

ENUM Trial Information Pack



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1 Introduction

ENUM (electronic number mapping) is a key development in the convergence process of telecommunication and IP networks. An ENUM service enables customers to give access to services associated with the called number.

An industry working group for the UK, known as the United Kingdom ENUM Group (UKEG), was launched with the full support of the Department of Trade and Industry (DTI) in September 2001. The group have been actively reviewing ENUM issues from a UK perspective and have submitted their preliminary report to the DTI.

It has been widely agreed that the stage has been reached where it would be appropriate to carry out an ENUM Field Trial.

The aim of the ENUM Field Trial is to test architectural, technical, operational and user experience aspects related to the provision of ENUM capabilities, as defined in IETF RFC 2916, for Country Code 44.

Results collected in the trial will enable UKEG, and any other interested party, to gain information and experience on how to provide and implement ENUM capabilities in the commercial phase.

This business plan invites parties to participate in the UK ENUM trial and is intended to provide further information to prospective participants. All trial participants will be required to sign the UKEG ENUM Trial Memorandum of Understanding (MoU).

All participants will underwrite their own expenses and associated costs in participating in the trial. Neither compensation nor direct financial benefits are foreseen for any trial participant.

For the purposes of this trial no money will change hands between participants.

2 Objectives of the Trial

1. To evaluate the pros and cons of the different options developed by UKEG to implement ENUM capabilities with particular emphasis on the Registry and Registrar role
2. To evaluate processes/interfaces/protocols for the interactions between the different parties (Tier 1 Registry, ENUM Domain Name System (DNS) Provider, ENUM Registrar, Application Service Provider, Number Assignment Entity, Telephone Service Provider)
3. To determine technical and operational requirements to provisioning ENUM records at Tier 1 Registry and ENUM DNS Provider level
4. To assess DNS requirements/ implications in the provision of ENUM services
5. To determine security and verification requirements for provisioning and operation of ENUM capabilities
6. To test from a technical and user perspective applications based on the use of ENUM capabilities
7. To evaluate and refine the economic benefits and costs of supporting ENUM.

The results of the trial will be used by UKEG to determine the preferred implementation framework for the provision of ENUM capabilities behind Country Code 44.

3 Project Plan

The trial comprises five phases, some of which are concurrent:

- phase 1, to prepare a business plan to assess the feasibility of the trial and a work plan for the trial, and to identify necessary actions and time-schedules for the implementation of the trial;
- phase 2, to invite participants to the trial, evaluate them, select the trial participants and appoint the trial manager(s);
- phase 3, to deploy resources and infrastructure to run the trial;
- phase 4, to operate the trial and liaise with UKEG to ensure the necessary cooperation;
- phase 5, to carry out an evaluation of the trial and to produce a report for the UKEG, summarising the results of the trial and the conclusions that may be drawn from it.

The timescale of the trial is as follows:

- Phase 1 to start in March 2002 and to last for no more than 30 days; Phase 1 has now completed (3 Sept 2002)
- Phase 2 to last for no more than 60 days;
- Phase 3 to last for no more than 60 days;
- Phase 4 to last for no more than 180 days;
- Phase 5 to last for no more than 45 days.

The duration of the whole trial from phase 1 to phase 5 is not longer than 12 months.

At the end of phase 2, the selected participants will sign the Trial MoU (appendix 10.1) that governs the trial and defines rights and obligations of all participants.

Regarding the previously identified dependency "Phase 3 will only start after the delegation of Country Code 44 to the competent authority in accordance with the process agreed by ITU and IAB" - Country code 44 has now been delegated to the competent authority,

4 Potential Benefits of Trial Participation

Trial participants will potentially be able to:

- Gain expertise and experience in the emerging ENUM markets
- Take advantage of a unique opportunity to develop and test mechanisms and applications within a safe trial environment
- Benefit from their participating staff being more ENUM aware
- Use the trial as a staff development opportunity
- Quote trial participation in relevant marketing and PR materials
- Exploit presentation and seminar opportunities that may arise as a result

5 Trial Management

All parties participating in the trial must co-operate in accordance with the rules defined in the trial MoU. Decisions will be taken by consensus (i.e. lack of sustained opposition) amongst the trial participants, with the involvement of the UKEG if appropriate.

