

**Application Maintenance
and Support**
Service Description

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1. Introduction

This service description lists the main deliverables that are included in the service as well as options that the Customer may choose to include when engaging Volvo IT in an assignment to provide Maintenance and Support services for business applications.

Target groups for this document are Customers, Volvo IT Account Managers and Volvo IT delivery organisations involved in the delivery of the services.

1.1. Executive Summary

Based on Customer needs, Volvo IT can deliver services that support all type of business applications ranging from business critical to non critical or “sunset” applications on several platforms and technologies, databases, languages and software including 3rd party Commercial Off-the-shelf (COTS) applications.

Application Maintenance and Support Services includes all activities to keep existing applications up and running and in order to effectively deliver the services four main offerings are available;

1.1.1. Minimal

The “Minimal” package is to be used with caution for a shorter period of time, maximum 1-2 years, since it only takes care of the most essential services in order to keep the application up and running at the lowest possible cost level. The package does not include preventive maintenance and service levels are very low.

1.1.2. Basic

The “Basic” package is suitable for applications with lower demands on availability and whose impact on business if unavailable is limited. The package includes corrective, preventive and adaptive maintenance, but with low service levels.

1.1.3. Premium

The “Premium” package should suit most business applications. This service-package includes preventive maintenance, standard service levels as well as documentation which are not included in the Basic package.

1.1.4. Premium+

The “Premium+” package is suitable for applications with high demands on availability and that have a critical impact on business if they are down. The package features very high service levels which leads to higher resource availability with on-site or on-duty assignments for the Volvo IT delivery organisation.

To complement the four service packages above service options are available (listed further down in this document).

1.1.5. Assignment Planning and Follow-up

Maintenance Management includes planning of the assignment and follow-up of the delivery together with the customer. This is achieved by the establishment of Service Level Agreements (SLAs), which ensures stability of the application(s), control of support costs, reduced total-cost-of-ownership (TCO), and steer continuous service quality improvements.

1.2. Prerequisites

In order to effectively deliver Maintenance and Support services the business application should be properly tested, verified by the customer and operated from a stable production environment. No uncontrolled changes to the application are permitted in the production environment.

All enhancements should have a separate agreement from the customer and should be tested and verified by the customer according to established processes before they are put into production.

A key-user organisation should be in place supporting users with how-to questions and reporting incidents. Key User and 1st line Business Application Support can be provided as separate services from Volvo IT.

2. Service Offerings

2.1. Service Package Overview

This table provides an overview of the service packages available for Application Maintenance and Support. The service components are described further down in the document (chapter references within parentheses).

Package components	Minimal	Basic	Premium	Premium+
Service Delivery Parameters (2.3)				
Resolution Time / Rate, Major	24 h / 70%	16 h / 80%	4 h / 90%	2 h / 90%
Resolution Time / Rate, High	48 h / 70%	24 h / 80%	8 h / 90%	4 h / 90%
Resolution Time / Rate, Medium	Best Effort*	40 h / 80%	24 h / 80%	8 h / 80%
Resolution Time / Rate, Low	Best Effort*	Best Effort*	48 h / 80%	24 h / 80%
Base Service (3)				
Maintenance Management (3.1.1)	●	●	●	●
Corrective Maintenance (3.1.2)	●	●	●	●
Backup, Log and Batch Planning (3.1.3)	●	●	●	●
Database Reorganization (3.1.4)	●	●	●	●
Application Support (3.2)	●	●	●	●
Service Runtime Options (4)				
Preventive Maintenance (4.1.1)	-	●	●	●
Database Administration (4.1.2)	○	●	●	●
Adaptive Maintenance (4.1.3)	-	●	●	●
License Management (COTS) (4.1.4)	○	○	○	○
Maintenance ITGC Compliance (4.1.5)	○	○	○	○
Documentation: System Documentation (4.1.6.1)	-	○	●	●
Documentation: User Guide (4.1.6.2)	-	○	○	●
Documentation: User Documentation (4.1.6.3)	-	○	○	○
Support ITGC Compliance (4.2.1)	○	○	○	○
Business Application Support (4.2.2)	○	○	○	○
Support for Key Users (4.2.3)	○	○	○	○
User Authorization and Registration (4.2.4)	○	○	○	●
Additional Services (5)				
Enhancement Investigation Time (5.1)	-	○	○	○
Training (5.2)	-	○	○	○
Application Workshop Specialist (5.3)	-	○	○	○
Support Outside Agreed Hours (5.4)	-	○	○	○

