



प्रसार भारती / Prasar Bharati

(India's Public Service Broadcaster)

आकाशवाणी महानिदेशालय/ Directorate General: All India Radio

योजना एवं विकास एकक, आकाशवाणी भवन, संसद मार्ग, नई दिल्ली, पिन - 110001

P &amp; D Unit, Akashvani Bhavan, Sansad Marg, New Delhi-110001

स्टूडियो डिज़ाइन/ Studio Design



EOI No: 17/167/2016-D(SD)

### AN INVITATION FOR EXPRESSION OF INTEREST (EOI)

For "Inducting a Studio Automation Software and a Media Asset Management software for All India Radio & Doordarshan of Prasar Bharati".

#### 1. Background and Objective:

Prasar Bharati (PB) is the Public Service Broadcaster of India which fulfils the objectives of public service broadcasting through Doordarshan (DD) and All India Radio (AIR). All India Radio & Doordarshan are in the process of digitalization and migrating to non-linear editing for production & transmission for studios in place of conventional magnetic tape base system. Prasar Bharati is interested to have common & integrated studio automation software for audio & video in AIR & DD. The integrated Studio Automation Software (SAS) & Media Asset Management (MAM) should be capable to manage the complete life cycle of media (audio/video & text).

PB is also setting up a common data centre at Delhi and all stations of AIR & Doordarshan Kendras will be connected to the data centre through VPN. The MAM/Studio automation software will be installed at the data centre and stations/Kendras for sharing of media across the network and for automation of studio production and transmission activities.

The objective of this invitation for Expression of Interest (EOI) is to short list the interested bidders/agencies capable of Supply, Installation, Testing & commissioning (SITC) a suitable state of art software solution for studio automation including media management for both AIR and Doordarshan. However, generic hardware for this setup will be arranged by AIR/DD separately.

#### 2. Broad Scope of Work and Services:

**AIR:** All India Radio has 222 production centres. Out of this, at 48 stations, Netia studio automation software is being used and for the remaining stations studio automation/MAM software is required. For 79 stations of AIR (list attached) the software will be procured immediately on the basis of this EOI. However, software selected through this EOI will also be procured for remaining stations in future on the availability of funds.

**DD:** Doordarshan also requires implementing a tapeless and file based workflow at 67 Doordarshan studio centres and five number of Archive Centres. MAM software at Archive Centre will be provided immediately and studio automation & MAM for Kendras will be provided when funds are made available in future.

Sunny Joseph AE (AIR,NBH)	B.G. Nair AE (Doordarshan)	P.S. Srivastava DE (Doordarshan)	Manoj Gupta DE (Doordarshan)	T. Ramakrishna DDG (E), PB Archive	Subodh Shukla Scientist (F), NIC	R.P. Joshi DDG (E), AIR

The studio automation is to be done as per prevailing international standards. The broad scope of works is detailed below:

- 2.1 The agency is to provide and built a software solution for managing multi-location broadcast digital production, transmission and archive. AIR/DD will provide the required generic hardware (Servers, Workstations and storage up to OS level) only, however the Application software, Database for SAS/MAM system and software specific hardware if any is to be provided by the bidder.
- 2.2 Build a smart Media Asset Management system that can manage all the digital assets support work flows to interact with the content management system even through smart devices.
- 2.3 The software should be capable of ingesting, editing, scheduling, play out and finally archiving, refurbishing the content for future use for both radio & television is to be setup.
- 2.4 The software should also be able to comply the need of complete life cycle of media.
- 2.5 Supply & installation of software including training and full technical support & upgrade for next five years is included in scope of work.
- 2.6 The system should provide for:
  - Ingesting, editing, Play out & scheduling of audio & video file,
  - Media Asset Management (MAM),
  - Preservation planning for long term storage of archival content,
  - Support Near-line, Online and Offline management and movement of data,
  - A standard RDBMS to store metadata,
  - Fully redundant configuration,
  - Data Integrity,
  - Security,
  - Administration and management of the content for entire set up,
  - Rights identification and management,
  - Hierarchical storage management features.
  - Ability to carry out simple and advanced search using metadata of the assets.
  - Ability to create low resolution proxy of different bit rates and provide adaptive streaming experience for users.
  - Ability to assign flexible roles and rights across the user base through an administration module.
  - Ability to define business rules for archival on assets across hierarchical storage such as online, near line and deep archival storage.
  - Business Process Management (BPM) compliant workflow engine that allows configuration of workflows for carrying out content processing activities across the enterprise.

						
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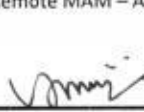
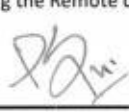


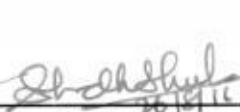
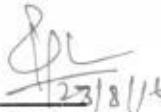
- Ability to carry out fulfilment activities from the MAM i.e. publish content for Syndication and New Media.
- Ability to transcode to required format.
- Ability to stitch segments together, add watermarks.
- Ability to package images, metadata as part of the delivery package.
- Ability to secure delivery of large files over public and private networks. Such as FTP, Aspera, Signiant, etc. using push or pull mechanisms.
- Ability to add additional metadata at an asset level or at a segment level. Support ability to add tags at multiple levels of segment strata.
- Ability to carry out edits on the cloud and create stories for packaging and delivery.
- Ability to review content and provide feedback.
- Ability to review status through real time dashboards.
- Ability to pull out reports on workflow performance.
- Ability to notify users via email and SMS alerts.
- Provide multi factor authentication through use of OTP type mechanism.
- Pre-integrated with industry standard 3rd party applications such as transcoders, editing, refurbishing, restoration, auto QC equipment, file accelerators, HSM software, etc.
- Support distributed ingest from remote locations.
- Ability to manage supporting essences such as images, subtitles, dubbed audio files in the same essence package.
- Ability to manage hierarchical metadata across program level, episode level and segment level as well as metadata across various content versions.
- Ability to manage rights metadata and integrate with standard Rights Management systems.
- Ability to integrate with Playout servers to deliver content ready for playout.
- Ability to integrate with Broadcast systems to sync playlists and work orders for content preparation for playout.

## 2.8 Software required for:

Sr. No.	Required Software for	Tentative no. of licences for DD	Tentative no. of licences for DD for future	Tentative no. of Licences for Radio	Tentative no. of Licences for Radio for future
1.	Production (Ingesting)	--	270	600	900
	Production (editing)	--	306	600	900
2.	Play out/Scheduling	--	142	300	100
3.	Media Asset Management (MAM) (Browsing, Meta data etc.)	20	0	Local* - 600 Remote* - 350	1100
4.	Restoration for Archive	18	0	10	10
5.	News Production	--	164	100	100
6.	Billing/Traffic & Artist Management	--	71	79	100

\* Local MAM- Accessing the local contents.

\* Remote MAM – Accessing the Remote contents.








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 AE (AIR,NBH)      AE (Doordarshan)      DE (Doordarshan)      DE (Doordarshan)      DDOG (E), PB Archive      Scientist (F), NIC      DDOG (E), AIR

The detailed features of required software are enclosed as Annexure-III (Specification).

PB will prefer a Workstation (WS) base licensing policy and reserve the right to install any number of modules on the workstation. However, PB will prepare separate WS for tasks given on above table except local MAM software, which will be a common module in all in respect of studio automation.

### 3. Eligibility Criteria:

- 3.1 EOI may be submitted by a registered/incorporated company or consortium. In case of consortium not more than three companies will be allowed and Lead bidder should be clearly stated in the agreement. The lead bidder will be responsible for the project and must be in existence for at least five years. (Please provide full details and documents in support including the registration/incorporation under the applicable laws).
- 3.2 The agency, in order to be eligible to provide the aforesaid services, must also have Experience /ability to carry out at least **eight areas out of following 10** areas: (Bidder is required to submit documentary proof in respect of each of his claim)
- 3.2.1 Building/setting up a Media Asset Management (MAM) system.
- 3.2.2 Ability to handle audio-video in multiple formats.
- 3.2.3 Ability to handle audio/video restoration from old media.
- 3.2.4 Designing and implementing distributed digital file archival systems managed from a central location.
- 3.2.5 Setting up a Studio Automation system for Radio broadcast
- 3.2.6 Setting up a Studio Automation system for Television broadcast
- 3.2.7 Setting up a News Room Automation system for Radio/Television broadcast
- 3.2.8 Ability to handle large data base (10 GB or more) management & maintenance.
- 3.2.9 Software development and support of enterprises nature running in WAN/Internet for more than 50 locations.
- 3.2.10 Capability to create and configure metadata model/ schema pertaining to multiple asset types and compliant with Dublin core / other international standards.
- 3.3 Successfully completed at least two projects of integrating broadcast/IT related software in the last five years. The value of at least one project must not be less than Rs.10 Crore and one of the project should be in broadcasting field having value of Rs. 5 Crore.

						
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- 3.4 The company should have a consistent audited annual minimum turnover of Rs.20.00 crore or more per year for the preceding five years (annual audit report of the firm from 2010-11 to 2014-2015 are required).
- 3.5 No. of employees in the company should not be less than 50 during any time during last five years. Further at least 20 employees should be engineering graduates or of higher qualifications.
- 3.6 The firm/lead bidder should have their office in India and registered in India.
- 3.7 The firm or consortium as the case may be should have a valid ISO 9001:2008 & CMMI Level 3 or above Certification. It requires a copy of the same as evidenced.
- 3.8 The agency must not have been blacklisted/ debarred by any Government/Semi Government Organization or Corporation in India, at any stage in last five years. (The firm is required to submit declaration as per prescribed format)
- 3.9 Certificate of incorporation, VAT/Sales tax registration etc. and other related details must accompany the EOI.
- 3.10 Firm is required to submit the solution document considering draft specification (@Annexure-III) and requirement spelled out in this EOI document. It should include the concept, software architecture, number of software OEMs, software specific hardware required if any and its detail along with comments about the draft software specification at Annexure-III. The solution document will be used for assessment of understanding of the concept by firm. The offered solution should be unpriced and should be in brief not exceeding to fifty pages.
- 3.11 Firm is required to submit specification of the optimal generic hardware required for efficient working of software as per typical setup at AIR/DD.

AIR- A typical setup of AIR stations is 8-12 workstations (2-4 playout for 1-2 channels, 5 ingesting/editing, 2 workstation for remote MAM), 1 set of server, and storage along with networking. Bidder is required to submit a system architecture for required optimum hardware for complete functioning of software. It should also including broad specification for server, storage (2 TB) and work station (playout, production and remote MAM separately) along with sound card, that is required for smooth functioning of software.