The UKEG will act as the Steering Committee, closely following the developments of the trial, receiving regular updates regarding the progress of the trial, giving strategic guidance and solving possible conflicts between the participants.

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Trial Managers have been appointed as it is recognised that the success of the trial will also depend on an adequate level of management of technical and financial resources, co-ordination amongst the participants and communication between the trial group and UKEG. The Trial Managers are:

- Marco **Bernardi** (Neustar) – Co-ordination of trial group reports and outcomes; facilitation of communication within the trial group and with the wider UKEG group
- Lesley **Cowley** (Nominet) – Budget Management
- Paul **Mylotte** (BTexact Technologies) – Project Planning and Monitoring.
- Jim **Reid** (Nominum) – Technical & Operational Management

6 Trial Evaluation

Trial evaluation will be carried out during the period of the trial and it is expected that key learning points will be identified on an ongoing basis. Interim reports will be made to the UKEG.

The formal evaluation of the trial, from the perspective of the trial participants, will begin in phase 5. A Trial Evaluation report will be produced by the Trial Group and presented to the UKEG.

7 Trial Participants

Parties who may participate in the trial are:

- Tier 1 Registry
- ENUM DNS Provider
- ENUM Registrar
- Application Service Provider
- Authentication Agency
- ENUM End User

The trial participants must be prepared to disclose all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.

8 Trial Participant Requirements

The key words "must", "should", and "may" in this Section are to be interpreted as described in IETF RFC2119.

8.1 Tier 1 Registry

Functions

The Tier 1 Registry is the UK national registry for ENUM for the duration of the trial. Tier 1 is responsible for the authoritative name servers and zone files for 4.4.e164.arpa.

The Tier 1 Registry does not handle NAPTR records but points at the ENUM DNS Providers where NAPTR records associated to E.164 numbers of the national numbering plan are stored.

In the preliminary report on "Implementation of ENUM in the UK" prepared by UKEG it is recommended that Registry functions are best carried out by a single entity as opposed to

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competing or multiple entities. Whilst in principle there is nothing preventing deployment of multiple Tier 1 entities - each with responsibility for a part of the UK numbering scheme - after having reviewed regulatory, technical and operational pros and cons of single versus multiple Tier 1 entities, it has been concluded that the balance lies in favour of a single entity.

The considerations of a single entity performing the Registry functions may not entirely apply to the Trial. One of the main objectives of the trial is to test architectural, technical, operational aspects related to the provision of ENUM capabilities as defined in IETF RFC 2916, for Country Code 44. In order to test different solutions and allow more organisations to gain experience even if “logically” the Registry functions are performed by a single entity, only for the duration of the trial, these functions can be performed by a limited number of organisations fully co-operating together.

Tier 1 Registry Interfaces

According to the model described in preliminary report on “Implementation of ENUM in the UK” Tier1 Registry has interactions with ENUM DNS provider and ENUM Registrar.

The Tier 1 Registry must establish an interface which is available for all ENUM Registrars to use. The common protocol should be EPP, but this should not preclude other protocols being used between the Registry and Registrars subject to the prior agreement of those trial participants. The protocols to be used on the interface between Tier1 Registry and ENUM Registrars must be agreed between those parties.

Tier 1 Registry Requirements

The Tier 1 Registry must be able to demonstrate relevant registry experience and ensure that they are able to meet the following resource requirements:

1. The Tier 1 registry must commit to the provision of suitably experienced staff resources to the trial, for the time required to devote to the trial, for the duration of the trial
2. The Tier 1 registry must commit to providing sufficient technical resources to the trial for the duration of the trial

