# AcomNOVUS
# Advanced Communication System

Spec Sheet

The AcomNOVUS Advanced Communication System is Zetron's most comprehensive mission-critical IP-based dispatch console solution. Operating on a Linux-based commercial hardware platform, AcomNOVUS delivers the redundancy, reliability, rich features, intuitive operation, and flexible configuration that have consistently put Zetron's Acom solutions at the forefront of integrated dispatching technology. AcomNOVUS provides unsurpassed performance and 24/7 operation, whether the dispatching environment is a public-safety agency, a major transportation hub, or a large utility. In addition, AcomNOVUS can be deployed to support a few console positions or hundreds; fixed, distributed, or mobile operations; disaster recovery; or sharing across agencies.

## KEY FEATURES

- Scales from a few consoles to hundreds.
- Supports traditional, distributed, or mobile-command dispatch.
- Delivers high-bandwidth efficiency in an end-to-end IP-based system.
- Utilizes local or geographical redundant architecture.
- Includes an intuitive, feature-rich, highly customizable graphical user interface (GUI).
- Provides system-wide call-management capabilities and call-management reporting.
- Includes profile-based login.
- Interoperates with legacy, current, and emerging radio and telephony technologies.

- Provides sophisticated telephony capabilities.
- Supports a variety of open-standards-based interfaces, including TIA P25 (CSSI, DFSI), DMR, and TETRA.
- Capable of AES and DES encryption (including FIPS 140-2, Key Management and Key Fill Device support).
- Includes Web-based configuration tools.
- Includes script-based audio routing algorithms.
- Supports Simple Network Management Protocol (SNMP) for real-time alarm reporting.
- Includes SIP-based voice recording with metadata.
- Interfaces to third-party applications such as CAD and AVL for call-setup and location services.

## AcomNOVUS System Overview

AcomNOVUS consists of the following major components:

- AcomNOVUS Dispatch Console
- AcomNOVUS Core
- Conventional Services Gateways and Radio Gateways
- AcomNOVUS Management Services
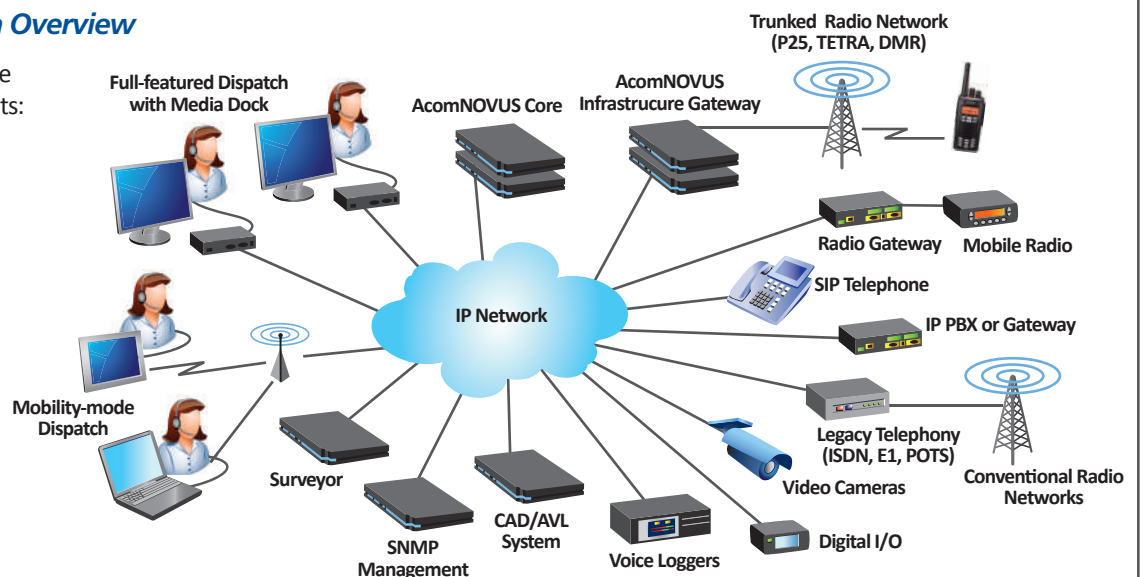
## AcomNOVUS Dispatch Console

The AcomNOVUS dispatch console provides the interface dispatchers use to interact with the system. Each console consists of a Windows-based client running the AcomNOVUS dispatch application software.

The AcomNOVUS dispatch software is able to operate in either full-featured or mobile mode. Mobile mode is ideal for mobile-command or temporary dispatch operations. To operate in mobile mode, the console requires only an IP-connected laptop or tablet PC and a headset. It includes audio routing to a single headset or built-in microphone and speakers, and provides all the functional console features the AcomNOVUS system has to offer. Mobile mode can operate over local Wi-Fi or high-speed LTE networks.

For more traditional dispatching, the console provides the full suite of audio-routing capabilities and console audio peripherals using a USB-connected Media Dock. The console can use the default audio routing, or it can be configured with a custom audio routing script to suit the particular needs of the control-room environment.



