IT Department
Documentation

Pre-Delegation Testing

Data Escrow Test Plan

Version PA8

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Document control

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Revisions

Date	Version	Name	Description
2013-01-05	PA1	Rickard Bellgrim	Initial document
2013-01-07	PA2	Andreas Fredriksson	Add requirements
2013-01-17	PA3	Rickard Bellgrim	Continue with test cases
2013-01-20	PA4	Rickard Bellgrim	Updates after external review
2013-01-22	PA5	Rickard Bellgrim	Updates after external review
2013-01-24	PA6	Rickard Bellgrim	Add picture and text updates
2013-02-06	PA7	Rickard Bellgrim	Add Document Hierarchy and final chapters
2013-02-07	PA8	Rickard Bellgrim	Updated requirements

LIST OF CONTENTS

1. Introduction

This Level Test Plan focuses on the Data Escrow functionality of the new gTLDs.

1.1 Scope

The Pre-Delegation Testing Provider will validate the format of the data escrow deposit as provided by the applicant.

1.2 References

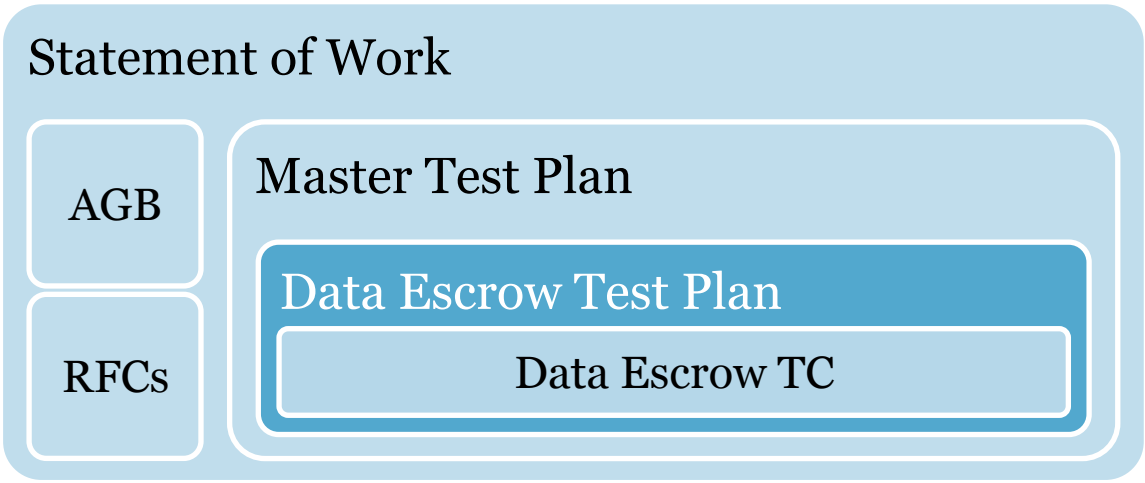
1.2.1 External

- IEEE 829-2008
- ICANN gTLD Applicant Guidebook, Version 2012-06-04
- http://tools.ietf.org/html/draft-arias-noguchi-registry-data-escrow-04

1.2.2 Internal

- Pre-Delegation Testing, Statement of Work
- Pre-Delegation Testing, Master Test Plan
- Pre-Delegation Testing, Documentation Test Plan
- Pre-Delegation Testing, Data Escrow Test Cases

1.2.3 Document Hierarchy



1.3 Level in the overall sequence

This Test Plan and the associated Test Cases can be run in parallel with the other Level Test Plans.

1.4 Test classes and overall test conditions

Both full and incremental deposits of sample data will be tested with positive test cases.

2. Details for this level of test plan

2.1 Test items and their identifiers

2.1.1 Statement of Work

The main requirements for testing data escrow are found in the Statement of Work:

[R21] Validate the format of one full and one incremental data escrow deposit as provided by the applicant for compliance with the New gTLD Registry Agreement Specification 2 – *Data Escrow Requirements* set forth in Module 5 of the AGB.

[R22] Verify that the applicant's data escrow profile is in compliance with section 3 of the New gTLD Registry Agreement Specification 2 – *Data Escrow Requirements* set forth in Module 5 of the AGB.

Requirements [R23] and [R24] in the Statement of Work are also about Data Escrow, but they are only about document reviewing and are handled by the Documentation Test Plan. They are thus not included in this test plan.

Note: In contrary with the requirements, ICANN are now allowing applicants to only deliver full data escrow deposits each time. This is to simplify the process for small registries. Incremental files will thus be tested only if the applicant delivers such files to the PDT Provider.