Tier 1 Registry - Further Requirements

1. The Tier 1 registry must commit to strictly complying with all Data Protection legislation and relevant guidelines
2. The Tier 1 Registry must maintain a ‘timer’ for the renewal process. When a re-registration is required the Registry must inform the Registrar and it must be the Registrar who has responsibility to give notice to the customer. This requires the Registrar to design a renewal process in conjunction with all other players, following the outline process described in the UKEG Report Annex G.
3. Any nameservers operated by the Tier 1 Registry must comply with the DNS requirements in section 8.2 (DNS Requirements).
4. The Tier 1 Registry will define the terms and conditions of the service - these Terms and Conditions need to be endorsed by UKEG.
5. For the purpose of this trial the Tier 1 Registry will not charge for services
6. The Tier 1 Registry must be prepared to disclose the all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial

8.2 ENUM Registrars

Functions

The ENUM Registrar will be the commercial interface between the Tier 1 Registry and the ENUM End Users. It will provide direct services to ENUM End Users by processing name registrations and triggering the validation process. The role of the Registrar is to provide the customer experience for the registration process. There may also be a strong case for the Registrar to also provide the ongoing customer interface for day-to-day manipulation of NAPTR records.

General Requirements

ENUM Registrars should ensure they are able to meet the following resource requirements:

1. ENUM Registrars must commit to the provision of sufficient staff and technical resources to the trial
2. ENUM Registrars must commit to strictly complying with all Data Protection legislation and relevant guidelines
3. Any nameservers operated by the Registrar must comply with the DNS requirements in section 8.3 (DNS Requirements).
4. The Registrar must be capable of carrying out their role in the processes, as defined in Annex G of the UKEG Preliminary Report on the Implementation of ENUM in the UK.
5. The Registrar must be prepared to disclose all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.
6. The Registrar must commit to providing resources appropriate to satisfactory completion of the trial.
7. Registrar should provide customers with one or more of the following options:
 - The Registrar provides list of DNS Providers from which they can pick and choose to provide the overall service. By definition the entities that appear on this list will have an established relationship with the Registrar.
 - The ENUM Applicant can provide the Registrar with the names and details (to be defined) of their own DNS Provider. This option can only be valid subject to agreements between the Registrar and nominated DNS Provider.
 - The Registrar provides a 'bundled' service. Thus the DNS Provider is closely affiliated with the Registrar e.g. they are the same business entity.

Registrar requirements for registration process

1. The Registrar must provide a suitable means by which a customer can access information about ENUM services and registration process. This may be provided via a web site, telephone helpline or other suitable mechanism.
2. The Registrar must provide clear information to the ENUM Applicant regarding the terms and conditions of ENUM registration. T&Cs are to be agreed by UKEG (to align with conditions imposed on ENUM DNS Provider, ASP etc)
3. If the customer chooses an unbundled service then the Registrar must be informed of the details of each chosen provider.
4. The Registrar must establish an interface with the Tier 1 Registry, Authentication Agencies and ENUM DNS Providers. The common protocol should be EPP, but this does

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not preclude other protocols being used between the Registry and Registrars subject to the prior agreement of those trial participants. The protocols to be used at the interface between Tier1 Registry and ENUM Registrars have to be agreed between those parties

5. The Registrar must design and provide a suitable customer registration form. This will require some negotiation with the Authentication Agency.
6. The Registrar must agree with the Authentication Agency a suitable and secure means of transmitting the application form.
7. The Registrar must inform the customer that their application has/has not been successful.
8. If a successful validation has occurred the Registrar must arrange for the number to be inserted in the Tier 1 Registry DNS database and provide the details of the pointers to the relevant ENUM DNS Provider. The interface and mechanism to support this process must be as stated in item (4).
9. The Registrar must provide a summary of the service and obligations that the ENUM Applicant has subscribed to i.e.:
 - Their DNS Provider is Y and they host their records
 - Terms & Conditions as stated in 2
 - Registration period and renewal date
10. The Registrar should bill the ENUM Applicant according to the service provided.

Note: As a non commercial trial the function of this is only to check the billing function and therefore money will not change hands.
11. The Registry must maintain a 'timer' for the renewal process. When a re-registration is required the Registry must inform the Registrar and it must be the Registrar who has responsibility to give notice to the customer. This requires the Registrar to design a renewal process in conjunction with all other players, following the outline process described in the UKEG Report Annex G.
12. The Registrar must design a cease process in conjunction with all other players, following the outline process described in the UKEG Report Annex G.
13. The Registrar will define the terms and conditions of the service - these Terms and Conditions need to be endorsed by UKEG.
14. For the purpose of this trial the Registrar will not charge for services
15. The Registrar must be prepared to disclose the all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.

