Emdha eSign CA- Certificate Policy and Certification Practice Statement (CP/CPS)

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Policy Authority Committee

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Version	Date	Author(s)	Revision Notes and Comments
1.0	12 December 2019	Parag Parikh	First official issue
1.1	1 JANUARY 2020	Ali Bawazeer	Added eTSA CA profile and OID for TSA as well as eSign OCSP

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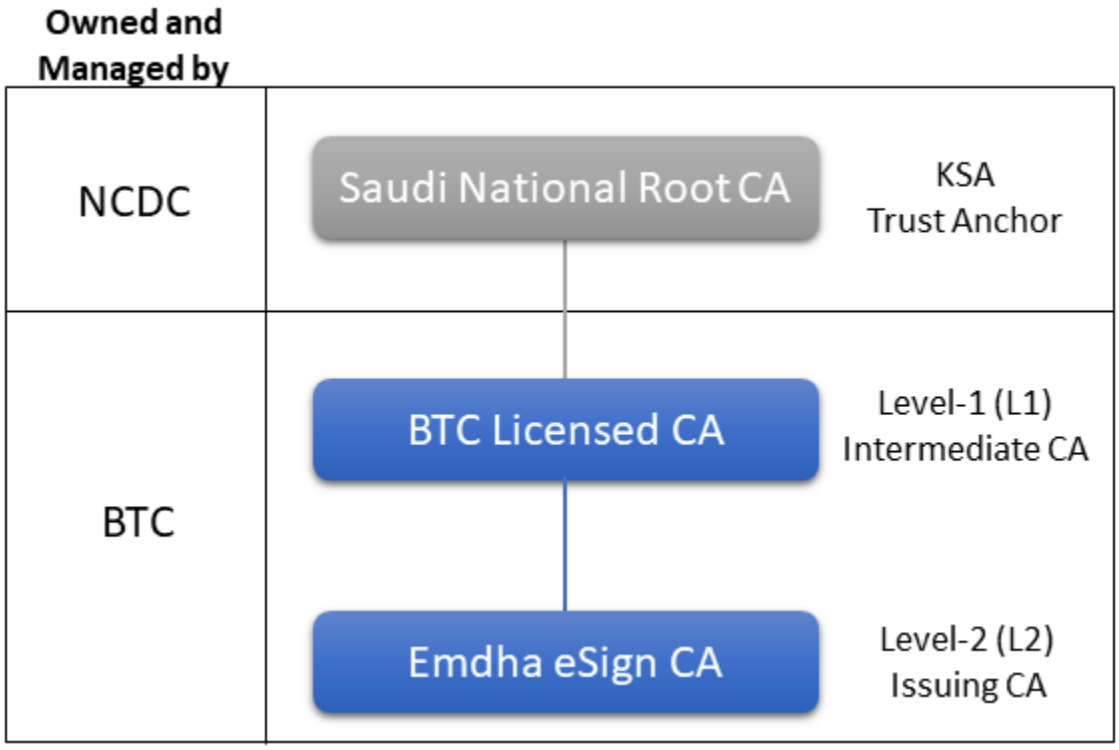
1. Introduction

Baud Telecom Company is licensed by Communications and Information Technology Commission (CITC) and National Centre for Digital Certification (NCDC) to build, own and operate a commercial licensed CA in the Kingdom of Saudi Arabia. For more information on NCDC, please refer to https://www.ncdc.gov.sa

CA acts as a "Certification Service Provider", as defined under the definition of Article 1(21) of Kingdom's e-Transactions Law. The Digital Certificates issued by BTC LICENSED CA provides legal validity for its electronic signature, under the definitions of Article 1(17) of Kingdom's e-Transactions Law.

The e-Transactions Law of Kingdom of Saudi Arabia grants legal recognition to digital / electronic signatures. This provides that "If a signature is required for any document or contract or the like, such requirement shall be deemed satisfied by an electronic signature generated in accordance with this Law. The electronic signature shall be equal to a handwritten signature, having the same legal effects."



BTC Licensed Certification Authority (henceforth referred as BTC LICENSED CA) is owned by the Baud Telecom Company (referred as BTC). BTC LICENSED CA is a Certification Authority under the Saudi National Root-CA. This is achieved by the Saudi National Root-CA issuing a digitally-signed CA Certificate that authenticates the Public Key of the BTC LICENSED CA. BTC LICENSED CA will issue the Emdha eSign CA and any future L2 CAs.

Emdha eSign Certification Authority (henceforth referred as Emdha eSign CA) is also owned by BTC. Emdha eSign CA is a Certification Authority under the BTC Licensed CA. This is achieved by the BTC Licensed CA issuing a digitally-signed CA Certificate that authenticates the Public Key of the Emdha eSign CA. "EMDHA"

is a registered trademark owned by Baud Telecom Company, and is intended to be used as the name/trademark for BTC Certification services and Trust services.

Emdha eSign CA provides trust services to secure the exchange of information between key stakeholders. Participants include, Government, Citizens and Businesses. Emdha eSign CA shall provide certificates to Emdha trust services as well as subscribers.

1.1. Overview

This document combines the CP and CPS documents and is thus presented as a single document.

This document defines a high level of trust and assurance for use by all Emdha eSign CA PKI participants. It provides definitions for the policies by which the Emdha eSign CA operates.

This document also establishes the processes and procedures followed by the Emdha eSign CA to:

- Issue certificates to subscribers and trust services,
- Certificate issuance, management and revocation for supportive administrative roles for the Emdha eSign CA operations,
- Manage core infrastructure that supports BTC PKI setup,
- Maintain or revoke certificates issued by the Emdha eSign CA, and
- Operate the OCSP responder(s)

This CP and CPS comply with:

- BTC LICENSED CA CP and CPS.
- Internet Request for Comment “RFC 3647” of Internet Engineering Task Force (IETF) for Certificate Policy and Certification Practice Statement.
- Adobe Approved Trust List (AATL) Certificate policies.
- Internet Request for Comment “RFC 5280” of Internet Engineering Task Force (IETF) for Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile.

If any inconsistency exists between this CP/CPS and aforesaid requirements, then the aforesaid Requirements take precedence over this CP/CPS.

The terms used in this document shall have the meanings as defined in Emdha eSign CA Glossary section which can be found at https://www.emdha.sa.

This document is subject to regular review by the BTC Policy Authority committee (BTC PAC), as specified in section 1.3.1 of this CP/CPS, and subject to amendment as well as exceptions to mitigate material, imminent impacts to subscribers, partners, relying parties, and/or others within the certificate ecosystem where practical workarounds do not exist. Such exceptions are tracked, documented and reported as part of the audit process.

Under the descriptions provided in this CP/CPS, Emdha eSign CA establishes a hierarchical trust under the BTC LICENSED CA, which is an intermediate CA under the Saudi National Root-CA.

It is the responsibility of all parties applying for or using a digital certificate issued under this CP/CPS, to read this CP/CPS and the PKI Disclosure Statement (PDS) to understand the practices established for the lifecycle management of the certificates issued by the Emdha eSign CA. Any application for digital certificates or reliance on Emdha eSign CA issued certificates signifies understanding and acceptance of this CP/CPS and its supporting policy documents.

Emdha eSign CA is a Level-2 issuing CA in the Saudi National PKI hierarchy, maintained and operated by BTC in an online environment. The Emdha eSign CA shall issue certificates to subscribers, Trust Services and supportive functions for the Emdha eSign CA operations, and Certificate Revocation Lists (CRLs).

1.1.1 Certificate Policy

This Certificate Policy document is assigned the OID: 2.16.682.1.101.5000.1.4.1.1.2. This OID will not be included as a certificate policy extension in CA certificates. Specific OIDs will be assigned to each certificate type in Appendix A, which will be included as a certificate policy extension in each certificate issued by the Emdha eSign CA.

1.1.2 Relationship between the CP and the CPS

This document combines the CP and CPS documents and is thus presented as a single document. It states what assurance can be placed in a certificate issued by Emdha eSign CA. It also states how Emdha eSign CA meets the requirements for policies defined in this document.

This CP/CPS establishes the practices for the issuance, acceptance, maintenance, use, reliance upon, and revocation of digital certificates issued by Emdha eSign CA as governed by this document and related documents which describe Saudi National PKI requirements and use of Certificates.

1.1.3 Interaction with other PKIs

Emdha eSign CA shall not cross-certify with other BTC or third-party CAs. Emdha eSign CA will not issue any subordinate CA under itself.

1.1.4 Scope

This CP/CPS applies to all certificates issued by the Emdha eSign CA. Emdha eSign CA is a Level-2 issuing CA in the Saudi National PKI hierarchy, maintained and operated by BTC in an online environment. The Emdha eSign CA shall issue certificates and Certificate Revocation Lists (CRLs) only for subscribers, trust services and supportive functions for the Emdha eSign CA operations.

1.2. Document Name and Identification

The OID assigned to BTC by NCDC is: {joint-iso-itu-t(**2**) country(**16**) sa(**682**) sa-organizations(**1**) government-organizations(**101**) ncdc(**5000**) pki-public-key-infrastructure(**1**) licensed-cas(**4**) certificate-policies(**1**) baud-telecom-company-btc(**1**)}

The object identifier (OID) values corresponding to the organization, CP and CPS are as follows:

Entity / Certificate Policy	OID
Baud Telecom Company (BTC)	2.16.682.1.101.5000.1.4.1.1

Emdha eSign CA Certificate Policy Document	2.16.682.1.101.5000.1.4.1.1.2

1.3. PKI Participants

The following are the PKI Participants under the BTC LICENSED CA CP/CPS.

1.3.1 BTC Policy Authority Committee (BTC PAC)

BTC Policy Authority Committee (BTC PAC) is responsible for the governance of the BTC LICENSED CA. Its members are appointed by BTC. Its tasks include:

- Establishing and implementing its CP, CPS and PDS for CAs under its domain, in conjunction with the Saudi National PKI Policy document;
- Ensuring the operation of the BTC CAs comply with the requirements of its CP, CPS, PDS and Operations Policies and Procedures;
- Review and approve the Subscriber Agreement, Relying Party Agreement and other related Agreements based on the CA's specific business requirements;
- Review the compliance of internal audits, external audits and any security assessments;
- Seeking resolution of disputes between participants operating in its domain;
- Act as liaison with NCDC; and
- Perform an annual review on key algorithms and lengths to determine appropriate level of security and assurance.
- Obtain NCDC approval for Issuing CAs under BTC Licensed CA
- Approval of Issuing CAs under BTC Licensed CA

1.3.2 BTC Licensed Certification Authority (BTC LICENSED CA)

The term BTC LICENSED CA refers to the entity owned and operated by BTC which is approved by NCDC to join the Saudi National PKI, directly under the Saudi National Root-CA.

BTC LICENSED CA is responsible for:

- Generation and issuance of Issuing CA certificates under the BTC LICENSED CA;
- Publication of Issuing CA certificates;
- Revocation of Issuing CA certificates;
- Publication of revocation information;
- Re-key of Issuing CAs;
- Conduct regular internal security audits;
- Assist in audits conducted by or on behalf of NCDC; and
- Performance of all aspects of the services, operations and infrastructure related to BTC LICENSED CA.

1.3.3 Emdha eSign Certification Authority (Emdha eSign CA)

The term Emdha eSign CA refers to the CA entity owned and operated by BTC which is approved by NCDC to join the Saudi National PKI, directly under the BTC LICENSED CA.

Emdha eSign CA is responsible for:

- Generation and issuance of subscribers and trust services under the Emdha eSign CA;
- Revocation of Trust services and other supporting services certificates;
- Publication of revocation information;
- Re-key of Trust services certificates;
- Conduct regular internal security audits;
- Assist in audits conducted by or on behalf of NCDC and/or WebTrust for CAs related audits; and
- Performance of all aspects of the services, operations and infrastructure related to Emdha eSign CA.

1.3.4 Signing Interface Provider (SIP)

Signing Interface Provider (SIP) is an organization or an entity using the eSign service(s) as part of their application to digitally sign the content. Examples include Government Departments, Banks and other public or private organizations. SIPs shall be responsible for:

- Completing the necessary steps for on-boarding with Emdha eSign CA before they can start using the eSign Trust Service;
- Using the prescribed type of digital signature certificate from Emdha eSign CA to sign every communication sent to eSign and/or Emdha eSign CA;
- Receiving and compiling transaction data/document(s) and ensure that hash(es) are created for accurate and complete data before sending the digitally-signed hash to the eSign service;
- Obtaining user-consent for eSign service to perform remote digital signature on user's behalf;
- Verifying and ensuring the digitally signed-hash(es) received from eSign service correspond to the data/document(s) hash(es) sent by the SIP;
- Verifying and validating eSign service digital signature for every received transaction;
- Verifying and validating subscriber signature before relying on or processing the transaction;
- SIP asserts that they use eSign services and processes associated with each transaction in accordance with this CP/CPS and the SIP Agreement.

The CA Operations Manual provides more details on the procedures for on-boarding of SIPs, associated forms, verification process and the procedure to issue/revoke/re-key/suspend/re-instate SIP Certificates.

1.3.5 Reliable KYC Agency (RKA)

An organization, other than BTC/Emdha, listed in this document to act as a KYC (Know Your Customer) provider for the purpose of Online Signature Service.