DD- A typical setup of Metro Kendras of Doordarshan consist of Ingesting-9, Editing-16, Playout-2, Restoration-1, News Room Computer System-6 and Billing/Traffic management-1 no. Generic hardware and the specification of workstations, Servers and Storage- 200 hrs. in HD format with LTO may be mentioned.

#### 3.4 Disqualification:

The proposal is liable to be disqualified in the following cases or in case bidder fails to meet the bidding requirements as indicated in this EOI:

- a) Proposal not submitted in accordance with the procedure and formats prescribed in this document or treated as non-conforming proposal.

						
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- b) The bidder is with his own conditions.
- c) Proposal is received in incomplete form.
- d) Proposal is received after due date and time at the designated venue.
- e) Proposal is not accompanied by all the requisite documents.
- f) Information submitted is found to be misrepresented, incorrect or false, accidentally, unwittingly or otherwise, at any time during the processing of the contract (no matter at what stage) or during the tenure of the contract including the extension period if any.
- g) Bidder tries to influence the proposal evaluation process by unlawful/corrupt/ fraudulent means at any point of time during the bid process.
- h) In case bidder submits multiple proposals or if common interests are found in two or more bidders, the bidders are likely to be disqualified.
- i) The bidder is irresponsible and non-cooperative such as not responding to the queries within reasonable time.

#### 4. Preparation for submission of EOI:

##### 4.1 The EOI must contain :

4.1.1 Letter of Submission as per format at Annexure-I

4.1.2 Declaration regarding acceptance of terms and conditions of the tender and declaration of not been blacklisted by any of the Government agency as per Annexure-II

4.1.3 Essential information as given below:

- Name & address of the agency.
- Business name and consortium.
- E-mail ID.
- Fax No/Telephone No (s).
- Authorised signatory name, email and contact number.
- Company profile relevant to EOI. It may also include details of some case studies and past experience relevant to the "Broad Scope of Work and Services" as mentioned at Sr. No.2 above. (Not more than 10 pages).

4.1.4 The agency/bidder shall ensure that it fulfils the eligibility criteria as desired at Para 3 and other essential conditions. Compliance statement of Eligibility criteria mentioning a brief note against each of the criteria along with the documents submitted as a proof is to be prepared and submitted.

Against each of the Eligibility criteria in compliance statement, the page number of the concerned supporting documents attached along with the bid must be mentioned. The claim supporting document should also be cross reference to the Para number of the Eligibility Criteria. The support documents may be certificates of awards, copies of contract documents, completion certificates from clients, documents explicitly supporting the past experience, list of existing and past clients with details of services offered, details of similar projects

						
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executed with copies of agreements & work orders, audit reports and other financial reports.

4.1.5 The EOI shall be duly signed on each page by an authorized person. Each page should be properly numbered. Documents authorizing such person must accompany the EOI. PB reserves the right to reject outrightly any EOI unsupported by proof of the signatory's authority.

4.1.6 Firm is required to submit their solution Document as per details at para 3.10.

4.1.7 Firm is required to submit specification of the optimal generic hardware as per details at para 3.11.

#### 4.2 The validity period of the EOI shall be till 4 months from the date of opening.

4.3 The EOI complete in all respects must be submitted together with requisite information and annexure(s). The EOI should be free from ambiguity, change or interlineations. Incomplete EOI will not be considered and is liable to be rejected without making any further reference to the agency/ bidder.

4.4 The EOI and any annotations or accompanying documentation must be in English language.

4.5 If required, a pre-bid meeting will be held before the last date of submission of EOI to clarify concerns of prospective applicants in respect of scope of work and any other details of the EOI document. The venue and date of the pre-bid meeting will be notified on website [www.allindiaradio.gov.in](http://www.allindiaradio.gov.in). Applicants willing to participate in the pre-bid meeting must send their names and queries in writing or through email at least four days before the date of pre-bid meeting.

#### 5. Submission of EOI:

5.1 An EOI may be submit to following address before the closing date:

Purchase Section,  
Room No. 325, 3rd Floor,  
Akashvani Bhawan, Sansad Marg, New Delhi-110001.

5.2 EOI received by post or any other mode after or before the closing date and time mentioned above shall not be considered. EOI (s) sent through TELEX/FAX/ Email will not be entertained.

5.3 Any amendment in the EOI document, if required, will be posted on website [www.allindiaradio.gov.in](http://www.allindiaradio.gov.in). All the applicants are therefore advised to regularly visit these website before submitting the EOI.

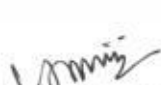
#### 6. EOI Opening:

6.1 The EOI shall be opened on **as date mentioned on AIR website** at 1500 Hrs. (IST) at Room No. 326, Akashwani Bhawan, Sansad Marg, New Delhi- 110 001.

6.2 An authorized representative of the agency/ bidder carrying a copy of the authorization letter submitted along with the EOI, may be entitled to be present at the time of EOI opening.



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6.3 In case of an unscheduled holiday on the closing/opening day of EOI, the next working day will be treated as the scheduled prescribed day of closing/opening of the EOI; the time notified remaining the same.

### **7. Clarifications of Proposals:**

- 7.1 The EOI proposals shall be evaluated on the basis of the proposal and the supporting documents submitted by the agency/bidder. PB shall not be under any obligation to seek any further information or clarifications.
- 7.2 Without prejudice to the above, in order to assist in the evaluation of proposal, PB may, at its sole discretion, ask any agency for any clarification on its proposal. Such clarifications shall be submitted within the stipulated time.
- 7.3 The agency must also be prepared for a presentation of the offered proposal before the evaluation committee.
- 7.4 If the agency does not provide clarifications requested for by the date and time set forth in such request for clarification, its proposal shall be evaluated based on the information submitted in the EOI in the first instance and documents provided therewith.
- 7.5 It is clarified that the agency shall not have the right to submit any additional information or material subsequent to the date of submission of EOI on its own. It is therefore essential to ensure that all the details are provided fully in the first instance.

### **8. Evaluation/ Scrutiny of EOIs:**


- 8.1 EOI proposals received by the prescribed date and time shall be considered and evaluated by a duly constituted committee.
- 8.2 Evaluation/ Scrutiny of EOIs shall be based on:
  - i. Information contained in the bid, the documents annexed thereto and clarifications provided, if any.
  - ii. Assessment of the capability of the bidder based on past record.
  - iii. Offered solution Document and the comments on the software specifications should meet the core requirement of specification.
  - iv. The agency/bidder may be asked to make a presentation before the committee. The evaluation of EOI will also be based on such presentation.
  - v. PB shall communicate qualified bidder by Post/Fax/ E-mail. However, it would not constitute a contract between the parties.

### **9. Stage Subsequent to EOI:**


- 9.1 After evaluation of EOI, qualified bidders will be intimated.
- 9.2 The specification for generic hardware required for software will be finalized based on input already received through this EOI and subsequent consultation with the qualified bidders, which will be procured by AIR/DD separately.



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AE (Doordarshan)



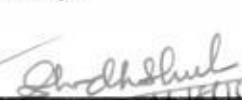
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- 9.3 The RFP/tender for SITC of Studio Automation Software/MAM will be prepared based on input already received through this EOI and subsequently consultation with the qualified bidders and RFP/tender will be issued to qualified bidders only.
- 9.4 Prasar Bharati reserves the right for not to accept the demand of very high and absurd computing power & memory of the generic hardware demanded by software bidder.

#### 10. Address for Correspondence:

Purchase Section,  
Room No. 326, 3rd Floor  
Akashvani Bhawan  
Sansad Marg, New Delhi-110001.

All correspondence shall bear reference to the Invitation for EOI document number: EOI No. 17/167/2016-D(SD).

#### 11. General Terms:

- 11.1 It is expressly made clear that mere submission of EOI by an agency, whether eligible or ineligible, shall not confer any right whatsoever on any such agency/bidder.
- 11.2 Any EOI submitted by an agency, which fails to satisfy the eligibility requirements set out in Sr. No. 3 above, shall not be considered and summarily rejected.
- 11.3 Neither the issue of this Invitation for EOI nor any part of its contents is to be taken as any form of commitment or acknowledgement on the part of PB to proceed with EOI or any agency/bidder.
- 11.4 PB reserves the right to annul or terminate the process or reject any or all EOI at any time or stage without assigning any reason.
- 11.5 PB reserves the right and absolute discretion at any time and without any liability whatsoever, to amend, vary, waive and/or modify any or all of the terms and conditions of this invitation for EOI without assigning any reason whatsoever.
- 11.6 PB shall in no circumstance whatsoever, be responsible or liable in any manner whatsoever, for any costs or expenses incurred or any loss suffered by the agency, in connection with or in consequence of the preparation or delivery of any EOI, or compliance with any of the requirements of the invitation for EOI or presentation made to PB or in any other manner.
- 11.7 Any suppression or misrepresentation of a material fact shall result in disqualification of the agency/bidder.
- 11.8 In case any clarification is sought by PB after opening of EOIs, the reply of the agency should be restricted to the clarification sought.
- 11.9 Canvassing in any form shall render the EOI liable to be rejected.
- 11.10 The agency shall be deemed to have read and duly considered all terms and conditions of this EOI document and must acknowledge that it intends to submit



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an EOI in accordance with the provisions of this document having accepted the terms and conditions as have been incorporated herein and/or that may be incorporated by PB through any addendum (s).

- 11.11 Each agency irrevocably and unconditionally accepts and agrees that by submitting an EOI:
- (i) It agrees to be bound by the terms, conditions and obligations set out in this Invitation for EOI document together with such other terms and conditions as PB may, in its sole discretion.
  - (ii) It has read and understood, and agrees and accepts, the provisions and procedures, and terms and conditions (including the outcome) of this Invitation for EOI.
  - (iii) It agrees that the offer shall remain valid till the expiry of the validity period as specified in this Invitation for EOI or any extension thereof.
- 11.12 The decision of PB shall be final while finalizing the EOI.
- 11.13 The agency would be fully responsible to follow all relevant laws/legislations as applicable in India and PB will not be responsible for any default/ violation of any law by it.
- 11.14 The EOI shall be governed in all respects by the laws of India and shall be subject to the jurisdiction of Delhi courts.