Registrar requirements for NAPTR record manipulation

There is also a strong case for the Registrar to fulfil the role of providing the day to day interface between the ENUM customer and the ENUM DNS Provider. In this scenario the Registrar has these additional requirements:

1. The Registrar must provide an interface to allow ENUM Customers to manipulate their NAPTR records. The Registrar may provide guidance to the end user on the recommended contents of the NAPTR records.
2. The time to update the records must be negotiated by the ENUM DNS Provider and the Registrar. This time lag must be communicated to the customer.

The Registrar should provide a means by which the ENUM Customer can be validated to enable them to 'officially' manipulate their records. This may require the Registrar to establish an 'on-line' relationship with the Authentication Agency so that a digital certificate, username & password etc. can be checked in real time.

8.3 The ENUM DNS Provider

Function

The ENUM DNS Provider will be responsible for the NAPTR records associated with individual E.164 numbers of the national numbering plan included in the ENUM trial.

DNS Requirements

1. Servers must not run insecure name server software.
2. Servers must have adequate bandwidth and connectivity to the Internet.
3. The operating systems of the servers must be secured against attacks: security penetration, denial of service, etc. Adequate logging and audit trails should be provided.
4. Technical and administrative contact information must be provided and kept up to date. This will include details of the server location(s), IP address(es), OS and name server configuration details, email addresses, contact names and phone numbers etc.
5. Servers must only be configured with the minimal set of network services enabled: secure access, network time protocol, DNS and some monitoring software.
6. Name servers must have recursion disabled. They must not fetch glue records.
7. Nameservers should support authentication of DNS queries and responses. Whilst DNSSEC and TSIG are likely to be the preferred protocols this should not preclude other protocols being used between the nameservers subject to the prior agreement of the trial participants.
8. Servers may support IPv6: A6, DNAME & AAAA records, IPv6 transport.
9. Servers should be installed in "co-lo" facilities with 24x7 monitoring, backup power supplies, etc.
10. Name servers must not "logically" serve other zones. The same physical equipment can serve more than one zone.
11. Servers should have sufficient capacity to support reasonably high query rates.
12. Query logging and traffic pattern data should be enabled for troubleshooting and statistical analysis.
13. The DNS provider will define the terms and conditions of the service - these Terms and Conditions need to be endorsed by UKEG.
14. For the purpose of this trial the DNS provider will not charge for services
15. The DNS Provider must be prepared to disclose the all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.

8.4 The Application Service Provider (ASP)

Function

The Application Service Provider will provide the applications direct to the ENUM End Users in the context of the trial. The role of the ASP is to provide applications to the end user.

ASP requirements

1. Application Service Providers must commit to providing sufficient staff and technical resources to the trial. The ASP will commit to providing resources appropriate to satisfactory completion of the trial.
2. The ASP will provide a suitable means by which a customer can access information about services and applications that the ASP is providing. This may be provided via a web site, telephone help line or other suitable mechanism.
3. The ENUM end user will control the contents of the NAPTR records. However, since the application will be using this data in order to provide the service, the ASP may provide guidance to the end user on the recommended contents of the NAPTR records.
4. The ASP must be prepared to disclose the all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.
5. The ASP will define the terms and conditions of the service - these Terms and Conditions need to be endorsed by UKEG.
6. For the purpose of this trial the ASP will not charge for services

8.5 Authentication Agency

Function

The Authentication Agency will be responsible for validating the assignment of E.164 numbers to ENUM End Users. The Authentication Agency can be either the Telephony Service Provider or National Number Plan Administrator or his agent.

The role of the Authentication Agency will be to confirm that an ENUM Applicant is the rightful assignee of the E.164 telephone number which they wish to enter into the DNS.