RKA is responsible for:

- Subscriber's verification and authentication before providing the subscriber KYC information to Emdha eSign CA. Such agency shall ensure the verification steps of the signatory shall be minimum or higher than the verification steps required by Emdha eSign CA to verify for issuance of Digital Signature Certificate;
- Digitally signing subscriber KYC information using the prescribed certificate type before providing to the Emdha eSign CA. It will be the basis for creation of the subscriber certificate;
- Obtaining user-consent and perform at least a 2-factor authentication for each digital certificate/signature and key generation/request before providing the digitally-signed KYC information to Emdha eSign CA or eSign trust service;
- RKA asserts that they use eSign services and processes associated with each transaction in accordance with this CP/CPS and the RKA agreement.

Following are entities eligible to be RKA's under this policy:

1. Any organization licensed as a bank by Saudi Arabian Monetary Authority (SAMA) in Kingdom of Saudi Arabia.

SIP and RKA are allowed to be the same organization, as long as both are authorized for each role.

1.3.6 Trust Services

Trust Services are electronic services that consume digital certificates to provide capabilities for certificate-based authentication, digital signatures, verification, validation and/or preservation for electronic transactions. Trust Services provide and/or enhance integrity, reliability and trust in electronic transactions.

Below is a list of Trust services owned, managed and provided by Emdha to be used with the Emdha eSign CA.

1.3.6.1 eSign Trust Service or Online Signature Service (eSign)

eSign enables remote online signature facility for application/service provider applications. It is responsible for:

- Requesting and/or receiving subscriber KYC information from RKA;
- Act as an intermediary for Emdha eSign CA to receive and process subscriber KYC information;
- Receiving and processing data-hashes to securely perform subscriber signatures remotely;
- Delete the subscriber private keys at the end of every signature session;

- Verification and validation of digital signature for all subscriber or signature related information received from SIP and RKA;
- Securely retain the evidence(s) for subscriber certificate issuance and digital signature creation;
- Digitally sign response(s) to SIPs;
- Any additional steps deemed necessary to ensure or enhance the security of the eSign service

1.3.6.2 Time-Stamp Authority (TSA)

TSA service provides an RFC 3161 compliant digitally-signed timestamp token whose signer vouches for the existence of the signed document, transaction or content at a certain point in time by recording their digitally signed fingerprint along with the date and time the transaction occurred. This service asserts that the data and/or associated secure hash existed at the specified time.

This service will be consumed by Emdha's own eSign service for time-stamping transactions performed through the eSign service.

Time-stamping of transactions also allows for the transaction to be considered valid beyond the expiration of the subscriber certificate.

The TSA shall use a reliable time source whose clock is synchronized as per global best-practices. The TSA shall ensure time synchronization is performed at least once every 24 hours and ensure time drift is within 1 second of UTC time.

1.3.7 Subscribers

Subscribers are individuals (end users) or entities (organizations) to whom certificates are issued and are legally bound by a Subscriber Agreement or Terms of use.

The subscriber asserts that he or she uses the key and certificate in accordance with this CP/CPS.

1.3.8 Relying Parties

A Relying Party is the entity that relies on the validity of the binding of the CA's or subscriber's identity to a public key. The Relying Party is responsible for checking the validity of the certificate by examining the appropriate certificate status information, using validation services provided by the Emdha eSign CA. A Relying Party's right to rely on a certificate issued under this CP, requirements for reliance, and limitations thereon, are governed by the terms of the Emdha eSign CA CP and the Relying Party Agreement.

Relying Parties shall use and rely on a certificate that has been issued under the Emdha eSign CP if:

- The certificate has been used for the purpose for which it has been issued, as described in the Emdha eSign CA CP, and applicable Subscriber Agreement;
- The Relying Party has verified the validity of the digital certificate, using procedures described in the Relying Party Agreement;

- The Relying Party processes and understands certificate extensions in accordance with RFC 5280;
- The Relying Party has accepted and agreed to the Relying Party Agreement at the time of relying on the certificate; it shall be deemed to have done so by relying on the certificate; and
- The relying party accepts in totality, the certificate policy applicable to the certificate, which can be identified by reference of the certificate policy OID mentioned in the certificate.

1.3.9 Online Certificate Status Protocol Responder

Online Certificate Status Protocol (OCSP) Responders provide revocation status information. The Emdha eSign CA shall make their certificate status information available through an OCSP responder in addition to any other mechanisms they wish to employ. The Emdha eSign CA shall publish status information for the certificates it issues in a Certificate Revocation List (CRL).

1.3.10 Application Sponsor

Application Sponsor shall serve as the representative of an Application or Organization or SIP in order to register the application or organization or SIP with the eSign service and/or Emdha eSign CA. The requirements for Application sponsors are set forth in the CA Operations Manual.

1.4. Certificate Usage

1.4.1 Appropriate Certificate Uses

Emdha eSign CA may issue certificates to:

1. Internal supporting applications and trust services, for e.g. OCSP, eSign, TSA, etc.
2. SIPs and/or RKAs for performing their responsibilities as mentioned in section 1.3 of this CP/CPS. These certificates shall be issued to entities who have signed their acceptance of SIP and/or RKA agreement(s) in the appropriate form and whose application for certificates has been approved by Emdha eSign CA.
3. Subscribers through the eSign service to perform signatures and associated validation, only after the SIP/RKA provides and confirms user consent to provide KYC information, acceptance of subscriber agreement, and explicit-authenticated-consent for eSign service to perform a remote signature on behalf of the subscriber.

1.4.2 Prohibited Certificate Uses

Certificates issued under this CP shall not be authorized for use in any circumstances listed below, and the Emdha eSign CA shall not be liable for any claims arising from such use.

Emdha eSign CA certificates are not for use in circumstances where:

1. Usage of certificate is in connection to any activity, which is illegal under the laws of Kingdom of Saudi Arabia.
2. Usage of certificate is inconsistent with the certificate extensions in key usage and extended key usage, as defined by RFC 5280.
3. Usage of certificate is above the designated reliance limits indicated in the EMDHA Warranty Policy
4. Usage of certificate is for any equipment operated in hazardous conditions or under fail proof conditions (eg. Nuclear facilities, aircraft navigation, medical devices, direct life support devices, other systems where any failure could lead to injury, death or environmental damage, etc.)
5. Usage of certificates is in connection with fraud, pornography, obscenity, hate, defamation, harassment and other activity that is contrary to public policy.
6. Usage for man-in-the-middle (MITM) or traffic management of domain names or IPs that the certificate holder does not legitimately own or control.

Emdha eSign CA certificates do not guarantee that the Subject is trustworthy, operating a reputable business or that the equipment into which the Certificate has been installed is free from defect, malware or virus.

Emdha eSign CA certificates should be used only for the designated purposes, in addition to specific types and categories. An end subscriber certificate should not be used for CA function, like, to issue/sign a certificate under it. Similarly, the CA certificates are to be used only for CA function, and not to perform any end subscriber usage like document signing, etc.

More generally, certificates shall be used only to the extent where use is consistent with all applicable laws, statutes, orders, decrees, rules, regulations, and court judgements of this jurisdiction or governmental order; of Kingdom of Saudi Arabia.

1.5. Policy Administration

1.5.1 Administration Organization

This CP is administered by BTC Policy Authority Committee (see section 1.3.1).

1.5.2 Contact Person

Queries regarding Emdha eSign CA CP/CPS shall be directed to:

Email: policy@emdha.sa

Telephone: +966-11-2684210

Fax: +966-11-4613311

Any formal notices required by this CP/CPS shall be sent in accordance with the notification procedures specified in section 9.12.2 of this CP/CPS.

1.5.3 Person Determining CP Suitability for the Policy

The BTC PAC is responsible for approving the Emdha eSign CA CP/CPS and establishing that the it conforms to the intended requirements in accordance with policies and procedures specified by Saudi National PKI.

1.5.4 CP/CPS Approval

Changes or updates to the Emdha eSign CA CP/CPS document shall be made in accordance with the stipulations of Saudi e-Transactions act and bylaws and are subject to BTC PAC approval, as well as NCDC Approval.

1.6. Definitions and Acronyms

The terms used in this document shall have the meanings as defined in Emdha eSign CA Glossary section which can be found at https://www.emdha.sa/.

2. Publication and Repository Responsibilities

2.1. Repositories

Emdha eSign CA-issued subscriber certificates shall not be published in repositories. Only the Emdha eSign CA certificate(s) and issued revocation lists will be published in repositories. Emdha eSign CA shall operate highly-available repositories to support the Emdha eSign CA's operations. The repositories shall be available for public internet access through HTTP and HTTPS on a 24x7 basis.

2.1.1 Repository Obligations

Repositories shall support:

- Appropriate standard-based access protocols;
- Availability of the information as required by the certificate information posting and retrieval stipulations of this CP/CPS; and
- Access control mechanisms, when necessary to protect the repository availability and information.

2.2. Publication of Certification Information

2.2.1 Publication of Certificates and Certificate Status

The Emdha eSign CA shall publish in the appropriate repository: CA Certificates and CRLs.

CAs shall provide relying parties with information on how to find the appropriate repository to check certificate status and OCSP within each issued certificate.

Emdha eSign CA-issued subscriber certificates shall not be published in repositories.

2.2.2 Publication of CA Information

This CP/CPS shall be made available to all Emdha eSign CA PKI participants at https://www.emdha.sa. This website is the only source for up-to-date documentation and Emdha eSign CA reserves the right to publish newer versions of the documentation without prior notice.

Additionally, Emdha eSign CA will publish an approved, current and digitally signed version of the Emdha eSign CA CP/CPS.

The information published through this website resource is the only authoritative source for:

- The certificate revocation list (CRL) for Emdha eSign CA;
- Test websites for the CA Certificates (wherever applicable)
- CP/CPS and PDS Documents.
- Subscriber and Relying Party Agreements.

2.2.3 Interoperability

Pointers to repository information in CA and end entity Certificates shall only contain valid Uniform Resource Identifiers (URIs) that are accessible by relying parties. The extensions containing such URIs shall comply to the RFC 5280 specifications.

2.3. Time or Frequency of Publication

CA Certificates are published promptly following their generation and issuance. CRL information shall be published as set in section 4.9.7.

This CP/CPS shall be reviewed and/or updated at least annually. This CP and any subsequent changes shall be made available to the participants as set forth in section 2.2.2 within 15 days of approval by the BTC PAC and NCDC.

This CP/CPS is provided as public information on Emdha eSign CA official website https://www.emdha.sa. Public documents are only valid if they are published as a PDF, digitally signed by BTC.

The OCSP responder(s) will immediately report a certificate that has been revoked as set in section 4.9.9.

2.4. Access Controls on Repositories

The information published in Emdha eSign CA online repository is publicly accessible information and, has been provided with unrestricted read-only access to the contents of the repository. Emdha eSign CA shall put in place sufficient safeguards, logical and physical, to prevent any unauthorized write access or alteration/modification of repository entries.

3. Identification and Authentication

3.1. Naming

3.1.1. Types of Names

Each Certificate must have a unique identifiable Distinguished Name (DN) according to the X.500 standard. Naming convention for Emdha eSign CA is approved by the BTC PAC and NCDC as part of the CP/CPS approval.

Acceptable Subscriber name(s) are provided under Appendix A in this CP/CPS.

3.1.2. Need for names to be meaningful

Subscriber certificates issued pursuant to this CP/CPS are meaningful only if the names that appear in the certificates are understood, usable and meaningful for the Relying Parties.

The subject name contained in a Emdha eSign CA certificate must be meaningful in the sense that BTC LICENSED CA and NCDC are provided with proper evidence of the association existing between the name and the entity to which it belongs.

The Emdha eSign CA DN (LDAP Notation) in the Issuer field of all certificates and CRLs that are issued will be:

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CN=Emdha eSign CA, O=Baud Telecom Company, C=SA
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The certificate types supported by Emdha eSign CA are covered in Certificate Types under Appendix-A.

Test SIPs are identified by including the word “TEST SIP” in the SIP name which is included in the subject DN as an Organizational Unit. Thus, Certificates issued by Test SIPs are not subject to follow all verification/identification policies and procedures, and thus should not be relied upon.

3.1.3. Anonymity or Pseudonymity of Subscribers

Emdha eSign CA may issue pseudonymous certificates pursuant to the approval of Emdha eSign CA, as long as the pseudonym(s) used are meaningful for the SIP and the Relying party(ies).

No Stipulation for anonymous names for subscribers.

3.1.4. Rules for Interpreting Various Name Forms

The naming convention used by Emdha eSign CA is ISO/IEC 9595 (X.500) Distinguished Name (DN).

3.1.5. Uniqueness of Names

Distinguished names need not be unique across the Emdha eSign CA.

3.1.6. Recognition, Authentication, and Role of Trademarks

Certificate applicants are prohibited from using names in their certificate application that infringe upon the Intellectual Property Rights of others. The Emdha eSign CA or eSign service however, does not verify whether a certificate applicant has Intellectual Property Rights in the name appearing in a certificate application.

Where permitted or required, the use of a trademark is reserved to the holder of that trademark.

3.2. Initial Identity Validation

3.2.1. Method to Prove Possession of Private Key

Emdha eSign CA may carry out central key generation service on behalf of the Subscriber. Emdha eSign CA will generate the keys in a trustworthy system and environment and ensure that the Private Key is not tampered with. The central creation of subscriber keys shall be performed on FIPS 140-2 Level 3 certified hardware security module(s).

