

Documentation

OTRS ITSM 3.3

Build Date:

2013-10-23

OTRS ITSM 3.3

Copyright © 2003-2013 OTRS AG

This work is copyrighted by OTRS AG.

You may copy it in whole or in part as long as the copies retain this copyright statement.

UNIX is a registered trademark of X/Open Company Limited. Linux is a registered trademark of Linus Torvalds.

MS-DOS, Windows, Windows 95, Windows 98, Windows NT, Windows 2000, Windows XP and Windows 2003 are registered trademarks of Microsoft Corporation. Other trademarks and registered trademarks are: SUSE and YaST of SUSE GmbH, Red Hat and Fedora are registered trademarks of Red Hat, Inc. Mandrake is a registered trademark of MandrakeSoft, SA. Debian is a registered trademark of Software in the Public Interest, Inc. MySQL and the MySQL Logo are registered trademarks of MySQL AB.

All trade names are used without the guarantee for their free use and are possibly registered trade marks.

OTRS AG essentially follows the notations of the manufacturers. Other products mentioned in this manual may be trademarks of the respective manufacturer.



Table of Contents

Preface	vii
1. OTRS ITSM - OTRS for IT service management	1
1. Features	1
1.1. New OTRS ITSM 3.3 features	2
1.2. New OTRS ITSM 3.2 features	2
1.3. New OTRS ITSM 3.1 features	2
1.4. New OTRS ITSM 3.0 features	3
1.5. New OTRS ITSM 2.1 features	3
1.6. New OTRS ITSM 2.0 features	3
1.7. New OTRS ITSM 1.3 features	3
1.8. New OTRS ITSM 1.2 features	3
1.9. New OTRS ITSM 1.1 features	4
1.10. OTRS ITSM 1.0 features	6
2. Hardware and software requirements	9
3. Community	9
4. Mailing lists	10
2. Commercial services for OTRS ITSM	12
1. OTRS ITSM consulting and implementation	12
2. Software development	13
3. Application support	13
4. Managed application services (ASP/SaaS)	13
3. Installing OTRS ITSM	15
1. Installation	15
2. Upgrade	15
4. First steps in OTRS ITSM	17
5. ITIL aligned service support with OTRS ITSM	18
6. The CMDB - the central IT repository	19
1. The OTRS ITSM database model	19
1.1. OTRS Framework	19
1.2. GeneralCatalog	19
1.3. ITSMCore	19
1.4. ITSMConfigurationManagement	19
1.5. ITSMChangeManagement	20
1.6. ImportExport	20
2. Services, at the core of everything	20
3. Service levels and service level agreements	21
4. Configuration items	23
5. Documents and knowledge database	24
6. Changes and amendments to the data model	25
7. Ticket types and attributes	25
7. Service desk, incident, & problem management	26
1. Ticket creation, classification and prioritization	26
2. SLA relevant time information	27
3. Allocate tickets (queues)	28
4. Change ticket data	29
5. Approvals and decisions	29
6. Generation of problem tickets from incidents	30
7. Ticket closure	30
8. Processing of service requests	30
8. Change Management	32
1. Change Management Module Requirements	32
1.1. Required Expertise	32
1.2. Technical Requirements	32
2. Diagram of Change Management in OTRS ITSM	32
3. Available User Roles	33

4. Underlying Workflow	34
5. Creating a New Change	34
5.1. Attributes of a Change	34
5.2. Category - Impact - Priority Matrix	35
5.3. Change State Machine	36
5.4. Defining Participant Roles / Persons Related to a Change	37
5.5. Linking a Change with a Request for Change	38
5.6. Defining Conditions	39
5.7. Defining Actions	41
5.8. Rescheduling (Postponing) the Start / End Time of a Change	42
6. Creating a Work Order	42
6.1. Attributes of a Work Order	42
6.2. Work Order Type	43
6.3. Work Order State Machine	43
6.4. Defining the Work Order Agent	44
6.5. Work Order Agent Report	44
6.6. Linking Work Orders to Configuration Items / Services	45
6.7. Saving a Work Order as a Template	45
6.8. Deleting a Work Order	45
7. Viewing the Content of a Change	46
8. Change Views	46
8.1. Change Overview	47
8.2. Change Schedule	48
8.3. PIR - Post Implementation Review	49
8.4. Template	50
8.5. Search	51
8.6. Change Manager	53
8.7. My Changes	54
8.8. My Work Orders	55
9. Change Management Statistics	57
9.1. Number of Changes Within a Defined Period	57
9.2. Number of Changes by Change Category	57
9.3. Number of Rejected Changes	57
9.4. Number of Withdrawn Changes	57
9.5. Ratio of Changes to Incidents	57
9.6. RFCs Per Requester	58
9. Release Management	59
10. Service Level Management	60
11. The admin area of OTRS ITSM	63
1. The general catalog	64
2. Configuring configuration item classes	65
3. Version management of CI classes	67
4. Adjustment of ticket state	68
5. The criticality impact priority matrix	69
6. Adjustment of ticket priorities	70
12. Additional OTRS applications - calendar	71
13. OTRS ITSM interfaces	72
A. GNU Free Documentation License	73
0. PREAMBLE	73
1. APPLICABILITY AND DEFINITIONS	73
2. VERBATIM COPYING	74
3. COPYING IN QUANTITY	74
4. MODIFICATIONS	75
5. COMBINING DOCUMENTS	76
6. COLLECTIONS OF DOCUMENTS	76
7. AGGREGATION WITH INDEPENDENT WORKS	77
8. TRANSLATION	77
9. TERMINATION	77

10. FUTURE REVISIONS OF THIS LICENSE	77
How to use this License for your documents	78



List of Tables

8.1. User roles	33
8.2. Attributes of a Change	35
8.3. Involved Persons	38
8.4. Conditions available at the Change level	39
8.5. Conditions available at the Work Order level	40
8.6. Actions available at the Change level	41
8.7. Actions available at the Work Order level	42
8.8. Attributes of a Work Order	42
8.9. Change Overview	47
8.10. Change Overview Filters	48
8.11. Change Schedule	48
8.12. PIR - Post Implementation Review	49
8.13. Template	50
8.14. Template Types	51
8.15. Template	51
8.16. Change Manager	53
8.17. Change Manager Filter	54
8.18. My Changes	54
8.19. My Changes Filter	55
8.20. My Work Orders	56
8.21. My Work Orders Filter	57

Preface

The document at hand addresses OTRS ITSM users and administrators and provides information on the basic use of OTRS ITSM by IT service managers, IT service staff (agents) and end users (customers). Information pertaining to the installation, configuration and administration of OTRS ITSM is only provided if there are differences to the OTRS core product or for functions, which only exist in OTRS ITSM.

In spite of the many many hours of work, even more cups of coffee and quite a few sausages and pretzels consumed in the course of writing the following sections, this manual does not claim to be complete. The chapters will be revised and/or amended periodically for continual improvement.

We welcome your feedback as a critical contribution to the best possible quality of the following chapters and of the product itself. Please tell us if you miss information, find it difficult to understand certain aspects or the way they are presented, have suggestions or any other comments. Any feedback submitted at <http://otrs.org> is highly appreciated.

We are very proud of the product at hand and want to thank the ITIL experts of Enterprise Consulting GmbH and our top-notch OTRS developers. Their joint efforts have significantly contributed to the successful development of OTRS ITSM.

We want to thank you, the users and OTRS ITSM community, in advance for any kind of aid and feedback and hope you will have fun using OTRS ITSM.

André Mindermann, Managing Partner OTRS AG

Bad Homburg, May 2007

((enjoy))

Chapter 1. OTRS ITSM - OTRS for IT service management

IT is expected to consistently deliver high service quality in an increasingly complex field. In this context, effective and efficient incident and problem management are indispensable. However, IT service management remains a task almost impossible if there is no consistent and up-to-date database with information about the state and configuration of the IT infrastructure.

The IT Infrastructure Library®, short ITIL®, is a series of books published by the United Kingdom's Office of Government Commerce (OGC), which generically combine best practice approaches to designing, providing, operating and managing IT services. ITIL does not focus on the technology but the services provided by the IT and comprises information on processes, roles, responsibilities, potential problem fields/resolutions, and definitions of terms.

ITIL has established itself as de facto standard over the past years and its circulation in IT organizations has contributed considerably to the development of a collective awareness and consistent terminology for IT service management. However, ITIL only describes "who should do what" and what should be considered along the way. In order to cover as wide a user group as possible, it does not or to a little extent address the issue of how to do things. Therefore, no implementable information is given for particular industries, companies, or manufacturers.

In December 2005, the ITIL based ISO/IEC 20000 industry standard for IT service management was published. IT organizations can apply for ISO/IEC 20000 certification and prove their conformity.

The continuing boom caused demand for IT service management tools, which could represent the ITIL-based processes. So far, only proprietary solutions existed. Because of their considerable complexity, most of these tools are only affordable for large companies and effective in large IT departments.