Strawman processes have been developed, which will be tested during the trial, as follows;

The authentication process will consist of two parallel activities, namely;

- **Verify that the number is assigned to a named entity with a specified billing address.** In the simplest case, this will be accomplished via looking up the entry in the Directory Enquiries database to confirm the assignment of the number to the named entity. However, more complex solutions will be required where the customer is unlisted, either because they have elected to be ex-directory, or because the number is inherently not one which would be listed, e.g. mobile. In these circumstances, it has been proposed that the Number Portability processes be adapted, as the first stages of these processes involve a "donor" network operator verifying that the customer is the rightful assignee. In order to trial/develop this part of the process, it is desirable that the Authentication Agency be a licensed operator, otherwise they will have to enlist the assistance of one.
- **Verify that the Applicant is the named entity.** It has been proposed that this would be accomplished via the dispatching of a letter in paper form to the Applicant at their specified billing address. This letter would give details of a password protected website to access to confirm that they are the Applicant.

Notwithstanding the strawman processes, during the trial other authentication processes may be tested and the results fed back to the UKEG.

Consideration will also be given to the process by which Authentication Agencies will themselves be accredited as fit for purpose for carrying out the role.

Requirements

1. The Authentication Agency must be capable of carrying out their role in the processes, as defined in Annex G of the UKEG Preliminary Report on the Implementation of ENUM in the UK.
2. The Authentication Agency must be prepared to disclose all information gathered during the course of the trial in the form of reports to the UKEG. These reports must be made periodically during the trial, and at the end of the trial.
3. The Authentication Agency must commit to providing resources appropriate to satisfactory completion of the trial.
4. Authentication Agencies should choose to be capable of authenticating all applicants, or restrict themselves to authenticating only "simple" cases, with more complex cases being outsourced. For Authentication Agencies capable of authenticating all applications internally, the Agency must be an appropriate UK Licensed Operator. For those authenticating only "simple" cases, the Authenticating Agency must establish a relationship with a Licensed Operator willing to facilitate the process for more complex applications.

Requirements to support Processes

1. The Authentication Agency must receive an application form from the customer via the ENUM Registrar. The design and information contained within the application form must be agreed with the Registrar.
2. For listed numbers, the Authentication Agency must validate that the telephone number, customer name and customer address align, using the directory enquiries database.
3. For unlisted numbers, the Authentication Agency must have secured agreements to use the front end of the Number Portability processes to verify that the telephone number, customer name and customer address align.
4. The Authentication Agency must provide a password-protected Website for use in verifying that an applicant is the entity named as the assignee of the telephone number.
5. The Authentication Agency must have the capability to send a letter to the applicant at the address associated with the telephone number, directing them to log into the Website.
6. The Authentication Agency must log when the applicant has accessed the Website to complete the authentication process.
7. The Authentication Agency must devise a scheme whereby the customer can be subsequently identified without having to repeat the Authentication process. This may require the Authentication Agency to develop an interface to the DNS Provider and/or the Registrar to provide a means of cross checking an 'electronic' identification or digital certificate.
8. The Authentication Agency must notify the ENUM Registrar of the success or failure of the authentication process within a timeframe to be defined within the trial, and to convey the secure identification information for use by the customer.
9. The Authentication Agency will define the terms and conditions of the service - these Terms and Conditions need to be endorsed by UKEG.
10. For the purpose of this trial the Authentication Agency will not charge for services
11. The Authentication Agency must be prepared to disclose the all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.

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8.6 ENUM End Users

Function

ENUM End Users will be the users using the applications offered within the ENUM trial on a non-commercial basis.

Requirements

ENUM End Users should ensure they are able to meet the following resource requirements:

1. ENUM end users must commit to providing sufficient personal information to effect an ENUM registration
2. ENUM end users must consent to their personal data being made available to parties in the trial who have agreed to comply with Data Protection legislation and relevant guidelines
3. ENUM end users should undertake to use available ENUM applications during the period of the trial
4. ENUM end users should provide feedback to the trial group for evaluation purposes
5. ENUM End Users must be prepared to disclose the all information gathered during the course of the trial in the form of reports to the UKEG. These reports will be made periodically during the trial, and at the end of the trial.

