

Technical documentation guidelines of the Publications Office

Purpose of the document

This document gives a general overview of the technical documentation that should be delivered within the scope of every software development project of the Publications Office.

This represents the minimal contents of the specified documents; the contractor/supplier is free to add any information deemed useful.

Installation Instructions

A. Pre-requisites:

The installation instructions describe in detail the hardware configuration (agreed at the beginning of the project) and the software configuration that has to be in place prior to start the installation.

- Minimum hardware system requirements (e.g.: CPU-Memory-disk space-network throughput-...) in compliance with Opoce standards at the following levels:
 - server(s)
 - clients
 - network
- Software system requirements (version-patches-specific configuration parameters-required modules...) at following levels:
 - Operating system
 - Tools
 - Software (packages - other applications - ...); especially for Oracle, the required supplementary modules. In case of patch/service pack, the exact version of the concerned application that has to be in place before starting the installation should be specified

B. Application interfaces/data flows:

The installation instructions should give an "end-to-end" description of each data flow. For each flow, the following elements should be described:

- origin (e.g. server/directory)
- destination (e.g. server/directory)
- used protocols (incl userID/password used if applicable)
- volume of data exchanged
- scheduling/triggering
- description of the pre- or post-processing if applicable
- error handling (including users/distribution lists to inform)

C. System installation:

i. Preparation:

- Description of the tree structure of the installed files
- List of all compressed and uncompressed files included in the delivery
- List of file systems to create with sizing
- Description of the logical and physical layout of the Oracle Database (if any), Taking into account the following rules:
 - Each database schema must contain at least two tablespaces, one for the data and one for the indexes (e.g. if there are 2 oracle schemas, 4 tablespaces are created: 2 tablespaces for the data and 2 for the indexes). Extra tablespaces can be foreseen to address special needs (e.g. in case of partitioning).
 - For each tablespace, the initial size of the corresponding datafile(s) must be specified.
- List of specific users/groups/roles to create and, for the DB, the privileges to grant (the DBA role is not allowed).

Generally, for web-based applications, the user(s) accessing the DB-objects through the web interface are not owner of the objects in order to avoid the accidental deletion of objects. This implies that the required privileges should be granted to the user(s) accessing the DB-objects.
- Environment variables to define; variables will be used in order to avoid hard-coding in the code or in the scripts; the name of the variables will be significant.

ii. Installation procedure:

- The configuration parameters should be grouped in a minimum of configuration files. One annex of the installation instructions should list all configuration parameters and the specific values used for the installation in the Office's environment.
- The installation procedure should be organised in clearly identified steps. Each step should have: a sequence number, an application level description and technical comments
- The installation procedure should be based on the execution of scripts launching the effective commands to execute rather than on sequences of commands to type in order to avoid typing or "cut and paste" mistakes.
- Each step should offer a rollback functionality
- The installation procedure should produce an installation log file
- The installation procedure should be able to cope with the standard configuration of the host system.
- It should offer the opportunity for a free and independent choice of the installation, execution and data directories.
- Oracle scripts, should appropriately use the "commit" statement, together with the "whenever sqlerror exit rollback" and "whenever oserror exit rollback" statements, in order to keep application consistency in case of errors.
- Ideally, all scripts needed to build the elements of the DB (i.e. creation of the tablespaces, tables, index, triggers, users and roles including the privileges to grant, ...) and to load the data should be delivered. An alternative is to deliver a script for the creation of the tablespaces and the users and the export (dumps) of all concerned users.

iii. Post-installation:

- List of all files modified during the installation.
- Location of the configuration files; list of useful parameters; if necessary, global configuration files will be used in order to avoid multiple definitions of the same parameters/variables.
- List of periodic jobs to schedule
- Procedure to check the correct installation/working of the application: basic checks to be performed by the person in charge of the installation should allow to check if the application is behaving correctly without requiring a full functional validation.

D. System de-installation:

- Detailed procedure to de-install the application following the same general remarks as the installation procedure.

System Operation Manual

A. Description of the hardware/software architecture:

- Schema representing the overall hardware/software architecture.
- Installed software. This will at least include:
 - name of the products/tools
 - version
 - installation parameters (e.g. installation path, users, groups, environment variables...).
 - ...
- Description of all used file systems with their contents and specific access rights. (incl any temporary space used).
- Description of the specific users/groups/roles used by the application
- Network configuration. This will at least include:
 - used interfaces
 - IP addresses
 - virtual hosting
 - IP and port-bindings
 - specific routing
 - name servers
 - LDAP servers
 - local name resolution
 - ...

B. Application management:

- **Application start-up and shutdown.** The exact sequence to follow when starting or stopping the application and the specific application dependencies will be described.
- **User management.** This will at least include:
 - user creation/deletion



- management of the privileges
- authentication
- ...
- **Configuration files.** This will at least include:
 - Location
 - useful parameters
 - modification procedure
 - ...
- **Log files.** This will at least include:
 - Location
 - Contents
 - setting of log levels
 - information retrieval
 - clean-up and archiving
 -
- **Monitoring.** This will at least include:
 - List of all file systems and processes to monitor with specific thresholds/critical values.
 - Configuration of the script allowing to measure the availability and the response time of the application. (*reminder: this specific script has to be delivered by the contractor/supplier – cfr § Installations of the annex “Technical environment and standard operating procedures”*)
 - Description of all existing monitoring and alerting mechanisms included in the application.
 - ...
- **Administration interfaces.** A detailed description of all available application administration interfaces will be provided. This will at least include :
 - Access to the user interfaces
 - Functionalities
 - Instructions for use
 - ...
- **Periodic tasks.** A list of all periodic tasks will be delivered. For each task, the following information will at least be provided:
 - description of the task
 - procedure to execute
 - scheduling/triggering schema
 - ...

Special attention will be put on the description of CPU intensive and time consuming tasks like:

- data archiving
- data purging
- data reorganisation
- data consistency check
- data synchronisation
- data indexing
- statistics

- ...
- **Backup procedure:** A detailed backup procedure including at least following elements will be provided:
 - list of file systems/directories to backup (incl pattern of the file names to backup)
 - scheduling/triggering schema
 - sequencing
 - pre- and post-processing
 - specific techniques to use (e.g. snapshot, hot backups...)
 - ...
- **Restore procedure.** A detailed restore procedure covering all disaster situations will be provided. Special attention will be put on following aspects:
 - sequencing of the restore operations in order to minimize the downtime
 - consistency checks to execute
 - repair/resync procedures to execute
 - system operation checks after restore
 - ...
- **Copy procedure.** The detailed procedure to use in order to copy the production environment to a test environment will be described. *(reminder: this specific procedure has to be delivered by the contractor/supplier – cfr § Installations of the annex “Technical environment and standard exploitation procedures”)*
- **Specific DB management tasks.** All specific DB related tasks that are not already described above should be described here.
- **Application updating procedures.** The general procedure used to upgrade/patch the application will be described.
- **Specific troubleshooting procedures and FAQ.** Any useful trick, hint or procedure should be described here.