The development of OTRS ITSM was started as a result of the great success of the OTRS framework in order to combine the globally accepted, public ITIL recommendations with the benefits of open-source software.

OTRS ITSM 1.0 was the first real-world ITIL compliant IT service management solution on open-source basis, built on the solid basis of OTRS with its over 55,000 known OTRS installations and its community (information dating from April 2007). OTRS ITSM is under active development and new features are added continuously.

OTRS ITSM is practically-oriented. This was accomplished by developing it in collaboration with ITIL consultants and with some of OTRS Groups' customers.

The service-desk and ticket system solution OTRS is the basis for the ITIL compliant IT service management solution OTRS ITSM, its incident management, problem management, service level management, change and configuration management modules, and integrated CMDB.

OTRS ITSM and OTRS are freely available (no license fees apply) and are subject to GNU Affero General Public License (AGPL).

1. Features

OTRS ITSM 3.3 is based on OTRS 3.3. All functionalities known from OTRS continue to be available and the functionalities representing ITIL processes can be installed as packages.

1.1. New OTRS ITSM 3.3 features

OTRS ITSM 3.3 offers:

- Ported code to the OTRS 3.3 framework.
- Integrated Feature AddOn "OTRSServiceIncidentState" into OTRS ITSM. It shows the current incident state of a selected service in the ticket zoom, and in all agent frontends where a service can be selected (can be disabled on a per screen basis).
- Integrated Feature AddOn "OTRSCIColumns" into OTRS ITSM. This feature makes it possible to configure the shown CI-Attributes individually for each ConfigItem class. This is possible for the CI-Overview, the CI-Search-Overview and the Linked-CI view in the agent interface.
- Integrated Feature AddOn "OTRSWorkOrderTimeDependency" into OTRS ITSM. If this feature is enabled and you change the planned end date of a workorder, all following workorders will also be moved accordingly, so that the time differences between the workorders will still be the same.
- Integrated Feature AddOn "OTRSCIAttributeSyntaxCheck" into OTRS ITSM. This feature makes it possible to check the syntax of CI attributes with a regular expression while adding or editing CIs via the agent interface (not while importing CIs with the Import/Export module). CI attributes of the type "Text" and "TextArea", as well as the CI name can be checked with individual regular expressions. An individual error message is shown if the attribute does not match the defined pattern. With this feature it can be enforced that for example a CI attribute must start with "ABC" or must end with a number.
- Added new feature "WorkOrder Report Attachments" into OTRS ITSM. This feature adds support for attachment uploads in the workorder report screen.
- The toolbar icons now use an icon font which makes it easier to create custom skins with different base colors.
- Migrated ITSMCriticality and ITSMImpact values from general catalog to dynamic fields. Renamed ITSM related dynamic fields to nicer names, prefixed with ITSM.
- In ITSMChangeManagement the frontends to create changes / workorders have been splitted in 2 screens each. One to create a new change / workorder from scratch, and one to create it from a template.

1.2. New OTRS ITSM 3.2 features

OTRS ITSM 3.2 offers:

- Ported code to the OTRS 3.2 framework.
- Enhanced Import/Export screen to show a summary after importing.
- Added attachment support for ITSM config items.
- Added new optional sysconfig option to check if config item names are unique.

1.3. New OTRS ITSM 3.1 features

OTRS ITSM 3.1 offers:

- Ported code to the OTRS 3.1 framework.
- Added caching to speed up the condition / action backends in change management.

- Added possibility to use a mirror database for change and workorder searches in change management.

1.4. New OTRS ITSM 3.0 features

OTRS ITSM 3.0 offers:

- Brand New Interface - OTRS 3.0 Look & Feel
- Ported code to the OTRS 3.0 framework.
- New Generic Search Dialogs.
- New Search result types (Print, PDF and CSV).

1.5. New OTRS ITSM 2.1 features

OTRS ITSM 2.1 offers:

- Change Management

Improved speed of Change Management and GeneralCatalog by implementing caching technology.

New powerful FreeText fields for Changes and Workorders in Change Management.

Implemented an option to reset the change and workorder states while saving as template.

New alternative checksum generator for the change number.

New option to show workorder title and workorder state in the change zoom timeline.

1.6. New OTRS ITSM 2.0 features

OTRS ITSM 2.0 offers:

- Change Management

The new OTRS ITSM package "ITSMChangeManagement" implements the ITIL discipline Change Management.

1.7. New OTRS ITSM 1.3 features

OTRS ITSM 1.3 is based on OTRS 2.4

It offers the same features as OTRS ITSM 1.2, but runs on the OTRS 2.4 framework.

1.8. New OTRS ITSM 1.2 features

OTRS ITSM 1.2 is based on OTRS 2.3

OTRS ITSM 1.2 offers:

- Modularization

From now on the additional ITSM packages covering single ITIL disciplines like incident management / problem management, configuration management, service level management, can be installed independently from one another. To you as a user, that means that you neither have to install the packages in a certain installation order nor do you have to install them all in order to use OTRS ITSM.

- Reduced reloads

ITSM functionalities (e. g. priority calculation based on a tickets impact) have been reimplemented in AJAX technology to reduce necessary reloads. This leads to an increased speed using OTRS ITSM.

- Joint Link-Object mechanism

OTRS ITSM 1.1 and lower releases were designed based on an own extended Object-Link mechanism. As a consequence, the Object-Link functionality of OTRS couldn't be used in OTRS ITSM. A joint Object-Link mechanism has now been implemented, which covers all of the features from both former Link object mechanisms.

- Improved speed

Changing database access technology to using SQL bind parameters made it possible to access the Configuration Items (CI) database faster than previously.

- Locations

Locations are no longer a separate menu item. They are now integrated into the Configuration Items, which will bring a sustainable gain in flexibility.

- SLA-Service multi-assignments

It is now possible to assign a SLA to multiple Services.

- SLA Overview

In the service menu, there is now a new SLA overview mask.

- Refresh-Mechanism

A refresh mechanism was added to refresh the service overview and the config item overview screens automatically.

1.9. New OTRS ITSM 1.1 features

OTRS ITSM 1.1 offers:

- Authorization concept

Each object like Service/SLA, Location, CI, Linkobject now creates a corresponding group, so the agents rights can be assigned with more granularity.

- Allocation of services to customers

Services can be assigned to authorized customers. Further more, services may be assigned as general 'default services' which are valid to use for each customer.

- Service/CI view

A view on services and CIs, including information on each object's current state, allows you to analyze an incident and calculate the incident's impact on affected services and customers. As an enhancement of the service view, now SLAs and linked CIs are also displayed. For each CI, the current incident state is shown. In addition, the incident state will be propagated for dependent SLAs and CIs. If a service is selected, the service details will be shown, now with the additional 'current incident state', which is calculated from the incident states of dependent services and CIs.

CIs are now enhanced with a 'current incident state', which includes two state types:

- Operational

- Incident

For each state type, any number of states can be registered. The state of a CI affects the service state, which will be dynamically calculated, and can have one of the following three values:

- Operational (green)
- Warning (yellow)
- Incident (red)

The propagation of the incident state will be carried out if CIs are linked with the link type 'depend on'. Here the following rules apply:

- If a CI is dependent on another CI, which is in the state 'Incident', the dependent CI gets the state 'Warning'.
- If a service is dependent on CIs, and one of these CIs has a state 'Incident', the service will also get the state 'Incident'.
- If a service is dependent on CIs, and one of these CIs has the state 'Warning', the service will also get the state 'Warning'.
- If a service has sub-services, and one of these services has the state 'Incident', the parent service will get the state 'Warning'.
- If a service has sub-services, and one of these services has the state 'Warning', the parent service will get the state 'Warning'.

The states of the respective services, sub-services, and CIs will be shown in the view.

- CI search and linking from agent interface

A service agent may search, select, and assign any of a customer's configuration items (CIs) or existing tickets while recording a new incident ticket.

- CMDB Import/Export (CSV and API)

This feature offers the possibility to import or update data from CSV files into the CMDB of OTRS ITSM, and to export data from the CMDB to CSV files. Each line of the CSV file describes one CI, with the data of the CI in the columns.

The import and export is controlled with ImEx definitions. These definitions map the columns of the CSV file to the fields in the CMDB. You can create an ImEx definition via the admin interface in OTRS. For each available field in the CMDB, the corresponding column in the CSV file needs to be defined. This is done in a form, which represents the current CI definition. Also, a filter can be applied, to limit the number of the exported CIs. Any number of ImEx definitions can be stored in the system, and each definition can be used for import and for export.

To start an import (exports work the same way), two possibilities exist: interactive with the web interface, or automatically with a script. Using the interactive way, the desired ImEx definition is selected, and then the CSV file is uploaded to the system. During the interactive export, the CSV file will be offered for download respectively.