3.2.2. Authentication of Issuer Identity

Not Applicable

3.2.3. Identity-Proofing of Individual Identity

3.2.3.1. Identity-Proofing of End User Subscribers

RKA shall ensure that the Applicant's identity information is verified. RKA may also use a pre-verified and trusted database for applicant's KYC information.

Emdha eSign CA may issue certificates internally within the organization for its supporting roles, such as eSign service, TSA, OCSP, etc. BTC PAC will verify information in the application, authenticity of the requesting representative and the representative's authorization to act in the assigned role.

3.2.3.2. Identity-Proofing of Device Subscribers

Emdha eSign CA may issue certificates to devices internally within the organization for its supporting components. BTC PAC will verify information in the application, authenticity of the requestor and the representative's authorization to act in the assigned role.

3.2.3.3. Identity-Proofing of Organizational Entities

If the Certificate subject is an organizational entity, then an authorized representative of the entity (Application Sponsor) applies for a certificate. Emdha eSign CA will authenticate the identity of this application sponsor and the validation of authority with an acceptable identity proof and a reliable method of communication. Respective verification process applicable to application sponsors is available in CA Operations Manual.

3.2.4. Non-verified Subscriber Information

Subscriber information (KYC Information) is available to Emdha eSign CA through RKAs and this may be included in the certificates. Non-verified information shall not be included in certificates issued under Emdha eSign CA, unless specifically mentioned in the Certificate Types section in Appendix-A.

3.2.5. Criteria of Interoperation

No stipulation.

3.3. Identification and Authentication for Re-key Requests

Subscriber certificates are not subject to re-key. Emdha eSign CA only issues one-time-use Signing keys and thus a fresh certificate is requested for every signature. Re-key is not applicable for subscriber certificates.

Re-key of certificates of Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. may be performed as stipulated in the CA Operations Manual.

3.3.1. Identification and Authentication for Routine Re-Key

Not Applicable.

3.3.2. Identification and Authentication for Re-key After Revocation

Not Applicable.

3.4. Identification and Authentication for Revocation Requests

Not Applicable for subscribers.

Revocation of Certificates for Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. may be performed as stipulated in the CA Operations Manual.

4. Certificate Life-Cycle Operational Requirements

4.1. Certificate Application

For subscribers to the eSign Service, a new certificate request is created for each signing transaction. eSign service centrally generates one-time-use subscriber keys for signing each transaction and destroys the keys after every transaction. eSign service does not store subscriber signing keys beyond the transaction.

When subscriber requests to participate in each signing transaction, the subscriber provides to the SIP:

- at least a 2-factor authentication for each subscriber signature/key-generation request
- subscriber-consent for RKA to retrieve and provide KYC information to eSign service
- subscriber-consent for eSign service to perform remote digital signature on behalf of the subscriber
- accepts and agrees to be legally bound by the Subscriber Agreement
- accepts and agrees in total to this CP/CPS

Upon receiving a request, RKA shall ensure that after successful 2-factor authentication, the Applicant's verified and digitally-signed KYC information is provided to the eSign Service. RKA may also use a pre-verified and trusted database for retrieving subscribers KYC information.

Certificate application for SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc., shall be performed as stipulated in the CA Operations Manual.

4.1.1. Submission of Certificate Application

Please refer to above section 4.1

4.1.2. Enrollment Process and Responsibilities

Please refer to above section 4.1 for enrollment process.

Process for subscribers	Responsibility
2-factor authentication for each subscriber signature/key-generation request	SIP/RKA
Subscriber consent for KYC Information	RKA
Subscriber consent for remote signature performed by eSign service	SIP
Obtaining Acceptance and agreement of subscriber agreement and this CP/CPS	SIP
Digitally-sign KYC Information	RKA
Verification and validation of RKA digital signature on KYC information	eSign service
Secure Key generation and certificate signing request	eSign service
Certificate Issuance	Emdha eSign CA

4.2. Certificate Application Processing

4.2.1. Performing Identity-proofing Functions

RKA shall ensure that the Applicant's identity information is verified. RKA may also use a pre-verified and trusted database for applicant's KYC information.

4.2.2. Approval or Rejection of Certificate Applications

eSign service verifies and validates the digital signature performed by the RKA on the KYC information before approving the application. Failure of signature verification and validation leads to rejection of the certificate application.

4.2.3. Time to Process Certificate Applications

No Stipulation.

4.3. Certificate Issuance

4.3.1. CA Actions During Certificate Issuance

For Subscribers, upon successful verification and validation of KYC information received from RKA, eSign service approves the certificate application and submits the KYC information along with certificate signing request to Emdha eSign CA. Emdha eSign CA uses KYC information for the subject of the certificate and the public key in the signing request to issue a subscriber certificate. The certificate is then passed to the eSign service for processing the transaction.

Certificate issuance for SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc., shall be performed as stipulated in the CA Operations Manual.

4.3.2. Notification to Subscriber of Certificate Issuance

No Stipulation.

4.4. Certificate Acceptance

4.4.1. Conduct Constituting Certificate Acceptance

Subscriber consent and participation in the transaction is considered as certificate acceptance.

The use of a Certificate or the reliance upon a Certificate signifies acceptance by that person of the terms and conditions of this CP and applicable agreements by which they irrevocably agree to be bound.

4.4.2. Publication of the Certificate by the CA

Subscriber certificates are not published in public repositories.

4.4.3. Notification of Certificate Issuance by the CA to Other Entities

No Stipulation.

4.5. Key Pair and Certificate Usage

4.5.1. Subscriber Private Key and Certificate Usage

Subscribers and SIPs shall ensure the use of certificates exclusively for legal and authorized purposes in accordance with the terms and conditions of the subscriber agreement, this CP/CPS, and applicable laws.

eSign service shall secure subscriber Private Keys in HSMs and protect them from access by any other party and shall immediately delete the subscriber private key upon completing the transaction.

eSign service or Emdha eSign CA or Emdha or BTC shall not store subscriber signing keys beyond the transaction.

4.5.2. Relying Party Public Key and Certificate Usage

The Relying Party (RP) Agreement becomes effective when the RP relies on information provided by the Emdha eSign CA or a subscriber regarding a specific transaction that the RP uses to accept or reject their participation in the transaction. The RP's use of the Repository, or any CRL or OCSP services is governed by the RP Agreement and Emdha eSign CA CP/CPS. The RP is solely responsible for deciding whether or not to rely on the information in a certificate provided by Emdha eSign CA. The RP bears the legal consequences of any failure to comply with the obligations set in the RP agreement.

4.6. Certificate Renewal

Certificate renewal is the issuance of a new certificate without changing the public key in the certificate. Certificate renewal shall not be allowed for Emdha eSign CA issued certificates.

4.7. Certificate Re-Key

Re-keying a certificate (key update) refers to the issuance of new certificate with a different key pair and serial number while retaining other subject information from old certificate.

The new Certificate may be assigned a different validity period and/or signed using a different issuing CA private key and/or use a different approved signing algorithm.

Subscriber certificates are not subject to re-key. Emdha eSign CA only issues one-time-use Signing keys and thus a fresh certificate is requested for every signature.

Re-key is not applicable for subscriber certificates.

Each request for certificate, even from the same subscriber and/or same certificate subject field is considered as a fresh request and there is no link of current certificate with any previous certificate, issued to the same subscriber or certificate subject field.

Certificate Re-Key for SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc., shall be performed as stipulated in the CA Operations Manual.

4.7.1. Circumstances for Certificate Re-key

Manual Re-key of certificates for SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. shall be performed as stipulated in the CA Operations Manual.

BTC PAC may decide to perform manual certificate re-key with or without revocation based on a risk-assessment, or based on business requirements for certificate validity period of SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc.

4.7.2. Who can Request a Certificate Re-key

In accordance with the conditions specified in previous section, Certificate re-key may be requested by BTC PAC for Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc.

SIP or RKA may also request Re-Key of their own certificate(s).

4.7.3. Processing Certificate Re-keying Requests

Re-key requests for SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. shall follow a process similar to new issuance, as defined in CA Operations Manual.

4.7.4. Notification of Re-Keyed Certificate Issuance to Subscriber

Not Applicable.

4.7.5. Conduct Constituting Acceptance of a Re-keyed Certificate

No Stipulation.

4.7.6. Publication of the Re-keyed Certificate by the CA

No Stipulation.

4.7.7. Notification of Certificate Issuance by the CA to Other Entities

No Stipulation.

4.8. Certificate Modification

Certificate modification is not applicable for subscriber certificates.

Certificate modification for SIP, RKA and Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. will be accomplished through Certificate re-key as specified in section 4.7.

The Emdha eSign CA shall not support other forms of Certificate modification.

4.9. Certificate Revocation and Suspension

The CA will notify all participants of certificate revocation or suspension through access to the CRL in the CA repository and/or OCSP.

4.9.1. Circumstance for Revocation of a Certificate

The following reasons identify the need for a certificate to be revoked:

- Contravened any provisions of the Saudi e-Transactions Act and Bylaws made there under;
- The Subject has failed to meet its obligations under this CP/CPS or any other applicable Agreements, regulations, or laws;
- BTC PAC determines that revocation of a Certificate is in the best interest of Saudi National PKI;
- BTC PAC determines that a Certificate was not issued correctly in accordance with this CP/CPS;
- The private key corresponding to the public key in the certificate has been lost, disclosed without authorization, stolen or compromised in any way;

- There has been an improper or faulty issuance of a certificate due to:
  - A material prerequisite to the issuance of the Certificate not being satisfied;
  - A material fact in the Certificate is known, or reasonably believed, to be false.
- BTC PAC requests revocation of SIP, RKA or Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc.;
- SIP and/or RKA requests revocation of their own certificate.

4.9.2. Who Can Request Revocation of a Certificate

The following entities can request revocation of a certificate:

- NCDC can request the revocation of any certificate issued by Emdha eSign CA;
- BTC PAC can request the revocation of any certificates issued under its authority;
- Emdha eSign CA can request the revocation of certificate issued to Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc.;
- The SIP and/or RKA for their own certificate, if any certificates/individuals are suspected or known for key compromise, affiliation change or cessation of operation/employment;
- A legal, judicial or regulatory agency in Saudi Arabia, within applicable laws and in coordination with BTC PAC.

If any request for revocation cannot be resolved, the request is subject to the Complaint and Dispute Resolution process described in the BTC Complaints and Dispute Resolution Policy.

4.9.3. Procedure for Revocation Request

A request to revoke a certificate shall identify the certificate to be revoked, explain the reason for revocation, and allow the request to be authenticated (e.g., digitally or manually signed). Detailed procedure for revocation of SIP, RKA or Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. is provided in the CA Operations Manual.

4.9.4. Revocation Request Grace Period

Revocation request grace period is not permitted once a revocation request has been verified and approved.

4.9.5. Time within which CA must Process the Revocation Request

Emdha eSign CA shall process authorized revocation requests within seven days.

4.9.6. Revocation Checking Requirements for Relying Parties

Relying Parties should comply with the signature validation requirements defined in the Relying Party Agreement.

4.9.7. CRL Issuance Frequency

The Emdha eSign CA will publish its CRLs at least once every seven days, and immediately at the time of any Certificate revocation.

4.9.8. Maximum Latency of CRLs

CRLs shall be published in the Repositories within 30 minutes of Certificate revocation. Certificate status information is updated within 60 minutes of certificate revocation.

4.9.9. Online Revocation Checking Availability

Emdha eSign CA shall make CRLs available in repositories as described in section 2.1.

Emdha eSign CA shall also provide access to an OCSP Responder covering the certificates they issue.

4.9.10. Online Revocation Checking Requirements

Emdha eSign CA shall make its Certificate status information available through an OCSP responder.

4.9.11. Other Forms of Revocation Advertisements Available

Emdha eSign CA shall not provide other forms of revocation advertisements.

4.9.12. Special Requirements Related to Key Compromise

If Emdha eSign CA discovers, or has a reason to believe, that there has been a compromise of the private key of the Emdha eSign CA, it will immediately declare a disaster and invoke Emdha eSign CA business continuity plan.

Emdha eSign CA will,

(1) determine the scope of certificates that must be revoked,
(2) publish a new CRL at the earliest feasible time,
(3) use reasonable efforts to notify NCDC, SIPs, subscribers and potential relying parties that there has been a key compromise, and
(4) generate new CA key pair, subject to approval from BTC PAC.

4.9.13. Circumstances for Certificate Suspension

If BTC PAC suspects that a certificate may be revoked for one of the circumstances described in Section 4.9.1, the BTC LICENSED CA may suspend the suspected certificate pending completion of investigation.

4.9.14. Who Can Request Suspension

Same as 4.9.2.

If any request for suspension cannot be resolved, the request is subject to the Complaint and Dispute Resolution process described in the BTC Complaint and Dispute Resolution Policy.

4.9.15. Procedure for Suspension Request

A request to suspend a certificate shall identify the certificate to be suspended, explain the reason for suspension, and allow the request to be authenticated (e.g., digitally or manually signed). Detailed procedure for suspension of SIP, RKA or Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. is provided in the CA Operations Manual.

4.9.16. Limits on Suspension Period

The period for which a Certificate shall be suspended will be defined by the BTC PAC, but shall not exceed ninety (90) days.

