File no. J/155/2025-Studio Design- Studio Automation Software

PRASAR BHARATI / प्रसार भारती

(INDIA'S PUBLIC SERVICE BROADCASTER) / भारत का लोक सेवा प्रसारक

DIRECTORATE GENERAL: AKASHVANI / आकाशवाणी महानिदेशालय

PLANNING AND DEVELOPMENT UNIT / योजना एवं विकास एकक

(Studio Design Section)

सं./No.J/155/2025/SD- Studio Automation Software दिनांक:Dated: 12.01.2026

Subject: Publication of Draft Technical Specification for SITC of Studio Automation System at Akashvani Delhi for seeking Vendors/OEMs feedback, percentage of local content and budgetary quote.

1. In reference to above, the date for submission of feedback and budgetary price regarding SITC of Studio Automation System at Akashvani Delhi is being again extended till 19/01/2026.
2. Vendors/OEMs are also requested to provide availability of local content and percentage of local content in the offered equipment.
3. The budgetary price of the offered Studio Automation System and associated equipment may also be submitted.
4. All these information may be provided by E-mail to "airstudiodesign331@gmail.com "on or before **19.01.2026**.

12/01/2026

(SUBASH CHAND RAM)
Assistant Director (E)
For Director General

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(Studio Design Section)

Technical Specification for SITC of Studio Automation System at Akashvani Delhi

1. GENERAL

1.1 This specification is for Supply, Installation, Integration, Testing & Commissioning of software & hardware for "Studio Automation" to be used at Akashvani Delhi.

1.2 The Automation Software should be of modular design and based on the field-proven modern technology available in the market. It should be suitable for uninterrupted, continuous & reliable 24x7 operations. The quoted Radio Automation software should be operational/ deployed in reputed Radio Broadcasting Organizations.

1.3 The Hardware shall be from OEMs having ISO certifications. Hardware from hardware integrators will not be accepted.

1.4 The tenderer must submit the following documents along with the tender:

A) A Clause-by-clause full compliance statement as per format in Annexure-II in respect to all the clauses of specification from the original software developer(s) of the offered software & OEM of the offered hardware duly signed in original. Actual performance figures should be quoted under remarks column.

B) Detailed printed literature of the software & Hardware giving complete details of features and performance data on non-returnable basis to facilitate the technical evaluation.

C) The quote should either be from the **original Software Developer (Studio Automation Software)** or from their authorized representative/dealer by OEM.

D) Escalation matrix with resolution time details for technical support during Warranty period should be enclosed with the tender. A dashboard shall be provided for fault reporting and resolution. Provision of generating quarterly report shall be available.

E) A copy of un-priced Bill of Material (BOM) as per **Annexure**-III indicating make, model no., complete configuration details, version no., modules details, License details etc. shall be quoted clearly. Any tender, showing ambiguity in above terms shall be treated as incomplete and it will be rejected.

F) Customer reference certificate and documents in support for the offered **Automation Software**, having been deployed in a reputed broadcasting organization in client server networked environment should be enclosed during last 5 years.

1.5 The tenderer will be required to demonstrate the functions of the tendered System during technical evaluation in New Delhi. The tenderer will be required to arrange all necessary

software & hardware for demonstration during technical evaluation. The demonstration of the system will have to be conducted with-in one month from the date of issue of Call letter which will be faxed/emailed on given telephone number/Email address. Non-compliance of demonstration within the stipulated time will disqualify the tender.

1.6 Incomplete offers will be rejected out rightly.

1.7 The SITC work will have to be completed within three month after the placement of firm order.

1.8 All software patches/updates released should be updated in all the installed systems during warranty period.

1.9 Any Updates in system/software should be incorporated without affecting ongoing transmission.

2. SCOPE OF THE TENDER

2.1 The Scope of this tender is for supply, installation, integration, testing and commissioning of "Studio Automation Software" including requisite hardware consisting of Servers, Storage, Workstations, Sound Cards, Software and drivers etc as may be required for efficiently running all the functionality of the offered software.

2.2 The transition from the existing system already running (24x7) at the station to new setup/system has to be seamless. No shutdown shall be permitted for this purpose. A detailed migration plan is to be prepared by the bidder and get approved with the station concerned for transition from the existing setup to new one.

2.3 The existing data is required to be migrated in the New Automation System. A onetime migration plan of existing data with provisions for validation and rollback if issues arise have to be provided by the bidder. A dry run to be conducted before actual migration.

2.4 The Bill of Material giving item-wise requirement is given at para 8.

2.5 Supplied Hardware & already available workstations etc. shall be configured for efficient working of offered Automation software.

2.6 All the required cables, patch cords, mating connectors etc. required for implementation of system at the station will be supplied by the tenderer.

2.7 The complete system shall be tested for successful operation of the Automation software.

3. BUSINESS FUNCTION REQUIREMENT FOR STUDIO AUTOMATION SOFTWARE

3.1 General Specification:

3.1.1 The offered software should be scalable & work equally well in a setup of minimum 4 DAWs as well as in a large setup with 100 DAWs.

3.1.2 The software should work in Client-server architecture capable of scaling up without any system restart.

3.1.3 Servers shall work on Windows Server 2025/Linux/Unix OS (Latest Version) and clients shall work on Windows 11/Latest Version OS.

3.1.4 The software should be modular in design to meet the requirements of Studio Automation (Ingest, Processing/production and Broadcast) Monitoring, Logging, Data Transfer, Archiving & export to social media.

3.1.5 The software should ability to easily create users and groups and maintain their access rights to various parts of the system. This must be available for access to media, as well as stories, planning and rundowns.

3.1.6 The software should ability to easily configure and customize all aspects of system (user workspace, available modules etc)

3.1.7 The software should support standard protocols for device integration, as well as other XML based protocols for non-Standard device integrations

3.1.8 The software should have keyboard shortcuts for easy access.

3.1.9 The software should be able to publish media and metadata to various destinations like internet web site and other social media platform.

3.1.10 The software should be easily accessible from remote locations through a simplified web interface for limited use.

3.1.11 The software should provide easy search for different types of data, i.e. - video, audio, text, images available in the database.