The automatic import is carried out via a script, which requires the name of the ImEx definition and the name of the CSV file as arguments. During the script based export, the CIs that were given the script as arguments will be saved in a CSV file. Before the execution of the import or export, the selected ImEx definition will be compared with

the current CI definition. If inconsistencies are found, the process will be cancelled. Also, during import, restrictions in the CI definition (e.g. mandatory fields) will be checked. If applicable, the data record is rejected, but the import process continues. An import protocol can be found in the syslog. Via the API the CSV based import/export can be replaced or enhanced by other formats/transport, like direct database access or XML. The implementation of the CSV interface can be used as a reference.

- A huge variety of additional reports has been created, e.g.:

Basic reports for tickets and configuration items (CIs):

- Total of all tickets ever created per ticket-type and priority (state, queue, service).
- Monthly overview of all tickets ever created of a previous month per ticket-type (priority, state, queue, service).
- Total of created tickets in a defined period per ticket-type and priority (state, queue, service).
- Total of all open tickets per ticket-type and priority (queue, service).
- Total of all configuration items (CIs) created per class (per state).
- Total of all configuration items (CIs) created in a previous month per class (per state).
- Total of all configuration items (CIs) created in a defined period per class (per state).

Many more reports have been added which provide specific data regarding first time solution rate and average resolution time:

- First time solution rate of all tickets ever created per ticket-type and priority (queue, service).
 - First time solution rate in a previous month per ticket-type (priority, queue, service).
 - First time solution rate in a defined period per ticket-type and priority (queue, service).
 - Average resolution time of all tickets ever created per ticket-type and priority (queue, service).
 - Average resolution time in a previous month per ticket-type and priority (queue, service).
 - Average resolution time in a defined period per ticket-type and priority (queue, service).
- Added print function for CIs, Services, SLAs, Locations.

1.10. OTRS ITSM 1.0 features

OTRS ITSM 1.0 offers:

- ITIL compliant representation of "service support" processes
 - incident management
 - problem management
 - configuration management
- an integrated, individually extensible configuration management database (CMDB)

- ITIL compliant names for new functions
- ITIL compliant role, responsibility, and permission model
- cross-process communication management: within the IT service organization, with customers/users/management and suppliers/providers
- flexible stats functions for (trend) analyses; reporting, planning, and controlling based on performance figures
- flexible configuration, customization, and upgrade to meet individual requirements
- native ticket types are supported (integrated in OTRS): Various ticket types can be managed in the admin interface. Free-text fields are therefore no longer needed to specify ticket types. Installations using free-text fields for ticket type classification do not have to be migrated. The new feature is also shown in the ticket content and in the print view for agents and customers and can be adjusted in the agent interface.

Configuration management & integrated CMDB:

OTRS ITSM is based on an integrated configuration management data base (CMDB), which serves as the foundation for the comprehensive control of the service management processes. It represents the configuration items (CI), their complex relationships, and interdependencies with each other and with other components of the service chain.

- Comprehensive recording and management of ITSM relevant configuration items (CIs) such as computers, hardware, software, networks, documents and services, SLAs, and organizational structures.
- Illustration of the IT service catalog and agreements in force (SLA, OLA, UC)
- Recording, management, and illustration of technical and service related relationships and interdependences among CMDB data, e.g. a service with all necessary, alternative or relevant CIs
- Management of historic, current, and future CI states, e.g. for problem diagnosis, server maintenance or planned changes
- Analysis of the potential impact of service failures or configuration changes
- Display of virtualized IT infrastructures, e.g. server / memory virtualization
- Software license management, e.g. licenses available / in use (third party products required)
- Chronological life cycle management for CIs, from acquisition to disposal
- Reporting of all configuration changes performed on CMDB data
- Interface to company directories (e.g. LDAP, eDirectory, Active Directory)

Incident management:

- Services and SLAs (integrated in OTRS): The new attributes "service" and "service level agreements (SLA)" were integrated in OTRS 2.2 on its way to becoming an IT service management tool. When creating a ticket, the customer can select a service (e.g. e-mail service) and a corresponding SLA. SLA attributes are "response time", "update time" and "solution time". IT service can use these attributes for notifications or ticket escalation in order to meet existing SLAs. Service and SLA specific information in the header of new e-mails can be analyzed as usual with the PostMaster filter module.

- Comprehensive support of IT service support organization processes with incident recording, classification, prioritization, direct help (1st level support), diagnosis, coordination (2nd/3rd level support, external partners etc.), service recovery, resolution, closure and documentation
- Incidents and service requests can be recorded quickly and intuitively by service desk staff and users (web self-service)
- Rule-based ticket generation and/or notification, e.g. in interaction with IT monitoring systems
- Classification and prioritization options (priority, impact, urgency)
- Complete CMDB coverage, e.g. services affected by the incident, configuration items concerned, FAQ database, link-up between tickets and CIs for analyses and reporting
- (Automatic) recording of "articles" for tickets (activity record)
- Constant monitoring and evaluation of the ticket processing progress
- Complete integration of OTRS role, group, and queue mechanisms for incident ticket allocation, tracking, escalation, and interpretation
- Provision and storage of relevant time data, e.g. for service level management
- Practical ticket handling (merge, split), allows to merge similar incidents and/or split complicated ones
- Planning, proactive control, and monitoring of service request activities (work packages, work plans, service lead times, due dates)
- Generation and tracking of problem tickets from incidents

Problem management:

- Comprehensive support of IT organization processes in problem identification, recording, classification, prioritization, problem origin diagnosis, resolution coordination, e.g. workaround or request for change, closure, and documentation
- Provision of relevant information for subprocesses
 - Problem control (trouble-shooting),
 - Error control (error processing),
 - Proactive problem management (e.g. ticket trend analyses) and
 - Management information (on incidents, problems and known errors)
- Current/historic incidents, knowledge base (FAQs), and CMDB are constantly available
- Complete integration of OTRS role, group and queue mechanisms to allocate, track, escalate, and evaluate incident tickets
- Systematic automated notifications on the problem resolution progress for users (user groups) concerned or the management
- Incident management receives ready signal for resolved problems

Tickets are central information containers for IT service process management: They transport multiple possible underlying data such as:

- Persons, organizations
- Time stamp
- Priority, impact, severity
- Associations to IT service catalog and projects
- Activities, e.g. note about a call with time accounting
- Objects, e.g. CIs, including relations
- (Sub)Tickets, e.g. a problem with the underlying incidents
- Notes and attachments, e.g. scanned service request forms
- Work packages, i.e. planned, allocated tasks
- SLA information
- Thresholds and escalation data
- Ticket history (all changes)
- Accounting information (time accounting).

2. Hardware and software requirements

The requirements for OTRS ITSM are the same as for OTRS. More information can be found in the OTRS Admin Manual.

3. Community

A large community has evolved around OTRS throughout the past years. Users and developers use mailing lists to share their insights about a wide variety of issues connected with the trouble ticket system. They address questions about installation, configuration, use, localization, and development. Bugs can be reported using the bug tracking system at <http://bugs.otrs.org> (<http://bugs.otrs.org/>). They directly reach the developers responsible and fixes can be provided quickly.

The above mentioned community channels are open for OTRS ITSM users also, to constantly improve the product's quality. You can join the community at our homepage <http://otrs.org> (<http://otrs.org/>).


OTRS Open Technology
 Real Services

[Customer Login](#) | [Partner Login](#) | [Contact](#) | [News](#) | [English](#) ▼
 Sales North America +1 408 725 7501 | Europe +49 6172 6819 880 | Asia + 852 3690 1503

[Solutions](#) [Software](#) [Customers](#) [Partners](#) [Company](#) [Open Source](#) [Academy](#) [Resources](#)

[Get OTRS](#) [Contribute](#) [Community News](#) [Documentation](#) [Source Code](#) [Mailing Lists](#) [Community Blog](#) [OTRS User Forum](#)

Open Source

More than 5,000 active OTRS Community members, experts and enthusiasts, contribute to the OTRS open source project and software, driven by the same motivation, to enhancement and expedite OTRS' distribution based on voluntary contributions. Get involved, leverage OTRS' community tools and benefit from the support and technical expertise of this worldwide community.

Established since: 2001	Downloads: 1,115,000
Members: 5,000+	Installations: 100,000
Community Forum: forums.otrs.org »	Software available in: 32 languages

Get OTRS

OTRS Help Desk, ITIL V3 compliant IT Service Management (ITSM) solution OTRS ITSM and all OTRS extensions are published under the Affero General Public License (AGPL) and are free for download without causing any license fees.

[Get the software now!](#) »

Contribute

If you want to suggest or vote for a feature, report a bug, intend or already have completed a localization for the software or simply want to explore the community using the OTRS User forum, this is the right place to do.