4.9.17. Circumstances for Terminating Suspended Certificates

A suspended Certificate is reactivated when BTC PAC or the entity which requested the suspension of a Certificate is satisfied that the circumstances leading to the suspension are no longer valid. Once reactivated, the certificate will be valid for the remainder of its initial life time.

A suspended Certificate is revoked when BTC PAC or the entity which requested the suspension of a Certificate is satisfied that the circumstances leading to the suspension are indeed valid.

When the period for suspension has reached its maximum duration without resolution, the certificate shall be revoked.

4.9.18. Procedure for Terminating the Suspension of a Certificate

A request to reinstate a suspended certificate shall identify the certificate to be unsuspended, explain the reason for unsuspension, and allow the request to be authenticated (e.g., digitally or manually signed). Detailed procedure for reinstatement of SIP, RKA or Emdha eSign CA supporting roles such as eSign service, TSA, OCSP, etc. is provided in the CA Operations Manual.

4.10. Certificate Status Services

The status of public certificates is available from CRLs in the repositories and via OCSP responder(s).

Revocation entries on a CRL or OCSP response shall not be removed until after the expiry of the revoked certificate.

4.11. End of Subscription

No stipulation.

4.12. Key Escrow and Recovery

4.12.1. Key Escrow Policy and Practices

Signing keys will not be escrowed for the Emdha eSign CA. Emdha eSign CA does not allow decryption keys.

4.12.2. Session Key Encapsulation and Recovery Policy and Practices

Not applicable.

5. Facility Management and Operational Controls

5.1. Physical Security Controls

Emdha operates the Emdha eSign CA and Repositories at Tier III qualified data center, with appropriate physical and procedural access controls for all hardware and software sub-systems used in the issuance and revocation of certificates. Emdha limits access to sensitive CA zones to personnel in Trusted Roles (see section 5.2.1 of this CP).

Emdha eSign CA is co-located in third-party data center and follows the physical security requirements specified as below:

- Permit only authorized access to the hardware;
- Store all removable media and paper containing sensitive plain-text information in secure containers;
- Monitor, either manually or electronically, for unauthorized intrusion at all times; and
- Maintain and periodically inspect access logs.

A security check of the facility housing the CAs equipment shall occur on a regular basis.

5.1.1. Site Location and Construction

The location and construction of the facility housing the Emdha eSign CA equipment is consistent with facilities used to house high value, sensitive information. The site location and construction, when combined with other physical security protection mechanisms such as guards and multi-factor access controls, provides robust protection against unauthorized access to the CA equipment and records.

Main Site (Primary) Location: Riyadh

Alternate Site (DR Site) Location: Al Khobar (400+ KMs away from Main Site)

5.1.2. Physical Access

BTC PKI systems are protected by at least four zones of physical security, with access to the lower zone required before gaining access to the higher and more secure zone. Progressively restrictive physical access privileges control access to each zone. Sensitive CA operational activity, any activity related to the lifecycle of the certification process such as authentication, verification, and issuance, occur within very restrictive physical zones. Physical access is automatically logged and video recorded. Additionally, zones enforce individual access control through the use of two factor biometric authentication. Unescorted personnel, including un-trusted employees or visitors, are not allowed into such secured areas unless accompanied by trusted personnel.

Main Site is protected by seven zones of physical security. More details are provided in the Physical Security Documentation.

Emdha eSign CA has implemented policies and procedures to ensure that the physical environments in which the Emdha eSign CA systems are installed maintain a high level of security:

- CA systems are installed in a secure facility that is isolated from outside networks, with all access controlled;

- CA is separated into a series of progressively secure areas; and
- The entrances and exits from the secure areas are under constant video surveillance and all systems that provide authentication, as well as those that record entry, exit and network activity, are in secured areas.

The security techniques employed are designed to resist a large number and combination of different forms of attack. The mechanisms used include:

- Perimeter alarms
- Closed circuit television
- Electronic access controls using two-factor authentication
- Multi-person access for most secure zones
- Human guards

To prevent tampering, cryptographic hardware is stored in a most secure area of the BTC/Emdha PKI datacenter, with access limited to authorized personnel.

Human guards continually monitor the facility housing the CA equipment on a 24x7x365 basis. The BTC/Emdha PKI datacenter facility is never left unattended.

The security mechanisms employed are commensurate with the level of threat in the equipment environment.

5.1.3. Power and Air Conditioning

Power to the BTC/Emdha PKI datacenter is delivered through 2 different active-active feeds. Sufficient power capacity is available to the datacenter. Sufficient resilience is available in the Tier III datacenter using battery backup and N+1 generator to provide sufficient time to respond and act on any power related events.

The cooling system is designed as N+1 according to uptime institute's tier 3 requirements. Sufficient monitoring for cooling systems is in place to ensure optimum cooling is available to the aisle/rack level.

5.1.4. Water Exposure

Emdha eSign CA shall ensure that CA equipment is installed such that it is not in danger of exposure to water (e.g., on elevated floors).

5.1.5. Fire Prevention and Protection

The CA equipment is housed in a facility with appropriate fire suppression and protection systems.

Some of the measures deployed include:

- Fire-resistant walls and pillars;
- Modern FM-200 fire suppression systems to detect and suppress fire with appropriate 24x7 monitoring
- The controls implemented comply meet all applicable safety regulations of the Kingdom of Saudi Arabia.

5.1.6. Media Storage

Emdha eSign CA shall ensure that CA media is stored so as to protect it from accidental damage (such as water, fire, electromagnetic, etc.). Media that contains archive or backup information is duplicated in an alternate location with reasonable distance between the two sites.

5.1.7. Waste Disposal

Sensitive media and documentation that are no longer needed for operations are destroyed using appropriate disposal processes. For example, sensitive paper documentation is shredded, burned, or otherwise rendered unrecoverable. HSM and related devices are physically destroyed or zeroized in accordance with the manufacturers' guidance prior to disposal. Other electronic media is physically destroyed prior to disposal.

5.1.8. Off-Site Backup

Full system backups of CAs, sufficient to recover from system failure, shall be made on a periodic schedule as per procedures approved by BTC PAC.

5.2. Procedural Controls

5.2.1. Trusted Roles

A trusted role is one whose incumbent performs functions that can introduce security problems if not carried out properly, whether accidentally or maliciously. The people selected to fill these roles must be extraordinarily responsible or the integrity of the PKI is weakened. The functions performed in these roles form the basis of trust for all uses of the Emdha eSign CA.

Trusted roles and personnel assigned to each trusted role are defined in the BTC Trusted Roles document. Roles specific to Emdha eSign CA may also be referred to as L2CA roles.

5.2.2. Number of Persons Required per Task

Emdha eSign CA shall ensure separation of duties for critical CA functions to prevent one person from maliciously using the PKI systems without detection. Each user's system access is limited to those actions which are required to fulfill their responsibilities.

A single person may be sufficient to perform tasks associated with a role, except for the activation of the CA's signing Private Key. Activation of the CA's signing Private Key shall require actions by at least two individuals. Two-role-authorization, Split-knowledge and ownership techniques such as split-password's and MofN tokens shall be deployed to perform any critical CA signing key operations, key backup or key recovery operation.

5.2.3. Identity-proofing for Each Role

An individual shall identify and authenticate himself before being permitted to perform any actions set forth above for that role or identity.

5.2.4. Separation of Roles

Role separation, when required, may be enforced either by the CA equipment, or procedurally, or by both means.

Separation of roles is identified in the BTC Trusted Roles document.

5.3. Personnel Controls

5.3.1. Background, Qualifications and Experience Requirements

All persons filling trusted roles shall be selected on the basis of skills, experience, loyalty, trustworthiness, and integrity. The requirements governing the qualifications, selection and oversight of individuals who operate, manage, oversee, and audit the CA are set forth in the BTC Trusted Roles document.

While performing any critical operation, one of the trusted roles should be held by a Saudi Citizen.

5.3.2. Background Check and Clearance Procedures

Emdha eSign CA conducts background investigations for all CA personnel (trusted roles) positions. Background check shall take into account the following:

- A check (for completeness and accuracy) of the applicant's CV;
- Independent identity check (National ID card, Passport or similar document);
- Availability of satisfactory character reference, i.e. one business and one personal;
- Confirmation of claimed academic and professional qualifications;
- Interviews with references shall be done as required; and
- Security clearance.

Security clearance shall be repeated every 3 years for personnel holding trusted roles.

5.3.3. Training Requirements

Emdha eSign CA shall ensure that all personnel receive appropriate training. Such training shall address relevant topics such as PKI and Information security concepts, security requirements, operational responsibilities and associated procedures.

The CA Officers engaged in Certificate issuance shall be given detailed training to perform their tasks. Emdha eSign CA shall design examination based on the training which is to be qualified by each CA Officer.

Documentation of all personnel who received training and the level of training completed shall be maintained by the Emdha eSign CA.

5.3.4. Retraining Frequency and Requirements

Individuals responsible for PKI roles are made aware of changes in the CA operation. Any significant change to the operations shall have a training/awareness plan, and the execution of such plan shall be documented.

Emdha eSign CA shall review and update its training program at least once every two years to accommodate changes in the CA system.

5.3.5. Job Rotation Frequency and Sequence

No stipulation.

5.3.6. Sanctions for Unauthorized Actions

Emdha eSign CA shall take appropriate administrative and disciplinary actions against personnel who perform unauthorized actions (i.e., not permitted by the CP, CPS and/or other procedures) involving the CA or its associated components.

5.3.7. Contracting Personnel Requirements

Emdha eSign CA may employ independent contractors as may be necessary. When independent contractors are employed, they will be subjected to the same process, procedures and controls as prescribed in this document under 'Personnel Controls'.

5.3.8. Documentation Supplied to Personnel

Emdha eSign CA will make available to its personnel its CP, CPS, and any relevant documents required to perform their jobs competently and satisfactorily.

5.4. Audit Logging Procedures

Emdha eSign CA will implement and maintain Trustworthy Systems to preserve an audit trail for material events and for key life cycle management, including key generation, backup, storage, recovery, destruction and management of cryptographic devices, the CA and OCSP Responder.

5.4.1. Types of Events Recorded

Emdha eSign CA shall ensure recording in audit log files all events relating to the security of the CA system hosted in its data center. All security audit capabilities of the CA operating system and CA applications shall be enabled. Such events include, but are not limited to:

1. CA key lifecycle management events, including:
    a. Key generation, backup, storage, recovery, archival, and destruction; and
    b. Cryptographic device lifecycle management events.
2. CA and Subscriber Certificate lifecycle management events, including:
    a. Certificate requests, renewal, and re-key requests, and revocation;
    b. All verification activities stipulated in these Requirements and the CA's Certification Practice Statement;
    c. Date, time, phone number used, persons spoken to, and end results of verification telephone calls;
    d. Acceptance and rejection of certificate requests;
    e. Issuance of Certificates; and
    f. Generation of Certificate Revocation Lists and OCSP entries.
3. Security events, including:
    a. Successful and unsuccessful PKI system access attempts;
    b. PKI and security system actions performed;
    c. Security profile changes;
    d. System crashes, hardware failures, and other anomalies;
    e. Firewall and router activities; and
    f. Entries to and exits from the CA facility.

Log entries MUST include the following elements:

- Date and time of entry;
- Identity of the person making the journal entry; and
- Description of the entry.

All logs, whether electronic or manual, must contain the date and time of the event and the identity of the Entity which caused the event. The CA shall also collect, either electronically or manually, security information not generated by the CA system such as:

- Physical access logs;
- System configuration changes and maintenance;
- CA personnel changes;
- documentation relating to certificate requests and the verification;
- documentation relating to certificate revocation;
- Discrepancy and No compromise reports;
- Information concerning the destruction of sensitive information;
- Current and past versions of all Certificate Policies;
- Current and past versions of Certification Practice Statements;
- Vulnerability Assessment Reports;
- Threat and Risk Assessment Reports;
- Compliance Inspection Reports; and
- Current and past versions of Agreements.

5.4.2. Frequency of Processing Data

Audit logs are required to be processed in accordance with Audit and Compliance Policy mentioned in the IT Security policies and procedure manual.

5.4.3. Retention Period for Security Audit Data

Emdha eSign CA shall retain all system generated (electronic) and manual audit records onsite for a period not less than six months from the date of creation.

Video recording of CA facility access will be retained for a minimum of 90 days.

5.4.4. Protection of Security Audit Data

Emdha eSign CA shall protect the electronic audit log system and audit information captured electronically or manually from unauthorized viewing, modification, deletion or destruction. This can be achieved by:

- Read access to the journal information is granted to personnel requiring this access as part of their duties;
- Only authorized roles can obtain access; and
- The journal is stored in appropriate database and access to the database is protected against unauthorized access by the application and through special security measures on the operating system level.

5.4.5. Security Audit Data Backup Procedures

Emdha eSign CA shall back up all audit logs and audit summaries. Detailed policy and standard operating procedures are provided in IT Security Policies and Procedures Manual.

5.4.6. Security Audit Collection System (Internal or External)

The audit collection system is detailed in IT Security Policies and Procedures Manual.

5.4.7. Notification to Event-Causing Subject

Event-causing subject are not notified.

5.4.8. Vulnerability Assessments

Vulnerability assessments of security controls shall be performed by the Emdha eSign CA for its CA and other supporting systems hosted in its data center at least every three months, and after any significant system or network changes as determined by the CA. Such assessments shall be performed on public and private addresses for the Emdha eSign CA and associated components.