3.1.12 Software should run with "normal" audio cards in ASIO Driver model (no specialized soundcards should be required) for monitoring & editing work. However, balanced digital AES In/out should be available for Recording and OnAir broadcast applications with professional sound cards of multiple brands.

3.1.13 Software should also be compatible with the following:

- Clustered enabled servers with fault tolerant RAID system.
- Local caching of configurable duration on On-Air DAW.
- Virtualizations (VM Ware, Microsoft Hyper-V)
- Audio over IP interfaces (Dante/Ravenna/AES67 etc.)

3.1.14 Audio Formats:

a. Software should support import of multiple audio formats like BWF, Linear Wave (.WAV), MPEG 1 Layer 2 (MP2), MPEG 1 Layer 3 (MP3), Advanced Audio Coding (AAC), MP4 etc.
b. Support for Audio over IP interfaces like Dante, Ravenna, AES67, LiveWire, etc.
c. Software should also support different bitrate for MP2, MP3, MP4 & AAC.
d. Software should have feature to convert video files into MP2 or any other supported audio formats.
e. System shall have the facility to choose a default Audio format for media storage and any audio ingested shall automatically convert to default chosen format.
f. Ingest with post processing like: R128 normalization, trimming, silence removal, etc.

3.1.15 Open Structure and Interchange of Information with other software:

a. Software should be able to support standard protocols for device integration, as well as other XML based protocols for non standard device integrations.
b. Software should be able to connect and interchange data with 3rd party systems for news scheduling system using standard technologies such as XML.
c. Software should be able to connect to multiple hardware devices like Studio Mixing Consoles/desks by using GPIO and Trigger management via TCP/IP.
d. Software should support Meta Data Exports to RDS, Web, mobile App's, FTS/FTP server etc. on an open structure technologies.
e. The proposed solution should run on standard open IT solutions.
f. Either inbuilt feature or ability to connect to other systems like Music Scheduling or Traffic Scheduling via API.

g. Direct link to mixing desks/console via GPIO/serial, TCP/IP or API.

3.1.16 Licensing:

a. All the Licenses should be in the name of "AKASHVANI".
b. Licenses of software should be provided on perpetual basis i.e. Ownership of Licenses shall be of AKASHVANI for unlimited times.
c. Tenderer shall have to supply additional licenses for the software modules on pro-rata basis for next five years.
d. Akashvani will have the right to divert the use of License to other stations as and when the requirement arises.

3.1.17 Security:

a. The software should offer network level security management for users, groups and folders. The software should preferably be capable to integrate with Active Directory.
b. It should be possible to assign various levels of functionality as per Akashvani's workflow & Module access rights using Active Directory or in-app security levels. User should be able to open a particular module only if he is authorized to do so base on management requirement.
c. Security features such as redundant databases, file and database backup processes etc. should be supported.
d. Servers at Central Location as well as Branch Locations should have High Availability feature. Tenderer shall specify the failover strategy followed by them.
e. Software should have features like-
    - Patch Management
    - Secure software development lifecycle
    - Disaster/Risk management plan and mirroring of data during any unforeseen situations.
    - Automated failover to backup system.
    - Synchronized emergency player.
f. Hierarchical User Management System/Security System.
g. Manual or automated seamless switch between different studios
h. Seamless switch to emergency playout systems in case of studio damage
i. Switch the on-air operation to local mode in case of server/network damage without interruption
j. Automated server switch on every workstation in case of server damage (in case of Master/backup server architecture) or full cluster support
k. Switch to decentralized play out solutions in case of network failure

3.1.18 Support:

a. The software should provide an easy user interface for configure as well as operation.
b. The software should support Unicode to accommodate the complexity of Indian language scripts
c. Ability to easily search database for different type of data, i.e. video, audio, text, image can be searched.
d. Customization for specific requirements via Scripts (without touching the core software)

e. Software OEM should have continuous development setup for a future proof system.

3.1.19 Metadata:

a. Meta-data of Audio should be stored in a reputed RDBMS like MSSQL, MySql, oracle etc.
b. The system should support flexible metadata schemas. This means that an administrator of the system can add, remove, and alter metadata fields using a dedicated user interface.
    - The update of metadata fields can happen at any time during the project even after the project is running for month/years.
    - The update of metadata should be transparent to the users and should not mandate system restart.
    - There shall be no restriction on the amount or type of metadata fields and not predefined or fixed metadata schema.
c. It should be possible to search the audio as well as text on the basis of single or more Metadata field entries stored in database.
d. Support for entering metadata in Indian language using UNICODE should exist.
e. Metadata can be exported and imported to and from external system using XML in configurable schemas.
f. Metadata fields should have at least the following parameters:
    - Optional mandatory– If a user is using metadata which has a mandatory field within it the user will not be able to finish his work without filling in the mandatory metadata field.
    - Optional inheritance – If a user is creating a sub segment out of a larger media the inherited metadata fields will be copied from the parent media to the sub segment.
g. All metadata fields should be indexed and available for search in an integrated search engine embedded within the proposed solution.
h. The system should allow attaching notes and scripts to each item in the database.
i. Users should be able to add metadata regardless of the status of the asset (pre ingest, after ingest, in process etc).
j. It should have ability for the metadata to link assets together (e.g. audio with other audio).
k. Metadata updates by one user should be immediately synchronized to all other users- without a need to “refresh”.
l. Ability to manage thesaurus metadata field.
m. Ability to manage Image metadata field.
n. Ability to manage Enumeration metadata field.
o. Ability to have targeted synchronization of audio and metadata to selective or all databases.
p. Ability to work with multiple database engines at multiple locations with the ability to sync a part of or full set of data across different databases.
q. It should be possible to forward the received messages, finalized script and audio files to other remote stations.
r. It should be possible to publish media and metadata to various destinations like internet website etc.