2.1.2 Applicant Guidebook

Section 5.2 of the AGB states the following requirements:

> ***Escrow deposit --*** The applicant-provided samples of data deposit that include both a full and an incremental deposit showing correct type and formatting of content will be reviewed. Special attention will be given to the agreement with the escrow provider to ensure that escrowed data can be released within 24 hours should it be necessary. ICANN may, at its option, ask an independent third party to demonstrate the reconstitutability of the registry from escrowed data. ICANN may elect to test the data release process with the escrow agent.

The following requirements have been identified from the text above. Note that the requirements on the data escrow agreement are handled by the Documentation Test Plan, as mentioned in 2.1.1.

[AGB1] One full deposit of sample data MUST be tested
[AGB2] One differential deposit of sample data deposit MUST be tested

The word "differential" is used in the requirement above and not "incremental". This is because specification 2 uses this term.

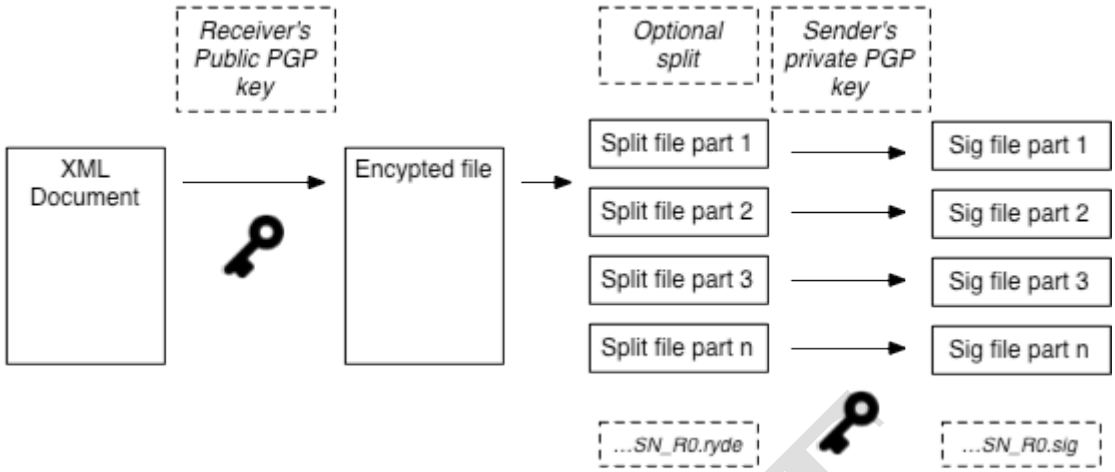
2.1.3 Specification 2

Specification 2 of the registry agreement will not be fully cited here, but a number of requirements have been identified.

[REG1] Acceptable algorithms for Public-key cryptography, Symmetric-key cryptography, Hash and Compression are those enumerated in RFC 4880, not marked as deprecated in OpenPGP IANA Registry, that are also royalty-free.
[REG2] Escrow format:
[REG2.1] Registry objects, such as domains, contacts, name servers, registrars, etc. MUST be compiled into a file constructed as described in draft-arias-noguchi-registry-data-escrow.
[REG2.2] Registry Operator MUST use the draft version available at the time of signing the Agreement, if not already an RFC. Once the specification is published as an RFC, Registry Operator MUST implement that specification, no later than 180 days after.
[REG2.3] UTF-8 character encoding MUST be used.
[REG2.4] If a Registry Operator offers additional Registry Services that require submission of additional data, not included above, additional "extension schemas" MUST be defined in a case by case base to represent that data. These "extension schemas" MUST be specified as described in the draft.
[REG3] Processing of files:
[REG3.1] The file SHOULD be compressed using ZIP as per RFC 4880.
[REG3.2] The (compressed) file MUST be encrypted using the escrow agent's public key, using the suggested algorithms in Specification 2.
[REG3.3] The encrypted file MAY be split into smaller files.
[REG3.4] The file(s) MUST be signed using the Registry's private key, using the suggested algorithms in Specification 2.
[REG3.5] The digital signature file(s) MUST be in binary OpenPGP format as per RFC 4880.
[REG3.6] The processed files and digital signature files MUST be transferred to the Escrow Agent through secure electronic mechanisms.
[REG3.7] The Escrow Agent MUST validate every transferred data file according to [REG5].
[REG4] Files MUST be named according to the following convention: {gTLD}_{YYYY-MM-DD}_{type}_S{#}_R{rev}.{ext}
[REG5] Distribution of public keys:
[REG5.1] Each of Registry Operator and Escrow Agent MUST distribute its public key to the other party via email to an email address to be specified.
[REG5.2] Each party will confirm receipt of the other party's public key with a reply email, and the distributing party will subsequently reconfirm the authenticity of the key transmitted via offline methods.
[REG6] Verification procedure**:**
[REG6.1] The signature file of each processed file MUST be validated.
[REG6.2] If processed files are pieces of a bigger file, the latter MUST be put together.
[REG6.3] Each file obtained in the previous step MUST be decrypted and uncompressed.
[REG6.4] Each data file contained in the previous step MUST be validated against the format defined in draft-arias-noguchi-registry-data-escrow.