● = Included ○ = Optional - = Not Available

* "Best effort" means handled according to supplier resource availability in a queue. No promise of a specific resolution time

2.2. Service Packaging

2.2.1. Minimal

The Minimal Package is suitable for applications with lower demands on availability and whose impact on business if unavailable is limited. The Minimal package should be used with caution for a shorter period of time, maximum 1-2 years, since it only features the most essential services in order to keep an application up and running. The Minimal service package does not feature any service components of preventive or adaptive nature, except for database re-organisation. Second line support service levels are restricted to only incident management with major and/or high impact for the business; other incidents are handled according to best effort.

The package features only Base service components, but some service options can be added on.

2.2.2. Basic

The Basic Package is suitable for applications with lower demands on availability and whose impact on business if unavailable is limited. The package includes corrective, preventive and adaptive maintenance, but with low service levels.

2.2.3. Premium

The Premium Package should suit most applications. It includes improved resolution time and resolution rates compared with the Basic package. The Premium package also includes preventive maintenance, adaptive maintenance, database maintenance as well as maintenance of the application system documentation.

2.2.4. Premium+

The Premium+ Package is aimed at Applications with high demands on availability and that have a critical impact on business if they are down. The package features very short resolution time for incidents as well as full documentation and user registration. Because of the short response times, Volvo IT will have staff on stand-by or available on call to deal with incidents quickly and efficiently. The service package also includes documentation activities to keep system documentation and user documentation up-to-date.

2.3. Service Delivery Parameters

2.3.1. Resolution Time and Resolution Rate

The Resolution Times and Resolution Rate (the percentage of incidents solved within the Resolution Time) of Application Support for the different incident severity levels (see Appendix A) are outlined in the table below.

Business Impact Level / Service Level	Minimal	Basic	Premium	Premium+
Major	24 h / 70%	16 h / 80%	4 h / 90%	2 h / 90%
High	48 h / 70%	24 h / 80%	8 h / 90%	4 h / 90%
Medium	Best Effort*	40 h / 80%	24 h / 80%	8 h / 80%
Low	Best Effort*	Best Effort*	48 h / 80%	24 h / 80%

* "Best effort" means handled according to supplier resource availability in a queue. No promise of a specific resolution time

In the case that the resolution of an incident is dependent on the resolution of an incident or problem covered by another Service (such as IT Operation or Network Communication), the resolution time of the Application Maintenance and Support Service will be measured from the time that the third party's incident or problem has been resolved.

Resolution time is defined as the time between the Creation time stamp and the Resolved time stamp.

For incidents classified as Low, Medium or High, resolution time is only counted during agreed business hours (specified in the agreement). For Major incidents, resolution time is counted 24x7.

2.4. Charging Model and Standard IT Account Structure

2.4.1. Charging Model

The cost for the Application Maintenance and Support service is dependent on parameters such as:

- Infrastructure complexity
- Application complexity (related to logic, integrations and architecture)
- New, mature or sunset application.
- Number of separate sites
- Number of users
- Business criticality
- Time zone impact
- Number of versions in production.
- Resource availability (on-call, on duty or standard working hours)

2.4.1.1. Package Price Difference Principles

Using the Premium package as a baseline and assuming that nothing else changes from the list of parameters above:

- The price of a Minimal package can be 20-50% less than a Premium package



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- The price of a Basic package can be 10-20% less than a Premium package
- The price of a Premium+ package can be 20-30% more than a Premium package

2.4.2. Standard IT Account Structure

This standard IT Account structure is used to report application maintenance and support. The follow-up details must be specified in the agreement.