3.1.20 Remote Access-Web Access:

a. The system should provide a web-based applications to manage the channel.
b. It should be possible to login into software, search database for audio and text etc and download the same over web connectivity using special access right. Ingest/edit options to designated staff/officials/reporters should be provided.
c. Provide Access to the full system via Web Interface only (no installation required). Incl:
    a. Access of Database, Editing of Metadata and Sound points, add new Audio Content
    b. Editing of Playlist Structure (Grid), generating from Playlists
    c. Editing of Playlist for actual day and future days via Web Interface
    d. Add of audio content via remote in current playlist
    e. Editing of Audio Points in Playlist via Web Interface
    f. Remote Voice Track via Web Interface
    g. Remote Production with full access to stations Database (user setting related) and mix down to Station's database via Web API
d. Provide Access to Logging System via Web interface.
e. Provide Content delivery and Management via Web interface.
f. Export of playlist in real time in HTML, XML, pdf format.
g. Automated podcast generation based on triggers.
h. Automated additional xml generation based on user defined templates.

3.2 Studio Automation Software :-

The software should have separate Modules/Sub-Modules for meeting the following requirements:

3.2.1 Ingest Module:

a. **File based Ingest:** It should be possible to ingest audio file from Windows Compatible File system & from CD drive, Networked drive or USB connected removable disk, Secured Digital (SD) card, mobile (Andriod and iOS) & Web downloads. The system should not have any limitation in the number of simultaneous file based ingest that can be processed.
b. All professional Audio Formats should be ingested and saved in the system default format.
c. It should be possible to extract Audio from Video while importing the video conten**t.**
d. User desired Audio Normalization at time of ingest should be supported.
e. It should be possible to automatically import different audio into database after applying necessary audio leveling and trimming.
f. Ability to notify the users for a new file base ingests.
g. Ability to define naming convention for file based ingests.
h. User should be able to add and edit metadata at the time of ingest after proper authentication.
i. It should have support for cloud storage platforms eg. Google Drive, Dropbox
j. It should be integrated with remote FTP/SFTP servers for direct audio ingestion.
k. It must support error- checking mechanisms to ensure file integrity.

l. Fingerprinted Audio files to avoid multiple Audio files which have exactly the same but different metadata.

3.2.2 Programme Scheduling Module:

a. The Module should support multiple channels format. The playlist of any channel should be available to a group of users with proper access rights associated with that channel.
b. Complete workflow from automated scheduling, building clocks and Playlist generation for multiple Channels should be available.
c. It should be possible to schedule from Central Office as well as Local Office and via web-apps.
d. Creation of Playlist by Channel name & date basis should be possible.
e. Audio content selected from Search Engine Module should be inserted by drag and drop operation.
f. A day's playlist may consist of different sections and be put together to consist a full days playlist.
g. Repetition of Audio items, while scheduling should be avoided with custom policy of 24 hours or one week in same or any channel. However, few items like commercials, promos, etc. will be allowed for repetitions.
h. Policy based auto scheduling should be possible for unattended theme based channels or in any particular time slots for regular channels.
i. Program schedule may contain audio, text or mixed titles.
j. It should be possible to control program timing with the following options-
    - No Regulation.
    - Mandatory start on time with different settings
        - Don't start on time if previous item finishes within defined amount of time.
        - If the previous title is too long, a fade-out or cross fade can be applied for a specific duration.
        - If the previous title is too short, fillers (jingles) can be automatically inserted.
    - Mandatory wait for the end of the previous element.
    - Ability to stretch audio so as to avoid small gaps on short start of music items.

k. Schedule should be modifiable till last minute before execution by the creator/ supervisor with access rights. A notification of last minute update should be pop-up.
l. Print out facility of play list should exist.
m. Facility to chain multiple play schedules should be available.
n. It should be possible to put in markers where the audio should start and when it ends.
o. Provision of templates to enable auto creation of block-schedules of playlist.
p. Software should support automated import of Commercials from traffic (commercials) systems (Third Party) for multiple channels including multiple Regional/Local split channels.
q. It should be possible to schedule a Satellite feed for Transmission as well as background recording.
r. Ability to run a full text search over the entire Meta data field.

s. Change of playlist content until the last second before play out from any workstation

3.2.3 Recording Module:

a. It should be possible to record in mono or stereo or multi-track mode from local and web-apps**.** Recording format, bit rate, sampling rate, bit depth should be user selectable.
b. Ability to record from analog and digital audio source using compliant audio PC boards and Audio over IP networks.
c. Activation of automatic recording by time, Audio level or fader start, phone-in console ringtone.
d. It should have facility of PPM meter for input signal level monitoring.
e. Visual indication in waveform should be available during recording.
f. It should have facility for preview of input level before start of recording.
g. It should be possible to enter & alter the metadata when the recording is going on.
h. Ability to drag and drop file from other source/ Microsoft windows explorer.
i. Both Auto trim and manual trim feature to remove silence from beginning and end of a recording.
j. Facility for inserting markers during recording should exist.
k. It should be possible to play and edit the file currently being recorded from the same or any other DAW in the LAN.
l. It should have facility to export files to any of the supported audio formats.
m. It should have facility of automatic saving during recording.
n. The software should give warning if 'Window Close button' is pressed accidently during recording process.
o. Ability to have an overview of all the recordings (Status, history).

3.2.4 Editing Module:

a. The system should support non-destructive and non-linear editing.
b. Edit and extract clips while recording should be possible.
c. It should be possible to drag and drop files from database, windows file manager or another application.
d. Standard features like Cut, Copy, Paste, Mix, Undo, Redo, Extract, and Fade-in / Fade-outs, Cross-fade, Punch IN / Punch OUT etc. should be supported.
e. Standard facility for conversion of file format with time stretching and pitch shifting, bit depth and sample rate conversion should be available.
f. The editing screen should be in multi-track format and have transport panel, graphic waveform display and Zoom facility for precise locations of edit points.
g. The following features should be provided
    i. User defined filters for reduction/removal of clicks, pops, crackling general noise reduction, Hum & Hiss.
    ii. Amplitude Control: level increase, decrease, volume maximization/normalization.
    iii. Phase: Facility of phase inversion and reversal.
    iv. Insertion of various effects from other sources/files.
h. Voice-over recording facility with editing level control feature should be available.