Emdha eSign CA security program shall include an annual Risk Assessment which includes identification of foreseeable internal and external threats, assess the likelihood and potential damage of these threats and assess the sufficiency of the policies, procedures, information systems and technology. Based on the Risk Assessment exercise, Emdha eSign CA shall develop, implement, and maintain a security plan to control the risks identified during the Risk Assessment, commensurate with the sensitivity of the Certificate Data and Certificate Management Processes.

Apart from this BTC/Emdha PKI datacenter(s) are constantly (24x7) monitored, and all attempts to gain unauthorized access to any of the services are logged and analyzed.

BTC/Emdha performs third party penetration testing on public IPs for hosted CA infrastructure at least once a year and after infrastructure or application upgrades or modifications that the CA determines are significant.

5.5. Records Archival

5.5.1. Types of Events Archived

CA archive records shall be sufficiently detailed to establish the proper operation of the CA, or the validity of any certificate (including those revoked or expired) issued by the CA.

These include:

- Audit logs generated by the CA software;
- Agreements;
- Records pertaining to identification and authentication information;
- Physical access logs;
- System configuration changes and maintenance;
- CA personnel changes;
- Discrepancy and compromise reports;
- Information concerning the destruction of sensitive information;

- Current and past versions of Certificate Policies and Certification Practice Statements;
- Vulnerability Assessment Reports, and associated remediation reports;
- Threat and Risk Assessment Reports;
- Compliance Inspection Reports;
- Documents identifying all personnel who received CA related training and the level of training completed;
- Emdha eSign CA shall archive any necessary keys and passwords for a period of time sufficient to support the functionalities; and

The CA shall make these audit logs available to its Qualified Auditor upon request.

5.5.2. Retention Period for Archive

Emdha eSign CA's minimum retention period for archive data is established at 10 years.

Applications needed to process the archive data shall also be maintained for the archival retention period.

5.5.3. Protection of Archive

Only authorized individuals shall be permitted to review the archive. The contents of the archive shall not be released except as determined by BTC PAC, or as required by law. Records and material information relevant to use of, and reliance on, a certificate shall be archived. Archive media shall be stored in a secure storage facility separate from the component itself. Any secondary site must provide adequate protection from environmental threats such as temperature, humidity and magnetism.

5.5.4. Archive Backup Procedures

Backup of archive is detailed in IT Security Policies and Procedures Manual.

5.5.5. Requirements for Time-Stamping of Records

Certificates, CRLs, and other revocation database entries shall contain time and date information obtained from the BTC/Emdha PKI time-server(s). System logs shall be time stamped and all connected systems shall use a dedicated time server to maintain synchronized time.

The system time of all servers is synchronized with official time-source. BTC/Emdha PKI time-source is also synchronized with the GPS clock as a backup. Further, there is a procedure in place that checks and corrects drift in the real time clock.

5.5.6. Archive Collection System (Internal or External)

The type of Archive Collection System, whether internal or external, is specified in IT Security Policies and Procedures Manual.

5.5.7. Procedures to Obtain and Verify Archive Information

As specified in IT Security Policies and Procedures Manual.

5.6. Key Changeover

The CA system utilized by the Emdha eSign CA supports key rollover, allowing CA keys to be changed periodically, as required. This may be done to minimize risk to the integrity of the Emdha eSign CA or based on business requirements for certificate validity period of its subscribers. Once changed the new

key is used for certificate signing purposes. The unexpired older keys are used to sign CRL's until all certificates signed by the unexpired older private key have expired. Old and unexpired CA signing keys, if retained for signing CRLs shall be protected just as the new key.

5.7. Compromise and Disaster Recovery

5.7.1. Incident and Compromise Handling Procedures

If Emdha eSign CA detects a potential hacking attempt or other form of compromise to the CA, it shall perform an investigation in order to determine the nature and the degree of damage. If the CA key is suspected of compromise, the procedures outlined in CA Operations Manual shall be followed. Otherwise, the scope of potential damage shall be assessed in order to determine if the CA needs to be rebuilt, only some certificates need to be revoked, and/or the CA key needs to be declared compromised.

BTC PAC shall be notified in case of:

- Suspected or detected compromise of the CA system;
- Physical or electronic attempts to penetrate the CA system;
- Denial of Service attacks on a CA system component;
- Any incident preventing the CA from issuing a CRL within 24 hours of the time specified in the next update field of its currently valid CRL.

5.7.2. Computing Resources, Software, and/or Data Are Corrupted

Emdha eSign CA maintains backup copies of hardware, system, databases, and private keys in order to rebuild the CA capability in case of software and/or data corruption. Such procedures require appropriate escalation, incident investigation, and incident response. If necessary, Business Continuity procedures will be enacted.

5.7.3. CA Private Key Compromise Recovery Procedures

Recovery procedure is as specified in CA Operations Manual.

5.7.4. Business Continuity Capabilities after a Disaster

Emdha eSign CA has developed robust Business Continuity Management System for critical PKI services to provide the minimum acceptable level of assurance to its subscriber for service availability.

All Emdha eSign CA critical infrastructure equipment at the primary site have built-in hardware fault-tolerance, and configured to be highly available with auto-failover switching. Emdha eSign CA currently maintains copies of backup media and infrastructure system software, which include but are not limited to: PKI services related critical data; database records for all certificates issued and audit related data, at its offsite business continuity and disaster recovery storage facilities.

Emdha eSign CA Business Continuity Management System (BCMS) demonstrates the capability to restore or recover critical PKI services at the primary site within twenty-four (24) hours in the event of service(s) non-availability.

Business Continuity Management components at Emdha eSign CA are being regularly tested, verified, and updated to be operational to address crisis situation in the event of a disruption. For security reasons details of these plans are not publicly available.

Emdha eSign CA business continuity plan includes:

- Conditions for activating the plan;
- Emergency procedures;
- Fall-back procedures;
- Resumption procedures;
- A maintenance schedule for the plan;
- Awareness and education requirements;
- The responsibilities of the individuals;
- Recovery time objective (RTO);
- Regular testing of contingency plans;
- The CA's plan to maintain or restore the CA's business operations in a timely manner following interruption to or failure of critical business processes;
- A requirement to store critical cryptographic materials (i.e., secure cryptographic device and activation materials) at an alternate location;
- Acceptable system outage and recovery time;
- Procedure/frequently of backup copies for essential business information and software are taken; and
- Procedures for securing its facility to the extent possible during the period of time following a disaster and prior to restoring a secure environment either at the original or a remote site.

Emdha eSign CA has developed recovery plans to mitigate the effects of any kind of natural, man-made or equipment failure related disaster.

Emdha eSign CA has implemented an alternate recovery site as per industry standards to provide full recovery of critical PKI services within five days following a disaster at the primary site. Emdha eSign CA Business Continuity Policy contains further details.

5.8. CA or RA Termination

5.8.1. CA Termination

No Stipulation.

5.8.2. RA Termination

No Stipulation.

6. Technical Security Controls

6.1. Key Pair Generation and Installation

6.1.1. Key Pair Generation

Key pair generation for CAs will be witnessed and attested to by a party separate from the Trusted Roles.

Key Pair generation must be performed using trustworthy systems and processes that provide the required cryptographic strength of the generated keys, and prevent the loss, disclosure, modification, or unauthorized use of such keys. CA's shall use Hardware Security Modules (HSMs) for CA key generation and storage. HSM's shall be minimum FIPS 140-2 Level 3 validated.

Emdha eSign CA key pair generation is performed by multiple trusted personnel using trustworthy systems and processes that provide security and required cryptographic strength for the generated keys.

Emdha eSign CA key pair is generated in pre-planned Key Generation Ceremony. The activities performed in Key Generation Ceremony are video recorded, dated and signed by all individuals involved. These records are kept for audit and tracking purposes for a length of time deemed appropriate by BTC PAC.

Subscriber private keys are securely generated in FIPS 140-2 Level 3 certified HSMs by the eSign service for performing a transaction on behalf of the subscriber and are deleted immediately upon completion of the transaction. Subscriber private keys are not stored by the eSign service beyond the transaction period.

6.1.2. Private Key Delivery to Subscriber

Subscriber private keys are not delivered to the subscriber.

6.1.3. Public Key Delivery to Certificate Issuer

Subscriber Public keys generated by the eSign service must be delivered for certificate issuance using industry standard secure protocol such as PKCS#10 or similar.

6.1.4. CA Public Key Delivery to Subscribers and Relying Parties

Emdha eSign CA shall ensure that Subscribers and Relying Parties receive and maintain the trust anchor (Saudi National Root CA) in a trustworthy fashion. Methods for trust anchor delivery may include:

- A trusted role loading the trust anchor onto Tokens delivered to Subscribers via secure mechanisms;
- Distribution of trust anchor through secure out-of-band mechanisms;
- Calculation and comparison of trust anchor hash or fingerprint against the hash made available via authenticated out-of-band sources; or
- Downloading trust anchor from websites secured with a currently valid certificate of equal or greater assurance level than the Certificate being downloaded and the site trust anchor already on the Subscriber system via secure means.
- Availability of CA certificate(s) in public repositories as described in section 2.1.

Emdha eSign CA certificate(s) shall be published on the website https://www.emdha.sa which may be downloaded by subscribers or relying parties.

6.1.5. Key Sizes

Key pairs shall be of sufficient length to prevent others from determining the key pair's private key using cryptanalysis during the period of expected utilization of such key pairs. Key sizes are described as below for Emdha eSign CA. All FIPS-approved signature algorithms shall be considered acceptable. Acceptable algorithms shall be maintained in accordance with the Saudi National PKI Policy.

All certificates issued shall use at least 4096-bit RSA keys OR at least NIST P-256 ECC keys, with Secure Hash Algorithm version (SHA-256) in accordance with FIPS 186-2 or equivalent.

TLS or other protocol providing similar security to accomplish any of the requirements of this CP/CPS shall use AES (minimum 128-bit key strength) for symmetric keys, and at least 4096-bit RSA or at least NIST P-256 ECC or equivalent for asymmetric keys.

The current Emdha eSign CA key lengths for minimum key sizes are;

- Emdha eSign CA Key Pair: RSA 4096 bits
- OCSP Key Pair: RSA 4096 bits
- TSA Key Pair: RSA 4096 bits
- SIP/RKA Key Pair: RSA 4096 bits
- Subscriber Key Pair: NIST P-256 ECC

6.1.6. Public Key Parameters Generation and Quality Checking

The HSM pseudo-random number generator is validated by NIST. Public key parameters prescribed are generated in accordance with industry best practices.

6.1.7. Key Usage Purposes

Emdha eSign CA private key(s) shall be used for certificate and CRL signing.

6.2. Private Key Protection and Crypto-Module Engineering Controls

6.2.1. Cryptographic Module Standards and Controls

Cryptographic modules employed in Emdha eSign CA shall comply with FIPS-PUB 140-2 "Security Requirements for Cryptographic Modules". The Hardware Security Modules (HSM's) used for key generation meet the requirements of FIPS 140-2 Level 3 to store the CA keys. Cryptographic hardware used for subscriber key generation shall be at least FIPS 140-2 Level 2 compliant.

6.2.2. CA Private Key Multi-Person Control

Multi-person control of CA private key is achieved using an "m-of-n" split key knowledge scheme. Emdha eSign CA keys can only be accessed on the physical and logical level by at least two trusted roles, and is achieved by M=2 in M-of-N scheme.

6.2.3. Private Key Escrow

Not Applicable.

6.2.4. Private Key Backup

6.2.4.1. Backup of CA Signing Private Key

Emdha eSign CA signing Private Key shall be backed up under the same multi-person control as the original Signing Key. A second and third copy may be kept at CA backup locations for business continuity and Disaster Recovery. Procedures for Emdha eSign CA signing Private Key backup shall be detailed in Backup and Restore Policy.

Emdha eSign CA private keys that are physically transported from one facility to another shall remain confidential and maintain their integrity.

Emdha eSign CA hardware containing CA private keys, and associated activation materials, shall be transported in a physically secure environment by authorized personnel in trusted roles, using multiple person controls, and using sealed tamper-evident packaging.

Emdha eSign CA keys and associated activation materials shall be transported in a manner that prevents the key from being activated or accessed during the transportation event; and CA key transportation events shall be logged.

6.2.4.2. Backup of Subscriber Private Keys

Not applicable.

6.2.5. Private Key Archival

Emdha eSign CA shall maintain controls to provide reasonable assurance that archived CA keys remain confidential, secured, and shall never be put back into production.

6.2.6. Private Key Transfer into or From a Cryptographic Module

The cryptographic modules implemented by Emdha eSign CA are validated to FIPS 140-2 Level 3 ensuring that the CA keys cannot be exported to less secure media.

Emdha eSign CA keys can be cloned for secure backup from the master hardware cryptographic module to other hardware cryptographic module(s) using secure mechanisms so that they can be recovered if a major catastrophe destroys the production set of keys. Such backup or clones shall have the same level of authentication and access control as the production set.

6.2.7. Private Key Storage on Cryptographic Module

CA's Private Key shall be stored on FIPS 140-2 Level 3 validated cryptographic module in encrypted form.

6.2.8. Method of Activating Private Keys

CA's private key shall be activated by the main stakeholders and authorized personnel, as defined in CA Operations Manual, supplying their activation data. Such activation data shall be held on secure media and shall require the successful completion of a multi-person authentication process.