Service Base	IT Account	Unit
Maintenance Management	MA	Hour
Corrective Maintenance	MA	Hour
Application Support	AS	Hour
Service Runtime Options	IT Account	Unit
Preventive Maintenance	MA	Hour
Adaptive Maintenance	ME	Hour
Knowledge Administration & Licenses (COTS)	LM	Hour, Qty
Documentation	MA	Hour
Business Application Support*	SU	Hour
User Authorization and Registration	MA	Hour
Additional Services	IT Account	Unit
Enhancement Investigation Time	EN	Hour
Training	TR	Hour
Application Workshop Specialist	BC	Hour
Support Outside Agreed Hours	AS	Hour

**1st line Business Application Support is available as a separate service from Volvo IT.*

3. Base Service

3.1. Application Maintenance

The purpose of Application Maintenance is to keep the existing solution of applications running. It involves maintenance planning, corrective maintenance (resolution of problems), preventive maintenance and documentation in accordance with what is agreed in the Assignment Agreement.

3.1.1. Maintenance Management

Maintenance Management ensures the cost efficiency of the Application Maintenance Service. Activities included are:

- Annual planning of the Application Maintenance activities
- Preparation, follow-up and maintenance of Service Level Agreement as specified in the agreement
- Participation in meetings as specified in the agreement
- Keeping the GAP, Global Application Database updated
- Help the customer create a six-month plan for capacity

3.1.2. Corrective Maintenance

Corrective Maintenance is performed to correct defects in the application and related procedures and documentation.

Activities included in Corrective Maintenance include:

- All efforts necessary to make an application in production function according to the system documentation and the Service Level Agreement for the application, or, if these documents are unclear, according to a reasonable interpretation of what may be considered the intention of the function
- Root cause analysis and correction to avoid future problems, the size of the corrective activities must be stated in the agreement.
- Problem notification and resolution procedures for each application. The designated Customer contact will be notified of problems within a timeframe specified in the agreement
- Defect tracking based on the measurements specified in the agreement
- Recoveries and/or corrective actions to repair databases, data and files to support the application

Any change to the Application results in a Release (collection of new and/or changed items which are tested and introduced into the production environment together). Corrective Maintenance also includes reactive tuning activities.

3.1.3. Log, Backup and Batch Planning

The Application Maintenance service includes the planning and documentation of Backup, Logging and Batch Schedules. Number of backups and batch schedule planning will be decided together with the customer. Plans will be supplied as input to the Application Operation Management service.



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3.1.4. Database Reorganization

Databases will be reorganized in accordance with what is specified in the agreement or whenever necessary.

3.2. Application Support

Application Support consists of application-specific experts. Application Support will use a range of methods and competencies to solve application incidents, including remote resolution and local (manual) resolution when needed. Application Support will also escalate incidents to other second line support services or third parties, if applicable.

4. Service Runtime Options

4.1. Maintenance Runtime Options

4.1.1. Preventive Maintenance

Preventive Application Maintenance aims to improve performance and reduce defects in the application.

Examples of Preventive Maintenance activities include;

- Safeguarding the operational performance of the application and the economizing of the application
- Safeguarding the maintainability of the application, including making sure that the right competence and knowledge is available to perform maintenance.
- Ensuring that the operational performance of the application and the resources consumed by the application are optimal at any given time, given the limitations set by the design of the application and the application environment.
- Follow up of extraordinary usage levels of database or register
- Perform cost-improvement activities according to the agreement.

Preventive actions may result in Change Request recommendations presented to the Customer for approval.

4.1.2. Database Administration

Application Maintenance includes the administration of databases in the production environment. Old data will be moved out of the production database according to the data retention specified in the agreement.

4.1.3. Adaptive Maintenance

Adaptive Maintenance is performed to accommodate required or mandatory changes in the software or infrastructure environment. Adaptive Maintenance is initiated by Volvo IT through the Change Control Procedure. Volvo IT will define, test, and implement the required modifications in the application to preserve its functionality.

In order to be able to handle 3rd party software (COTS – Commercial Off The Shelf), Volvo IT has frequent contact in order to be able to forecast the workload (integration, functionality change etc) when new releases arrives.

If the change is deemed to be major, it will be handled as a separate Enhancement project according to the agreed enhancement process.