i. It should be possible to save edited audio along with metadata into database.
j. It should be possible to play multiple-tracks after mixing, selected audio portion or single track.
k. It should be able to edit in a connected or disconnected mode.
l. It should be possible to auto save project at a configurable period.
m. Ability to recover an Auto Saved project even if the project had never been saved properly before
n. It should be able to manage WAVE/VST effects.
o. Ability to add WAVE/VST effect's plug-in easily.
p. Ability to mix audio format while editing.
q. Ability to add remove audio tracks when needed
r. Ability to define per user which media essence the user can access and edit
s. Ability to apply effects when playing
t. Ability to change meter method and meter profile
u. Ability to select multiple segments
v. Ability to manage Overlap/Destructive/blocking mode
w. Ability to group/ungroup multiple segments
x. Ability to manage auto overlap, overlap at range, cross-fade on overlap
y. Ability to preview in Jog and Shuttle mode
z. Ability to attach Images and Texts at some positions of the audio to produce multimedia packages for DAB/DMB programs.
aa. **External Editor: Standard Audio editing software (Sony Sound Forge, Adobe Audition, Audacity or similar software) should be integrated for editing purpose. It should be possible to call this integrated Audio Editing software from the Automation software by single click or Keyboard shortcut. It should also be possible to save audio edited using this Audio Editing software directly into Software's Database/storage.**

3.2.5 ON-AIR Module:

a. On-Air player should support at least two virtual players, monitoring support for cueing, Search Engine support, playlist(s) and hotkeys.
b. One Virtual player should be dedicated for ON-AIR Play out & other configurable for standby/Cueing purpose.
c. With Search Engine support, it should be possible to browse server's Database instantaneously and play audio ON-AIR.
d. It should be possible to playback the playlist in Manual or automated mode.
e. Ability to configure whether playlists shall be loaded automatically according to a moving time window or whether playlists shall be loaded manually.
f. Playlist Audio being played, audio already Played & audio in pipeline should be easily distinguishable in the playlist.
g. It should be possible to use hardware button panel/software button panel for play-out.
h. It should be possible to incorporate changes in the playlist with proper access rights while the system is in play mode.
i. Monitoring of complete audio, beginning & end of any Playlist items on cue Player should be possible.
j. Software should provide fader start facility.

k. Cross-faded or overlapped play of Playlist Audios should be possible. Both player should work simultaneously and route to two different audio channel so that cross fading is possible.
l. It should be able to configure various counters for play-out.
m. Features like Hotkeys, Priority play buttons should be available for playing frequently used items such as signature tunes, promos etc.
n. Details of audios played out On-Air should be properly logged in database for future reference.
o. Ability to publish PAD (Program Associated Data) in synchronization with play-out operations.
p. Text editor for entering, editing & reading the script should be available.
q. Current Date, Day & Time should be displayed prominently on ON-AIR Player.
r. Local caching of at least 24 hour duration of scheduled content on DAW in On-AIR studio should be available.
s. Ability to deliver counters information to a third party system.
t. In case of failure of Main studio, it should be possible to switch to different Studio.
u. Software should support emergency play-out system which should be seamlessly switch on in case of some major studio failure. The system should also feature the ability to keep the backup player totally in sync so the audio will have minimal drop outs.
v. Software should support decentralized play-out solutions in case of network failure by caching the audio and other data locally so if there is network failure the system would go to the local drives.
w. Fully bi-directional real time updating between NRCS (News Room computing system) rundowns and play-out playlists for broadcast content sharing.
x. Ability to drag and drop an audio to be played at any time.
y. Ability to send GPI from the play-out automation.
z. Ability to receive GPI and translate it into commands (play, pause, stop etc).
aa. Ability to mix multiple audio formats in same rundown/playlist.
bb. Ability to play an audio content over several channels simultaneously.
cc. Ability to support template operations.
dd. It should support re-direct of audio to Third- party plug-in with popular audio processing plug-in.

3.2.6 System Administration Module:

a. The proposed solution should provide comprehensive windows or web based administration module that enables administrators to control every aspect of the system from a centralized user interface.

b. The proposed system should integrate with Active Directory for users and group management

c. Ability to easily create users and groups and maintain their access rights to various parts of the system. This must be available for access to media, as well as stories, planning and rundowns.

d. It should be possible to define/ create one or more Super Users (Administrators) for various administrative jobs.

e. Administrators should be able to administer the database & application using simple GUIs. Administrator should be able to define various rules/policies using this module.
f. Creation, deletion & updating of Users, Groups with different access rights for various functionality of software should be possible.
g. Auto-purging of Audio, news, old schedules and database entries as per defined policy should be possible.
h. A manual or automatic purging should be possible. It should be possible to mark certain items which should never be purged.
i. Updating of Policy Guidelines separately for each channel should be possible.
j. User should be able to access different functionalities of the application modules after proper authentication in form of User Name & Password and access rights allocated.
k. The software should keep a complete log of each transaction made by any user so that it can be viewed at any time.
l. In the event of serious errors, software should display the alert messages on screen.
m. The software should be able to make standard reports to provide administrators on accurate statics on utilization of the system.
n. It should be possible to generate various customized reports like transmission logs, daily schedule report and Royalty payment reports etc.
o. The report system should keep track of everything that has been played and ingested. Report system should keep track of every function performed by system.
p. Ability to send warning by email or SMS message to users (administrators).

3.2.7 Export Module:

a. Ability to trigger a process (migration, conversion, purge) to a media by a simple drag and drop.
b. Ability to export and convert the media in different format with associated metadata (XML file).
c. Ability to export and convert the media and its associated other media (image, script, video etc)
d. Ability to associate a media to a script.
e. Ability to export file in different format to archive server and web server.
f. It should be able to provide a standard method of importing and exporting data into the system and out of the system e.g. using ASCII, XML and HTML etc.
g. Ability to export media and metadata to Social Networks, e.g. Facebook, Twitter, Youtube.

3.2.8 Archiving Module:

a. Auto archival of the audio material/text should be based on policy to be decided by administrator.
b. It should be possible to Archive audio/text data & related metadata in **Network Attached Storage(NAS)**. Details of archived material should be stored in the database so that any query/retrieval of archived material should be possible.

c. Automatic interface for Tape-library should exist so that archived material is automatically re-ingested from tape-library when asked for by a user with proper access rights.
d. List of archived items should be accessible to authorized users from any workstation.
e. It should provide archiving and integration of the past data into the new system as per requirement.