*Media Dock XS provides full-featured dispatching capability.*

Login capabilities range from basic-user screen start-up to full, authenticated login control linked to an organization's active directory database. They also allow a user to log into different systems based on the user's login profile.

Configurations can be assigned to operators automatically, based on their login profile, or they can be modified "on-the-fly," as circumstances warrant and permissions allow. Supervisors can use network-management resources to create, activate, and publish configurations.

## AcomNOVUS Core

The AcomNOVUS core consists of a commercial server cluster platform running on a Linux-based operating system that hosts several software services used in the AcomNOVUS system. These software services provide essential management and control to the system (Media Controller Service). They also act as a gateway to various third-party devices such as IP voice loggers, MODBUS IP auxiliary I/O devices, and direct infrastructure connectivity (Infrastructure Gateway Service) to major trunked radio technologies such as P25, TETRA and DMR. The core also provides the capability for remote console, remote radio gateway and multiple site linkage.

***Supported Features:***

- Dual network connections.
- Dual power connections.
- Hot-standby capability for Z-node Manager, Infrastructure Gateway, and Media Controller services.
- Licensing control for the entire system.
- SNMP output for software and hardware component failures.

## Conventional Services Gateways and Radio Gateways

The Conventional Services Gateways and Radio Gateways serve as the interface point between a radio, base station or telephony networks and the rest of the AcomNOVUS system.

***Supported Features:***

- Radio Gateways: Up to two radio connections.
- Conventional Services Gateways: Up to 60 4W E&M radio or 2W telephony connections or 120 digital telephone lines (ISDN/SIP).
- Dual Ethernet ports for network redundancy.
- Analog voice-logger output.
- Four binary inputs and outputs for generic site monitoring and control use (analog gateways only).

## AcomNOVUS Management Services

AcomNOVUS offers a standardized interface to integrate third-party CAD or AVL systems. This allows calls to be initiated and patched or conferenced directly from the third-party system. AcomNOVUS will pass call-event information to the third-party system including unit IDs from incoming transmissions. The AcomNOVUS Manager also offers a built-in IP diagnostics tool to determine whether the connected IP network is running as expected. Integrated alarm and reporting management tools can be configured to either link to external contacts or provide an SNMP trap. This greatly simplifies system-error diagnosis and system maintenance.

AcomNOVUS also provides a network management capability that allows a variety of reports to be generated quickly and easily. This helps managers monitor system and dispatcher performance and detect and diagnose potential issues.

**Protocols and equipment AcomNOVUS supports:**

- 2-wire, 4-wire local (PTT/COR).
- Tone Remote Control (per TIA102.BAHA Section 7).
- 5/6 Tone Selcal.
- Analog/conventional radios: Kenwood® TK-x180, Motorola XTL 5000 (O5), Harris M7300, etc.
- P25 conventional/trunking radios: Kenwood TK-5x10, Motorola APX 7500 (O5 Mobile), Motorola XTL 5000 (O5 Mobile), Harris M7300.
- SmartNet/SMARTZONE radios: Motorola APX 7500 (O5 Mobile), Motorola XTL 5000 (O5 Mobile).
- EDACS radios: Harris M7300.
- TETRA radios: Motorola MTM5400, Sepura SRM3900, Airbus TMR880i.
- iDEN radios: Motorola i365.
- Kenwood NEXEDGE® radios: NX-700/800/900, NX-820.

- Kenwood NEXEDGE® NXR-700/800 conventional and trunking repeaters.
- Project 25 TIA DFSI, AFSI, and CSSI Phase I and Phase II (Airbus, Tait, Motorola, EF Johnson, Codan, Auria Wireless, Raytheon).
- Project 25 Digital Fixed Station Interface (DFSI) per TIA102. BAHA.
- Kodiak PTT-over-Cellular.
- Digital Mobile Radio (DMR AIS Tier II and Tier III).
- TETRA trunked networks (Airbus, Rohill).
- FXO, FXS, SIP, ISDN, QSig Telephony.
- MPT1327: TaitNET MPT.
- OpenSky®.
- ModbusOverIP (up to 220 auxiliary I/Os).
- Long-term IP voice loggers supported: Eventide, Verint.

## AcomNOVUS DISPATCH FUNCTIONS

- Drag-and-drop resources.
- Call History Display that allows system-wide view of call status.
- Integrated Contact Lists with integration to Active Directory.
- Radio and telephone queues with priority queuing.
- Radio/telephony patching and conferencing.
- Channel and Talkgroup Change.
- Global Patching.
- Answer Next /Hold.
- Dial/Last Number Redial.
- Memory/Speed Dial.
- Call Forward/Transfer.
- Mute/Clear.
- Transmit (PTT).
- Transmit All.