						
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Annexure-I**LETTER OF SUBMISSION**

[On the Letterhead of the agency including full  
Postal address, and telephone, facsimile and e-mail address]

Reference No. \_\_\_\_\_

Date: \_\_\_\_\_

To:

DDG (E)(Purchase)  
P&D Unit, All India Radio  
Akashwani Bhawan,  
New Delhi-110 001

Subject: An Invitation for Expression of Interest for Inducting a Studio Automation software and a Media Asset Management software for All India Radio & Doordarshan of Prasar Bharati

Sir,

Having examined the details given in EOI document for the above project, we \_\_\_\_\_  
\_\_\_\_\_ hereby submit the relevant information for  
considering our EOI for Inducting a Studio Automation software and Media Asset  
Management software for All India Radio & Doordarshan of Prasar Bharati


- We hereby certify that all the statements made and information supplied in the enclosed forms and accompanying statements are true and correct.
- We have furnished all information and details necessary for EOI and have no further pertinent information to supply.
- We also authorize PB or his authorized representative to approach individuals, employers and entities to verify our competence and general reputation. We submit the following documents in support of eligibility criteria.

Signature of the Authorized Signatory

Seal of Company

Date of submission:

Details of Submitted Enclosures: (complete index of documents along with page number may be given)

						
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**Annexure-II****Declaration Regarding Acceptance of Terms & Conditions contained in the Expression of Interest (EOI) Document and Declaration Regarding Clean Track Record**

[On the Letterhead of the Entity including full postal address, and telephone, facsimile and e-mail address]

Reference No. \_\_\_\_\_

Date: \_\_\_\_\_

To:

DDG (E)(Purchase)  
P&D Unit, All India Radio  
Akashwani Bhawan,  
New Delhi-110 001

Sir,

We have carefully gone through the Terms & Conditions contained in the EOI Document regarding applications for Expression of Interest (EOI) for inducting a Studio Automation software and a Media Asset Management software for All India Radio & Doordarshan of Prasar Bharati

. We declare that all the provisions of this EOI Document are acceptable to us. We also declare that we have not been debarred / black listed by any Government / Semi Govt. Organization in any Country.

It is further certified that the signatory to this document is the authorized signatory and, therefore, competent to make this declaration.

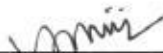
Yours truly

Signature of the Authorized Signatory

Seal of the Company



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AE (AIR, NBH)



B.G. Nair  
AE (Doordarshan)



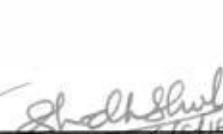
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**Annexure-III****Draft Technical Specification for SITC of studio automation with MAM at All India Radio & Doordarshan.****1. GENERAL**

- 1.1 This specification is for Supply, Installation, Integration, Testing & Commissioning of software for "Studio Automation with Media Asset Management" to be used at studios of All India Radio & Doordarshan Kendras along with Media Asset Management to be installed at Data Centre at Delhi and at selected places (regional archival centre and stations/kendras).
- 1.2 The Software should be of modular or sub modular design and based on the field-proven modern technology available in international market. It should be suitable for uninterrupted, Continuous & reliable 24x7x365 operation.
- 1.3 Only professional field proven software should be offered. The tenderer should provide customer reference certificate and documents in support for the offered product, having been deployed in a reputed broadcasting organization in client server networked environment having around 200 audio/video work stations at a single site.
- 1.4 The tenderer must submit the following documents along with the tender:
- 1.4.1 A Clause-by-clause compliance statement as per format prescribed, highlighting deviations, if any, on all the clauses of specification from the original software developer(s) of the offered software. If compliance statement is incomplete or in format other than that in prescribed format, the tender may be rejected outrightly.
- 1.4.2 Detailed printed literature of the software giving complete details of features and performance data should be from OEM.
- 1.4.3 Certificate in original from the original Software Developer/OEM that the tenderer is the authorized representative/dealer for India should be enclosed with the tender.
- 1.4.4 A copy of un-priced Bill of Material (BOM) as per requirement indicating version no., modules details, License details etc. of offered Studio automation software, required software, RDBMS, CALs etc. shall be quoted clearly. Any tender, showing ambiguity in above terms shall be treated as incomplete and will be rejected.
- 1.5 The SITC work for all the stations will have to be completed within 15 months after the placement of firm order.

**2. SCOPE OF THE TENDER:**

- 2.1 The Scope of this tender is for supply, installation, integration, testing and commissioning of "Studio Automation software with Media Asset Management" along with RDBMS other software, required for efficiently running all the

						
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functionality of the offered software. AIR/DD will provide generic hardware & OS (windows) only (as per attached list).

- 2.2 Any additional system software as well software specific hardware other than generic hardware required for efficient functioning of various features of Automation software on these servers/workstations shall be quoted & provided by the tenderer.
- 2.3 The transition from the existing system already running at these stations to new setup/system has to be seamless. No shutdown shall be permitted for this purpose.
- 2.4 The Bill of Material giving item-wise requirement is attached (same as para-2.8 of EOI).
- 2.5 The complete system shall be tested for successful operation of the Automation software.

### 3. Tender Evaluation:

The technical part of the tender will be evaluated on the basis of various documents provided along with tender and by actual testing by a team consisting of end user & technical expert nominated by Prasar Bharati.

In this process the firms will install their software at a central place. A team comprising of technical persons and end users will evaluate the technical parameters and functioning of the offered software. The team will evaluate the software on the basis of marks predefined for ease of working and features. The offers which will score below a certain level of total marks obtained will be disqualified for further participation in the tendering process. In addition to qualify, the offer should score minimum marks in each of the section. Sections are the broad requirement such as - ingesting, editing, scheduling, archiving, search, restoration, collaboration & playout etc.

### 4. Licensing:

- 4.1 The requirement for various Studio automation software modules are given in Bill of material (immediate & for future). (The rates may be quoted for this requirement.)
- 4.2 Any other module(s) required for meeting the features of specifications may also be indicated & quoted accordingly.
- 4.3 Tenderer shall have to supply additional licenses for the software modules on pro-rata basis for next five years from the date of completion of SITC.
- 4.4 The complete original software should be provided on suitable media (CD/DVD).
- 4.5 All the Licenses should be in the name of Prasar Bharati.
- 4.6 PB will have the right to divert the use of License to other station/kendras as and when the requirement arises.
- 4.7 AIR/DD will prefer the licences per work station basis.

### 5. Security:

- 5.1 The offered product should conform to ISO/IEC -27001 Information Security Certificate.

						
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- 5.2 The software should offer network level security management for users, groups and folders should be capable to integrate with Active Directory/LDAP.
- 5.2 It should be possible to assign various levels of functionality & Module access rights. User should be able to open a particular module only if he is authorized to do so based on management requirement.

## 6. Indian Language Support:

- 6.1 Software should support Unicode for working in Indian languages.
- 6.2 Support for third party fonts should also exist.

## 7. Metadata:

- 7.1 The system should support flexible metadata schemes. This means that an administrator of the system (which is a representative of the customer) can add, remove, and alter metadata fields using a dedicated user interface).
- 7.2 The update of metadata fields can happen at any time during the project even after the project is running for months/years.
- 7.3 The update of metadata should be transparent to the users and should not mandate system restart.
- 7.4 There shall be no restriction on the amount or type of metadata fields and not redefined or fixed metadata schema.
- 7.5 Metadata can be exported and imported to and from external system using XML in configurable schemas.
- 7.6 Metadata fields should have at least the following parameters:
- 7.6.1 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.
- 7.6.2 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.
- 7.6.3 Users should be able to add metadata to an asset regardless of the status of the asset (pre ingest, while ingest, in process etc).
- 7.7 Metadata updates by one users should be immediately synchronized to all other users- Without a need to "refresh".
- 7.8 All metadata fields should be indexed and available for search in a integrated search engine embedded within the proposed solution.
- 7.9 The search engine should support Boolean, fuzzy, controlled vocabulary, and complex queries on the index.
- 7.10 The metadata field should have attribute that are commonly used for audio/ video contents.

## 8. Database related Functionality:

- 8.1 A reputed RDBMS like MSSQL, DB2, Sybase, Oracle etc. shall be used for storing metadata of audio/video.
- 8.2 System shall provide predefined Metadata database with customizable fields so as to keep details of various recording & audio ingested. Addition/removal of metadata fields should be possible by system administrator.



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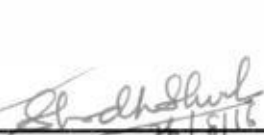
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- 8.3 It should be possible to search the audio as well as text on the basis of single or more Metadata field entries stored in database.
- 8.4 Support for entering Metadata in Indian Languages using UNICODE should exist.
- 8.5 It should be possible to keep record of Archived material in the database. It should be possible to re-ingest the material from archive.
- 8.6 It should be possible to keep schedule of programme to be broadcast in the database.
- 8.7 It should be possible to keep the logging information about the entire ON-AIR program, Ingested Audio, Schedules in the database for preparation of customized reports.

**9. Transfer of existing Audio/Video Content & Metadata to New Format:**

- 9.1 Presently most of the stations are using various standalone software in which Metadata is being maintained in MS-ACCESS/MySQL. The tenderer shall be required to transfer the currently available audio content & Metadata to new format for reuse with this automation software. About 5000 audio files with 20-30 Metadata fields shall have to be transferred to new format/system at each of the station. Similarly about 500 video files in 20-30 Metadata is required to be transferred per Kendra. Rate of transfer the audio/video in the slab of 500 may be quoted.

**10. Functionality over WAN:**

- 10.1 It should be possible to login into software, search database for Audio and download the same over WAN connectivity using special access rights. The automation software should fully integrate with MAM.

						
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PART-A**Draft specification for Studio & Newsroom Automation Software for All India Radio:**

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

**11.1 Audio Formats:**

- 11.1.1 For recording & editing, Linear WAV formats, BWF format with sampling rates of up-to 96 kHz & up to 24 bit resolution should be available. However, format of such files shall be changed to MPEG 1 Layer 2 and Layer 3 while transferring them to content server for transmission purpose.
- 11.1.2 It should be possible to save file on the content server in Linear (.WAV&.BWF) format for archival purpose.

**11.2 Audio Ingest Module (Import):****11.2.1 File Ingest:**

It should be possible to ingest audio file from Windows Compatible File system & from CD/DVD drive, Networked drive or USB connected removable disk, Secured Digital (SD) card and Web.





**11.3 CD Ingest:**

Facility to ingest Audio CD Tracks and save a copy in the original as well as after conversion into system default format along with metadata in the database. CD-Extraction facility must have following features:

- 11.3.1 Must be faster than real-time
- 11.3.2 Creation of database entry during extraction process should be available that can be supplemented later. This entry should also become the base element for music scheduling.
- 11.3.3 Supported Audio Formats (as per para 3) should be ingested after conversion to system default format.
- 11.3.4 Module should be able to support and recognize any metadata included in the Audio file and convert it to standard Metadata of AIR.
- 11.3.5 User should be able to add and edit metadata at the time of ingest after proper authentication.
- 11.3.6 Provision for user definable kill (purging) date of ingested items shall be available.