3.2.9 Logging Module:

a. It should be possible to keep Low-bit rate audio copies of On-Air audio for 10 channels simultaneously on a DAW by using necessary hardware.
b. It should be possible to keep the logged programme for a pre-defined duration. It should be possible to Auto-purge old data after completion of user defined period.
c. Access/retrieval of audio from logger based on date and time stamp for each channel logged should be available.
d. 24 hour recording tools for documentation with direct access from any workstations for file generating as well as direct import to editing tools. System will keep track of everything being done with the workstation, both manually and within automation.
e. The software should keep a complete log of each transaction made by any user so that it can be viewed at any time.

3.2.10 API Module:

a. The systems should provide fully open APIs. Ideally, these APIs should be SOA compliant and based on web services.
b. APIs must be capable of allowing the following types of operations:
   - creating, modifying and deleting media entities (audio)
   - creating, modifying and deleting newsroom entities (planning, stories, rundowns)
   - Accessing wire feeds
   - Searching
   - Manipulating scheduled recordings (creation, update and deletion)
   - Manipulating media jobs (conversions, transfers)

3.2.11 Web Publishing Module:

a. It should be possible to publish few selected content on website seamlessly for podcasting.
b. It should be possible to publish few selected content on social media platform seamlessly.

3.2.12 Program Exchange Module:

a. It should be possible to share some of the content with all other Akashvani stations over FTP or any other means without any dedicated VPN.
b. The Remote Akashvani Station can also share some of their content to Akashvani Delhi after login to this exchange server.
c. The content shared through this exchange server should be able to automatically import to the main database for broadcast.

Common Functionalities:-

- Policy based purging of old files and their meta data should be available.
- Archiving and Web publishing facility should be available.
- Dark Mode & System default mode
- User customizable theme
- Comprehensive Training and help manual for each module
- Interactive Tutorials.

4. HARDWARE

4.1 Hardware Requirements

4.1.1 The Hardware & System software specification & quantity mentioned under this section are broad & minimum requirements.

4.1.2 The tenderer must provide the minimum recommended hardware requirements of the quoted software duly verified by the software OEM, and the quoted hardware must meet these requirements.

4.1.3 However, if the minimum recommended hardware requirements of the quoted software are lower than the specification laid down in this document then the tenderer must provide the hardware as per the specification laid down here.

4.1.4 The hardware as per Bill of Material shall be supplied at Akashvani Delhi station.

4.1.5 No Products / equipments supplied under the tender should be end of life for the next five years.

4.1.6 The hardware should be able to operate on 230 V +/- 10% V, 48-52 Hz, single phase AC power supply.

4.1.7 All the drivers for hardware shall be supplied along with hardware.

4.1.8 Operating Environmental conditions: The equipment shall be able to work without any problem in the following conditions:

a. Operating Temperature: From 10º C to 35º C
b. Operating Humidity : Up to 80% RH (non-condensing) at 30º C.

4.1.9 Storage Environmental conditions: The equipment should be able to withstand the following conditions while being stored:

a. Storage Temperature : From -10º C to 65º C
b. Storage Humidity : From 5 to 95% humidity.

4.1.10 The system shall be used in the vicinity of high frequency & high Power Radio field. Therefore, the system shall conform to be protection requirements relevant to electromagnetic phenomena as per national/international standards.

4.1.11 The tenderer shall indicate & quote any additional hardware (additional to that mentioned in Bill of Material) as may be required for efficiently running all the functionality of the offered Automation software.

4.2 Bare Metal Server :

	Parameters	Server specifications	Remarks
A	Form Factor	Maximum 2U Rack mount server	
B.	CPU	Server should have 2 processor socket supporting at least 5Gen CPU; should be populated with total of 24C/48T processors or more	
C.	RAM	Server should have minimum 128GB (4x 32GB / 8 x 16GB) DDR5 RDIMM 4800MT/s or higher	
D.	Network ports	2 x 1Gig Base-T ports and 2 x 10 Gig ports with SFP+ SR optics along with cable for required length	
E.	FC ports	2 x 16 Gbps FC ports with required optics	
F.	Management port	Dedicated 1Gig Base-T management port, management software should be from same hardware OEM	
G.	PCIe slots	2 x PCIe slots or more	
H.	Internal Storage	Server should have minimum 8 x SAS/ SSD drive bays, populated with : 2 x 480GB SSD drives in RAID 1 config	
I.	RAID Controller	Integrated/PCI based 12Gbps HW RAID controller with minimum 8GB cache supporting RAID 0,1,10,5,6	
J.	Power Supply	Each node must have minimum ≤ 1500w N+N redundant Platinum power Supply	
K.	System Security	Server should have below security essentials and certificates: 1. It shall include FIPS 140-2, TPM 2.0 v5 & UEFI with secure boot. 2. Cryptographically verified trusted booting standards meeting basis NIST SP 800-147B, BIOS Integrity measurement proposed guidelines basis NIST SP 800-155, protection standards meeting NIST SP 800-193 and standards & secure media sanitization standards meeting NIST SP 800-88. 3. Real time firmware security scanning to protect against firmware which executes before the OS boots. 4. Maintain repository for firmware and should be able to rollback, if required.	

		5. Configuration upgrades should be only with cryptographically signed firmware and software from the server OEM. 6. End-to-end supply chain controls to ensure component integrity, security, and vendor responsibility.	
L.	Security Bezel	Security bezel with locking function	
M.	Intrusion alert	Intrusion alert in case chassis cover being opened	
N.	Management integration	Support for integration with Microsoft System Center, VMware vCenter, BMC Software	
O.	Power & temperature	Real-time power meter, graphing, thresholds, alerts & capping with historical power counters. Temperature monitoring & graphing shall be available	
P.	Pre-failure alert	Should provide predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, RAID, NIC, HDD	
Q.	Configuration & management	• Real-time out-of-band hardware performance monitoring & alerting • Agent-free monitoring, driver updates & configuration, power monitoring & capping, RAID management, external storage management, monitoring of NICs & system health • Out-of-band hardware & firmware inventory • Zero-touch auto configuration to auto deploy a baseline server configuration profile • Automated hardware configuration and Operating System deployment to multiple servers • Zero-touch repository manager and self-updating firmware system • Virtual IO management / stateless computing • Support for Redfish API for simple and secure management of scalable platform hardware	