9 Selection of Trial Participants

Provided that the relevant resource requirements are met and the organisation or person concerned is prepared to agree to the Trial MoU, then they shall be permitted to participate in the trial.

Where there are two or more potential participants at the Tier 1 Registry level, who meet all resource requirements and are prepared to agree to the Trial MoU, then ways in which each may participate in the trial will be explored. For example, a co-operative approach, a different tier 1 registry for a set period of time etc. If no acceptable solution can be agreed, the matter will be referred to UKEG for a decision.

10 Appendices

10.1 Memorandum of Understanding for ENUM Field Trial

The trial MoU, that governs the trial and the relationship among participants, must be signed by all participants (except end users) before joining the trial group. All participants will underwrite their own expenses and associated costs in participating in the trial. Neither compensation nor financial benefits are foreseen for any trial participant.

This is a Memorandum of Understanding ("ENUM-MoU") by and between members of the UK ENUM GROUP ("UKEG") is for the purpose of establishing common understandings and voluntary cooperation in the conduct of the UKEG's ENUM Field Trial (the "Field Trial"). The ENUM-MoU reflects the intentions of all members of the UKEG and in particular all participants in the Field Trial.

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Whereas,

ENUM, as set forth in IETF RFC 2916 (www.ietf.org/rfc/rfc2916.txt?number=2916), specifies an open Internet standards track protocol for the Internet community on how the DNS can be used for identifying available services connected in relation to a domain name and a corresponding E.164 number. Discussions are taking place internationally in preparation for the launch of ENUM services in the future.

Considering,

that the aim of the UKEG ENUM Field Trial is to test the architectural, technical, operational and user aspects related to provision of ENUM capabilities, as defined in RFC 2916, for Country Code 44;

that the Field Trial will provide valuable experience, data and information concerning the implementation of ENUM services;

that the results of the Field Trial will be used by UKEG to determine the preferred implementation framework for the provision of ENUM capabilities and services behind Country Code 44; and

that results collected in the Field Trial will enable the UKEG, and any other interested parties, to gain information and experience on how to provide and implement ENUM capabilities in the commercial phase.

Now therefore,

The Signatories (the "Parties") to this ENUM-MoU hereby agree to voluntarily cooperate, according to their respective roles and competencies, as follows in the implementation of the Field Trial:

A. Field Trial Objectives

The following list sets forth the high-level objectives of the ENUM Field Trial:

1. Evaluate the pros and cons of the current preferred option developed by the UKEG and others to implement ENUM capabilities with particular emphasis on demonstration of the Registry and Registrar functions;
2. Evaluate the processes, interfaces, and protocols for the interactions between the different parties (e.g. Tier 1 Registry, ENUM DNS Provider, ENUM Registrar, Application Service Provider, Authentication Agency, Telecommunications Service Provider).
3. Determine technical and operational requirements to provisioning ENUM records at Tier 1 and Tier 2 levels;
4. Assess DNS requirements and implications in the provision of ENUM services;
5. Determine security and verification requirements for provisioning and operation of ENUM capabilities;
6. Test from a technical and user perspective applications based on the use of ENUM capabilities; and
7. Evaluate and refine economic benefits and costs of supporting ENUM services.

B. General Principles

The following principles govern the activities of the ENUM Field Trial and reflect the common understanding of all participating parties:

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1. This ENUM-MoU and the Field Trial are intended to promote the stability of ENUM capabilities and services, and to facilitate the UKEG and other interested parties to plan for the technical and commercial implementation of ENUM services for Country Code 44.
2. This ENUM-MoU and the Field Trial are intended to promote ENUM capabilities and services in a manner that will permit market mechanisms to support competition and consumer choice in the provision of such services. This competition will lower costs, promote innovation, and enhance user choice and satisfaction.
3. This ENUM MoU and the Field Trial are aimed at reducing barriers to entry into the provision of ENUM services, thereby encouraging entry by new entities and increasing competition and growth, to the benefit of all industry players and consumers.
4. The Field Trial is intended to test the architectural, technical, operational and user aspects related to provision of ENUM capabilities in a manner that will not harm current technical and functional operations.
5. The Field Trial will be implemented by using to the greatest extent possible open and standardized protocols and interfaces in order to facilitate interoperability between the parties.
6. Participation to the Field Trial is open to all parties having a genuine interest in gaining experience on the implementation and provision of ENUM capabilities.
7. All parties participating in the Field Trial must meet a minimum set of technical, operational and financial requirements, to be agreed by the UKEG.
8. All parties participating in the Field Trial shall co-operate in accordance to the provisions of this ENUM-MoU, and decisions will be taken by consensus (e.g., lack of sustained opposition) among the Trial participants with the involvement of the UKEG when appropriate.
9. All parties participating in the Field Trial shall provide their reasonable best efforts to make the Trial a success.
10. All parties participating in the Field Trial must not expect any financial benefits or compensation for their participation in and support of the Trial.
11. All parties participating in the Field Trial should make no assumptions that their involvement will accord them a preferential status if and when a RFP or tender is produced for any provision of ENUM services.
12. The failure or success of any part of the Field Trial – e.g., DNS hosting or a particular registry/registrar model – should not necessarily advantage (or disadvantage) the participants in that part of the Trial. It should be expected that some parts of the Trial may not succeed for reasons beyond the control of the parties involved. The Trial is intended to establish which procedures and models work and which do not.
13. After the starting date of the Field Trial, any entity may request to participate in the Trial. However, its participation will be permitted only if there is consent of all current Trial participants.

C. Responsibilities of Participating Parties and Field Trial Organisation

1. The Participating Parties agree to participate jointly in the Field Trial for testing the architectural, technical, operational and user aspects related to ENUM capabilities that should be in place for the technical and commercial implementation of ENUM services

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- in the 44 Country Code, and to act in a transparent, non-arbitrary and reasonable manner.
2. The Participating Parties agree to participate in the Field Trial with the intention of observing all relevant commitments and remaining involved until the end of the Trial.
 3. The Participating Parties will use their reasonable best efforts to ensure the continuity of the Field Trial. In this respect, the Participating Parties each agree that, if any one of them is prevented for any reason from completing the Trial, that Party will make available and facilitate the transfer of information relevant to enable the Trial to continue to its completion, to another Participating Party or Parties to be designated by the Trial manager, having input from the UKEG.
 4. At the completion of the Field Trial, each Participating Party will be responsible to produce a report to be submitted to the UKEG, containing that Party's relevant findings, conclusions and data resulting from the Field Trial. The Trial manager will determine in due course the suggested contents of this report, having input from the UKEG.
 5. The Participating Parties will co-operate fully with any transition to an ENUM production service, including making available relevant Trial information, even if the participant is not involved (or was unsuccessful in bidding for) any element of the ENUM production service.
 6. The Participating Parties shall each bear its own costs and expenses in relation to participating in the Trial.
 7. The Participating Parties are to be divided in the six categories: Tier1 Registry, ENUM Registrar, ENUM DNS Provider, Application Service Provider, Authentication Agency, and ENUM End Users. The technical, operational and financial requirements vary according to these six categories. The criteria for each category are described in section 8 herein.
 8. In order to ensure the necessary co-ordination and management of the different elements of the Field Trial a Trial manager will be appointed.
 9. The Field Trial comprises five phases:
 - phase 1, to prepare a business plan to assess the feasibility of the trial and a work plan for the trial, and to identify necessary actions and time-schedules for the implementation of the trial;
 - phase 2, to invite participants to the trial, evaluate them, select the trial participants and appoint the trial manager(s);
 - phase 3, to deploy resources and infrastructure to run the trial;
 - phase 4, to operate the trial and liaise with UKEG to ensure the necessary cooperation;
 - phase 5, to carry out an evaluation of the trial and to produce a report for the UKEG, summarising the results of the trial and the conclusions that may be drawn from it.
 10. Country Code 44 has already been delegated to a competent authority in accordance with the process agreed by ITU and IAB, and phase 2 has thus already begun.
 11. Phase 2 of the Trial will last not less than 5 months and not longer than 7 months.
 12. UKEG will monitor the development of the Field Trial and provide, when appropriate, contributions to the activities of the Trial.