**11.4 Recording Module:**

- 11.4.1. It should be possible to record in mono or stereo or multi-track mode. Recording format, bit rate, sampling rate, bit depth (as per para 3) should be user selectable.
- 11.4.2. Activation of automatic recording by time, Audio level or fader start, phone-in console ringtone.
- 11.4.3. Visual indication in waveform should be available during recording.
- 11.4.4. It should have facility for preview of input level before start of recording.
- 11.4.5. It should be possible to enter & alter the metadata when the recording is going on.
- 11.4.6. A hot key for metadata window popup should be available.
- 11.4.7. Auto trim feature to remove silence from beginning and end of a recording.

						
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- 11.4.8. Facility for inserting markers during recording should exist.
- 11.4.9. Automatic recording should be placed in pre-designated files, so that these could be used immediately.
- 11.4.10. It should be possible to play and edit the file currently being recorded from the same or any other DAW in the LAN. As soon as the audio file is getting recorded, it should be accessible for playing or editing.
- 11.4.11. It should have facility to export files to any of the supported audio formats as mentioned in specification earlier.
- 11.4.12. It should have facility of automatic saving during recording.
- 11.4.13. The software should give warning if 'Window Close button' is pressed accidentally during recording process.

### 11.5 Editing Module:

- 11.5.1. The system should support non-destructive and non-linear editing.
- 11.5.2. It should be possible to drag and drop files from database, windows file manager or another application.
- 11.5.3. All editing controls should be visible on a single screen at the same time.
- 11.5.4. 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.
- 11.5.5. The user should be able to zoom in to selected portion of the waveform to the extent in the EDL for easy and accurate editing.
- 11.5.6. Standard facility for conversion of file format with time stretching and pitch shifting, bit depth and sample rate conversion should be available.
- 11.5.7. Various file formats (as per para 3.) should be supported.
- 11.5.8. 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.
- 11.5.9. Display for Time indication of in/out and length of marked portion.
- 11.5.10. Monitoring of pre-roll, post-roll and continuous play of marked portion should be possible.
- 11.5.11. The following features should be provided:-
  - 11.5.11.1 User defined filters for reduction/removal of clicks, pops, crackling general noise reduction, Hum & Hiss.
  - 11.5.11.2 Amplitude Control: level increase, decrease, volume maximization /normalization.
  - 11.5.11.3 Phase: Facility of phase inversion and reversal.
  - 11.5.11.4 Insertion of various effects from other sources/files.
  - 11.5.11.5 Voice-over recording facility with editing level control feature should be available.
- 11.5.12. It should be possible to save edited audio file along with metadata into database.
- 11.5.13. It should be possible to play multiple-tracks after mixing, selected audio portion or single track. It should also be possible to play between & after selection, beginning & end of selection & Play over a selection and play a selection in loop.

### 11.6 Database Audio Explorer/Search Module:

- 11.6.1 Module should support intelligent search for browsing, selection, scheduling of audio content on the basis of metadata field(s) attached to the audio content.



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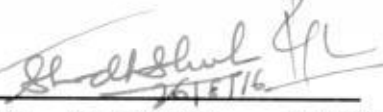


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- 11.6.2 It should be possible to have instant access to content on the basis of various categories & sub-categories subject to access rights.
- 11.6.3 The software should provide a convenient display, similar to that of windows explorer.
- 11.6.4 It should be possible to view metadata of the audio content.
- 11.6.5 It should be possible to listen to Audio files from explorer module for pre-listening.
- 11.6.6 The fields of the explorer window should be customizable.
- 11.6.7 Audio search facility should be available in Ingest, recording, Scheduling & On-Air modules.
- 11.6.8 It should be possible to explore archived audio material.

### 11.7 Scheduling Module:






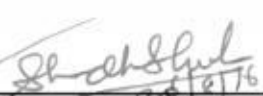

- 11.7.1 The software should support multiple channels format. The playlist of any channel should be available to a group of users with proper access rights associated with that channel.
- 11.7.2 Creation of Playlist by name or date or time should be possible.
- 11.7.3 Audio content selected from Database search/ explorer Module should be inserted by drag and drop operation.
- 11.7.4 It should be possible to create a block-wise play list. A day's schedule may consist of one or more numbers of blocks.
- 11.7.5 It should be possible to create a play list of different audio program for a day, several days, weeks or even months in advance from database, with manual/automated constraint or restrictive program rotation policy.
- 11.7.6 Program schedule may contain audio, text or mixed titles.
- 11.7.7 Block schedule heading (Program Chunk), Schedule heading and related audio contents should be distinguishable.
- 11.7.8 Cross-fade facility between events should be provided in scheduling.
- 11.7.9. Schedule should be modifiable right up to moments before execution by the creator/ supervisor with access rights.
- 11.7.10 Copying of a schedule or a part thereof should be possible from schedule of any day to another schedule.
- 11.7.11 The play schedule should be totally self-contained with icons for type of material, type of transition.
- 11.7.12 Text entering & editing should be available.
- 11.6.13 Print out facility of play list should exist.

						
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- 11.7.14 Facility to chain multiple play schedules should be available. When the first playback list has played and then unloaded, the next item moves up and is loaded ready to play.
- 11.7.15 Provision to include part of audio content in the schedule without copying should be possible. Schedule of time offset for music items should be possible both for the beginning and the end without separately copying the item.
- 11.7.16 Provision of templates to enable auto creation of block-schedules of playlist.

## 11.8 ON-AIR Module:

- 11.8.1 This module should support at least two virtual players, monitoring support for cueing, database search/explorer support, playlist(s) and hotkeys.
- 11.8.2 One Virtual player should be dedicated for ON-AIR Play out & other configurable for standby/Cueing purpose.
- 11.8.3 With database search/Explorer support, it should be possible to browse server's Database instantaneously and play audio ON-AIR.
- 11.8.4 It should be possible to playback the playlist in Manual or automated mode.
- 11.8.5 In auto Mode, the items from the Playlist should be played one after other without any manual intervention. While in Manual mode, the On-Air Play out should stop after completion of each playlist item and next item's play should be again started by manual command either from Keyboard or mouse.
- 11.8.6 Playlist Audio being played, audio already Played & audio in pipeline should be easily distinguishable in the playlist.
- 11.8.7 It should be possible to trigger the start of Play in Auto mode by Time setting.
- 11.8.8 It should be possible to incorporate changes in the playlist with proper access rights while the system is in play mode.
- 11.8.9 Monitoring of complete audio, beginning & end of any Playlist items on cue Player should be possible.
- 11.8.10 It should be possible to monitor (on cue player) end of playlist item currently On-Air.
- 11.8.11 Software should provide fader start facility.
- 11.8.12 Cross-faded or overlapped play of Playlist Audios should be possible.
- 11.8.13 Title & Count down time of ON-AIR item should be displayed prominently.
- 11.8.14 Dual channel Bar-graph meter should display level of ON-AIR Play out audio.
- 11.8.15 Features like Hotkeys, Priority play buttons should be available for playing frequently used items such as signature tunes, promos etc.
- 11.8.16 Details of audios played out On-Air should be properly logged in database for future reference.

						
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- 11.8.17 Display of Metadata information of the items in the On-Air Playlist should be available on demand.
- 11.8.18 Text editor for entering, editing & reading the script should be available.
- 11.8.19 It should be possible to integrate SMS service.
- 11.8.20 Current Date, Day & Time should be displayed prominently on ON-AIR Player.
- 11.8.21 Local caching of 24 hour duration on DAW in On-AIR studio should be available.

#### 11.9 News Automation Software

News flow of AIR's News room working is based on story submission, approval/rejection process. The software should support AIR's workflow environment. The software should have separate Modules/Sub-Modules for meeting the following requirements.

##### 11.9.1 News Collection:

###### 11.9.1.1 Wire-Services Ingest Module:

11.9.1.1.1 The system should support reception of news-wires from News Agencies viz. UNI, PTI, Varta, Bhasha etc. The news feeds are available from V-SAT/Serial lines/Digital receivers/internet and these are stored in watch folder in existing separate Workstation available with station. Supplied software should be able to pick up the stories/wires from these watch folders.

11.9.1.1.2 The stories so received should be automatically sorted, indexed according to subject classification defined in the news and stored with appropriate metadata.

###### 11.9.1.2 E-mail Ingest Module:

11.9.1.2.1 Provision for receiving text stories through E-mail from authorized sources should be available..

##### 11.9.2 News Processing :

Immediately after receipt of the news item, the system should notify it on active terminals which should have provision for sorting, indexing, classification and filtering based on subject, content, slug line, header etc. The news item processing facility should support multi-level On-line authentication system for broadcast purpose.

###### 11.9.2.1 News Text Editor Module:

11.9.2.1.1 A Simple text editor with basic editing functionality like MS-Word should be available for editing the news.

11.9.2.1.2 Editor should support Unicode font for Indian language support & third party fonts.

11.9.2.1.3 It should be possible to take any portion of main story to the script editor.

11.9.2.1.4 Raw news (received from wires, correspondent, FAX etc.)/approved news (final story approved by editor/ editor-in-chief) should remain unaltered and edited news should be saved as new story.


11.9.2.1.5 It should display approximate time for reading out the script. The timing should be automatically updated as report is being written.

11.9.2.1.6 An integrated spell checker should be available for English language.


11.9.2.1.7 Split Screen or two editor windows for translation etc. should be available.



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**11.9.2.2 News Explorer Module:**

- 11.9.2.2.1** It should be possible for any user with appropriate access rights to have instant access to all the information and files for news wires, correspondent stories, finished stories, correspondent audio reports, archived items etc. stored in database. The authorized user should be able to filter as per subject, content, heading etc.
- 11.9.2.2.2** It should provide a convenient display, similar to that of windows explorer. It should be possible to view title of the stories & first few lines of selected stories. Full stories, script editor & audio editor should be viewable on another pane of the explorer.
- 11.9.2.2.3** New news item, correspondent stories, wires, fax messages & finished stories should be easily distinguishable for immediate recognition in explorer view.
- 11.9.2.2.4** Most recent stories should be at the top of the list in the explorer view.
- 11.9.2.2.5** In case, a story is being selected in explorer view, its display should remain uninterrupted by arrival of fresh stories. Only an indication of arrival of fresh stories should be visible.
- 11.9.2.2.6** It should be possible to listen to ingested Audio.
- 11.9.2.2.7** The access of this module should be available to various modules like News Text Editor, News scheduler & Audio editor.
- 11.9.2.2.8** It should be possible to view the module from a remote terminal with proper authentication.
- 11.9.2.2.9** Status of the story (i.e. status of approval, scheduling, archiving etc.) should be viewable.
- 11.9.2.2.10** It should be possible to view contact directory, special event Directory & Image Directory. It should be possible to update & modify the same with proper access rights.