6.2.9. Methods of Deactivating Private Keys

CA's private key shall be deactivated by the main stakeholders and authorized personnel, as defined in CA Operations Manual.

6.2.10. Methods of Destroying Private Keys

Copies of CA private keys shall be destroyed as per Cryptographic Devices Lifecycle Management Policy and Procedure.

6.2.11. Cryptographic Module Rating

As described in section 6.2.1.

6.3. Other Aspects of Key Pair Management

6.3.1. Public Key Archive

The Public Key is archived as part of the certificate archive process.

6.3.2. Certificate Operational Periods and Key Usage Periods

The table below details key usage and certificate lifetime for the corresponding keys:

Key/Certificate	Maximum Validity Period
Emdha eSign CA signing key and certificate	120 months
SIP/RKA/eSign/OCSP/TSA	60 months
Subscriber key	For the duration of the transaction only
Subscriber certificate	30 minutes

6.4. Activation Data

6.4.1. Activation Data Generation and Installation

The CA cryptographic module activation data will be generated locally at the time of key generation by personnel in the trusted role and responsible for controlling the activation data.

6.4.2. Activation Data Protection

Written CA cryptographic module activation data is placed into tamper evident packages which are then stored within secure containers in a highly secured environment inside the BTC PKI Datacenter(s).

6.4.3. Other Aspects of Activation Data

No stipulation.

6.5. Computer Security Controls

6.5.1. Specific Computer Security Technical Requirements

The computer security functions may be provided by the operating system, or through a combination of operating system, software, and physical safeguards.

At a minimum, the datacenter(s) shall have following controls to ensure security of the systems:

- Hardened operating system;
- Software packages are only installed from a trusted software repository;
- Minimal network connectivity;
- Authentication and authorization for all functions;
- Strong authentication and role-based access control for all vital functions;

- Disk and/or file encryption for all relevant data; and
- Proactive patch management.

6.5.2. Computer Security Rating

No stipulation.

6.6. Life-Cycle Security Controls

6.6.1. System Development Controls

Emdha eSign CA design, installation, and operation will be documented by qualified personnel. BTC operations personnel, with oversight by the BTC PAC, will develop and produce appropriate qualification documentation establishing that Emdha eSign CA components are properly installed and configured, and operate in accordance with the technical specifications.

Emdha eSign CA shall undertake reasonable precautions to prevent malicious software being loaded on the CA equipment. Only applications necessary to perform the CA operations shall be implemented. The CA systems and software shall be scanned for malicious code on first use and periodically thereafter.

Hardware and software implementation, including updates and patches are performed by trained and trusted personnel.

6.6.2. Security Management Controls

The configuration of the Emdha eSign CA systems as well as any modifications and upgrades shall be documented and controlled. There shall be a mechanism for detecting unauthorized modification to software or configuration. A formal change-management methodology shall be used on-going maintenance of systems. Appropriate backups shall be taken before and after any major change to systems.

6.6.3. Life Cycle Security Ratings

No stipulation.

6.7. Network Security Controls

Emdha eSign CA shall employ appropriate security measures to ensure they are guarded against denial of service and intrusion attacks. Also, it shall employ network security and firewall management, including port restrictions and IP address filtering.

Any boundary control devices used to protect the network on which PKI equipment is hosted shall deny all but the necessary services to the PKI equipment.

BTC/Emdha PKI datacenter(s) use a network design of multiple security layers making use of several security technologies including network firewalls, application firewalls, and Endpoint protection technologies to protect network access to on-line CA's, Repository and OCSP Responder equipment.

Access shall not be provided to the Emdha eSign CA through the public internet.

6.8. Time Stamping

Time stamping shall be supported for the Certificates, CRLs, and other revocation database entries containing time and date information from dedicated time-server(s) to maintain synchronized time.

Time derived from the time service shall be used for establishing the time of:

- Initial validity time of a Subscriber's Certificate;
- Revocation of a Subscriber's Certificate;
- Posting of CRL updates;
- OCSP response.

7. Certificate, CRL and OCSP Profiles

7.1. Certificate Profile

This section contains the rules and guidelines followed by this CA in populating X.509 certificates and CRL extensions. The Certificate profile for the Level-2-CAs is described in Appendix A.

7.1.1. Version Numbers

Emdha eSign CA shall issue X.509 v3 certificates (populate version field with integer "2").

7.1.2. Certificate Extensions

Subscriber certificates may include any extensions as specified by RFC 5280 in a certificate, but must include those extensions required by this CP in Appendix A. Any optional or additional extensions shall be non-critical and shall not conflict with the certificate and CRL profiles defined in this CP/CPS.

7.1.3. Algorithm Object Identifiers

Emdha eSign CA shall sign Certificates using `sha256WithRSAEncryption` algorithm (`1.2.840.113549.1.1.11`).

7.1.4. Name Forms

Certificates issued by Emdha eSign CA contain the full X.500 distinguished name of the certificate issuer and certificate subject in the issuer name and subject name fields. Distinguished names are in the form of an X.501 printable string.

7.1.5. Name Constraints

No Stipulation.

7.1.6. Certificate Policy Object Identifier

As stated in Appendix A.

7.1.7. Usage of Policy Constraints Extension

It is expected that all members of the Emdha eSign CA apply to this policy.

7.1.8. Policy Qualifiers Syntax and Semantics

No stipulation.

7.1.9. Processing Semantics for the Critical Certificate Policy Extension

Processing semantics for the critical certificate policy extension shall conform to X.509 certification path processing rules.

7.2. CRL Profile

Certificate Revocation Lists are issued in the X.509 version 2 format in accordance with RFC 5280.

Emdha eSign CA CRL Profile is as below:

Field	Content	Comment

Version	**1**	
Algorithm	**SHA256withRSA**	
Issuer	**CN=Emdha eSign CA O=BAUD Telecom Company C=SA**	
This update	*<issue date>*	
Next update	*<issue date + 7 days>*	Or immediately upon revocation
AuthorityKeyIdentifier	*< Emdha eSign CA's Subject Key Identifier>*	
CRL number	*<number>*	

7.2.1. Version Numbers

Emdha eSign CA shall issue X.509 version two (v2) CRLs (populate version field with integer "1").

7.2.2. CRL and CRL Entry Extensions

Critical private extensions shall be interoperable in their intended community of use.

7.3. OCSP Profile

OCSP requests and responses shall be in accordance with RFC 6960.

7.3.1. Version Number

The version number for request and responses shall be v1.

7.3.2. OCSP Extensions

No stipulation.

8. Compliance Audit and Other Assessments

The BTC PAC shall be responsible for overseeing compliance of the Emdha eSign CA, RAs, Emdha eSign CA CP/CPS. BTC PAC shall ensure that the requirements of the Emdha eSign CA CP/CPS and the provisions of applicable Agreements are implemented and enforced.

8.1. Frequency of Audit or Assessments

Emdha eSign CA shall be subjected to periodic compliance audits which are no less frequent than once a year. Emdha eSign CA shall also be performing internal audit at least on a quarterly basis against a randomly selected sample for monitoring adherence and service quality.

8.2. Identity and Qualifications of Assessor

The audit under Saudi National PKI shall be performed by a Qualified Auditor. A Qualified Auditor means a natural person, Legal Entity, or group of natural persons or Legal Entities that collectively possess the following qualifications and skills:

- Independence from the subject of the audit;
- The ability to conduct an audit that addresses the criteria specified in an Eligible Audit Scheme;
- Employs individuals who have proficiency in examining Public Key Infrastructure technology, information security tools and techniques, information technology and security auditing, and the third-party attestation function;
- Certified, accredited, licensed, or otherwise assessed as meeting the qualification requirements of auditors under the audit scheme; and
- Bound by law, government regulation, or professional code of ethics.

A licensed WebTrust auditor will be appointed to perform such compliance audits as a primary responsibility.

8.3. Assessor's Relationship to Assessed Entity

To provide an unbiased and independent evaluation, the auditor and audited party shall not have any current or planned financial, legal or other relationship that could result in a conflict of interest.

8.4. Topics Covered by Assessment

The compliance audits will verify whether the CA PKI operations environment is in compliance with the applicable CP/CPS and supporting operational policies and procedures. The term CA PKI Operations environment defines the total environment and includes:

- All documentation, records;
- Contracts/agreements;
- Compliance with applicable Law;
- Physical and logical controls;
- Personnel and approved roles/tasks;
- Hardware (e.g. servers, desktops, hardware security modules, network devices and security devices); and
- Software and information.

The auditor shall provide the BTC PAC and NCDC with a compliance report highlighting any discrepancies.

8.5. Actions Taken as A Result of Deficiency

If irregularities are found by the auditor, the audited party shall be informed in writing of the findings. The audited party must submit a report to the auditor or directly to NCDC or BTC PAC, as determined, as to any remedial action the audited party will take in response to the identified deficiencies. This report shall include a time for completion to be approved by the auditor or by NCDC in conjunction with Emdha eSign CA, as appropriate.

Where an audited party fails to take remedial action in response to the identified deficiencies, NCDC shall be informed by the auditor and shall take the appropriate action, according to the severity of the deficiencies.

8.6. Communication of Results

An Audit Compliance Report, including identification of corrective measures taken or being taken by the audited party, shall be provided to the BTC PAC and/or NCDC as applicable.

Emdha eSign CA shall make the Audit Report publicly available no later than three months after the end of the audit period. In the event of a delay greater than three months, an explanatory letter is to be signed by the Qualified Auditor.

9. Other Business and Legal Matters

9.1. Fees

9.1.1. Certificate Issuance/Renewal Fee

Emdha eSign CA does not charge fees for approved SIP and RKA certificates.

For every transaction, new subscriber keys and certificates are centrally generated by eSign service, certificate issued by Emdha eSign CA, signing performed by eSign service and signing key is destroyed before ending the session. The maximum fee charged per certificate by Emdha eSign CA to the SIP shall be SAR 2 plus applicable taxes as per prevailing laws and regulations. Fees may be collected as prepaid-bundles or postpaid-billing from SIP as per BTC/Emdha discretion.

9.1.2. Certificate Access Fees

No fees are charged by Emdha eSign CA for certificate access, but Emdha eSign CA may charge access fee for providing access to its repository, for certain use-cases, at the sole discretion of Emdha eSign CA.

9.1.3. Revocation or Status Information Access Fee

No fee will be charged by Emdha eSign CA for revocation of a certificate. Further, no fee will be charged for a relying party to check the validity of the existing and valid certificate using a CRL.

No fees are charged by Emdha eSign CA for providing certificate status information through OCSP.

9.1.4. Fees for Other Services

Emdha eSign CA may charge additional fees for digital trust services including online signature service, timestamping and/or any other additional services depending on business needs.

9.1.5. Refund Policy

Refunds are not provided to subscribers, SIPs or RKAs.

9.2. Financial Responsibility

Emdha eSign CA disclaims all liability implicit or explicit due to the use of any certificates issued by the Emdha eSign CA which certify public keys of CAs.

9.2.1. Insurance Coverage

Insurance coverage for any CA shall be in accordance with the applicable Agreement between the contracting party and the CA.

9.2.2. Other Assets

Emdha eSign CA shall have sufficient financial resources to maintain their operations and perform their duties.

9.2.3. Insurance/warranty Coverage for End-Entities

Emdha eSign CA disclaims all liability implicit or explicit due to the use of any certificates issued by the Emdha eSign CA, which only certifies public keys of CAs. It is the sole responsibility of subscribers and relying parties to ensure an adequate insurance, to cover risks using the certificate or rendering respective services.

9.3. Confidentiality of Business Information

Information pertaining to the Emdha eSign CA and not requiring protection may be made publicly available at the discretion of BTC PAC. Specific confidentiality requirements for business information are defined in Privacy Policy and applicable Agreements.

9.3.1. Scope of Confidential Information

Any corporate or personal information held by Emdha eSign CA and Trust Services related to the application and issuance of Certificates is considered confidential and will not be released without the prior consent of the relevant holder, unless otherwise required by law or to fulfil the requirements of this CP/CPS, and in accordance with BTC PKI Privacy policy. BTC PKI Document Security Policy specifies which documents are considered to be confidential. Information contained in certificates and related certificate status is not confidential.

- Registration Information

All registration records, with an exception to information being provided in the certificate, are considered to be confidential information, including;

- Certificate applications, whether approved or not;
- Certificate information collected as part of the registration process;
- Completed Subscriber Agreements;
- Any information or supporting documentation requested and/or received by the Emdha eSign CA pertaining to a certificate application.

- Certificate Information

The reasons for a certificate being suspended or revoked is considered confidential information, with the exception or CRL Extension - Reason Code, as specified in RFC 5280, and the revocation of the Emdha eSign CA due to;

- The compromise of their private key, in which case a disclosure may be made that the private key has been compromised;
- The termination of the Emdha eSign CA, in which case prior disclosure of the termination may be given.

- PKI Documentation

BTC PKI Document Security Policy specifies which documents are considered to be confidential.

9.3.2. Information not within the Scope of Confidential Information

Such information as specified by the BTC PAC, BTC PKI Privacy Policy, BTC PKI Document Security Policy, CA Operations Manual and applicable Agreements.

9.3.3. Responsibility to Protect Confidential Information

All PKI participants shall be responsible for protecting the confidential information they possess in accordance with BTC PKI Privacy Policy and applicable laws and Agreements.

