Server (iCS) uses open standard industry API’s and web service interfaces to provide access to a suite of applications from an ecosystem of technology partners. iCS adherence to Service Oriented Architecture (SOA) and its standards based networking technologies enables business process improvement initiatives by easily integrating Speakerbus suite of certified applications such as voice recording, billing and analytics.

Speakerbus iManager Call Detailed Service (iCDS) allows access to real time call record API’s that provide information such as on line status, caller ID and call logs from individual Speakerbus endpoint devices. iCDS is a Microsoft® application that runs as a service to concentrate up to 16 API call information streams. This utilises a standardised protocol and data schema that can be utilised by applications offered through certified specialist Speakerbus vendors.

Applications such as Call recording are supported via active recording interfaces, sent directly from Speakerbus endpoint devices with associated call information (via iCDS). Recording of Hoot ‘n’ Holler, Intercom, Private Wires and Telephony traffic is facilitated with a dedicated RTP stream sent directly from the endpoint devices through a Speakerbus digital or an analogue gateway to an approved voice recorder. Resiliency is also catered for by deploying dual iCDS to enable replication of real time API’s, to multiple destinations, simultaneously.
Security Considerations and QoS

Provisions have been made within the iCS design and its companion management portal to include advanced security features as dictated by customer and market expectations. To ensure we have a guaranteed level of performance and security, the iCS server is a closed system that may only be configured via the iCMS management application.

- **Authentication**: The iCS natively supports two levels of access authentication in the form of user, and administrator levels. In addition to normal user access for status reporting, an administrative level is provided in order to restrict access to specific administration tasks on iCS that are intended for configuration and support tasks. Both access levels are password controlled and are maintained as a function of the iCMS management portal. iCMS management portal incorporates AAA (Authentication, Authorisation and Auditing) techniques. By integrating with Windows Authentication policies whilst appropriate iCS administrative roles can be applied to selected authorised individuals mitigating unauthorised access to iCS. An embedded audit log tracks actions undertaken by authorised administrators, encase of incidents of malpractice.

- **Encryption**: Password data is safeguarded through the use of cryptographic hash functions and encryption techniques. The iCS is equipped with the necessary hardware to support Transport Layer Security (TLS) for the encryption of SIP signalling and Secure Real-time Protocol (SRTP) for media encryption in the future.
iManager Communications Server (iCS)

Capacity
- 10,000 Endpoint devices
- 2,500 Broadcast lines
- 2,500 Group calls
- 20 iTurret (iD808) devices
- 800 Media streams
- 20 Group calls

Call Types
- Connectivity
  - SIP - RFC 3261
  - ISDN/PRI
  - Analogue
  - Private Lines
- Voice Nets
  - Hoot
  - Intercom
  - PLAR/Crash Net
- Remote Working
  - SIP call routing
  - Line networking for Private Lines
- Telephony Functionality
  - Inbound & outbound calling
  - Caller ID and conference message
  - Roll over lines with Seize and Privacy
  - Hold
  - Music On Hold
  - Transfer: Attended, Unattended and Immediate
  - Transfer
  - Speed dials, VPW’s and Directory Dialling
  - Call Forwarding
  - Redial
  - DTMF
- Line Sharing
  - Common Lamping
  - Barge-In
  - Privacy
- Intercom Functionality
  - Point 2 Point
  - Group calls
  - Answerback calls
  - Hoots
  - Intercom Privacy
  - Last Intercom Number Redial
  - Intercom Speed dials Personal & Group
  - Mute
  - Talk Latch

VoIP Media
- Supported Codec types on the WAN: G.711
  - PCM 3.4KHZ A-law/U-law
- Dynamic multicast voice services (DMVS)
- Speakerbus Trader Voice on LAN: Speakerbus
  - Real Time Protocol (SbRTP) enhanced – 7KHZ voice bandwidth
  - Typical latency over LAN 6ms (using 1ms packet sizes)
  - Max Packet Loss on the LAN 5%
  - Bandwidth optimisation techniques: VAD (Voice Activity Detection)
  - DiffServ (RFC 2474) – Type of service field configurable

System Management
- iManager Centralised Management System (iCMS)
- iCMS DB
- iCMS Portal
- iCMS B.O (Business Object)

Third Party Interoperability
- Certified Voice Logging and Recording
  - Nice (Cybertech), Red Box Recorders & Data

iManger Technical Specification
S910 - iManager Communications Server Appliance

Capacity
- 20 iTurret Devices
- 300 Media Streams
- 20 Group Calls
- Single Site Support

Call Types
- Telephony
- Intercom (ICM)
- Hoot ‘n’ Holler
- Private Wires - ARD (Private Wire Automatic Ring Down) or MRD (Manual Ring Down)
- Voice Nets
- Remote Working
- Line Sharing

Server Architecture
- Virtualised Environment using Microsoft Hyper-V
- 2 x Virtual Environments
- Environment One - iManager Communication Server (iCS)
  - Linux based 64 bit operating system
  - Integrated SIP server
  - Apache web server
  - Net SNMP Client
- Environment Two - iManager Call Detailed Service (iCDS)
  - Microsoft® Windows 2008 R2 Server 64 bit Embedded

Licences
- iCS
  - iCS Base Licence (iCS Base) x1
  - iCS Trunk Licence (iCS Trk) x1
  - iCS User Account Licence (iCS UAC) x20
  - iCS Shared Line Standard (iCS SLS) x20

Network Requirements
- Network 100 Base-Tx (full duplex)
- IP addressing: Dynamic or Static
- Voice LAN: Multicast network utilisation
- IGMP and supporting SbRTP
- Other supported network protocols: Ethernet, IPv4, DHCP, TCP/IP, DNS & HTTP

Connectivity
- SIP – RFC 3261

VoIP Media
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Third Party Interoperability
- Certified Voice Logging and Recording – Nice (Cybertech), Red Box Recorders & CTI Data

Chassis
- 1U Rack mount Server (Height 43mm, Width 437mm, Depth 503mm)
- Colour – Black
- Gross Weight – 13.65kg

Processor/Memory/Hard Disk
- Intel Xeon E5-2620 6 Core 2.0Ghz , 15 Cache, 1333Mhz FSB9400
- 4GB Memory DDR3 1333Mhz
- 2 x 500Gb SATA Hard Disk using RAID

Power Requirements
- 400 Watt Redundant PSU
- Voltage 100-240VAC nominal
- Frequency 50-60Hz AC

Environmental
- Operating temperature 10-35 C (50F – 95F)
- Relative humidity 8% to 90%, non condensing
- RoHS Compliant
S920 - iManager Communications Server Appliance

**Capacity**
- 20 iTurret Devices
- 300 Media Streams
- 20 Group Calls
- Single Site Support

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- Environment Two - iManager Centralised Management System (iCMS)/iManager Detailed Service (iCDS)
  - Microsoft® Windows 2008 R2 Server 64 bit Embedded
  - Microsoft® SQL Server® 2008 R2 Express

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  - iCS User Account Licence (iCS UAC) x20
  - iCS Shared Line Standard (iCS SLS) x20
- iCMS
  - iCMS Base Licence (iCM Base) x1
  - iCMS Device Connection Licence (iCM DCL) x20

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**Connectivity**
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