[Get involved!](#) »

FOUNDING
NetworkedHelpDesk.org
MEMBER

4. Mailing lists

Separate mailing lists have been set up for OTRS ITSM. Please visit <http://lists.otrs.org> (<http://lists.otrs.org/>):


OTRS Open Technology
 Real Services

[Customer Login](#) | [Partner Login](#) | [Contact](#) | [News](#) | [English](#) ▼
 Sales North America +1 408 725 7501 | Europe +49 6172 6819 880 | Asia + 852 3690 1503

[Solutions](#)
[Software](#)
[Customers](#)
[Partners](#)
[Company](#)
[Open Source](#)
[Academy](#)
[Resources](#)

[Get OTRS](#)
[Contribute](#)
[Community News](#)
[Documentation](#)
[Source Code](#)
[Mailing Lists](#)
[Community Blog](#)
[OTRS User Forum](#)

Mailing Lists

Subscribe to a mailing list of your interest and remain up-to-date, post your questions, or review the archives for past discussions. Please keep in mind that this is a form of non-commercial community support that does not guarantee an answer to every question and that is related to a specific topic and language.

Announcements

This list broadcasts announcements about OTRS Help Desk, ITIL® V3 compatible ITSM solution OTRS ITSM and OTRS extensions.

[Subscribe to Mailing List >>](#)

[Browse the Mailing Lists Archive >>](#)

Developers

This list is used by developers to discuss topics related to the development of new releases, enhancements and issues.

[Subscribe to Mailing List >>](#)

[Browse the Mailing Lists Archive >>](#)

OTRS Help Desk Users

This list is used by OTRS Help Desk users to file questions and discuss resolutions amongst each other.

[Subscribe to Mailing List >>](#)

[Browse the Mailing Lists Archive >>](#)

OTRS ITSM Users

This list is used by OTRS ITSM users to file questions and discuss resolutions amongst each other.

[Subscribe to Mailing List >>](#)

[Browse the Mailing Lists Archive >>](#)

Chapter 2. Commercial services for OTRS ITSM

OTRS AG is the manufacturer and source code owner of OTRS and all modules based upon it (e.g. OTRS ITSM) and a professional service provider. Unlike those of proprietary software providers, OTRS AG's business model is not based on license fees: OTRS and OTRS ITSM are available free of cost and we offer commercial services associated with the software applications instead.

As your capable partner, we provide optimal support in all phases of your OTRS project design, realization, and operation. Our staff are highly skilled experts and we believe in deploying the most modern methods. This philosophy guarantees credit for powerful business applications and happy customers lauding our service quality (<http://www.otrs.com/en/references/>).

1. OTRS ITSM consulting and implementation

Are you planning to use OTRS ITSM or have you found out about OTRS ITSM in a new product screening and want to assess the system's eligibility for your requirements? Or is your OTRS ITSM evaluation completed and you want to make use of our consulting services to efficiently lead your project towards success?

We offer extensive practical expertise in IT process consulting, software engineering, development, and ITIL compliant IT operations and support. Security and quality management for your project complement our service portfolio. You benefit from an extensive and quick knowledge transfer.

Our services include:

- Identification of your requirements and assistance with product evaluation
- Guidance on design and implementation of ITSM process and organizational structures
- ITIL assessments and support with ISO 20000 certification
- ITIL trainings and coaching
- ITIL implementation
- Compilation of IT service catalogs
- CMDB design
- Installation & configuration of OTRS ITSM including integration with your existing system environment
- Review & optimization of existing OTRS ITSM installations
- Process and data migration from predecessor systems
- Release updates
- Specification of business and IT requirements and features, which exceed the given functional range of OTRS ITSM

- Design and realization of project complimentary administrator and service agent trainings
- Advisory services regarding managed operations (ASP/SaaS) of OTRS ITSM and application support

2. Software development

One significant advantage of the open-source software OTRS ITSM is its flexibility regarding potential extensions of the functional range. No "vendor lock-in", a typical risk of proprietary systems and protracted negotiations with the manufacturer about expanding the functional range or building interfaces apply with OTRS ITSM.

Experienced project managers and developers are at your disposal at any time to translate your requirements exceeding the functional range of OTRS ITSM into business and IT specifications. We develop your features, program interfaces, or upgrade existent functionalities according to your conception.

Extensions, which are useful for other customers too, will be added to the standard in later releases. All parties involved benefit: OTRS ITSM is even more powerful with the features "born" by you and other customers, and you save the cost of porting your features to new releases.

3. Application support

The decision for an IT service management solution is an investment into the future which should not be underestimated, even if you opt for open-source software. A competent consulting partner is critical for the success of such an implementation project. Just as important, however, is a planned and successful porting of the solution to the life system and the lasting support of a reliable partner guaranteeing a faultless operating application service.

We provide this continuous support and our service packages are tailored flexibly to meet your requirements. They offer differentiated response times for the various service level agreements with up to 24/7/365 support, 24/7/365 access to our support portal, and optional phone support. Please visit <http://www.otrs.com/en/support/> for all details or contact our sales team at sales@otrs.com.

You will only pay for the services you absolutely need. Optional add-on packages, e.g. support via remote control or an extension of the application support services to other OTRS ITSM instances can be booked if required.

Our ITIL compliant operating Application Support Team is continually optimizing its processes and performance. Therefore, our service manager will contact you regularly to discuss your wishes and requirements regarding our services. The monthly service reporting in the service package of your choice serves as a base for these conversations.

4. Managed application services (ASP/SaaS)

You do not have to operate OTRS and/or OTRS ITSM yourself. The products can be rented via the so called "ASP" (application service provisioning) resp. "SaaS" (software as a service) model from specialized companies.

The customers (software users) are permitted internet access to exclusively rented OTRS systems and, where required, functional application support (see section above) at a fixed

monthly price and can employ the application in their business to the contracted extent. No additional license fees apply as only open-source products are used.

The application service provider operates IT infrastructure, systems and software ITIL compliantly and guarantees service quality according to the agreed service levels. The provider maintains the application system, (e.g. patches, backup, monitoring), and supports the customer with incidents and/or service requests such as consultation requests, software extensions, or configuration requests.



Chapter 3. Installing OTRS ITSM

Please note that the OTRS framework 3.3 must be installed prior to the installation of OTRS ITSM. All necessary information, options, and installation procedures are depicted in the OTRS Admin Manual.

1. Installation

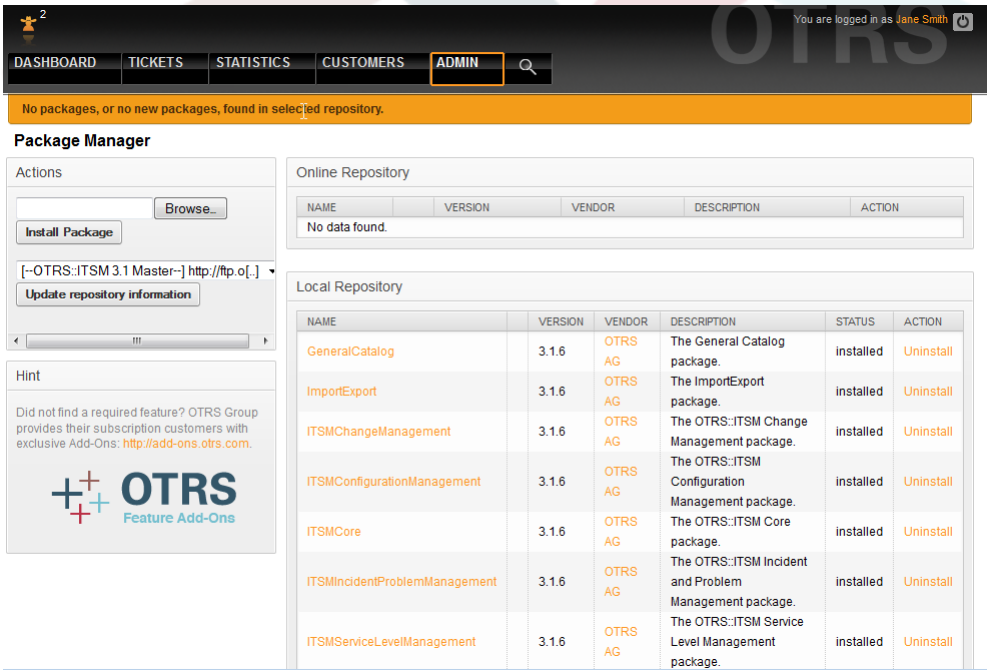
After successfully installing OTRS 3.3 or a later version, proceed to sign on as administrator. Using the package manager in the admin area or via `ftp://ftp.otrs.org/pub/otrs/itsm/packages33/` obtain the ITSM packages and install them in the following order:

- GeneralCatalog
- ITSMCore

If your machine running OTRS has internet access, use the following online repository [--OTRS ITSM 3.3 Master--] to install the packages below. Otherwise download the packages below and use the package manager to install them:

- ITSMIncidentProblemManagement
- ITSMConfigurationManagement
- ITSMChangeManagement
- ITSMServiceLevelManagement
- ImportExport

You can find further information about the installation process here: [INSTALL-32.ITSM](#)



Package Manager

Actions

Install Package

Update repository information

Online Repository

NAME	VERSION	VENDOR	DESCRIPTION	ACTION
No data found.				