**11.9.2.3 Audio Recording and Editing Module**


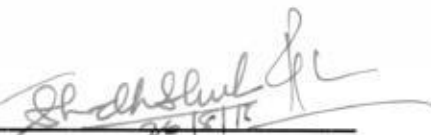
- 11.9.2.3.1** An Audio Recorder/editor with standard Cut, Copy & Paste, unlimited Undo's and Redo's, Time Stretching, Pitch Shifting, Insertion of Markers, Gain variation, Fade in & Fade out, storing audio segments as clipboards should be available for recording & editing.
- 11.9.2.3.2** Voice-over facility should be available.
- 11.9.2.3.3** It should support non-destructive editing. Original correspondent story should never be affected after editing.
- 11.9.2.3.4** Users should be able to edit the same audio simultaneously.
- 11.9.2.3.5** It should be possible to do editing even when the recording is going on.

**11.9.2.4 Communication Module:**

- 11.9.2.4.1** An internal instant messenger should exist for communication between different users. On-line chat & messaging should be possible between users.
- 11.9.2.4.2** The instant messenger facility should support communication over WAN with Regional News Units (RNUs) spread across country.
- 11.9.2.4.3** The software should be able to intimate a user, who is programmed to receive such messages, automatically about a desired news wire etc received/ingested or story completed.

**11.9.2.5 News Scheduling Module**

- 11.9.2.5.1** Scheduler should support template with fixed contents/blocks so that the items can be dragged and dropped to make a complete schedule.

						
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- 11.9.2.5.2 It should be possible to make various templates for a period of up to one month.
- 11.9.2.5.3 It should be possible to create Schedules for more than one News Channels simultaneously.
- 11.9.2.5.4 It should be possible to line-up a finished story & related audio (sound bite) in a sequence. The line-up should be displayed in real-time.
- 11.9.2.5.5 It should be possible to chain consecutive sound bites and then play these automatically by the system.
- 11.9.2.5.6 Total presentation time of stories (text + audio) should be automatically calculated depending upon the reading speed of presenter and should be viewable on the screen.
- 11.9.2.5.7 A user with proper access rights should be able to change the order of sequences of news, delete a story, add a new story, make changes to the existing stories till last minute before concerned story goes On-Air.
- 11.9.2.5.8 The embedded audio & text should be easily distinguishable.

### 11.9.3 News Broadcasting & Publishing Module

#### 11.9.3.1 News Broadcast Module:

- 11.9.3.1.1 Full stories as per schedule should scroll on the prompter/ monitor of News presenter.
- 11.9.3.1.2 When a news item/Audio is On-Air, it should be possible to make last minute changes in the next story by an authorized user in the news room and transfer the same to on-air module. It should be possible to include last minute stories even while news is being broadcast.
- 11.9.3.1.3 Consecutive sound bites should be played automatically by the system.
- 11.9.3.1.4 Next text News item should start scrolling immediately after completion of sound bite.
- 11.9.3.1.5 Total remaining time out of allotted time & time required for completion of rest of scheduled news (as per the average reading speed of presenter) should be displayed prominently on the presenter monitor so that presenter could speed up or slow down presentation of rest of the news.
- 11.9.3.1.6 It should be possible to skip a news item by presenter depending upon availability of time.
- 11.9.3.1.7 It should be possible to change the order of the Schedule by authorized user.
- 11.9.3.1.8 Local caching of one bulletin duration of upto half hour on DAW on On-Air studio should be provided.
- 11.9.3.1.9 Hotkeys for playing various Jingles, promos & commercials should be provided.

#### 11.9.3.2 Text prompter Module

- 11.9.3.2.1 Prompter should be configurable with the adjustable fonts, font size & colors. The configuration should be savable for future recall.
- 11.9.3.2.2 It should be possible to scroll text items line by line as well as page by page.
- 11.9.3.2.3 Scrolling should be smooth & jerk free. Scrolling speed of text items should be adjustable by user.
- 11.9.3.2.4 It should be possible to stop scrolling or slightly scroll backwards by upto two lines in line by line scrolling mode.
- 11.9.3.2.5 It should reflect any last minute change in subsequent news items while news is being scrolled.
- 11.9.3.2.6 Lined up Audio should be displayed prominently and it should start playing after intervention by presenter.

#### 11.9.3.3 Web Publication Module

- 11.9.3.3.1 It should be possible to publish various finished news stories with proper access rights on AIR website under different headings.

						
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- 11.9.3.3.2 It should be possible to upload images & Audio files from Database source to website.
- 11.9.3.3.3 Live streaming/webcasting should be available.
- 11.9.3.3.4 Facility to publish Auto logged news bulletins on web site should be available for delayed listening for internet users in streaming mode.

#### 11.10 Common Functionalities:

- 11.10.1. The following functionalities should be available both for Studio & Newsroom Automation software:

#### 11.11 On-Air Logging Module:

- 11.11.1 It should be possible to keep Low-bit rate audio copies of On-Air audio for up to two channels simultaneously on a DAW. The requisite hardware interface shall be indicated & quoted by the vendor.
- 11.11.2 It should be possible to keep the logged programme for a pre-defined duration.
- 11.11.3 It should be possible to Auto-purge old data after completion of user defined period.
- 11.11.4 Access/retrieval of audio from logger based on date and time stamp for each channel logged should be available.

#### 11.12 Transaction logging Module:

- 11.12.1 The software should keep a complete log of each transaction made by any user so that it can be viewed at any time.

#### 11.13 Archiving Module:

- 11.13.1 Auto archival of the audio material should be based on policy to be decided by administrator.
- 11.13.2 It should be possible to Archive audio data & related metadata in LTO/Tape Library or secondary storage. Details of archived material should be stored in the database so that any query/retrieval of archived material should be possible.
- 11.13.3 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.
- 11.13.4 List of archived items should be accessible to authorized users from anywhere in the whole network.

#### 11.14 System Administration Module:

- 11.14.1 It should be possible to define/ create one or more Super Users (Administrators) for various administrative jobs.
- 11.14.2 Administrators should be able to administer the database & application using simple GUIs. Administrator should be able to define various rules/policies using this module.
- 11.14.3 Web based remote administration using access rights should be possible.
- 11.14.4 Creation, deletion & updating of Users, Groups with different access rights for various functionality of software should be possible.
- 11.14.5 Auto-purging of Audio, news, old schedules and database entries as per defined policy should be possible.
- 11.14.6 A manual or automatic purging should be possible. It should be possible to mark certain items which should never be purged.

						
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- 11.14.7 Updating of Policy Guidelines like period before rotation of Songs separately for each channel etc. should be possible.
- 11.14.8 Policy based auto archiving should be possible.
- 11.14.9 The software should have facility to define separate storage path for archiving, audio, stories, reports and On-Air logging.
- 11.14.10 It should be possible to view the workstation wise logged in users.
- 11.14.11 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.

#### 11.15 System Logging for Health Monitoring Module:

- 11.15.1 Logging of each and every event about health of the software should be available. Each action or event or error generated should be recorded as a message in the log file.
- 11.15.2 In the event of serious errors, software should be able to automatically notify the system administrator by alarm / E-mail /SMS through suitable interface.

#### 11.16 Billing & Artist Management:

- 11.16.1 The system should be able to keep the basic data about artist.
- 11.16.2 It should also allow booking of artist & printing of contracts based on certain constraints about no. of booking per months etc.
- 11.16.3 System should be able to keep record of playout of audio programme (songs) in terms of duration, time. Based on this data and attribute of audio file/songs, system should be able to generate the billing & other reports.

  
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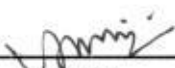


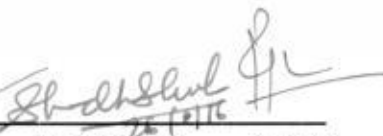

  
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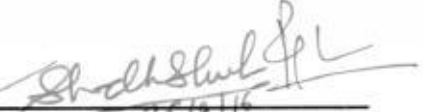
PART-BA DRAFT SPECIFICATION FOR STUDIO & NEWSROOM AUTOMATION SOFTWARE AT  
Doordarshan Kendras**12. SPECIFICATIONS FOR POST PRODUCTION SYSTEM:**

- (a) The offered software should be from internationally reputed and leading manufacturer, who have proven records of manufacturing broadcast quality equipment.
- (b) The offered system should be scalable and upgradable to accommodate 50% more inputs/outputs, NLEs and storage in future by the up gradation of the hardware and software without affecting the basic core system.
- (c) The offered system should be fully integrated for the intended functional requirements of collaborative editing. The offered hardware and software should meet the broadcast workflow and performance requirements. The system should offer the rated sustained performance.
- (d) The system should be capable of working both in HDTV (16:9 aspect ratio) and SDTV (4:3 aspect ratio) formats. The HDTV standard is 1920x1080/50/I conforming to SMPTE 292M and ITU-R BT. 709 (CIF) (HD-SDI: 1.485 Gb/s) and SDTV standard is 625 line (4:3 aspect ratio) conforming to SMPTE 259M and ITU-R BT 601 (SD SDI: 270 Mb/s).
- (e) During ingest operation, the content is required to be ingested in the format in which the original content has been produced (i.e. either HD or SD). No up or down conversion is required during ingest. However, during the publishing, the same content is required to be made available either in HDTV or SDTV formats. During SD to HD up conversion, the aspect ratio conversion is to be done using Pillar box. Similarly, in case of HD to SD conversion, the aspect ratio conversion should be done using letterbox.
- (f) The ingest system should be offered with suitable device control engine and Ingest Control application to facilitate remote control of Recorders (4 or more), HD/SD router and ingest operation through standalone control PCs.
- (g) The full-featured HD/SD high-resolution broadcast grade real time Non-Linear Editing systems (NLE), Graphic Systems and production grade video server integrated with centralized storage in RAID 5/6 configuration will be networked together for collaborative workflow.
- (h) The offered system should have real-time architecture and should have the capability of real-time play back of at least four video streams of High Definition video (XDCAM HD422 @ 50Mb/s) for each of the NLE and all the NLEs working simultaneously along with server.
- (i) The offered system should be integrated with centralized storage system. The system should be equipped with MOS gateway to integrate with NRCS and other MOS compliant devices.

