

# ANNEX C

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## TERMS OF REFERENCE

For the Provision of Linux Support Services on a call-off basis

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## 1 Introduction

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter referred to as the “Commission”) is the international organization setting up the global verification system foreseen under the Comprehensive Nuclear-Test-Ban Treaty (hereinafter referred to as the “Treaty” and/or the “CTBT”), which is the Treaty banning any nuclear weapon test explosion or any other nuclear explosion.

The Treaty provides for a global verification regime, including a network of stations worldwide, a communications system, an International Data Centre, and on-site inspections to monitor compliance. More information can be found at [www.ctbto.org](http://www.ctbto.org).

## 2 Scope of work

These Terms of Reference (hereinafter referred to as “ToR”) form the technical framework for the Provision of on-site and off-site Linux/Unix Support Services (hereinafter referred to as “Services” and/or the “Work”).

The Commission seeks to establish a one (1) year Contract or the performance of a maximum of two-hundred and fifty (250) person-days by the Contractor, whichever occurs first (hereinafter referred to as the “Call-off Period”), subject to four (4) optional extensions based on the same terms and conditions.

The maximum volume of work under the Call-off Period(s) is shown in the table below. This volume serves only as the maximum indication, and the Commission reserves the right, at its sole discretion, to call-off less or no person-days at all. The maximum number of days includes both off-site and on-site work. In the event the maximum total days for a Call-off Period is exhausted prior to the end date of the Call-off Period, the optional extension may be exercised by the Commission. Similarly, any unused balance of the person-days allocated to a Call-off Period may be carried over to the next Call-off Period subject to mutual agreement between the Parties at the time of the extension, should the Commission exercise the optional extension(s).

|                                | Years | Max. Total days |
|--------------------------------|-------|-----------------|
| <b>Initial Call-Off Period</b> | 1     | 250             |
| <b>1st Extension</b>           | 1     | 250             |
| <b>2nd Extension</b>           | 1     | 250             |
| <b>3rd Extension</b>           | 1     | 250             |
| <b>4th Extension</b>           | 1     | 250             |
| <b>Contract Total</b>          | 5     | 1,250           |

These ToR define the technical requirements that the Contractor and the Contractor’s personnel shall meet.

The Commission will take into consideration the on-boarding time needed for the Contractor to get familiar with the Commission’s systems. The effective start date of the Services will be counted after the on-boarding time as per the Contractor’s Proposal.

## 2.1 Linux Support Services

The Commission's infrastructure consists of the following:

- Bare Metal servers, workstations and virtual machines on Red Hat Enterprise Linux versions 6 to 9, Oracle Linux version 7 and 9, and Solaris. There are plans to decommission certain operating system versions and upgrade others to newer versions.
- Virtualization platforms on VMware vSphere and Red Hat KVM (Pacemaker) and Virtual Desktop Infrastructure (VDI) platform on Omnisia Horizon and VMware vSphere.
- Backup infrastructure consisting of Quantum Tape Libraries and an enterprise backup system based on Veritas Netbackup.
- Centrally managed infrastructure, which is installed, configured and administered through Red Hat Satellite, Puppet, Ansible, Terraform and other internally developed software systems.
- Cloud services and platforms on AWS, administered and maintained through Terraform.
- NAS environment consisting of multiple NetApp clusters.
- Data archiving environment based on ScoutAM Versity.
- Service load-balancing using F5 Big IP appliances.
- Cisco web and mail proxies for web and spam filtering.
- Mail and mailbox services based on Sendmail, Postfix and Cyrus IMAP.
- Core services such as LDAP, DNS, Syslog, Hashicorp Vault, Prometheus, Grafana, CUPS for printing and PKI systems.
- Custom-developed scripts and systems utilizing a diverse range of programming languages for system customization, integration, and administration.

The Contractor shall provide installation, configuration, implementation, administration, documentation, troubleshooting and training support both remotely and at the Commission's premises in Vienna, Austria, if needed. The Services shall be provided for the infrastructure defined above and related specialized projects as requested. All work will be authorized through the issuance of formal Work Orders (WO).

## 3 Requirements for the Contractor

The Contractor shall:

- have a quality assurance system in place, such as ISO 9000 or equivalent;

- designate a team possessing the full range of expertise required to execute the assigned Work Orders, for the entire duration of the Contract; propose a team which, as a whole, covers all technical domains listed in the required section (Section 4.1) and, to the greatest extent possible, and the expertise areas listed in the desirable section (Section 4.2);
- demonstrate experience of at least two (2) successfully completed and relevant projects utilizing the technologies listed in these Terms of Reference in the past five (5) years;
- ensure that all communications with the Commission, verbal and/or written, are conducted in the English language.