R.	Dynamic USB ports	Dynamic USB port enablement for all the USB Ports provided in the server without need to reboot the server	
S.	Operating System	Server should be supplied with preinstalled MS Windows 2025Standard or latest OS	
T.	Database Software	Server should be supplied with MS SQL 2022 std "8 core license" / "with 50 device CALs"	
U.	Rack kits	Rack mounting with sliding rails	
V.	Indicators	System shall have feature of visual indicators (LED/LCD) for System Health, Network and Power.	
W.	Redundancy	The System shall be supplied with Redundant Fans and Power Supplies.	
X.	Certification	• ACPI 6.1 Compliant • PCIe 4.0 Compliant • Microsoft®Logo certifications • USB 3.1 Gen1 Compliant • Energy Star • SMBIOS 3.1 • UEFI 2.6 • IPMI 2.0 • Secure Digital 2.0 • Advanced Encryption Standard (AES) • Triple Data Encrytion Standard (3DES) • SNMP v3 • TLS 1.2 • Active Directory v1.0	
Y.	Warranty	05 Years onsite comprehensive warranty with 24x7 remote hardware supports.	

4.3 Normal Servers:

	Parameters	Server specifications	Remarks
A	Form Factor	Maximum 2U Rack mount server	
B.	CPU	Server should have 2 processor socket supporting at least 5Gen CPU; should be populated with total of 8C/16Tprocessors or more.	
C.	RAM	Server should have minimum 32GB (2x	

		16GB) DDR5 RDIMM 4800MT/s or higher	
D.	Network ports	2 x 1Gig Base-T ports and 2 x 10/Gig ports or better	
E.	Management port	Dedicated 1Gig Base-T management port, management software should be from same hardware OEM	
F.	PCIe slots	2 x PCIe slots or more	
G.	Internal Storage	Server should have minimum 8 x SAS/ SSD drive bays, populated with : 2 x 480GB SSD drives in RAID 1 config	
H.	RAID Controller	Integrated/PCI based 12Gbps HW RAID controller with minimum 8GB cache supporting RAID 0,1,10,5,6	
I.	Power Supply	Each node must have minimum ≤ 800w N+N redundant Platinum power Supply	
J.	System Security	Server should have below security essentials and certificates: 1. It shall include FIPS 140-2, TPM 2.0 v5 & UEFI with secure boot. 2. Cryptographically verified trusted booting standards meeting basis NIST SP 800-147B, BIOS Integrity measurement proposed guidelines basis NIST SP 800-155, protection standards meeting NIST SP 800-193 and standards & secure media sanitization standards meeting NIST SP 800-88. 3. Real time firmware security scanning to protect against firmware which executes before the OS boots. 4. Maintain repository for firmware and should be able to rollback, if required. 5. Configuration upgrades should be only with cryptographically signed firmware and software from the server OEM. 6. End-to-end supply chain controls to ensure component integrity, security, and vendor responsibility.	
K.	Security Bezel	Security bezel with locking function	
L.	Intrusion alert	Intrusion alert in case chassis cover being opened	
M.	Management integration	Support for integration with Microsoft System Center, VMware vCenter, BMC Software	

N.	Power & temperature	Real-time power meter, graphing, thresholds, alerts & capping with historical power counters. Temperature monitoring & graphing shall be available	
O.	Pre-failure alert	Should provide predictive failure monitoring & proactive alerts of actual or impending component failure for fan, power supply, memory, CPU, RAID, NIC, HDD	
P.	Configuration & management	• Real-time out-of-band hardware performance monitoring & alerting • Agent-free monitoring, driver updates & configuration, power monitoring & capping, RAID management, external storage management, monitoring of NICs & system health • Out-of-band hardware & firmware inventory • Zero-touch auto configuration to auto deploy a baseline server configuration profile • Automated hardware configuration and Operating System deployment to multiple servers • Zero-touch repository manager and self-updating firmware system • Virtual IO management / stateless computing • Support for Redfish API for simple and secure management of scalable platform hardware	
Q.	Dynamic USB ports	Dynamic USB port enablement for all the USB Ports provided in the server without need to reboot the server	
R.	Operating System	Server should be supplied with preinstalled MS Windows 2025 standard or latest OS	
S.	Rack kits	Rack mounting with sliding rails	
T.	Indicators	System shall have feature of visual indicators (LED/LCD) for System Health, Network and Power.	
U.	Redundancy	The System shall be supplied with Redundant Fans and Power Supplies.	
V.	Certification	• ACPI 6.1 Compliant	

		• PCIe 4.0 Compliant • Microsoft®Logo certifications • USB 3.1 Gen1 Compliant • Energy Star • SMBIOS 3.1 • UEFI 2.6 • IPMI 2.0 • Secure Digital 2.0 • Advanced Encryption Standard (AES) • Triple Data Encrytion Standard (3DES) • SNMP v3 • TLS 1.2 • Active Directory v1.0	
W.	Warranty	5 Years onsite comprehensive warranty with 24x7 remote hardware support.	

4.4 Main Storage:

	Parameters	Minimum Specifications	Remarks
A	Controller	Proposed storage should be with a dual-active controller	
B.	Syst. Memory per ctrl	The system should have minimum 16GB	
C.	Supported host OS	Windows 2025, 2022, 2019 RHEL9.x,8.x SLES15.x,12.3 VMware 8.x	
D.	Virtualization integration	VMware vSphere (ESXi) vCenter; SRM Microsoft Hyper-V	
E.	Storage to Host Connectivity	The storage system should have atleast 8 X 32G FC ports in total (4 per controller), required optics and cables(5mtr) to be provided	
F.	Disk interface expansion ports	2 x 12Gb SAS (wide-Port) per array (1 port per controller)	
G.	Storage Capacity	Storage solution should be configured with 55 TB Usable, 100% capacity upgrade should be supported without replacing existing disks.	
H.	Drive types supported	Storage should support SAS, NL-SAS and SSD, SED Drives	