4.1.4. Knowledge Administration & Licenses (COTS)

Volvo IT will keep the contacts with the supplier of the COTS (Commercial off-the-shelf, software from a 3rd party supplier) application in order to get knowledge about the products and releases. Volvo IT will be part of forums and groups necessary for keeping the knowledge

updated about known errors, new packages etc.

License costs for the COTS application are not included and are handled through separate agreements.

When the agreement is aligned to a global license agreement any necessary effort around these are included in the pricing and pass-through fee.

4.1.5. Maintenance ITGC Compliance

If this option is chosen, all Maintenance services delivered will be in compliance with ITGC (IT General Controls) requirements for ITGC classed applications (SOX). ITGC Compliance for other applications is offered on request (may be subject to availability).

4.1.6. Documentation

Application Maintenance manages system documentation. There are three levels of documentation:

- System Documentation
- User Guide
- User Documentation

Each level is optional but dependent on the previous. I.e.: performing User Guide Documentation also requires System Documentation etc.

Activities included in Documentation are:

- Maintenance of existing documentation
- Providing bug correction documentation
- Maintenance of existing reviews and related documents
- Maintenance of existing Service Continuity and Recovery procedures and related documents

4.1.6.1. System Documentation

Maintenance of System Documentation includes for example conversion of system documentation between different formats, languages etc. The level of activity should be specified in the agreement.

The creation of the system documentation is mandatory for all applications, and the activity to create the initial documentation should be included in the original development or enhancement project.

4.1.6.2. User Guide

User Guides are generic to the application

4.1.6.3. User Documentation

User Documentation is specific to how the customer organization uses the application within its processes.

4.2. Application Support Runtime Options

4.2.1. Application Support ITGC Compliance

If this option is chosen, all Application Support services delivered will be in compliance with ITGC (IT General Controls) requirements for ITGC classed applications (SOX). ITGC Compliance for other applications is offered on request (may be subject to availability).

4.2.2. Business Application Support

Business Support offers an extended help to the customer regarding the handling or change of the system. Business Support can help the system owner identify demands for change or attend meetings where detailed system knowledge is of importance.

How-to questions are regarded as Business support.

1st line Business Application Support is available as a separate service from Volvo IT, please see the relevant Service Description.

4.2.3. Support for Key Users

Key User Support helps the customer's Key Users to understand the technical functionality of the application. Support for Key Users includes:

- The advice and support needed to enable a key user to fulfill his/her function as key user
- Discussions with key users before the definition of a task
- Support to other users than the customer Key Users, if this has been agreed and documented in the agreement. These users shall be documented as Nominated Users (Key Users).

4.2.4. User Authorization and Registration

Volvo IT provides this service to create and change users and user access rights for Application-specific authorisation systems. Application User Authorization and Registration is performed in accordance with agreed processes.

5. Additional Services

The following Additional Services are available for the Application Maintenance and Support service:

- Enhancement Investigation Time
- Training (regarded as TR in Invoicing)
- Application Workshop Specialist
- Support Outside Agreed Hours

5.1. Enhancement Investigation Time

An enhancement is a development of (adding to or changing) the functionality of an application to keep in pace with changes in the business logic or in changes in the IT environment.

An Enhancement is preceded by an investigation phase. This option means that a budget will be defined for Enhancement Investigations (if no budget is defined, the investigation will be performed on a time and material basis). Number of weeks to be decided per application and delivered according to agreement.

5.2. Training

Volvo IT can provide training materials as well as trainers. Volvo IT can offer e-learning courses. Training is offered on request and customized to fit the Customer's needs.

5.3. Application Workshop Specialist

Volvo IT shall provide:

- Access to a workshop specialist with expert knowledge in use, support and optimization of the application.
- Access to the software vendor hotline (or similar) through the specialist.

5.4. Support Outside Agreed Hours

A temporary, time-limited extension of the support hours outside of what has been agreed can be offered as an add-on service.

6. Measurements and Follow-up

6.1. Application Maintenance

Volvo IT will report on agreed Key Performance Indicators (KPI's). As Maintenance KPI's are dependent on the assignment in question, valid KPI's are to be defined in the Assignment Agreement.

The below KPI can be considered valid for most Maintenance assignments.