Local Repository

NAME	VERSION	VENDOR	DESCRIPTION	STATUS	ACTION
GeneralCatalog	3.1.6	OTRS AG	The General Catalog package.	installed	Uninstall
ImportExport	3.1.6	OTRS AG	The ImportExport package.	installed	Uninstall
ITSMChangeManagement	3.1.6	OTRS AG	The OTRS:ITSM Change Management package.	installed	Uninstall
ITSMConfigurationManagement	3.1.6	OTRS AG	The OTRS:ITSM Configuration Management package.	installed	Uninstall
ITSMCore	3.1.6	OTRS AG	The OTRS:ITSM Core package.	installed	Uninstall
ITSMIncidentProblemManagement	3.1.6	OTRS AG	The OTRS:ITSM Incident and Problem Management package.	installed	Uninstall
ITSMServiceLevelManagement	3.1.6	OTRS AG	The OTRS:ITSM Service Level Management package.	installed	Uninstall

2. Upgrade

If you are using a version older than OTRS ITSM 1.1, please update the system to the latest version 1.1 first.

If OTRS ITSM 1.1 has already been installed, update your OTRS 2.2 framework to version 2.3 BEFORE you update OTRS:ITSM. To do so, download the latest OTRS 2.3 framework and follow the instructions in the file named UPGRADING. After that, log in to your system and use the package manager to install the package ITSMUpgradeTo12. You can download it manually or use the online repository. Ignore all error messages about not correctly installed old ITSM packages. This package will install all needed packages to update your system to an OTRS ITSM 1.2 version, and it will migrate all of your data.

Note: The upgrade can take several minutes! Please do not stop the upgrade process once it is running!

If OTRS ITSM 1.2 is already installed, update your OTRS 2.3 framework to version 2.4 BEFORE you update OTRS:ITSM. To do so, download the latest OTRS 2.4 framework and follow the instructions in the file UPGRADING. After that, log in to your system and use the package manager to install the packages as described in the section "Installation".

To upgrade an already installed OTRS ITSM 1.3, use the package manager in the admin area. If you have internet access from OTRS, use the online repository [--OTRS ITSM 1.3 Master--] to install newer packages. An 'upgrade' link next to the package name indicates if a newer package is available.

Otherwise, download the packages and use the package manager to install the packages. **WARNING:** Do not uninstall your current packages, or you will lose data!



Chapter 4. First steps in OTRS ITSM

The first thing that you might notice is that OTRS ITSM completely uses the agent and customer interfaces (customer frontend) implemented in OTRS. If OTRS has been used before, all features and steps such as login, queue configuration, user preferences, filters, rules, user permissions, etc. can continue to be used without any modifications.

The manual at hand will therefore only discuss differences between OTRS and new aspects of OTRS ITSM, while paying particular attention to the following:

- IT services and SLAs
- The CMDB
- New ticket fields and functions
- ITIL compliant terminology

Detailed information on the settings and proceedings that are identical in both OTRS and OTRS ITSM are provided at <http://doc.otrs.org/3.3/en/html/> in the OTRS Admin Manual, which is continuously being revised.

OTRS 3.1 - Admin Manual

[Next](#)

OTRS 3.1 - Admin Manual

Copyright © 2003-2012 OTRS AG

René Bakker, Stefan Bedorf, Michiel Beijen, Shawn Beasley, Hauke Böttcher, Jens Bothe, Udo Bretz, Martin Edenhofer, Carlos Javier García, Martin Gruner, Manuel Hecht, Christopher Kuhn, André Minderhann, Marc Nilius, Elva María Novoa, Henning Oswald, Martha Elia Pascual, Thomas Raith, Carlos Fernando Rodríguez, Stefan Rother, Burchard Steinbild, Daniel Zamorano.

This work is copyrighted by OTRS AG.

You may copy it in whole or in part as long as the copies retain this copyright statement.

The source code of this document can be found at source.otrs.org.

UNIX is a registered trademark of X/Open Company Limited. Linux is a registered trademark of Linus Torvalds.

MS-DOS, Windows, Windows 95, Windows 98, Windows NT, Windows 2000, Windows XP, Windows 2003, Windows Vista and Windows 7 are registered trademarks of Microsoft Corporation. Other trademarks and registered trademarks are: SUSE and YaST of SUSE Linux GmbH, Red Hat and Fedora are registered trademarks of Red Hat, Inc. Mandrake is a registered trademark of MandrakeSoft, SA. Debian is a registered trademark of Software in the Public Interest, Inc. MySQL and the MySQL Logo are registered trademarks of Oracle Corporation and/or its affiliates.

All trade names are used without the guarantee for their free use and are possibly registered trade marks.

OTRS AG essentially follows the notations of the manufacturers. Other products mentioned in this manual may be trademarks of the respective manufacturer.

Table of Contents

[Preface](#)

[1. Trouble Ticket Systems - The Basics](#)

[What is a trouble ticket system, and why do you need one?](#)

[What is a trouble ticket?](#)

Chapter 5. ITIL aligned service support with OTRS ITSM

Just like ITIL, OTRS ITSM does not claim to be an "out-of-the-box" solution for all tasks and questions arising in IT service management. It is, in fact, supposed to serve as a flexible, stable and easy to understand information platform that can be adapted to meet the requirements of virtually every organization.

Therefore, please excuse us for bringing the following to your attention: The use of an ITIL aligned tool such as OTRS ITSM only makes sense if processes, people, and products (IT services) are truly ITIL aligned.

Without the thoughtful tailoring of generic ITIL processes to meet the requirements of the specific business scenario, OTRS ITSM will not achieve a discernible improvement of the key performance indicators of IT service management.

You should also be aware of the fact that successful ITIL implementation projects typically take up to a year and longer. Their scope and impact on the organization is not to be underestimated. However, we would like to mention that a neatly implemented ITIL aligned ITSM tool can help to save time and money, as the process support of the tool aids and accelerates the process of organizational realignment.

Since version 2.0 , OTRS ITSM supports the following features and processes, which are usually designed during the first phase of an ITIL implementation: Incident Management, Problem Management, Service Level Management, Change Management and the Configuration Management Database. A more detailed description of use and adaptation of the system can be found in the following sections. Please note that the each OTRS ITSM package can be installed independently and that their names correspond to their respective ITIL topics.

The implementation of OTRS ITSM is based on ITIL v3.

Chapter 6. The CMDB - the central IT repository

The configuration management database (CMDB) is not a database in the technical sense, but a conceptual IT model, which is indispensable for efficient IT service management. All IT components and inventories are managed in the CMDB. Configuration management exceeds asset management, often incorrectly used as a synonym, as it does not only document assets from a financial point of view, but captures information regarding the relationship between components, specifications, or their location. Thus IT support can quickly access information on the interdependence of IT services and the IT components (= configuration items = CIs) necessary for them.

According to ITIL, a CMDB must feature the following functionalities:

- Manual and, where applicable, automatic recording and modification of configuration items
- Description of the relationship and/or interdependence between CIs
- Change of CI attributes (e.g. serial numbers)
- Location and user management for CIs
- Integration via the ITIL processes represented in the system

OTRS ITSM meets all requirements stated above and offers numerous additional IT support functions in the CMDB.

1. The OTRS ITSM database model

The modular architecture of OTRS ITSM and the ability to install single OTRS ITSM packages independently makes it difficult to display a complete database model in a single graphic. For this reason, separate graphics will be provided for the OTRS framework and for ITSM packages which change or extend the database scheme.