9.4. Privacy of Personal Information

Any personal identifying information collected by Emdha eSign CA shall be protected in accordance with BTC PKI Privacy Policy. It shall use reasonable measures to protect personal identifying information from disclosure to any third party.

9.4.1. Privacy Plan

Any confidential information collected by Emdha eSign CA shall be protected in accordance with BTC PKI Privacy Policy.

9.4.2. Information Treated as Private

Any information that is not publicly available through the content of the issued certificate, repository and online CRL's is treated as private.

9.4.3. Information not Deemed Private

Information appearing in issued Certificates such as the name, organization affiliation and pubic key will not be deemed private.

9.4.4. Responsibility to Protect Private Information

Access to Emdha eSign CA held private information shall be restricted to those with an official need-to-know basis in order to perform their official duties.

9.4.5. Notice and Consent to Use Private Information

Requirements for notice and consent to use private information are defined in the respective Agreements and BTC PKI Privacy Policy.

9.4.6. Disclosure Pursuant to Judicial/Administrative Process

Any disclosure shall be handled in accordance with BTC PKI Privacy Policy.

9.4.7. Other Information Disclosure Circumstances

Any disclosure shall be handled in accordance with BTC PKI Privacy Policy.

9.5. Intellectual Property Rights

BTC PAC retains exclusive rights to any product(s) or information developed under or pursuant to this CP/CPS.

9.6. Representations and Warranties

9.6.1. Emdha eSign CA's Representations and Warranties

Emdha eSign CA provides representations and warranties in accordance with this CP/CPS, respective agreements and applicable laws and regulations as below:

- Providing the operational infrastructure and certification services;
- Making reasonable efforts to ensure it conducts an efficient and trustworthy operation. "Reasonable efforts" include but are not limited to operating in compliance with:
  - Documented CP/CPS;
  - Documented CA Operations Manual; and

- Within applicable agreements, Saudi Law and regulations.

- At the time of Certificate issuance; Emdha eSign CA implemented procedure for verifying accuracy of the information contained within it before installation and first use;
- Maintaining 24 x 7 publicly-accessible repositories with current Emdha eSign CA issued CA certificates and CRLs;
- For the CA's, the Hardware Security Modules (HSM's) used for key generation meet the requirements of FIPS 140-2 Level 3 to store the CA keys and take reasonable precautions to prevent any loss, disclosure, or unauthorized use of the CA private key(s)
- CA private key(s) are generated using multi-person control "m-of-n" split key knowledge scheme;
- Backing up of the CA signing Private Key(s) under the same multi-person control as the original Signing Key;
- Keep confidential, any passwords, PINs or other personal secrets used in obtaining authenticated access to PKI facilities and maintain proper control procedures for all such personal secrets;
- Use its private signing key only to sign certificates and CRLs and for no other purpose;
- Perform authentication and identification procedures in accordance with applicable Agreement and CA Operations Manual;
- Provide certificate and key management services in accordance with the CP and CPS; and
- Ensure that CA personnel use private keys issued for the purpose of conducting CA duties only for such purposes.

9.6.2. RA Representations and Warranties

No Stipulation.

9.6.3. Relying Parties Representations and Warranties

Relying Parties who rely upon the certificates issued under Emdha eSign CA shall:

- Use the certificate for the purpose for which it was issued, as indicated in the certificate information (e.g., the key usage extension);
- Verify the Validity by ensuring that the Certificate was valid at the time of signing;
- Establish trust in the CA who issued a certificate by verifying the certificate path in accordance with the guidelines set by the X.509 Version 3 amendment;
- Ensure that the Certificate had not been suspended or revoked at the time of signing; and
- Determining that such Certificate provides adequate assurances for its intended use.

9.6.4. Subscriber Representations and Warranties

Subscribers are Individuals, entities, non-human subscribers (like Servers and Network Devices) to which certificates are issued, and are legally bound by a subscriber agreement or terms of use.

It is the responsibility of the Subscriber to:

1. Subscriber is obligated to:

- Provide accurate and complete information at all times to the RKA;
- Review and verify provided information for accuracy and completeness;

- Secure authentication and consent mechanisms for certificate requests and take reasonable and necessary precautions to prevent loss, disclosure, modification, or unauthorized use of the private key. This includes password, hardware token, Mobile Phone for OTP, or other activation data that is used to control access to the Subscriber's private key;
- Use Subscriber Certificate only for its intended use;
- Notify the RKA and SIP in the event of any information in the Certificate is, or becomes, incorrect or inaccurate;
- Notify the CA/SIP in the event of a key compromise immediately whenever the Subscriber has reason to believe that the Subscriber's private key has been accessed by another individual, or compromised in any other manner;
- Use the Subscriber Certificate in a manner that does not violate applicable laws in the Kingdom of Saudi Arabia; and
- Upon termination of Subscriber Agreement, immediately notify the SIP to cease use of the Subscriber Certificate.

2. Subscriber agrees that any use of the Subscriber Certificate to sign or otherwise approve the contents of any electronic record or message is attributable to Subscriber. Subscriber agrees to be legally bound by the contents of any such electronic record or message.

3. Subscriber shall indemnify and hold Emdha eSign CA harmless from and against any and all damages (including legal fees), losses, lawsuits, claims or actions arising out of:

- Use of Subscriber's Certificate in a manner not authorized by the CA/SIP or otherwise inconsistent with the terms of the Subscriber Agreement or the Emdha eSign CA CP/CPS;
- A Subscriber Certificate being tampered with by the Subscriber; or
- Inaccuracies or misrepresentations contained within the RKA records for the subscriber.
- A Subscriber shall indemnify and hold the Emdha eSign CA harmless against any damages and legal fees that arise out of lawsuits, claims or actions by third parties who rely on or otherwise use Subscriber's Certificate, where such lawsuit, claim, or action relates to a Subscriber's breach of its obligations outlined in this Subscriber Agreement or the Emdha eSign CA CP/CPS, a Subscriber's failure to protect its authentication material or devices, or claims pertaining to content or other information or data supplied, or required to be supplied, by Subscriber.

9.7. Disclaimers of Warranties

Emdha eSign CA hereby disclaims all warranties including warranty on merchantability and /or fitness to a particular purpose other than to the extent prohibited by law or otherwise expressly provided in Emdha eSign CA CP/CPS.

Emdha eSign CA, through its associated components, seeks to provide digital certification services according to international standards and best practices, using secure physical and electronic installations.

Emdha eSign CA provides no warranty, express, or implied, statutory or otherwise and disclaims any and all liability for the success or failure of the deployment of the Emdha eSign CA or for the legal validity, acceptance or any other type of recognition of its own certificates, any digital signature backed by such certificates, and any products/solutions/services provided by Emdha eSign CA. Emdha eSign CA further

disclaims any warranty of merchantability or fitness for a particular purpose of the above-mentioned certificates, digital signatures and products/solutions/services.

9.8. Limitations of Liability

Emdha eSign CA disclaims liability to the certificate beneficiaries or any other third-parties for any loss suffered as a result of use or reliance on a certificate beyond those specified in Emdha eSign CA CP/CPS, when such certificate has been issued and managed by Emdha eSign CA in compliance with this CP/CPS. In any other case:

- Emdha eSign CA will not incur any liability to Subscribers or any person to the extent that such liability results from their negligence, fraud or willful misconduct;
- Emdha eSign CA assumes no liability whatsoever in relation to the use of Certificates or associated Public-Key/Private-Key pairs issued under this policy for any use other than in accordance with this policy. Subscribers will immediately indemnify Emdha eSign CA from and against any such liability and costs and claims arising therefrom;
- Emdha eSign CA will not be liable to any party whosoever for any damages suffered whether directly or indirectly as a result of an uncontrollable disruption of its services;
- End-Users are liable for any form of misrepresentation of information contained in the certificate to relying parties even though the information has been accepted by Emdha eSign CA;
- Subscribers to compensate a Relying Party which incurs a loss as a result of the Subscriber's breach of Subscriber agreement;
- Relying Parties shall bear the consequences of their failure to perform the Relying Party obligations;
- RKAs shall bear the consequences of their failure to perform the obligations described in the RKA agreement; and
- Emdha eSign CA denies any financial or any other kind of responsibility for damages or impairments resulting from its CA operation.

9.9. Indemnities

Notwithstanding any limitations on its liability to Subscribers and Relying Parties, Emdha eSign CA understands and acknowledges that the Saudi National Root CA or Application Software Suppliers who have a Root Certificate distribution agreement in place with the Saudi National Root CA do not assume any obligation or potential liability of the Emdha eSign CA under these requirements or that otherwise might exist because of the issuance or maintenance of Certificates or reliance thereon by Relying Parties or others. Thus, Emdha eSign CA shall defend, indemnify, and hold harmless each Application Software Supplier for any and all claims, damages, and losses suffered by such Application Software Supplier related to a Certificate issued by Emdha eSign CA, regardless of the cause of action or legal theory involved. This does not apply, however, to any claim, damages, or loss suffered by such Application Software Supplier related to a Certificate issued by the Emdha eSign CA where such claim, damage, or loss was directly caused by such Application Software Supplier's software displaying as not trustworthy a Certificate that is still valid, or displaying as trustworthy: (1) a Certificate that has expired, or (2) a Certificate that has been revoked (but only in cases where the revocation status is currently available from the CA online, and the application software either failed to check such status or ignored an indication of revoked status).

9.9.1. Indemnification by Subscribers

Any subscriber of Emdha eSign CA or its subordinates, shall indemnify and hold harmless Emdha eSign CA, its directors, its partners, its employees, any trusted root or intermediate entities and their respective directors, officers, employees, agents, and contractors from any and all damages and losses arising out of

- use of the Certificate in a manner not authorized by Emdha eSign CA CP/CPS;
- tampering with the Certificate; or
- misrepresentation or omission of material fact in order to obtain or use a Certificate, whether or not such misrepresentation or omission was intentional.

In addition, Subscribers shall indemnify and hold harmless Emdha eSign CA from any and all damages (including legal fees) for lawsuits, claims or actions by third-parties relying on or otherwise using the Certificate relating to:

- Subscriber's breach of their obligations under the Subscriber Agreement or Emdha eSign CA CP/CPS; or
- Claims (including without limitation infringement claims) pertaining to content or other information or data supplied by subscriber to RKA.

9.9.2. Indemnification by Relying Parties

Any relying party of a certificate issued by Emdha eSign CA, shall indemnify and hold harmless Emdha eSign CA, its directors, its partners, any trusted root or intermediate entities and their respective directors, officers, employees, agents, and contractors from any and all damages and losses arising out of:

- breach of the Relying Party Agreement, Emdha eSign CA CP/CPS, or applicable laws;
- unreasonable reliance on a Certificate;
- failure to check the Certificate's status prior to use;
- use of the Certificate in a manner not authorized by Emdha eSign CA;
- tampering with the Certificate; or
- misrepresentation or omission of material fact in order to obtain or use a Certificate, whether or not such misrepresentation or omission was intentional.

9.10. Term and Termination

9.10.1. Term

This CP/CPS shall be effective upon approval by BTC PAC in liaison with approval by NCDC. Once the CP/CPS becomes effective, it is published in the repository. Amendments to this CP/CPS upon approval become effective and replace the older version in the repository.

9.10.2. Termination

This CP/CPS as amended from time to time shall remain in force until it is replaced by a new version. The latest version of the Emdha eSign CA CP/CPS can be found at: https://www.emdha.sa

9.10.3. Effect of Termination and Survival

Upon termination of this CP/CPS, all Emdha eSign CA participants are nevertheless bound by its terms for all certificates issued for the remainder of the validity periods of such certificates.

9.11. Individual Notices and Communications with Participants

All communication between NCDC, BTC PAC, Saudi National Root-CA, Emdha eSign CA, RKAs and SIPs shall be in writing. The communication shall be signed and stamped on the appropriate organization letterhead.

9.12. Amendments

9.12.1. Procedure for Amendment

The BTC PAC shall review this CP/CPS at least once per year. Errors, updates, or suggested changes to this CP/CPS shall be communicated to the BTC PAC. Such communication shall include a description of the change, a change justification, and contact information for the person requesting the change. Any technical changes in the Emdha eSign CA shall be managed as per the BTC PKI Change Management Policy.

Subject to the approval of NCDC, the BTC PAC reserves the right to change this CP/CPS from time to time. The BTC PAC will incorporate any such change into a new version of this CP/CPS and, upon approval, publish the new version. The new CP/CPS will carry a new version number.

9.12.2. Notification Mechanism and Period

This CP/CPS and any subsequent changes shall be made available to the Emdha eSign CA participants at: https://www.emdha.sa within two weeks of approval. The BTC PAC reserves the right to amend this CP/CPS without notification for amendments that are not material, including without limitation corrections of typographical errors, changes to URL's, and changes to contact information. All the PKI participants and other parties designated by the BTC PAC shall provide their comments to the BTC PAC in accordance with section 9.11 of this document. The BTC PAC's decision to designate amendments as material or non-material shall be at the PAC's sole discretion.

9.12.3. Circumstances under which OID must be changed

The policy OID shall only change if the change in the CP/CPS results in a material change to the trust by the relying parties, as determined by the BTC PAC and shall only change pursuant to approval from NCDC.