D. Legal Considerations

1. This ENUM-MoU is intended to be legally non-binding, and is based instead on the voluntary cooperation of all UKEG members and the Participating Parties.
2. "Trial Material" is defined to include all [documents, data, technical specifications and models, and other contributions or outputs] developed during the Field Trial by the Participating Parties. Trial Material does not include the [user data provided by users and entered into the DNS and/or registry/registrar systems] during the Trial.
3. All Trial Material will be considered to be in the public domain. Findings and results generated or produced by the Field Trial and its participants should be made freely available to the UKEG, to other Trial participants and to interested parties. The results of the Field Trial will be posted for public view at the following web site: <http://www.dti.gov.uk/cii/regulatory/enum/index.shtml>
4. It is understood that the Field Trial is intended to be a process for testing and experimentation, and therefore no representations or warranties of any kind whatsoever are made as to the accuracy, completeness or fitness for commercial use of the Trial Material or of any other Trial results. THE UKEG AND PARTICIPATING PARTIES IN THE FILED TRIAL EXPRESSLY ACCEPT NO LIABILITY OF ANY KIND TO ANY PERSONS IN RELATION TO ANY RELIANCE ON SUCH MATERIAL AND RESULTS.
5. No Participant in the Field Trial will assert any form of legal ownership – e.g., copyright, trade secret, licence, patent, etc. – over the Trial Material. At the same time, Participating Parties are under no obligation to account to each other, to the UKEG or to the public for their own use of the Trial Material, as well as the experience and knowledge gained during the Trial.
6. Field Trial participants may produce reports for internal use that are based on data which is in the public domain and available to other Trial participants. Trial participants are not precluded from using the knowledge and experience gained during the Trial to foster commercial benefit for themselves.
 - For example, if experts of registry provider A use their skills to build a better ENUM registry solution than provider B, A does not need to disclose that information to B, and B is not entitled to ask A for it.
7. Data made available for the Field Trial will not be used for any form of junk communication, mass marketing or unfair trade practice.
8. The Field Trial will be conducted in accordance with applicable data privacy and protection regulation. At the end of the Field Trial, any personal data used during the Trial will be destroyed in accordance with relevant UK and EU law on data privacy and protection.
9. It is the clear and unequivocal policy of the UKEG, this ENUM MoU and the Field Trial participants to comply in all respects with the relevant competition and antitrust rules.
10. Field Trial participants will not take part in any practice that would have the object or effect of restricting competition in the communications or DNS industries, nor will they provide a forum to promote anti-competitive conduct. Field Trial participants will not become involved in the competitive business decisions of other Trial participants.
11. Field Trial activities shall not involve discussions or agreements (including oral or informal agreements, decisions, and recommendations, whether binding or not) relating to restrictive practices, including:

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- Field Trial participants shall not agree between themselves pricing and other terms and conditions of sale, including common prices and pricing policy, resale prices, price changes, discounts, rebates, price elements, profit margins, recommended or target prices, and credit terms. Nor shall they indirectly restrict price competition by rigged bidding.
- Field Trial participants shall not agree to share markets between themselves, in particular by the division of territories or customers.
- Field Trial participants shall not exchange individualised up-to-date commercial information, particularly with regard to prices, discounts, costs, investments, output or sales, capacities, customers or market shares.

E. Period of ENUM MoU and Modification/Termination

1. This ENUM MoU will become effective when signed by each Participating Party to the Field Trial.
2. The ENUM MoU will terminate at the end of the trial, but may be amended at any time by mutual agreement of the parties in writing.
3. Any party may terminate its participation in this ENUM MoU by providing thirty (30) days notice to the other parties.

SIGNATURES

[date]

SIGNATORIES:

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10.2 Request for Expression of Interest

I would like to participate in the ENUM Field Trial

Name of individual

Name of Company

Contact Details

Phone:

Phone:

email:

Preferred Role(s) - delete as appropriate

- Tier 1 Registry
- ENUM DNS Provider
- ENUM Registrar
- Application Service Provider
- Authentication Agency
- ENUM End User

Please return this application to: **info@ukenumgroup.org**