		• NLSAS 7.2K 3.5" – 4TB, 8TB, 12TB, 16TB, 16TB FIPS, 20TB, 24TB	
		• SAS 10K 2.5" – 1.2TB, 2.4TB, 2.4TB FIPS	
		• SSD/ – 1.6TB MU, 1.92TB RI, 3.84TB RI , 3.2TB MU FIPS, 7.68TB RI	
I	Min Drive Supported	Storage should be scalable to minimum 5 times the capacity.	
J.	Redundancy	There should not be any single point of failure and should be configured with redundant controllers	
K.	Encryption Support	Proposed storage should support Encryption either Controller Based or Drive based	
L.	RAID Support	RAID 1, 5, 6, and 10 should be supported	
M.	Storage Features Supported	Storage solution should support Snapshots, Thin provisioning, Auto-tiering, Volume copy and Asynchronous remote replication via FC or iSCSI	
N.	Storage Management	Storage Manager can manage all administrative tasks, including configuration, reconfiguration, expansion, maintenance and performance tuning, and can be performed without system downtime or interruption to array performance	
O.	Replication	Proposed storage should support Remote Replication one to Many and Many to One topology.	
P.	Volume copy	Copy complete standalone volumes	
Q.	Snapshot	Proposed storage should support upto 1024 Point in Time snapshots, required license if any should be proposed.	
R.	OEM	Offered storage must be from leading OEM'S	
S.	Storage Scalability	Storage system should support 5 times the capacity	
T.	Data Tiering	Offered Storage shall Support for Sub-Lun Data tiering across different type of drives within a given pool like SSD,	

		SAS, NL-SAS etc.	
U.	Warranty	5 Years onsite comprehensive warranty with 24x7 remote hardware support.	

4.5 Backup Storage:

	Parameters	Minimum Specifications	Remarks
A	Storage Type	NAS	
B.	Memory	4x 8GB DDR4 (32GB) or better.	
C.	Storage Controller	280TB RAW and usable 120TB minimum storage for (12TB Enterprise 7.2K RPM 3.5" SAS 12GB/sHard Drives x 24 HDDs). 2x12GB SAS EXP Port For Upgrade storage.	
D.	Network and connectivity	HOST Port 8xlG iSCSI ports +2x host board slot(s) Onboard 8xlGbE iSCSI Ports. Host board with 2 x 10 GB/s iSCSI (SFP+), type l x 2 (loaded with transceivers)	
E.	Power	Dual, Hot swappable, Redundant PS.	
F.	Form Factor	Supporting Physical Architecture - a. 1 x Rack mount kit for rack Installation. b. 4U/24 bay (for Drive). c. 24 x drive trays.	
G.	RAID Option Support	RAID 0, RAID 1, RAID 3, RAID 5/5F, RAID 6/6F, RAID 10, RAID 30, RAID 50, RAID 60	
H.	Supported OS and safety standard	Microsoft Windows Server 2019 or (Latest till date).	
		Safety: UL, BSMI, CB. Electromagnetic compatibility: CE, BSMI, FCC.	
I	Additional Requirements	a. NAS should have Hot swappable dual Controllers. b. Web Based Management software or interface for NAS. c. NAS should have dual redundant controller subsystem for uninterrupted operation.	

4.6 Digital Audio Workstation:

S.N.	Specifications	Description
1.	Form Factor	Tower
2.	Processor	Intel i7 Processor latest Generation/ AMD Ryzen™ Threadripper™ PRO 9000 Series OR equivalent
3.	Chipset	Intel chipset of 600 Series/ AMD chipset of AM 5600-series OR better
4.	Memory	Minimum 32GB, 5600Mhz DDR5 ECC memory or better, expendable upto 128GB or more
5.	Hard Disk Drive	Minimum 1x512 GB PCIe M.2 2280, TLC PCIe Gen4, SSD, SED ready Minimum 1TB Hard Disk, Workstation should support at least 3 SATA HDDs for future expandability
6.	Expansion Slots	Minimum 4 PCIe slots including one PCIe x 16 Minimum 3 M.2 slots
7.	Graphic Card	Equivalent to NVidia T400, 4GB or higher, system should support up to 48GB graphic card for future expandability
8.	I/O Ports	Minimum 6 USB port out of which- Min 4x USB Type 3.2 Min 2x USB Type 3.2 Gen1 HDMI port- 1 No Universal Audio Jack- 1 No 1x RJ45 Network Connector 1x Audio Line Out, C-type connector port-1
9.	OS Certification	Workstation should support following OS: Windows 11 Professional for Workstation, 64bit or higher (Certifications must be available in the public domain against the quoted model name)
10.	Networking	Intel Wi-Fi (2x2) and Bluetooth 5.2 or higher. Intel Ethernet Connection 10/100/1000 or better
11.	Audio	Intelligent HD Audio delivers audio with internal or external speaker.
12.	Power Supply	Minimum 1000W power supply unit, 92 % Efficient or better
13.	OS	Windows 11 Professional
14.	Monitor	Minimum 24" or higher monitor (min. 1920x 1080 screen resolution Connectivity option: 1 x Display Port , 1 x VGA, 1 x HDMI Port, Monitor Stand must be height adjustable features
15.	Keyboard & Mouse	Wired Keyboard & Mouse, should be of Same Workstation OEM make
16.	Security	integrated Trusted Platform Module (TPM 2.0), Chassis Intrusion Switch / sensor Setup/BIOS Password, I/O Interface

		Security
17.	Regulatory Compliance	Energy Star, EPEAT Gold India, FCC,UL, CE and Energy Star 8.0
18.	Performance enhancement software	OEM Bundled Software for Workstation
19.	Warranty	5 Years comprehensive Onsite OEM Warranty, (OEM warranty status must available in the OEM service website/public domain against each serial number)
20.	OEM ISO	27001, 9001, 14001, 45001, Hardware TPM 2.0

4.7 Digital Audio Cards (Single channel and Double channel):

Total 42 No's of Audio cards (24 Nos- Double channel and 18 Nos- Single channel) for Akashvani Delhi as per following minimum configuration shall be provided.