9.13. Dispute Resolution Procedures

The use of certificates issued by the Emdha eSign CA is governed by contracts, agreements, and standards set forth by Emdha eSign CA. Those contracts, agreements and standards include dispute resolution policy and procedures that shall be employed in any dispute arising from the issuance or use of a certificate governed by this CP/CPS. Dispute Resolution mechanism is described in BTC PKI Complaint and Dispute Resolution Policy.

9.14. Governing Law

This CP/CPS is governed by the laws of the Kingdom of Saudi Arabia.

9.15. Compliance with Applicable Law

This CP/CPS is subject to applicable national, local and foreign laws, rules, regulations, ordinances, decrees, and orders including, but not limited to, restrictions on exporting or importing software, hardware, or technical information.

9.16. Miscellaneous Provisions

9.16.1. Entire Agreement

In the event that any one or more of the provisions contained in this CP/CPS shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision of this CP/CPS, which shall be construed as of such invalid, illegal or unenforceable provision had never been set forth herein, and the CP/CPS shall be enforced as nearly as possible according to its original terms and intent.

9.16.2. Assignment

Except where specified by other contracts, no party may assign or delegate this CP/CPS or any of its rights or duties under this CP/CPS, without the prior written consent of the BTC PAC.

9.16.3. Severability

Should it be determined that one section of this CP/CPS is incorrect or invalid, the other sections of this CP/CPS shall remain in effect until the CP/CPS is updated. The process for updating this CP/CPS is described in section 9.12.

9.16.4. Enforcement (Attorney Fees/Waiver of Rights)

This document shall be treated according to laws of Kingdom of Saudi Arabia. Legal disputes arising from the operation of the Emdha eSign CA will be treated according to laws of Kingdom of Saudi Arabia.

9.16.5. Force Majeure

Emdha eSign CA shall not be liable for any failure or delay in its performance under this CP/CPS due to causes that are beyond its reasonable control, including, but not limited to, an act of God, act of civil or military authority, fire, epidemic, flood, earthquake, riot, war, failure of equipment, failure of telecommunications lines, lack of Internet access, sabotage, and reasons beyond provisions of the governing law.

9.17. Other Provisions

9.17.1. Fiduciary Relationships

Nothing contained in this CP/CPS shall be deemed to constitute either the Emdha eSign CA, or any of its subcontractors, agents, officers, suppliers, employees, partners, principals, or directors to be a partner, Affiliate, trustee, of any Relying Party or any third party, or to create any fiduciary relationship between the Emdha eSign CA and any Relying party, or any third party, for any purpose whatsoever.

Nothing in this CP/CPS or any Agreement between a third party and a Relying Party shall confer on any Subscriber, Customer, Relying Party, Registration Authority, Applicant or any third party, any authority to act for, bind, or create or assume any obligation or responsibility, or make any representation on behalf of the Emdha eSign CA.

9.17.2. Administrative Processes

No Stipulation

Appendix- A: Type of Certificates

This section details different certificate types issued under the Emdha eSign CA and their respective policies and certificate profiles.

For issuance of a particular certificate type, Issuing CA shall submit request to Emdha eSign CA. Based on Emdha eSign CA approval and NCDC Approval, RA(s) are authorized to issue particular certificate type. It is mandatory to comply with all requirements applicable to the respective certificate type, as well as, any additional restrictions or conditions communicated to the RA by Emdha eSign CA.

Following are the type of certificates issued by Emdha eSign CA, with detailed information in subsequent sections.

Sl No	Type	CP OID
1.	eSign User Certificate – with Bank-assigned User-Identifier	2.16.682.1.101.5000.1.4.1.1.2.1
2.	eSign User Certificate – with National ID	2.16.682.1.101.5000.1.4.1.1.2.2
3.	eSign Organization certificate	2.16.682.1.101.5000.1.4.1.1.2.3
4.	eSign Time Stamping authority certificate	2.16.682.1.101.5000.1.4.1.1.2.4
5.	eSign online certificate status protocol	2.16.682.1.101.5000.1.4.1.1.2.5

1. eSign User Certificate – with Bank-assigned User-Identifier

eSign user certificates are subscriber certificates which will be issued as per the process defined in CA Operations Manual. eSign user certificates shall have the following certificate extensions, in accordance with section 7 of this CP/CPS:

Bank-assigned User-Identifier is the identifier issued by a bank to uniquely identify the customer within each bank. For e.g. a Customer Record Number or CRN or CIF or others.

1.1. Extension Definitions for eSign User Certificate – with Bank-assigned User-Identifier

Field / fx.509 extension	Value or Value Constant	Critical
Subject	CN = <Bank-assigned User-Identifier> O = <verified SIP/Bank name> C = SA (UTF8 encoding only)	V1 Field
Serial Number	Unique serial number with minimum 64-bit entropy	V1 Field
CRL Distribution Points	[1] CRL Distribution Point Distribution Point Name: Full Name: URL=http://repository.emdha.sa/crls/esignca.crl	NO

Field / fx.509 extension	Value or Value Constant	Critical
Authority Key Identifier	<Same as the SubjectKeyIdentifier of the Emdha eSign CA>	NO
Subject Key Identifier	keyIdentifier encoded in compliance to RFC 5280 The keyIdentifier should be composed of the 160-bit SHA-1 hash of the value of the BIT STRING subjectPublicKey of the subscriber public key (excluding the tag, length, and number of unused bits).	NO
Basic Constraints	Subject Type=End Entity Path Length Constraint=None	NO
Authority Information Access	[1]Authority Info Access Access Method=On-line Certificate Status Protocol (1.3.6.1.5.5.7.48.1) Alternative Name: URL=http://ocsp.emdha.sa [2]Authority Info Access Access Method=Certification Authority Issuer (1.3.6.1.5.5.7.48.2) Alternative Name: URL=http://repository.emdha.sa/cacerts/esignca.crt	NO
Certificate Policies	[1]Certificate Policy: Policy Identifier=2.16.682.1.101.5000.1.4.1.1.2.1 [1,1]Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: https://www.emdha.sa [1,2]Policy Qualifier Info: Policy Qualifier Id=User Notice Qualifier: Notice Text= BTC LICENSED CA Certification Policy and associated documentation available at https://www.emdha.sa/ is hereby incorporated into your use or reliance on this Certificate.	NO
Key Usage	Digital Signature, Non-Repudiation	NO

2. eSign User Certificate – with National ID

eSign user certificates are subscriber certificates which will be issued as per the process defined in CA Operations Manual. eSign user certificates shall have the following certificate extensions, in accordance with section 7 of this CP/CPS:

National ID is the unique identifier issued by the Government (Ministry of Interior / NIC) to each Citizen or Resident in the Kingdom of Saudi Arabia (For e.g. Citizen ID number or Iqama number).

2.1. Extension Definitions for eSign User Certificate – with National ID

Field / fx.509 extension	Value or Value Constant	Critical
Subject	CN = <National ID Number> O = < verified SIP/Bank name > C = SA (UTF8 encoding only)	V1 Field
Serial Number	Unique serial number with minimum 64-bit entropy	V1 Field
CRL Distribution Points	[1] CRL Distribution Point Distribution Point Name: Full Name: URL=http://repository.emdha.sa/crls/esignca.crl	NO
Authority Key Identifier	<Same as the SubjectKeyIdentifier of the Emdha eSign CA>	NO
Subject Key Identifier	keyIdentifier encoded in compliance to RFC 5280 The keyIdentifier should be composed of the 160-bit SHA-1 hash of the value of the BIT STRING subjectPublicKey of the subscriber public key (excluding the tag, length, and number of unused bits).	NO
Basic Constraints	Subject Type=End Entity Path Length Constraint=None	NO
Authority Information Access	[1]Authority Info Access Access Method=On-line Certificate Status Protocol (1.3.6.1.5.5.7.48.1) Alternative Name: URL=http://ocsp.emdha.sa [2]Authority Info Access Access Method=Certification Authority Issuer (1.3.6.1.5.5.7.48.2) Alternative Name: URL=http://repository.emdha.sa/cacerts/esignca.crt	NO
Certificate Policies	[1]Certificate Policy: Policy Identifier=2.16.682.1.101.5000.1.4.1.1.2.2 [1,1]Policy Qualifier Info: Policy Qualifier Id=CPS	NO

Field / fx.509 extension	Value or Value Constant	Critical
	Qualifier: https://www.emdha.sa [1,2]Policy Qualifier Info: Policy Qualifier Id=User Notice Qualifier: Notice Text= BTC LICENSED CA Certification Policy and associated documentation available at https://www.emdha.sa/ is hereby incorporated into your use or reliance on this Certificate.	
Key Usage	Digital Signature, Non-Repudiation	NO

3. eSign Organization certificate

eSign Organization certificates are subscriber certificates issued to organizations to perform the SIP and/or RKA function and are issued as per the process defined in CA Operations Manual. eSign Organization certificates shall have the following certificate extensions, in accordance with section 7 of this CP/CPS:

National ID is the unique identifier issued by the Government (Ministry of Interior / NIC) to each Citizen or Resident in the Kingdom of Saudi Arabia (For e.g. Citizen ID number or Iqama number).

3.1. Extension Definitions for eSign Organization Certificate

Field / fx.509 extension	Value or Value Constant	Critical
Subject	CN = <***One or more of the below: - Role - Designation - Location - Application Name> O = Organization name C = SA (UTF8 encoding only) *** - Identifier Rules: - Use of only organization name in the CN is not permitted - Fully Qualified Domain Names, whether resolved using public or Private DNS shall not be used (e.g. www.emdha.sa or emdha.corp) - Some examples of CN are 'CN=HR Department' OR 'CN=Finance – Riyadh – ERP1' OR 'CN=Middleware Application server 2'	V1 Field
Serial Number	Unique serial number with minimum 64-bit entropy	V1 Field
CRL Distribution Points	[1] CRL Distribution Point Distribution Point Name: Full Name: URL=http://repository.emdha.sa/crls/esignca.crl	NO
Authority Key Identifier	<Same as the SubjectKeyIdentifier of the Emdha eSign CA>	NO
Subject Key Identifier	key Identifier encoded in compliance to RFC 5280 The key Identifier should be composed of the 160-bit SHA-1 hash of the value of the BIT STRING subjectPublicKey of the subscriber public key (excluding the tag, length, and number of unused bits).	NO
Basic Constraints	Subject Type=End Entity Path Length Constraint=None	NO

Field / fx.509 extension	Value or Value Constant	Critical
Authority Information Access	[1]Authority Info Access Access Method=On-line Certificate Status Protocol (1.3.6.1.5.5.7.48.1) Alternative Name: URL=http://ocsp.emdha.sa [2]Authority Info Access Access Method=Certification Authority Issuer (1.3.6.1.5.5.7.48.2) Alternative Name: URL=http://repository.emdha.sa/cacerts/esignca.crt	NO
Certificate Policies	[1]Certificate Policy: Policy Identifier=2.16.682.1.101.5000.1.4.1.1.2.3 [1,1]Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: https://www.emdha.sa [1,2]Policy Qualifier Info: Policy Qualifier Id=User Notice Qualifier: Notice Text= BTC LICENSED CA Certification Policy and associated documentation available at https://www.emdha.sa/ is hereby incorporated into your use or reliance on this Certificate.	NO
Key Usage	Digital Signature, Non-Repudiation	NO

4. EMDHA TimeStamping Authority certificate

4.1 Extension Definitions for EMDHA eTSA Certificate

Field / fx.509 extension	Value or Value Constant	Critical
Subject	CN = EMDHA TimeStamping Authority O = Organization name C = SA (UTF8 encoding only) *** - Identifier Rules: - Use of only organization name in the CN is not permitted - Fully Qualified Domain Names, whether resolved using public or Private DNS shall not be used (e.g. www.emdha.sa or emdha.corp) - Some examples of CN are 'CN=HR Department' OR 'CN=Finance – Riyadh – ERP1' OR 'CN=Middleware Application server 2'	V1 Field
Serial Number	Unique serial number with minimum 64-bit entropy	V1 Field
CRL Distribution Points	[1] CRL Distribution Point Distribution Point Name: Full Name: URL=http://repository.emdha.sa/crls/esignca.crl	NO
Authority Key Identifier	<Same as the SubjectKeyIdentifier of the Emdha eSign CA>	NO
Subject Key Identifier	key Identifier encoded in compliance to RFC 5280 The key Identifier should be composed of the 160-bit SHA-1 hash of the value of the BIT STRING subjectPublicKey of the subscriber public key (excluding the tag, length, and number of unused bits).	NO
Basic Constraints	Subject Type=End Entity Path Length Constraint=None	YES
Authority Information Access	[1]Authority Info Access Access Method=On-line Certificate Status Protocol (1.3.6.1.5.5.7.48.1) Alternative Name: URL=http://ocsp.emdha.sa [2]Authority Info Access Access Method=Certification Authority Issuer (1.3.6.1.5.5.7.48.2) Alternative Name: URL=http://repository.emdha.sa/cacerts/esignca.crt	NO

Field / fx.509 extension	Value or Value Constant	Critical
Certificate Policies	[1]Certificate Policy: Policy Identifier=2.16.682.1.101.5000.1.4.1.1.2.4 [1,1]Policy Qualifier Info: Policy Qualifier Id=CPS Qualifier: https://www.emdha.sa [1,2]Policy Qualifier Info: Policy Qualifier Id=User Notice Qualifier: Notice Text= TimeStamping Authority certificate.	NO
Key Usage	Digital Signature	YES
Enhance Key Usage	Time Stamping	YES