						
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**13. SPECIFICATIONS FOR PLAYOUT AUTOMATION CONTROL SYSTEM SOFTWARE**

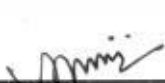
- (a) The automation system should be built with client server architecture.
- (b) It should allow frame accurate transmission by using station black burst reference and time code. It should be modular so that future expansion could be carried out without affecting the main core system.
- (c) There should be enough redundancy with respect to device controller, database file server/automation server, on-air/ transmission client, Media/ingest clients etc.
- (d) The automation system should have control over the access right menus, settings and play list editing. It should be possible to define access rights and priorities by system administrator for every user.
- (e) It should have user-friendly menu for preparation of play list. Last minute changes in the play list should be possible. It should be possible to access on-air play list from other terminals.
- (f) The system should be able to manage/operate and control all the equipment in the play back chain such as Video Server, VTRs, Master control Switchers, CG, Logo Inserters, Routing Switchers etc.
- (g) The system should manage the available devices as per the play-list automatically and manually. It should have a check on all devices and systems required to broadcast each event.
- (h) It should allow simultaneous operation of different Recorder/Players for different tasks i.e. for direct transmission Playback, Recording, ingesting in Video Server etc. The automation system should control all processes related to ingesting to the video servers, recoding to VTRs both automatically and manually. It should also be possible to ingest the clean feed material to server simultaneously for repeat telecast, while Recorder/Player is playing back for transmission.
- (i) Panasonic's DVCPRO 25/50 (tape based, Standard Definition), Sony's HDCAM (tape based, High Definition) and Sony XDCAM HD422 Professional disc based decks/VCRs (model nos. PDW-F1600, PDW-HD1500/ 1550 and XDS-PD1000) will be used for Play-back/ingest. Suitable device controller/drivers for all these machines should be provided so that these can directly be used for transmission as well as ingesting through automation system.
- (j) It should also be possible to preview sequences for marking IN and OUT points.
- (k) Metadata should be added automatically and also manually during ingest. The system should allow for creation, viewing and modifying the metadata of ingested materials. Metadata should include at least title, ID, source, media number, date, Time Code etc. Indexing of clips should be systematic for easy searches. Metadata fields should be customizable.
- (l) During ingest process the users should be able to see the progress and/or, stop/abort the process at any time. The system should control 10 HD/SD VCR/ Decks and 06 live feeds/satellite feeds. The system should read time code of ingested material or alternatively generate its own time code and any other automatic metadata. Simultaneous recording from several sources should be possible as the play out continues.

						
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- (m) It should give alarm for event overlaps and programming gaps.
- (n) System should support reconfiguring of the automation settings.
- (o) The system should be able to convert data from traffic schedule to play-list automatically. It should allow importing of traffic play-lists and should also allow the monitoring of channel play-list from any workstation.
- (p) It should allow the operators to work simultaneously for the following job from their respective client work station:
  - i) Ingesting the VCR/Decks outputs, live feeds, other sources on the required server ports for subsequent transmission.
  - ii) Entry of data with respect to programming (play-list), commercial, sales media preparation & verification.
  - iii) Recording on Recorder.
  - iv) Monitoring (including engineering monitoring).
- (q) The system should be able to resolve the conflicting commands automatically by itself or otherwise it should alert the operator immediately.
- (r) In case of on-line server port failures, automatic switching of programmes from main/mirror servers or directly from Recorder/Players should be provided so that the programme on-air is not interrupted. It should manage video server disk space and give alarm for unused old material.
- (s) In case of emergency, it should be possible to take live feed, or CG source with a single button operation. It should also be possible to interrupt an on air event in case of emergency. If required the interrupted event should be restarted from the point of interruption.
- (t) Automation system should generate "As run log" of all the events went on air with its time and duration of broadcast. The printers connected to the client workstations should be able to print a hard copy of this.
- (u) The automation system should keep a log of all activities performed on the system allowing tracking of "which user-station has done what" with the media and record the same in the database. It should also be possible to log all commands and actions taken and received by a device.
- (v) The system should also be ODBC compliant. It should be capable of handling third party software such as traffic system for sales, traffic and billing.
- (w) In the event of any programme which is scheduled to go on air but the same is not available in the server, the software should automatically switch the router to a pre-set backup source such as the Recorder/Player configured as backup source to enable direct playback of the standby programme. It should also be possible to disable this.
- (x) Software should have the capability for switching between logos as required during programmes.
- (y) The automation control system and software should support Digital Program Insertion Cueing Message for Digital Program/ Advertising Insertion.
- (z) Aural/Visual countdown to the end of the aired event should be available.



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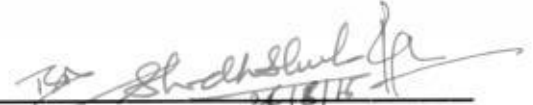
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- (aa) It should have built-in diagnostics to check the status of automation system as well as devices connected to it. It should provide suitable alarm in case of any problem.

#### 14. ARCHIVAL SYSTEM:

##### 14.1 MEDIA ASSET MANAGEMENT:

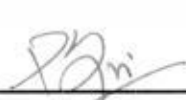
- (a) Media Asset Management software should streamline content workflow. The MAM should provide a total media asset management platform right from ingest to cataloguing, storage and retrieval.
- (b) It should take care of ingest operations, metadata creation, browsing, search, tracking, transcoding, frame accurate proxy generation, movement of the content and end to end content management functionalities in the envisaged workflow including Content Storage Management (CSM)/ Hierarchical Storage Management (HSM) .
- (c) It should carry out the functions like copy, move, delete, rename, check IDs and retrieve metadata from video file servers and other storage. It should instantly inform what new assets have been ingested into the system. It should provide information about location; format and status of content. It should take care archive, restore and transcode. It should have customizable content workflows, automate delivery and carry out assignments.
- (d) The MAM should be able to link the metadata, low resolution copy, full resolution copy and full resolution file copy stored offline on a data tape media.
- (e) It should facilitate content browsing and media transfer functionality across entire operation. It should create proxy copies of the ingested material irrespective of baseband or file based or final high resolution copy of the edited footage. It should retrieve embedded MXF metadata, provide real-time information about new assets and move content between archive and online storage.
- (f) It should provide powerful metadata management capability for effective cataloguing, search and retrieval. The system in addition to manual metadata creation, should allow embedded MXF metadata. The metadata insertion should be possible for entire video or for any portion of a clip. The metadata field should be scalable and should be customised according to the end user's requirement. It should be able to create & modify metadata fields as per user requirement.
- (g) It should provide comprehensive toolset to transparently manage media movement requirements automatically including ingest, QC, production, playout and archiving file-based material.
- (h) It should be suitable for live news environment. It should manage live feeds and log content as information is captured. It should quickly find the content needed to tell the complete breaking story.
- (i) It should manage the key workflows such as acquisition/ ingest, cataloguing, editing and distribution of digital content.
- (j) It should automate file-based operations including digital media ingest, transcoding, media duplication, and search, locate, preview, transfers and deliver content.
- (k) It should relate metadata to content and integrate devices to deliver the right content to the right person at the right time. It should be designed to integrate with playout



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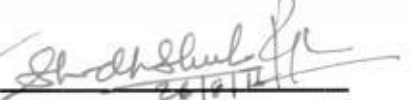
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automation systems, video servers, ENPS NRCS, storage, LTO tape library and other of third-party products.

- (l) It should have comprehensive search tools including thesaurus to find content across the operation based upon metadata. The search engine should deliver unified search results from all relevant metadata across all storage devices in all configured domains. Search results should allow previewing proxy media and moving the corresponding high-resolution content in full or part as desired from an archive to a production or playout destination.
- (m) It should provide facility to browse, view and edit low-resolution proxy media from designated journalist and other workstations. The low resolution copy should be frame accurate and time code synchronized with the high resolution content.
- (n) The bidder should also offer frame accurate low resolutions editing software to be installed on journalist work stations. The offered software should automatically confirm finished high-resolution copies on the central storage.
- (o) The offered low resolutions editing software should facilitate browse and edit including voice-over while files are still being ingested.
- (p) The same software is required to be installed on 4 more workstations including ingest work stations for browse and metadata creation purposes.
- (q) The MAM system shall update its database as soon as the notification for metadata updating is received from the ingest system.
- (r) It should have an integrated industry standard open database application such as SQL or Oracle or DB2 as core module. The database should be scalable and user configurable. It should offer standard data management tool sets.
- (s) The browser should invoke the proxy media player to view the low res. content. The browsing software should provide all the standard operational features of the media player like play, pause, stop, fast forward, skip to begin/end, skip to time code, skip configurable (number of frames forward/backward), jog and shuttle.
- (t) It should be possible to resize the video display area, reconfigure the screen layout and activate or deactivate audio by the user.
- (u) The browsing software should be an integral part of the MAM software and facilitate browsing, cataloguing, search & retrieval applications.
- (v) This software should facilitate creating & editing the metadata for the ingested low resolution content. The metadata can be quite comprehensive and hence the software should permit the expansion of the data structure of the database. It should have the flexibility for the end users to define their own metadata fields in addition to the MAM's standard metadata database.
- (w) It should also be possible to import metadata and store in the offered MAM's database after adding newly created metadata to the imported metadata.
- (x) The MAM software should facilitate the browser to make mark in, mark out and capable of sequencing various clips from the ingested contents.
- (y) The bidder should furnish content retrieval time from archive, along with the bid.



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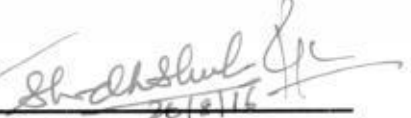
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**14.2 CONTENT/ HIERARCHICAL STORAGE MANAGEMENT SYSTEM**

- (a) The content storage management system should provide frame accurate movement of content throughout the workflow
- (b) It should manage multi-format content across all the storage devices such as online storage, near line storage, LTO tape library and tape on the shelf.
- (c) It should enforce content workflow rule.
- (d) It should seamlessly be integrated with MAM, automation, NRCS and software and Video server, NLEs, online storage, near line storage and LTO tape.
- (e) It should allow time code based partial file restore of the needed video.
- (f) web-based MAM application allowing users to simply search, locate, preview and deliver archived content from any desktop/Internet Browser.
- (g) The proposed content management system/Tape management software should be integrated with the MAM solution seamlessly.
- (h) The content management system should support time code based partial retrieval of the archive content.
- (i) The proposed content management system should be capable to interface with different reputed tape library vendors like HP/IBM/Oracle/Quantum etc.
- (j) The system should support offline Tape Cartridge Management/ externalization of tapes for unlimited number of tapes on the shelf.
- (k) The content management should give performance history of all drives and media, as well as forecast of their performance. It should be possible to set triggers, to generate a variety of alerts when various performance thresholds have been exceeded.
- (l) The content management should be controlled by Automation system.