All personnel assigned to the Contract shall be previously vetted and formally accepted by the Commission. In case of changes to the team roster after the entry into force of the Contract, the Contractor shall present Curriculum Vitae (CVs) to the Commission for review, after which the Commission may interview or evaluate candidates to verify their expertise, prior to allowing them access to the Commission's computing environment to verify individual's technical expertise and the Contractor's overall ability to supply qualified resources as required in these Terms of Reference.

The Commission reserves the right to reject any candidate who does not fulfill the requirements and qualifications defined in these Terms of Reference. The Contractor shall replace such staff with another proposed personnel meeting, at least, the minimum requirements for all personnel set forth in Section 4 below.

## 4 Requirements for the Contractor's Personnel

### 4.1 Minimum requirements for all personnel

**Every individual** assigned by the Contractor to the Commission shall meet the following mandatory baseline of qualifications, experience, and technical knowledge:

- Minimum five (5) years of professional experience in an Enterprise IT environment, with a proven track record in Red Hat Enterprise Linux (RHEL) administration.
- A valid RHCSA-level certificate. Possession of an RHCE or an RHCA certificate would be an added advantage.
- Minimum five (5) years of experience in at least three (3) projects related to scripting languages (preferably Python and bash), configuration management systems (puppet, ansible) and kickstart deployment.

- Minimum three (3) years of hands-on experience in at least three (3) projects related to configuring, provisioning and managing containerization services on Docker and/or Podman and web services on Apache HTTP and Apache Tomcat.
- Ability to communicate fluently in English and produce clear, concise technical documentation.

## 4.2 Optional requirements

The Contractor's personnel should meet the following requirements, and compliance with each requirement shall be supported by appropriate documented evidence:

- A valid ITIL foundation certification.
- Working knowledge in installing, configuring, and maintaining NAS infrastructure (i.e., Brocade Directors and switches, Enterprise Disk storage equipment, Host Bus Adapters, storage virtualization) guaranteeing high availability and performance;
- Experience maintaining backup and archiving infrastructures. Preferably, experience with Veritas NetBackup (8.0 or higher) configuration options, LAN-free backup solutions and NDMP;
- Experience in managing cloud resources on AWS, including the use of Infrastructure as Code tools such as Terraform to provision and manage resources, and AWS Lambda to develop and deploy custom serverless functions for automation and event-driven workflows;
- Working knowledge in configuring and maintaining multi-node clusters and virtualization platforms Red Hat KVM and/or VMware vSphere;
- Working knowledge in configuring and administering LDAP, DNS, mail and mailbox on SendMail, Cyrus IMAP, Postfix;
- Experience configuring and maintaining NFS (Network File Systems) on NetApp;
- Experience configuring and maintaining F5 BIG-IP devices, including the deployment of load-balanced services;
- At least two (2) years experience in using version control systems such as Git and developing CI/CD pipelines for automated workflows;
- Experience in provisioning and managing containerized workload on Amazon EKS clusters;
- Experience utilizing Prometheus and Grafana for infrastructure and service monitoring, including the development of Grafana dashboard and Prometheus alerts; and

- Experience in enterprise secrets management using HashiCorp Vault and its integration to the Commission's infrastructure to facilitate secure access to sensitive data.

## 5 Organization of work

### 5.1 Work orders

The Commission will initiate the Work covering the scope described in these Terms of Reference in the form of Work Orders. These Work Orders (WO) will define the exact scope of work, the deliverables and the acceptance criteria of any Services performed by the Contractor.

Work Orders may be issued via ticketing systems, email or official messaging platforms, and shall be authorized and assigned exclusively by the Commission's designated personnel.

### 5.2 Deliverables

The Contractor shall deliver the following, as appropriate, after completion of each Work Order as described above under Section 5.1:

- Properly updated tickets in the Commission's ticketing system;
- Fully updated technical documentation, as appropriate; and
- Detailed instructions and workflows for systems administrators (if applicable).

Written Status Reports shall be delivered on a monthly basis, due no later than the 5<sup>th</sup> (fifth) calendar day of the following month. A Status Report shall contain a summary of the activities executed during the month corresponding to assigned Work Orders, duration taken per activity and total hours billed.

The Commission may request other administrative and/or managerial information to be included in the Status Reports.

All final Deliverables and Status Reports will be subject to review and shall be approved by the Commission.

### 5.3 Methodology approach

The Work shall start by means of a kick-off meeting no later than two (2) weeks after the entry into force of the Contract. The onboarding period shall start no later than two (2) weeks after the kick-off meeting and the Services stipulated under the respective Work Orders shall start immediately after the conclusion of the onboarding period.