- Instant Transmit.
- SELCAL/Tone control.
- Fully programmable paging.
- Full-duplex, direct and addressable intercom with operator presence capability.
- Foreground and background audio-level controls.
- Console resource indicators.
- Auxiliary relay controls (such as doors and alarms).
- Utility audio (TV, commercial radio).
- HTML pages for document display.
- Automated calling and streaming video display through HTML hyperlinks.
- Web-based configuration management.

# SPECIFICATIONS

## Host PC Requirements for AcomNOVUS Dispatch Console

| | |
|---|---|
| Processor: | Intel® Pentium® IV or better. |
| Operating system: | Windows® 7 Professional or 8.1 Professional. |
| Memory: | 1GB or more of RAM. |
| Hard disk: | 40GB or more. |
| Removable disk: | CD/DVD ROM drive. |
| USB ports: | At least 6 USB ports should be available for a full-featured console position. |
| Video card/monitor: | 1024 x 768 pixel or better. 16-bit color or more. 17" or larger LCD monitor recommended for full-featured console position. |
| Pointer: | Mouse, trackball, and/or touch-screen required. |
| Keyboard: | Keyboard required for setup and for supervisor-access privileges. |

## Console Peripheral Interfaces Using Media Dock

| | |
|---|---|
| Speakers: | 1 Select and (1-3) Monitor (can be expanded to 8 speakers). |
| Desktop microphone: | Standard. |
| Footswitch: | Single or dual. |
| Headset/handset: | 2 independently wired/wireless. |
| Jackbox: | 4-wire or 6-wire interface (4W +PTT). |
| Auxiliary audio: | 1 input, 1 output – 3.5mm jack. |
| USB control: | Control and audio to/from PC. |
| Digital I/O: | 4 relay outputs. 4 opto-isolated outputs. 4 opto-isolated Inputs. |
| Telephone Radio Headset Interface (TRHI): | For local telephone connectivity. |

## Console Workstation Bandwidth Usage

| | |
|---|---|
| Data Bandwidth: | 80 kbps per group of 10 consoles (160 kbps in redundant configurations). + 40 kbps per console. |
| Voice Bandwidth: | 80 kbps (max.) per console RX or TX interface. |
| Interfaces: | Up to two Select (TX and RX); up to eight Monitor (RX only). |

## Regulatory

| | |
|---|---|
| Compliant with the following certifications: | FCC Part 15 (USA), CE (Europe), RCM (Australia), CS-03 (Canada). |
| EMC Compliance Standards: | FCC Part 15 - Radiated & Conducted Emissions (USA), ICES-003 - Radiated & Conducted Emissions (Canada), EN 55022 - Radiated & Conducted Emissions (Europe & Australia, EN 55024 - Immunity (Europe). |
| Telecommunications Compliance Standards (where applicable): | AS/ACIF S002 (Australia), AS/ACIF S003 (Australia), AS/ACIF S016 (Australia). |
| Safety Compliance Standards: | AS/NZS 60950 (Australia). |

## Network

| | |
|---|---|
| Infrastructure: | 100 Mbps minimum, full-duplex Ethernet. Switches and routers must be multicast aware. Mission-critical applications should use a dedicated network. |
| Transport: | Must be fully routed (i.e., no address translation). |
| Packet Loss: | < 0.1% (< 1% for non-mission critical). |
| Packet Delay: | < 40 ms for LAN environments; < 500ms seconds for long-haul (long- delay) environments. |
| Packet Jitter: | < 20 ms (< 40 ms for non-mission critical). |
| VLAN Support: | Recommended. Provided by network infrastructure equipment. |
| WAN Interface: | VPN interfacing required via network infrastructure equipment. |
| IP Addressing: | Media controller–static; console –static. |

## Physical and Operational Characteristics

| | Dimensions (HxWxD) | Weight | Power Consumption | Temperatures |
|---|---|---|---|---|
| Core Server: (19-inch rackmount) | 643 x 483 x 43mm 2.1 ft x 1.58 ft x 1.69 in | 42.55 lbs (19.3kg) | 4.8 – 2.4A, using 350W (100-240 VAC) redundant power | 10°C to 35°C (50°F to 95°F) at 10% to 80% relative humidity |
| Acom Radio Gateway | 31.75 x 191 x 254 mm 1.25 x 7.5 x 10 in | 2 lbs (0.91 kg) | 1A @ 10.5 VDC | 0 to +50°C |
| Conventional Services Gateway: (19-inch rackmount) | 42.8 x 434 x 607 mm 1.68 x 17.08 x 23.89 in. | 12.46 lbs (5.05 kg)* | 2A @ 48VDC | 0 to +50°C Humidity: 95% RH at 45 degrees C, non-condensing |
| Media Dock | 64 x 192 x 254 mm 2.5 x 7.5 x 10 in | 2.6 lbs (1.2 kg) | 3W, 200mA (no speakers) 21W (with speakers) | 0 to +60 Celsius |

*This includes the core gateway components only. May vary depending on the number of additional modules added.

# ZETRON®

005-1443A July 2015