**15. SPECIFICATION FOR NEWS ROOM AUTOMATION SYSTEM (Doordarshan):****15.1 News Room Computer System**

- a) It should be based on client-server architecture with seamless scalability.
- b) It should support standard protocol with latest version for broadcast device integration such as Media Object Server (MOS) as well as other XML based protocols for non standard device integration.
- c) The newsroom component should support IT standards and components.
- d) It should be based on a graphical user interface (GUI) and it should be intuitively designed for modern day TV journalists.
- e) GUI should be user friendly, and it must provide an interface in any of the regional languages as mentioned in the tender apart from English.



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- f) The system should also provide access to internet within the NRCS and must be able to publish to the internet.
- g) Ability to access the system from remote locations through a simplified web interface must be provided.
- h) It should have multiple levels of security to control access both to particular news bulletin/show and to specific functions such as read- only access, read-write, delete and move etc. It should also provide shielded access from remote locations depending on the access rights management.
- i) It should provide control of all the resources available in the news room to the user.
- j) The offered system should be totally scalable in future to facilitate future expandability. The firm should clearly provide the complete details of the scalability, which are possible in the offered system.
- k) The system should provide resource data base management such as phonebook and important contacts etc.

### 15.2 Assignment:

- a) NRCS must provide a powerful utility tool for planning to be used by assignment desk. This tool should have calendar type planner so that future news events may be planned in detail with associated metadata.
- b) Any story created from the planning tool should maintain the link to all planning metadata.
- c) It should be possible to notify all planning activities to concerned users from the newsroom computer system.
- d) It should allow the journalist to share the job assignments, feed schedule and other information so as to collaborate seamlessly.

### 15.3 Wire Services:

- a) It should have efficient wire management system. The system should not put any limit to the size of story, number of objects embedded into it and number of rundowns.
- b) The Newsroom Script Automation system should be able to receive multiple Wire Service from the multiple sources like lease line, ISDN connectivity, satellite (V-sat terminals) and Internet etc. It should have facilities like user customizable layout display, indexing & fast searches for wire feeds. It should also have visual alerts/audio alarm to alert users about urgent high priority stories.



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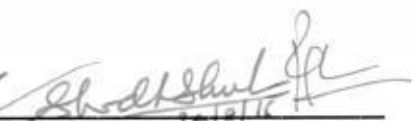
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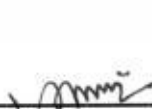


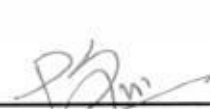
- c) The offered system should accept at least 4 Nos. of wire feeds. The system should be expendable up to 8 Nos. of wire feeds in future. It should also support SMS, E-mail, fax, Social Media/Social networking sites and RSS feeds besides the wire feeds. The necessary hardware and software should therefore be offered.
- d) It should be able to notify users about the incoming wire feeds and should also parse the incoming wires with the information provided by the respected agencies such as urgent, topic etc.
- e) System may have ability to create internal wires for automatic notification across the newsroom for breaking news and policy advisory.

#### 15.4 Scripting & Run-down Management:

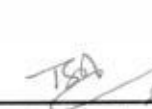
- a) A single search tool to find anything within the system or on the web should be available.
- b) The system should have a provision of predefined searches category wise. It should also be possible to set and save personalized search parameters by different uses for easiness & quick search.
- c) It should be possible for reporters to file stories from remote sites. It should also have ability to write scripts offline, and then file them into a show's rundown.
- d) It should have built-in scripting reference tools like spell check thesaurus etc. for English language. and regional languages as specified.
- e) NRCS should have text editing tools of word counting, time management features based on news anchors reading rate.
- f) User must be able to add comments (editorial, technical, production) in a column mode. It should also be possible to editorial status of story such as new, submitted, rejected and approved.
- g) In the scripting tool, information of the embedded objects displayed to users should be user friendly and configurable. Journalist may be able to associate any kind of metadata (text, video, audio, images, office documents) to a script.
- h) It should provide convenience, speed and ease of use at every stage of news production such as reading wires, writing scripts/ stories, preparing rundowns and automatic archiving of news bulletins.
- i) User should be able to drag & drop facility between wires, story pools, video clips and rundown etc.

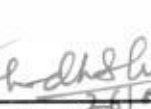
  
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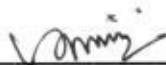
- j) It should offer ability to move stories around in the rundown or create new stories in the rundown while the rundown is on air and have the changes reflected on the associated devices, i.e. teleprompter, character- generator.
- k) It should be possible for multiple users to work simultaneously on the same rundown.
- l) The system should automatically calculate the show time/script timing based on text entered and the anchor reading rate. It should have the ability to make last minute changes and these changes should be reflected instantaneously to every user.
- m) The system should have auto save facility & all scripts must be saved automatically after editing is completed.
- n) The system should provide the standard format for writing & publishing the web page of rundowns.
- o) The offered NRCS should have ability to load sub rundown to different devices like Teleprompter and Character Generators.
- p) It should print scripts and rundowns in various forms as per the need of different users like big letter for on air use etc. It is therefore required that the bidder should offer heavy duty network laser printer.

#### 15.5 Languages:

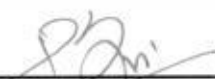
- a) The NRCS should support Unicode characters.
- b) It should be possible to write scripts in Hindi, English, and any Indian regional languages including Urdu and Kashmiri language and it should be possible to change the desired language with the help of a single customizable Key. All system file name will remain in English only.



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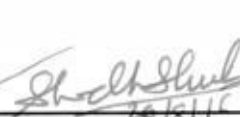
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Part- C**16. A DRAFT SPECIFICATION FOR MEDIA ASSETS MANAGEMENT SYSTEM FOR AIR AND DOORDARSHAN:****16.1 Specification for Media Asset Management (MAM)**

All India Radio has already provided automation software (NETIA) and hardware for 48 major AIR, stations. The 79 stations are also being provided a radio automation software as per details in Part-A. For collaboration between various stations there is a requirement of Media Asset Management (MAM).

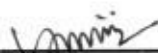
Prasar Bharati will setup a data centre at New Delhi for exchange of audio and video archival programme/ information. A Media Asset Management (MAM) software will be required for installation at Data centre, AIR stations and DD Kendra. The MAM software should be able to interact with all AIR and DD centres and vice versa also including the 48 AIR, stations where NETIA software has already been provided.

An Enterprise Solution for Media Asset Management (MAM) is required. It should have tools and products to enable different tasks that are required by broadcasters to handle digital audio/video content. These are mainly ingesting from external source e.g. CD/DVD, tape etc., editing, branding and sharing with other stations through web interface. It should have following features:-


- 16.1.1 The core component of the MAM will be installed at the Data Centre of PB at Delhi, which will be accessible from the stations/Kendras through Client software on Internet/MPLS or VPN network. Stations should be able to share their audio/video contents using this setup.
- 16.1.2 System should allow to perform all the daily task of media management from ingest, editing, play out and finally archiving.
- 16.1.3 User should be able to browse the availability of the media through a search based on site, category, title, artist and other parameters of the media. These parameters/criteria for search selection should be flexible and configurable/selectable by user. The system should have facility to optimize the search. Facility to search, within the search, to narrow down the criteria. It should be configurable all the features as defined elsewhere in this specification.
- 16.1.4 From the search result, the user should be able to download/view and/or listen to the media.
- 16.1.5 The system should also allow the user to upload the media through the web interface. System should automatically check the essential parameters and metadata of the media before actually transferring of file.
- 16.1.6 While uploading, user should be able to feed the metadata of the concerned media.
- 16.1.7 The solution should be scalable and should support more than 2000 concurrent users across multiple sites and departments.



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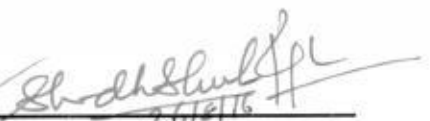
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- 16.1.8 Share & Collaborate – User should be able to share and collaborate on media assets with client from anywhere using drag & drop upload/download – Schedule a task for download/upload between the sites.
- 16.1.9 Secure & Reliable – The system should have sufficient security and access right with different user's permission.
- 16.1.10 Powerful Search Engine- MAM solution gets indexed and made available for search. It should support reading and writing of metadata (XML, XMD, IPTX, EXIF etc.)
- 16.1.11 API should be available for developers for extension and compatibility of other similar system.

## 16.2 Architecture:



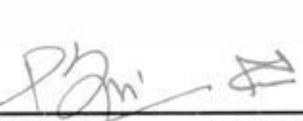




- 16.2.1 The proposed system should be based on client-server architecture capable of scaling up without any system restart.
- 16.2.2 The solution should run on Windows OS at client side.
- 16.2.3 The solution should rely on 'open storage' and should be capable to integrate NAS (Network Attached Storage), SAN (Storage Area Network) or object storage.
- 16.2.4 The proposed solution should run on standard open IT solutions/hardware.
- 16.2.5 The proposed solution should provide comprehensive GUI based administration module that enables administrators to control every aspect of the system from a centralized user interface.
- 16.2.6 The system should be capable of storing not only media files (such as video and audio) but also other kinds of documents as standard assets; these documents should include at least Office documents, still images, subtitling files and graphics and pdf.
- 16.2.7 The system should allow for metadata to be assigned to these non-media assets in the same manner that it is assigned to media oriented assets.

## 16.3 Users and Groups:

- 16.3.1 The proposed system should provide a centralized configuration of users and groups information. The information should include at least:
- 16.3.2 Personal information.
- 16.3.3 Access right information to different areas in the solution.
- 16.3.4 Layout (Screens, shortcuts, colors, fonts etc).
- 16.3.5 Metadata access rights.
- 16.3.6 Specific module preferences (for example editor/scheduler etc. module preferences).
- 16.3.7 The proposed system should integrate with Active Directory or LDAP support directory services for users and group management.