1.1. OTRS Framework

For better readability, the diagram can be found at: <https://github.com/OTRS/otrs/blob/master/doc/OTRSDatabaseDiagram.png>

1.2. GeneralCatalog

For better readability, this diagram can be found at: <https://github.com/OTRS/GeneralCatalog/blob/master/doc/general-catalog-database.png>

1.3. ITSMCore

For better readability, this diagram can be found at: <https://github.com/OTRS/ITSMCore/blob/master/doc/itsm-core-database.png>

1.4. ITSMConfigurationManagement

For better readability, this diagram can be found at: <https://github.com/OTRS/ITSMConfigurationManagement/blob/master/doc/itsm-configuration-management-database.png>

1.5. ITSMChangeManagement

For better readability, this diagram can be found at: <https://github.com/OTRS/ITSM-ChangeManagement/blob/master/doc/itsm-change-management-database.png>

1.6. ImportExport

For better readability, this diagram can be found at: <https://github.com/OTRS/ImportExport/blob/master/doc/import-export-database.png>

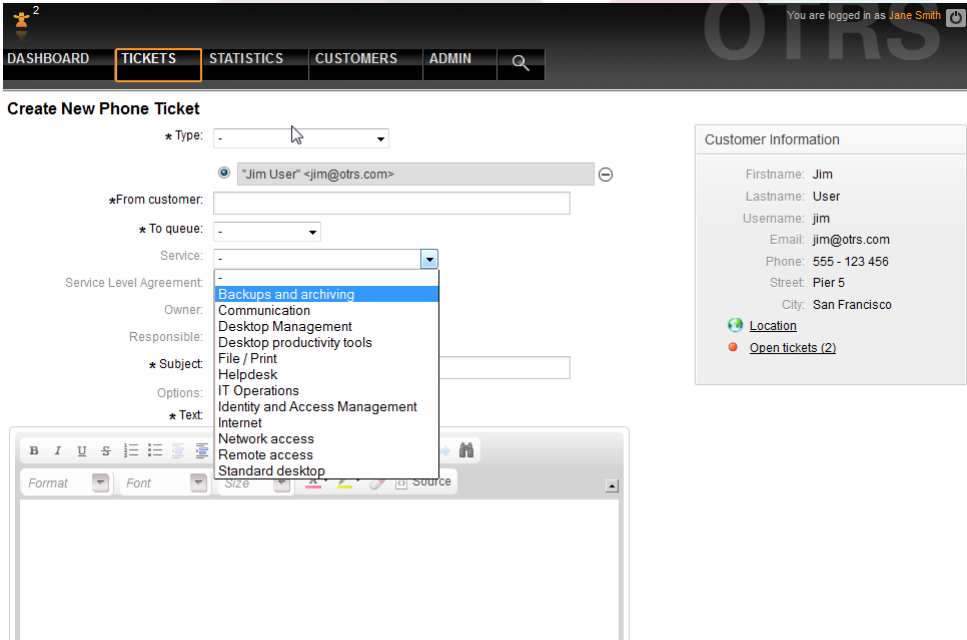
2. Services, at the core of everything

Services such as "standard IT workstation", "e-mail" or "web access" are IT products and should be compiled in a "IT service catalog" prior to the adoption of OTRS ITSM. Such a service catalog is usually customer or company specific and can be structured hierarchically. Furthermore, it should be formulated in a user friendly, meaning easily understood, language, as both IT personnel (agents) and IT users (customers) are among its audience.

Warning

Service catalog design is a task which should not be underestimated. Our experience shows that it is highly recommendable to validate conceptual thoughts in a dry run first and to transfer the service structures to OTRS ITSM in a second step. It has proven of value to resort to external assistance, e.g. of ITIL practice experts.

Example of (part of) a hierarchic IT service catalog specified in OTRS ITSM as shown when a ticket is created



and in the administration area.

 2
 You are logged in as **Jane Smith**

DASHBOARD TICKETS STATISTICS CUSTOMERS **ADMIN**

Service Management

Actions
 Add service

List

SERVICE	COMMENT	VALIDITY	CHANGED	CREATED
Backups and archiving		valid	08/27/2012 11:03	08/27/2012 11:03
Communication		valid	08/27/2012 11:00	08/27/2012 11:00
Desktop Management		valid	08/27/2012 11:02	08/27/2012 11:02
Desktop productivity tools		valid	08/27/2012 11:01	08/27/2012 11:01
File / Print		valid	08/27/2012 11:01	08/27/2012 11:01
Helpdesk		valid	08/27/2012 11:02	08/27/2012 11:02
IT Operations		valid	08/27/2012 11:02	08/27/2012 11:02
Identity and Access Management		valid	08/27/2012 11:03	08/27/2012 11:03
Internet		valid	08/27/2012 11:02	08/27/2012 11:02
Network access		valid	08/27/2012 11:01	08/27/2012 11:01
Remote access		valid	08/27/2012 11:01	08/27/2012 11:01
Standard desktop		valid	08/27/2012 11:00	08/27/2012 11:00

Powered by OTRS 3.1.9

Top of page

3. Service levels and service level agreements

Service levels and the respective agreements (service level agreements, SLAs) document quality pledges for IT services. SLAs are recorded and administered in the admin interface.

 2
 You are logged in as **Jane Smith**

DASHBOARD TICKETS STATISTICS CUSTOMERS **ADMIN**

SLA Management

Actions
 Add SLA

List

SLA	SERVICE	COMMENT	VALIDITY	CHANGED	CREATED
24 / 7	Backups and archiving		valid	08/27/2012 11:03	08/27/2012 10:57
	Communication				
	Desktop Management				
	Desktop productivity tools				
	File / Print				
	Helpdesk				
	Identity and Access Management				
	Internet				
	IT Operations				
	Network access				
Ext Business Hours	Remote access				
	Standard desktop				
	Backups and archiving		valid	08/27/2012 11:03	08/27/2012 10:58
	Communication				
	Desktop Management				
	Desktop productivity tools				
	File / Print				
	Helpdesk				
	Identity and Access Management				
	Internet				

The following parameters can be recorded with every SLA:

2 You are logged in as Jane Smith

DASHBOARD TICKETS STATISTICS CUSTOMERS **ADMIN** Q

SLA Management

Actions

[Go to overview](#)

Edit SLA

SLA:

Type:

Service:

Calendar:

Escalation - first response time (minutes): (Notify by)
0 = no escalation - 24 hours = 1440 minutes - Only business hours are counted.

Escalation - update time (minutes): (Notify by)
0 = no escalation - 24 hours = 1440 minutes - Only business hours are counted.

Escalation - solution time (minutes): (Notify by)
0 = no escalation - 24 hours = 1440 minutes - Only business hours are counted.

Minimum Time Between Incidents (minutes):

Validity:

Comment:

or

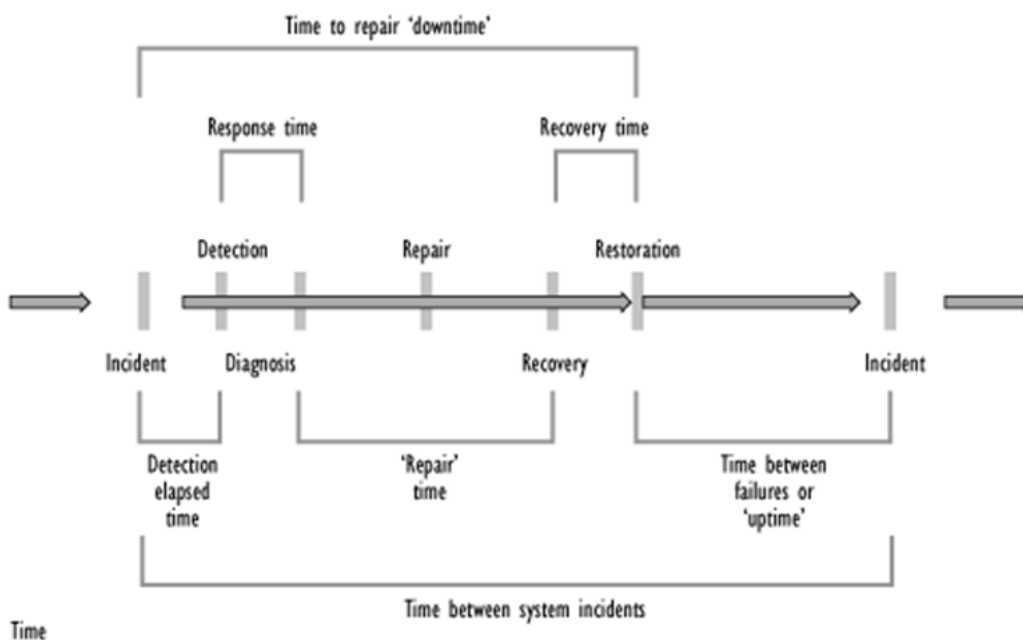
OTRS ITSM offers by default up to 99 different calendars to describe the various time zones for work or service times. The SLAs can be allocated to them ("service level window"). Various time spans can be entered (in minutes) which OTRS ITSM uses to control notification and escalation:

- [Response Time]
 - = reaction time with incidents
 - = start of service request procession ("service request lead time")
- [Update Time]
 - = notification time
- [Solution Time]
 - = time elapsed until incidents are resolved ("maximum time to repair", "MTTR")
 - = delivery time for service requests ("delivery time")
- [Min. Time Between Incidents]
 - = "MTBI": minimal time between closure of the last incident ticket and recurrence of an incident for which the same SLA applies.

Warning

If no values for the above-named times are entered in the SLAs, escalation is affected according to the time fields "response time", "update time" and "solution time" assigned to all queues!