Common Features of Professional Audio Card:

- The Professional Audio Cards shall have state-of-the-art digital circuitry.
- The Professional Audio Cards should be suitable for reliable operation on 24x7 basis working.
- It should be compatible to PCI EXPRESS X1(x2,x4,x8,x32) Bus/Format.
- It should have OS compatibility with Windows 10 and 11.
- It should have main on-board processing feature of PCM Play & Record, MPEG Layer I & II Play & Record, Layer-3 Play, real-time mixing, level adjusting format & frequency conversion.
- Audio cards should support ASIO Driver model (no specialized soundcards should be provided) for monitoring & editing work**.**

- **Audio Inputs:**

  Professional Audio Cards should accept the Digital Audio Inputs.
  Professional Audio Card shall have a built-in Sampling Rate convertor on each Digital input so as to convert Digital Audio Signals of different sampling rate to desired sampling rate.
  Digital Input should be through 3-Pin XLR connector, if necessary interface cable with connectors should be included with the Audio card.
  The Professional Audio Card should accept digital audio input signal with sampling rates of 48 KHz, 96 kHz and Bit rate of 16/24.

- **Audio Outputs:**

  All digital outputs shall have AES-3 Signal format.
  Digital Output should be through 3-Pin XLR connector, if necessary interface cable with connectors should be included with the Audio card.

The Professional Audio Card should accept digital audio input signal with sampling rates of 48 kHz, 96 kHz upto 192 kHz and Bit rate of 16/24.

Audio Specification of Stereo Channel (Single and Double) Professional Audio Card:

A.	Digital Input Channels	: One AES/EBU professional input (For Single Channel) : Two AES/EBU professional input (For Double Channel)
B.	Digital Output Channels	:One AES/EBU professional output(For Single Channel) :Two AES/EBU professional output(For Double Channel)
C.	Supported Digital Audio Formats	: Linear PCM Play & Record & MPEG-1, Layer-2 Play & Record and Layer-3 Play
D.	Supported Sampling Rate	: Upto 96 kHz
E.	Supported Bit-rate	: Upto 24 bits
F.	Supported MPEG-1 Layer-2 Bitrates	: 32 to 192 Kbps
G.	SRC on Digital Inputs	: Should be available
H.	Workstation Bus Support	: PCI- Express
I.	OS Compatibility	: Window 10 Pro and 11 Pro
J.	Driver Type	: ASIO

5. WARRANTY

a) The software & hardware shall be warranted for trouble free operation for a minimum period of five years from the date of commissioning.
b) The bidder shall submit a letter from OEM/Software Developer for confirmation of back to back support commitment for five years from the date of commissioning at sites to Akashvani in respect of Automation Software.
c) Tenderer shall provide round the clock support for satisfactory working of complete system.
d) No separate charges will be paid for visit of engineers for attending to faults and repairs or supply of spare parts.
e) Tenderer will ensure that the existing data along with associated text, audio, metadata etc. is transferred successfully upon any hardware/software change, loading of software patches as well as upgrade.
f) It will be the responsibility of tenderer to ensure supply and installation of all patches of software as soon as these are released during the warrantee period at free of cost.
g) The bidder shall provide one engineer for 8x7 onsite support during warranty period.

6. PRE-DISPATCH INSPECTION & SUPPLY OF EQUIPMENT

6.1 All the Software & Hardware would be inspected by indenter before dispatch.

6.2 The pre-dispatch inspection shall be done by authorized representatives of Akashvani at suppliers premises in India before shipment.

6.3 An Acceptance Test Procedure (ATP) should be prepared by the tenderer and got approved from the indenter after the firm order is placed.

6.4 The tenderer will give a notice in writing to the indentor at least 4 weeks before the commencement of inspection. The tenderer shall provide all equipment, materials and manpower as may be required for performing various tests as per ATP. In case of inspection outside Delhi, the expenses on travel, and accommodation and daily allowances for Akashvani's inspecting officers would be borne by Akashvani Directorate/ Prasar Bharati.

6.5 The successful bidder will have to supply set of printed operation, service and maintenance manuals with respect to each equipment/Software to each station.

7. TRAINING

7.1 The Tenderer shall provide 500 Man –days of training to Akashvani Delhi staff as per details below:

S.No.	Staff to be Trained	Type of Training	No. of Persons/Days
1.	Engineering	Administration+ Operation & Maintenance	20
2.	Programme	Operation of Studio Automation S/w	30

Cost of Training, if any, may be quoted. This cost will be included in the calculation of lowest bid.

8. BILL OF MATERIAL (BOM)

8.1 Akashvani Delhi station require following equipments/services as per specifications detailed under section 1 to 4.

8.2 The Software modules and it's licenses shall be quoted by the bidder according to their functionality of the offered Automation Software to be used at Akashvani Delhi Studios as mentioned below:

i. Broadcast Studio for On-Air - 24 Nos.
ii. Recording Studio - 18 Nos
iii. Editing Studio - 24 Nos.
iv. Program Scheduling setup - 10 Nos.
v. Off Air Logger - 10 Nos. of channels

S.no.	Item Description	Min. Qty Required	Qty unit	AIR's Remark
1.	Studio Automation Software Ref spec para 3			Min. quantity required to be mentioned by the bidder.

2.	Bare Metal Servers Ref spec 4.2	02	Nos.	
3.	Normal Servers Ref spec 4.3	02	Nos.	Min. quantity to be mentioned by bidder depending on software requirement
4.	Main Storage Ref spec 4.4	01	Nos.	
5.	Backup Storage Ref spec 4.5	01	Nos.	
6.	KVM Switch, Monitor, Keyboard & Mouse/ KMM (to access all the server in rack)	01	Set	
7.	42U Smart Rack with inbuilt AC and UPS (for all servers)	01	Set	
8.	Digital Audio Workstations Ref spec 4.6	80	Nos.	
9.	Single Channel Audio Cards Ref spec 4.7	18	Nos.	
10.	Double Channel Audio Cards Ref spec 4.7	24	Nos.	
11.	Training Ref spec 7.1	01	Set	

Annexure –II

Format of Compliance statement

Sr. No of AIR specs.	AIR specs.	Compliance (Yes/No)	Performance Fig. of equipment Offered.	Reference to the Page Number of enclosed literature	Deviations, in case of non-compliance	Optional items if any required to make the system Compliant to AIR specs.	Features in the offered Product which exceeds AIR specs.
1.	2.	3.	4.	5.	6.	7.	8.

Annexure –III

Format for BOM statement by Tenderer

S. No.	Item Details	Total Quantity	**Tenderer's Offer**		
			Make	Model/Module Name /Version Number	Complete Details of Offered product