The Work shall be assigned and monitored according to the following guidelines:

- I. The Commission will request the Work under the Contract in the form of Work Orders mentioned above to be recorded in the Commission's ticketing systems;

- II. Requests received via e-mail or other official messaging platforms shall first be recorded in the ticketing system;
- III. The Contractor shall not perform any Work if not requested by the Commission and properly recorded in the ticketing system. The Contractor may however propose Work Orders for Commission's evaluation;
- IV. Work shall be organized using Scrum or Kanban frameworks. Each Work Order will correspond to either a Scrum Sprint - with a defined scope, duration, and deliverables - or a Kanban workflow with prioritized timeframes;
- V. Any urgent or ad hoc tasks outside the current Sprint shall be approved by the Commission's designated personnel before commencement. Once approved, these tasks shall be tracked via separate tickets and documented individually in the Monthly Status Report;
- VI. Before commencing the Work, the Contractor shall provide an estimate, in person days, of the effort required to execute the Work Order to the Commission's point of contact. The Commission's point of contact may defer, delay, or interrupt the execution of a Work Order at any time, if this is clearly documented in the Commission's ticketing system;
- VII. The Contractor's and authorized Commission's personnel shall hold periodic meetings to review work progress, address potential risks and issues, and evaluate performance against the Work Orders;
- VIII. On a monthly basis, a Work Status Report shall be submitted to the Commission as stated in Section 5.2, for review and approval;
- IX. The Work Status Report shall be used to generate monthly Timesheets, that will be the basis for invoicing and payment;
- X. One person day shall consist of eight (8) hours of work; and
- XI. After the entry into force of the Contract, the Commission and the Contractor (the "Parties") will agree on procedures for initiating, developing requirements for, approving, implementing, testing, and the acceptance of the Work Orders.

#### 5.4 Place and duration of the work

Most Services shall be executed remotely at the Contractor's own premises and using the Contractor's own equipment and infrastructure.

On-site days may be requested by the Commission upon which the Parties shall agree on the number of on-site days prior to the issuance of the Work Order.

When on-site days are requested, the Contractor may be required to spend up to 25% of the person days per Call-Off period at the Commission's headquarters in Vienna, Austria. The

Contractor may need to travel to the Commission's headquarters up to twelve (12) times per Call-off Period.

The proposal shall clearly indicate the travel costs for each visit to the Commission's headquarters.

The duration of Work is described by the points below:

- I. The Work will be organized in Work Orders (see Section 5.1), issued by the Commission. The Work under the Contract, through relevant WO issued by the Commission, shall commence on 4<sup>th</sup> January, 2027.
- II. The Commission reserves the right to request additional person-days under each respective Work Order, if needed within the limits of the maximum number person-days for each relevant period as specified in Section 1 above .
- III. The Contractor shall conform to the Commission's working hours and days when working at the premises of the Commission, unless specifically requested otherwise by the Commission. Any such requests must be done in writing and shall be approved by the Contractor before any off-hours work can be executed.

## 5.5 Responsibilities of the Commission

For the designated Contractor's personnel, and to the extent necessary for the Contractor to fulfill the requirements of these Terms of Reference when carrying out the Work approved by the Commission on-site, the Commission will provide:

- I. Infrastructure, including access to on-site workspaces and standard office supplies, standard hardware, and standard corporate software;
- II. Necessary remote access to the Commission's internal network, including VPN credentials and access to standard corporate communication and productivity tools;
- III. Physical access to selected areas of the Vienna International Centre; and
- IV. Access to systems and technical documentation as necessary.

To enable the successful execution of the Work, the Commission will ensure qualified personnel are available to support and cooperate with the Contractor and respond to all necessary information requests.

## 6 Reporting requirements

Timesheets, derived from the Monthly Status Reports, shall form the basis for invoicing and payment after approval by the Commission.

These Timesheets shall only include the time spent on executing the Work Orders issued to the Contractor by the Commission's point of contact.

## 7 Risk Management

The Contractor shall provide an updated, thorough risk assessment plan at the commencement of the Contract to identify potential risks that could impact the successful execution of the implementation activities outlined in these Terms of Reference.

Risks may include, but are not limited to, technical challenges, changes in project requirements/scope, resource constraints, schedule delays, integration difficulties, and third-party software dependencies. The risk assessment plan should be consistently updated, aligning with the delivery of project milestones or significant accomplishments.

Upon the project's satisfactory completion, the Contractor shall conduct a final review of the initially identified risks. Risks that have been effectively mitigated or did not materialize should be officially closed, accompanied by appropriate documentation.

The insights gained from the risk management process should be methodically documented and shared with the client, thereby contributing to the knowledge repository for forthcoming similar projects.

## 8 Information Security

The Contractor shall implement and maintain appropriate technical and organizational measures to protect the confidentiality, integrity, and availability of CTBTO's information and systems throughout the duration of the Contract. The Contractor shall comply with all applicable Commission information security policies and procedures.

Access to CTBTO systems and data shall be granted on a least-privilege basis with multi-factor authentication, and access rights shall be reviewed regularly and revoked promptly upon personnel departure or contract end.

All data shall be encrypted in transit and at rest, and any identified vulnerabilities shall be remediated in a timely manner commensurate with their severity, and after notifying the Commission's point of contact.