The frequency of KPI reporting shall be agreed in the Assignment Agreement

6.1.1. MA 1 - Accumulated, corrected and reported Product Defects

Total number of known product defects, number of corrected product defects and reported (open) product defects. Reporting last month and rolling trend for the past 12 months.

Measurement: Data can be provided by Support Case Tool, or by other tools. If no tool can be used the report will be generated manually.

6.1.2. MA 2 - Unplanned maintenance

The number of hours used for unplanned maintenance activities (mainly corrective maintenance) is followed up and reported to Customer each quarter.

6.2. Application Support

Volvo IT will report on agreed Key Performance Indicators (KPI's) monthly. KPI's valid for Application Support are described below.

6.2.1. SU1 - Incoming Cases

Reports number of incoming incidents per business impact level. Reporting last month and rolling trend for the past 12 months.

Measurement: Data provided by Support Case Tool.

6.2.2. SU2 - Resolved Cases

Reports number of resolved support cases per severity level/business impact. Reporting last month and rolling trend for the past 12 months.

Measurement: Data provided by Support Case Tool.

6.2.3. SU3 - Incident Resolution Time

Average incident resolution time per business impact and per service level. Reporting last week, month or quarter.

Measurement: Data provided by Support Case Tool.

6.2.4. SU4 - Cost and Time

Accumulated and actual cost and time spent per month compared with agreement/budget.



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Reporting last month and rolling trend for the past 12 months.

Measurement: Financial data and valid agreements/budget.

This KPI is not valid for fixed-price agreements.

6.2.5. SU5 - Major Incidents

Report of number of major incidents, what causes the incident and short and proposed long term solution according to Major Incident routine at Volvo IT.

Appendix A: Support Case Severity Levels

A1 Severity Levels

The table below outlines the severity levels used when submitting an incident to the case tool. The severity level is based on the User's description of the incident as well as the view of the Service Desk staff.

SEVERITY LEVEL	DESCRIPTION
1 – Major	<p>When the support case has a large and acute impact on important customer business areas.</p> <p>The system is down or seriously affected, or a system failure prevents the output of time critical data, or data is lost or corrupted, resulting in a critical impact on the business operation.</p> <p>The issue is severely impacting the customer's business, which is, or may be in a continuously down situation.</p> <p>No procedural workaround exists.</p> <p>This case takes precedence above all other cases and normally requires immediate action.</p> <p>Example of a Major incident: Application failure that brings the customer production to a standstill.</p>
2 – High	<p>When the support case has impact on the customer's business i.e. the application has reduced functionality.</p> <p>The service is operating but its operation is severely restricted or impaired, affecting the business operation or productivity.</p> <p>Significant aspects of the business operation are negatively impacted resulting in business outage, or there is a significant threat that can impact future productivity.</p> <p>Development has halted, or the ability to continue development is seriously impaired.</p> <p>The customer's operation is disrupted, but the customer has enough capacity to produce and maintain necessary business operational levels.</p> <p>Affects operation, but does not prevent the output of time critical data from the system.</p> <p>There is no workaround currently available, or the workaround is inconvenient to use.</p> <p>Example of a High incident: Application failure that causes a disturbance in the customer production or a key transaction of an important application is down.</p>

<p>3 – Medium</p>	<p>When the application causes problems, preventing access to it for an individual user, or when the application causes problems that reduces, but does not prevent, access to it.</p> <p>The product will operate with limitations that are not critical to the overall operation.</p> <p>The system is useable, but operates with limitations that are not critical; thus it is a non-critical, limited problem with a non-critical functionality loss.</p> <p>Operational performance of the system is impaired—not mission critical. The issue impairs some operations, but the customer’s system can continue to function.</p> <p>It does not hinder operation, or it can be temporarily circumvented or avoided, or there is an available workaround.</p> <p>Example of a Medium incident: Forgotten password or a non-important Business Application failure.</p>
<p>4 – Low</p>	<p>When the application causes problems that are an inconvenience but do not affect the customer’s business.</p> <p>The issue does not have any significant productivity impact.</p> <p>The software is useable but you have a Customer that has an information request about the product, or needs guidance in a certain product area, usage questions ("how to" question), and cosmetic problems.</p> <p>Example of Low incidents: Handling questions ("how to").</p>