Important time values of OTRS ITSM are based on the "ITIL incident lifecycle":

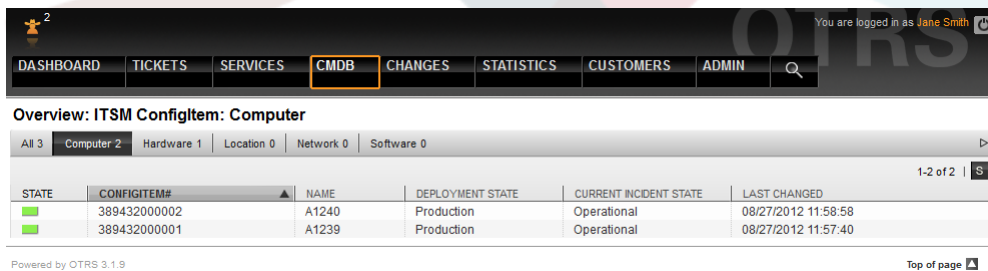


Source: OGC, ITIL Service Support Documentation

The OTRS stats framework facilitates, among other things, the definition of the actual availability of a service from recorded incidents, which often serves as a performance figure in system-oriented SLAs.

4. Configuration items

Exemplary overview of recorded computer CIs (part) with current CI state:



The screenshot shows the OTRS CMDB interface. The top navigation bar includes links for DASHBOARD, TICKETS, SERVICES, CMDB (highlighted), CHANGES, STATISTICS, CUSTOMERS, and ADMIN. The main content area is titled 'Overview: ITSM Configitem: Computer'. Below this, there is a filter bar with tabs for All 3, Computer 2, Hardware 1, Location 0, Network 0, and Software 0. The main table displays configuration items with columns for STATE, CONFIGITEM#, NAME, DEPLOYMENT STATE, CURRENT INCIDENT STATE, and LAST CHANGED. The table shows two items: one with CONFIGITEM# 389432000002 and NAME A1240, and another with CONFIGITEM# 389432000001 and NAME A1239. Both items are in the 'Production' deployment state and 'Operational' current incident state. The last changed date for both is 08/27/2012 11:58:58.

STATE	CONFIGITEM#	NAME	DEPLOYMENT STATE	CURRENT INCIDENT STATE	LAST CHANGED
	389432000002	A1240	Production	Operational	08/27/2012 11:58:58
	389432000001	A1239	Production	Operational	08/27/2012 11:57:40

Example of an individual CI view:

 ² You are logged in as Jane Smith 

DASHBOARD | **TICKETS** | **SERVICES** | **CMDB** | **CHANGES** | **STATISTICS** | **CUSTOMERS** | **ADMIN** |

Configuration Item: 389433000001 — P1234

Back | History | Edit | Print | Link | Duplicate

VERSION INCIDENT STATE	VERSION NUMBER	NAME	CREATED BY	CHANGED
	1.	P1234 (Production)	jane (Jane Smith)	08/27/2012 12:00:16

▼ Configuration Item Version Details

PROPERTY	VALUE
Name:	P1234
Deployment State:	Production
Incident State:	Operational
Vendor:	Brother
Model:	HL-2150N
Description:	
Type:	Printer
Owner:	
Serial Number:	Z21489AK
Warranty Expiration Date:	04/27/2018
Install Date:	08/27/2012

Configuration Item Information

Class: **Hardware**

Name: **P1234**

Current: **Production**

Deployment State:

Current Incident State:  **Operational**

Created: 08/27/2012 12:00:16

Created by: Jane Smith

Last changed: 08/27/2012 12:00:16

Last changed by: Jane Smith

The graphic exemplifies the links between CIs. OTRS differentiates between bidirectional and nondirectional links. Whenever a CI is linked to another CMDB object, OTRS ITSM automatically creates the respective reverse link.

The OTRS ITSM standard offers seven link types:

Link Object: ConfigItem# 389433000001: P1234

[Close window](#)

Select Target Object

Link Object ConfigItem# 389433000001 with:

Search

ConfigItem#:

Name:

Deployment State:

Incident State:

To link objects, the source object is chosen first, then the link type is defined and the target object can be searched for using various criteria:

5. Documents and knowledge database

Using the FAQ system, which is an independent external module since OTRS 2.1, a knowledge database can be designed and managed, e.g. for suggestions and/or procedures related to the resolution of known errors.

Entries can be provided for internal use only, for all customers or the public. They can be created and sorted according to language or categories. The quality of FAQ articles can be evaluated by agents. The number of articles last created or last revised to be displayed can be configured without any limitations. All articles can be indexed for an efficient search.

6. Changes and amendments to the data model

The data model can be adapted flexibly and can be extended with data types, attributes and even classes. Detailed information can be found in the section "The admin area of OTRS ITSM" in this document or in "The admin area of OTRS" in the OTRS Admin Manual.

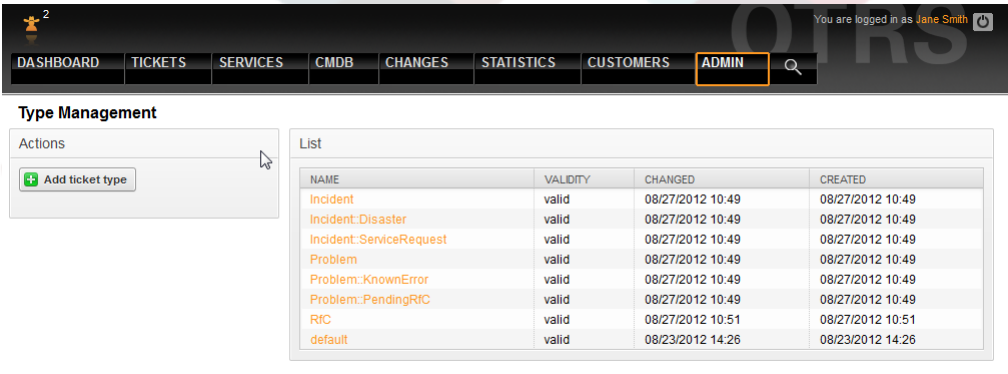
Warning

The design of a CMDB data model and the CIs to be managed within it, is a task which should not be underestimated. Our experience shows that it is highly recommendable to validate conceptual thoughts in a dry run against the existing IT infrastructure first and to change the OTRS ITSM default data model and CI classes only afterwards. It has proven of value to resort to external assistance, e.g. of ITIL practice experts for CMDB design.

7. Ticket types and attributes

With OTRS 2.2, native ticket types were introduced, which are used in OTRS ITSM, too. In the ITIL sub-processes, which can be structured in queues, tickets are classified by their ticket types.

All ITIL processes to be implemented in later versions of OTRS ITSM, e.g. change management, will be implemented in such a way. Ticket types such as RFC ("Request for Change") could be created.



NAME	VALIDITY	CHANGED	CREATED
Incident	valid	08/27/2012 10:49	08/27/2012 10:49
Incident: Disaster	valid	08/27/2012 10:49	08/27/2012 10:49
Incident: ServiceRequest	valid	08/27/2012 10:49	08/27/2012 10:49
Problem	valid	08/27/2012 10:49	08/27/2012 10:49
Problem: KnownError	valid	08/27/2012 10:49	08/27/2012 10:49
Problem: PendingRFC	valid	08/27/2012 10:49	08/27/2012 10:49
RFC	valid	08/27/2012 10:51	08/27/2012 10:51
default	valid	08/23/2012 14:26	08/23/2012 14:26

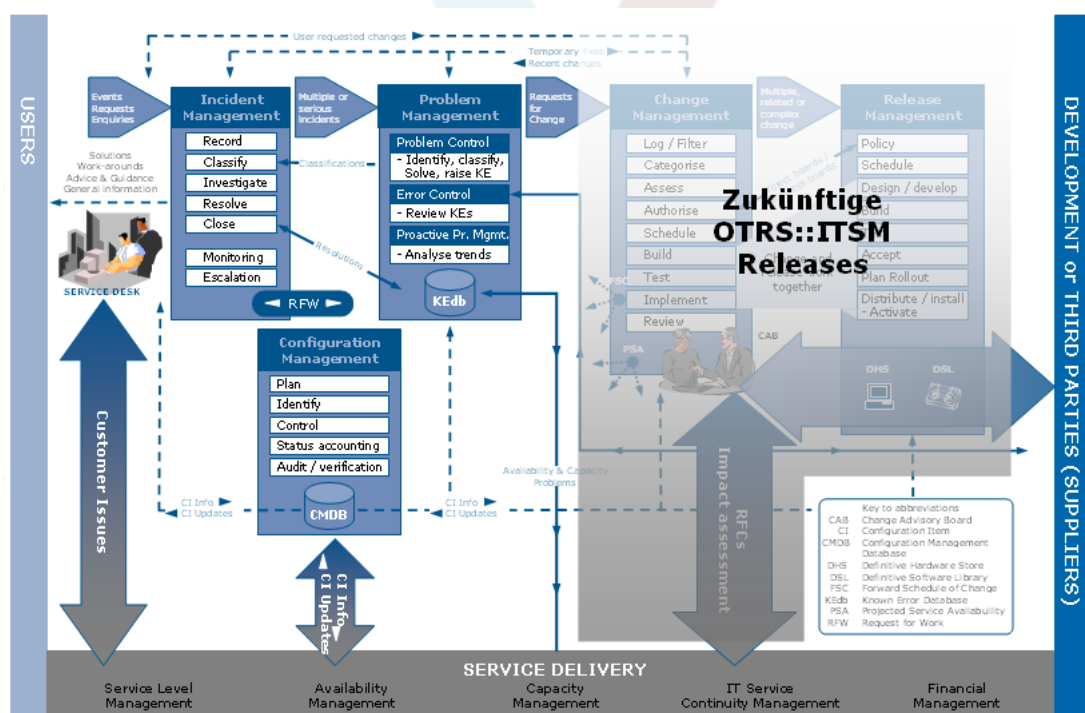
Warning

In order to assure the consistency of the data managed in OTRS ITSM, information created in the admin area of the system cannot be deleted as a general rule. If you want to deactivate such information, change the value in the respective listbox settings from "valid" to "invalid" or "invalid-temporarily".