## 17. Automation Integration with Radio Automation & other MAMs:

- 17.1 The proposed system should integrate with the studio automation system for playlist and media exchange as given in Part-A & Part-B.
- 17.2 Playlists received from MAM should be used by the proposed solution in order to determine when content should be published from the production storage or from the archive to the playout servers which are controlled by the studio automation system.

						
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- 17.3 The proposed solution should also update the automation database with technical metadata (duration, SOM/EOM, frame rates etc.).
- 17.4 The proposed solution should transfer the media on the playout servers according to information received from the automation system.
- 17.5 Import of dubbed and ingest lists from the other MAM into the proposed solution through XML.
- 17.6 Bi-directional exchange of metadata regarding assets from the other standard MAM system to the proposed solution and back for media updates (such as duration, QC status etc).
- 17.7 Publishing of playlists from the MAM to the proposed solution to facilitate automatic upload of media from the proposed solution to the playout servers and to the automation control.

## 18. Ingest:

The proposed solution should support all the parameters as discussed earlier under the studio automation at Part-A & B and the following type of media ingest into the system:

- 18.1 Import of media from watch folders automatic transcoding to the default formats.
- 18.2 Ingested material should be automatically transcoded to low resolution browse quality files which is available to the users. The low resolution format should have configuration with selection from the commonly available standards.
- 18.3 During the ingest process, users can add or update metadata to the ingested material.
- 18.4 All ingested material (high resolution, browse quality etc) is stored in a centralized production storage that is directly available to all users simultaneously).

## 19. Metadata:

Same as studio automation part.

## 20. Editing Functions:

Same as studio automation part.

## 21. Archive:

- 21.1. The proposed solution should integrate with archive solution for near line and offline archive of media on tapes inside a tape library.
- 21.2. The proposed solution should provide means for the administrators to define rules according to which content will be sent or pulled from the archive. The rules should be done according to many parameters which are at least :

- Date of ingest
- Status
- Media status
- Metadata status
- User decision

						
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21.3. The proposed solution should integrate the archive assets with the production assets in a way which is seamless to the user. i.e. the archive assets and production assets should reside in the same catalogue should be searched within the same search tools. The only difference between an archived asset and non-archived asset should be the ability to directly edit the high resolution media of the asset.

### 23. Monitoring & Dashboard:

- 23.1 The proposed solution should provide means to run all media related operation in a back office server farm in a way that does not disrupt user work. i.e. users should not be blocked from continuing their work while the system runs process such as rendering, transfer, transcoding of copying of media.
- 23.2 All of these back office operations should be monitored and the user should have a special monitoring application that will enable him to view his jobs and to monitor their status and progress.
- 23.3 The proposed solution should provide administrator level and operations level monitoring solution. Administrator should be able to use the monitoring tool in order to check the health status of the system both from IT as well as broadcast perspective.
- 23.4 All of these back office operations should be monitored and user should have a special monitoring application that will enable him to view his jobs and to monitor their status and progress.
- 23.5 All of the back office operations should be monitored and the user should have a special monitoring application that will enable him to view his jobs and to monitor their status and progress.
- 23.6 The proposed solution should provide monitoring and alerts in real time on specific critical aspects of the system as defined by the system administrator.
- 23.7 The monitoring application should allow the administrator to provide usage and operational reports from the monitored system.
- 23.8 The proposed solution should provide an integrated auditing solution that can audit user and automated process within the system.
- 23.9 The solution should be able to monitor both software and hardware components of the solution.
- 23.10 The solution should rely on an industry-leading technology for monitoring (like Hyperic or example).
- 23.11 In case of an incident, the monitor/dashboard component should be able to :
- Run scripts.
  - Send emails/notifications.
  - Trigger alerts/reports.
  - Pack log files etc.
- 23.12 The monitoring solution should be able to monitor at least the following metrics:
- Available/used storage.

						
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- CPU/RAM of the servers that are part of the solution.
- Log files of the software components of the solution.
- Windows event logs of the servers that are part of the solution.

## 24. Audit Trail:

- 24.1 Any operation (like a title deletion for example) should be logged in a dedicated SQL database for reporting purposes. This audit trail database should be accessible through web interface after verification of credentials.
- 24.2 The list of operations logged in this audit trail database should be configurable by super users (administrator)
- 24.3 This list of operations that are logged in the audit trail should at least include:
- User login User logout
  - Asset modification
  - Title deletion
  - Title restores etc.
  - In addition, every time an event is logged in this database, it should be possible to also save information about the asset that is concerned by the event, in order to later be able to build statistical reports on asset usage.

## 25. Reporting:

The proposed solution should provide:

- 25.1 Means to collect and store data for reporting purposes, ideally in a SQL database
- 25.2 Collected data should include, at least:
- 25.3 Audit trail data, keeping track of user activity within the system
- 25.4 Workflow data keep track of workflows and processes, when it started/ended, etc.
- 25.5 Asset metadata
- 25.6 A graphical designer tool, to create report templates
- 25.7 A web engine, to provide access to report instances in a web browser
- 25.8 These reports should offer graphical widgets including: maps, graphs, etc.
- 25.9 These reports should be interactive clicking on a field/area could update the graph with the corresponding data.

## 26. Application Programme Interface (API):

- 26.1 The proposed solution should provide an API based on well-known standards that will enable third party applications to control and manipulate the proposed solution.
- 26.2 The API should allow for control, import and export of metadata from the system.
- 26.3 The API should allow for manipulation of system process and statuses.
- 26.4 The API should be SOAP (web services).
- 26.5 Access to the API should be based on user/login.
- 26.6 The solution should also propose a Java Messaging Service (JMS) for low latency notification.

## 27. Workflow Management:



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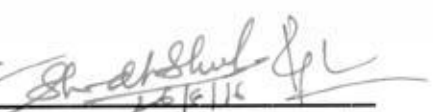
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- 27.1 The proposed solution should provide a workflow engine, natively integrated within the MAM (Media Asset Management) so as to leverage the metadata stored in the MAM
- 27.2 The proposed workflow engine should be able to mix user tasks, performed by human operators, with services tasks like file conversions, file based QC or file transfers for example
- 27.3 The proposed workflow engine should offer 2 levels of workflow management:
- 27.4 Simple 'rule based' workflow activities (for example: if a user drag and drops title X into category A, then convert the file to H264 or if a user changes the status of title X, then archive title X on a tape library)
- 27.5 And graphically designed workflows, combining and organizing the simple workflow activities described above
- 27.6 User tasks should be created using a 'user task template' mechanism – a user task template could for example be 'enter EPG metadata', whereas a task deriving from this user task template would be 'entered' EPG metadata for asset House.
- 27.7 The workflow engine should come with a graphical workflow designer
- 27.8 The graphical workflow designer should comply with BPMN 2.0.
- 27.8 The workflow engine itself should rely on a project coming from Open Source community, and remain for third party developers to integrate with, like Activity for example


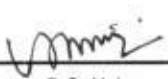
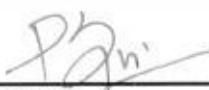


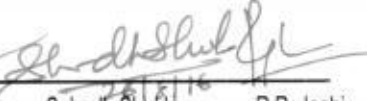

## 28. Format Conversion:

- 28.1 The proposed solution should have format conversion engine to convert high resolution file to low resolution in respect of both audio and video automatically as defining the workflow.
- 28.2 While mixing different audio/video format the system should convert the entire format into a single uniform format, acceptable as per prescribed standard.

## 29. Restoration of Audio:

The system shall have features as mentioned below for audio restoration:

- 29.1 System shall have capabilities for professional sound Restoration without compromising original sound of archival audio material.
- 29.2 The system should be capable of Restoration at 44.1 KHz, 48 KHz, 96 KHz, 192 KHz sampling rate and at bit rates 16, 20, 24 in all common formats including WAVE and BWF.
- 29.3 The system shall be capable of performing real time processing while signal processing shall be in real-time or in background depending on the workflow.
- 29.4 There shall be in-built & high accuracy (jitter free) digital word clock for synchronization of all digital sources (SMPTE/ EBU I/O) and provision shall exist to synchronize the system from an external word clock or AES/EBU source.
- 29.5 Facilities and tools to detect and eliminate noise, clicks, crackles, hum, buzz, hiss, pop, distortion, phase problem etc should be available. The system should have audio analyser and real time detection.

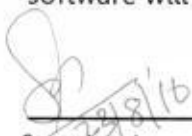
						
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**Annexure-IV****List of All India Radio Stations where studio automation is required Immediately**

1	Adilabad	South	41	Keonjhar	East
2	Agartala	North East	42	Kochi (Cochin)	South
3	Agra	North	43	Kodaikanal	South
4	Ahwa	West	44	Kokrajhar	North East
5	Almora	North	45	Lungleh	North East
6	Ambikapur	West	46	Mangalore	South
7	Balaghat	West	47	Mathura	North
8	Barmer	North	48	Mount abu	North
9	Belonia	North East	49	Murshidabad	East
10	Bhadarwah	North	50	Nazibabad	North
11	Bhadravati	South	51	Obra	North
12	Bhagalpur	East	52	Ootacamund	South
13	Bhawanipatna	East	53	Parbhani	West
14	Chandigarh	North	54	Pasighat	North East
15	Chattarpur	West	55	Pondichery	South
16	Churachandpur	North East	56	Poonch	North
17	Coimbatore	South	57	Purnia	East
18	Cuddapah	South	58	Raigarh	West
19	Darbhanga	East	59	Raipur	West
20	Delhi NBH	North	60	Rampur	North
21	Dharmashala	North	61	Ratnagiri	West
22	Diphu	North East	62	Sambalpur	East
23	Gangtok	North East	63	Sangli	West
24	Godhra	West	64	Sasaram	East
25	Gulbarga	South	65	Shantinikaten	East
26	Gwalior	West	66	Silchar	North East
27	Haflong	North East	67	Siliguri	North East
28	Hazaribagh	East	68	Soro	East
29	Itanagar	North East	69	Surat	West
30	Jabalpur	West	70	Suratgarh	North
31	Jagdalpur	West	71	Tawang	North East
32	Jaisalmer	North	72	Tezu	North East
33	Jalgaon	West	73	Tirunelveli	South
34	Jamshedpur	East	74	Tirupathi	South
35	Jeypore	East	75	Trichur	South
36	Jhalawar	North	76	Tura	North East
37	Kailashahar	North East	77	Tuticorin	South
38	Kanpur	North	78	Udaipur	North
39	Kargil	North	79	Visakhapatnam	South
40	Kavaratti	South			


At each of the above station, 5-110 workstations will be provided and the studio automation software will be required to be installed in the workstations.


  
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