Note that [REG5] will not be tested, see section ·.

Processing of files can be illustrated by this picture. The verification procedure is the reverse of this process.



2.1.4 Algorithms

RFC 4880 enumerates a number of algorithms used for Public-key cryptography, Symmetric-key cryptography, Hash and Compression. The algorithm must not be marked as deprecated in OpenPGP IANA Registry and must also be royalty-free.

[ALGO1]	Public-key cryptography
[ALGO1.1]	RSA used both for signing and encryption. RFC 4880 says that RSA Encrypt-Only and RSA Sign-Only are deprecated.
[ALGO1.2]	DSA for signatures and Elgamal for encryption.
[ALGO1.3]	ECDSA for signatures and ECDH for encryption. RFC 4880 has reserved code points for this. The full specification is in RFC 6637.
[ALGO2]	Symmetric-key cryptography: IDEA, TripleDES, CAST5, Blowfish, AES128, AES192, AES256, or Twofish.
[ALGO3]	Hash: SHA1, RIPEMD160, SHA224, SHA256, SHA384, or SHA512.
[ALGO3.1]	MD5 is marked as deprecated in the IANA Registry and MUST not be used.
[ALGO4]	Compression: ZIP, ZLIB, or BZip2.

Note that IDEA was patented in some countries, but they have now expired.

2.2 Test Traceability Matrix

Test ID	Description	Requirement Point
Data Escrow Profile	Verify that the profile is in accordance with the escrow format and the data escrow draft.	[R22], [REG2]
Data Escrow File Name 01	Receive one full deposit of sample data. Verify file names.	[R21], [AGB1], [REG4]
Data Escrow File Name 02	Receive one differential deposit of sample data. Verify file names.	[R21], [AGB2], [REG4]
Data Escrow Verify 01	Verify signature of files for full deposit. Put split files together. Decrypt and uncompress file.	[R21], [AGB1], [REG3], [REG6.1], [REG6.2], [REG6.3], [ALGO]
Data Escrow Verify 02	Verify signature of files for differential deposit. Put split files together. Decrypt and uncompress file.	[R21], [AGB2], [REG3], [REG6.1], [REG6.2], [REG6.3], [ALGO]
Data Escrow Content 01	Validate the full deposit against the profile.	[R21], [AGB1], [REG2], [REG6.4]
Data Escrow Content 02	Validate the differential deposit against the profile.	[R21], [AGB2], [REG2], [REG6.4]

2.3 Features to be tested

- Escrow profile
- File names
- Processing of files
- Escrow format

2.4 Features not to be tested

It has been decided not to do a proper public key distribution with offline verification methods, as described in [REG5]. The tests are performed on dummy data and are thus not considered sensitive. Also, this will simplify the testing process. The applicant can get the public key from a public website.

2.5 Approach

The applicant must at least deliver full deposits of sample data including signature files, the public PGP key of the applicant, and the XML profile. Encryption must be done using the public key provided by the Pre-Delegation Testing System. The applicant must deliver the differential files, if they are supporting this functionality.

The Test Officer will verify the files and their contents using manual inspection together with support tools and scripts.

The data escrow draft is still under development, which will impact this test plan and test cases. The test plan and test cases will be updated to match the current draft. However, multiple version are needed to be supported.

ICANN may also elect to test the release process with the escrow agent. This is however described in a separate document because it is an extra service outside the normal pre-delegation testing.

2.6 Item pass/fail criteria

The test will fail if the test item does not follow the requirement for each step in the procedure.

2.7 Suspension criteria and resumption requirements

The test cases needs to run in the correct order, because the outcome from one test is used in the following test. If a test fails then no other cases will be run.

2.8 Test deliverables

The Data Escrow test level will produce:

- Level Test Logs (LTL)
- Anomaly Report (AR) in case of error
- Level Test Report (LTR)

3. Test management

The goal of these documents is to describe the test cases and how the new gTLDs are tested. This is just a part of a larger project and defining test management is not part of this subproject. However, some information can be found in the Master Test Plan.

4. General

4.1 Glossary

The glossary is available in the Master Test Plan.

4.2 Document change procedures

Document change procedures are documented in the Master Test Plan.