Chapter 7. Service desk, incident, & problem management

The service desk (which, according to ITIL, is not a process but a function) is usually the ticket system's main field of application. All user messages and notifications from system monitoring and internal IT organization converge here. The ITIL service management process, closely interweaved with the service desk, describes which work steps, information, escalations, and/or interfaces are relevant in connection with the processing of incidents or service requests.

The incident and problem management processes within OTRS ITSM are based on ITIL recommendations and ITIL terminology. At the same time, user comfort was a main consideration, and terms known from OTRS have been retained as much as possible.



Source: ILX Group (www.ilxgroup.com)

1. Ticket creation, classification and prioritization

At ticket creation -in our case a phone ticket- the following information can be registered in addition to the information implemented in OTRS:

- ticket type
- relevant service
- SLA
- impact

- priority

Depending on the service selected, impact and priority are automatically submitted from the criticality impact priority matrix. However, every IT service staff member knows a "VIP" customer requires special consideration.

In order to meet this requirement of day-to-day Service Operations, we also allow you to manually adjust the priority of a request.

Create New Phone Ticket

* Type: Incident:ServiceRequest

* From customer: *Jim User* <jim@otrs.com>

* To queue: Service Desk

Service: File / Print

Service Level Agreement: -

Owner: Smith Jane (jane)

Responsible: -

* Subject: Request for new file share Marketing Collateral

Options: [Customer] [Link ticket]

* Text:

B I U S

Format Font Size

In order to let the MAR team collaborate more efficiently they would like to get a separate file-share for Marketing collateral.

Kind regards,
Jim User

Customer Information

Firstname: Jim

Lastname: User

Username: jim

Email: jim@otrs.com

Phone: 555 - 123 456

Street: Pier 5

City: San Francisco

[Location](#)

[Open tickets \(2\)](#)

By following the ticket content (zoom) link, detailed information about the ticket can be accessed. All data relevant for IT support is consolidated in the right hand section:

3 1

DASHBOARD **TICKETS** SERVICES CMDB CHANGES STATISTICS CUSTOMERS ADMIN

Ticket#201208273894000014 — Can't access VPN from home location

1 Article(s) Age: 1 h 42 m — Created: 08/27/2012 11:05 by Jane Smith

Back | Lock | History | Print | Priority | Additional ITSM Fields | Link | Owner | Responsible | Customer | Decision | Note | Merge |

Pending | Close | - Move -

☆	NO.	TYPE		FROM	SUBJECT	CREATED	
	1	customer -		Jim	Can't access VPN from	08/27/2012	

▼ #1 — Can't access VPN from home location Created: 08/27/2012 11:05 by Jane Smith

Forward | Phone Call Outbound | Phone Call Inbound | Split | Print | - Reply -

From: Jim User
To: Service Desk
Subject: Can't access VPN from home location

Get error message "Username/password do not match".

Ticket Information

Type: Incident

State: open

Locked: unlock

Queue: Service Desk

Owner: Jane Smith

Responsible: Jane Smith

Service: Network access

Service Level: Ext Business Hours

Agreement:

First Response: 17 m
Time: 08/27/2012 13:05

Update Time: 1 h 17 m
08/27/2012 14:05

Solution Time: 6 h 17 m
08/27/2012 19:05

Criticality: 5 very high
Impact: 3 normal
Priority: 4 high

CustomerID: CUSTOMER

Accounted time: 0

2. SLA relevant time information

With the additional ITSM fields link, time information additional to the response, update, and solution time provided in the SLA can be recorded and existing information can be changed:

Change ITSM fields of ticket : 201208273894000032 - Request for new file share Marketing Collateral

Cancel & close window

Options

*Title: Request for new file share Marketing Collateral

Repair Start Time: 08 / 27 / 2012 12 : 59

Recovery Start Time: 08 / 27 / 2012 12 : 59

Due Date: 08 / 30 / 2012 12 : 59

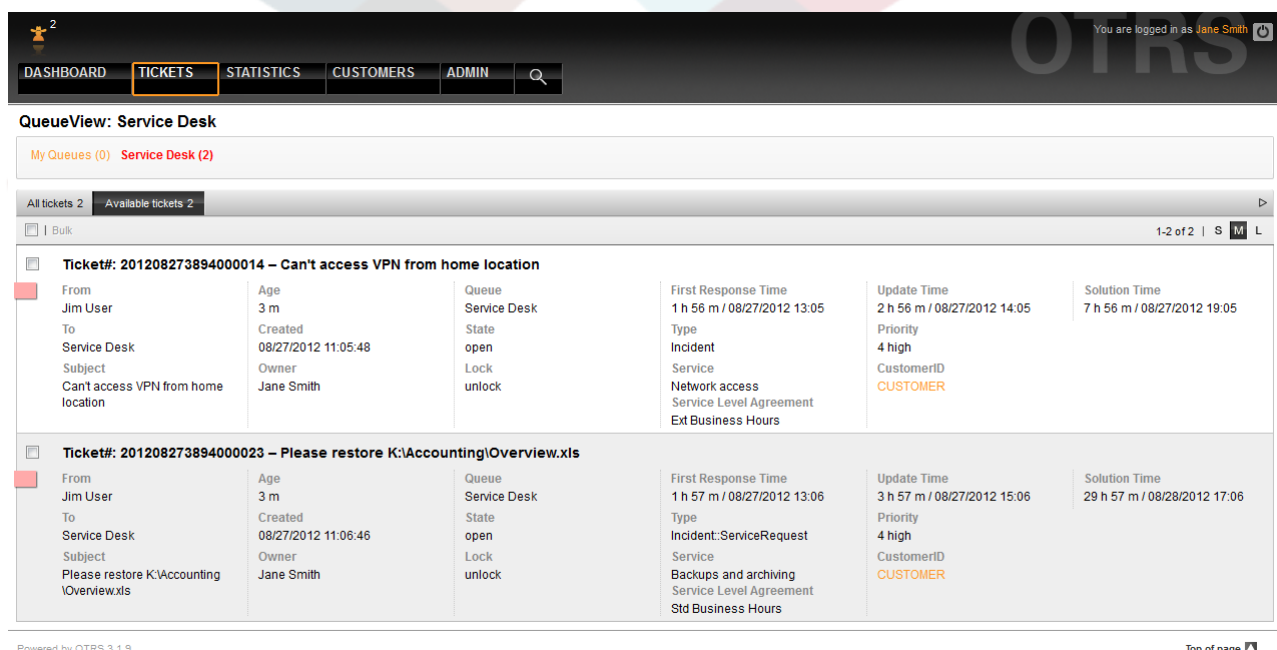
Submit

3. Allocate tickets (queues)

Designed with flexibility in mind, the OTRS ITSM queues can be tailored to your organizational structures. They can follow the vertical scheme of service desk, first, second, and third level support (as often used in IT service support) or be configured in a process oriented manner based on the ticket life cycle of generation, processing, closure and post-processing.

Contrary to OTRS versions prior to version 2.2, ticket escalation in OTRS ITSM is based first of all on the response, update and recovery times provided in the SLA. If no values are provided in the SLA, escalation is effected based on the queues and time information stored in them.

Tickets can be moved by choosing a new queue in the bottom right corner of the ticket view.



QueueView: Service Desk

My Queues (0) Service Desk (2)

All tickets 2 Available tickets 2

1-2 of 2 | S M L

Ticket#: 201208273894000014 – Can't access VPN from home location		Queue	First Response Time	Update Time	Solution Time
From: Jim User	Age: 3 m	Service Desk	1 h 56 m / 08/27/2012 13:05	2 h 56 m / 08/27/2012 14:05	7 h 56 m / 08/27/2012 19:05
To: Service Desk	Created: 08/27/2012 11:05:48	State: open	Type: Incident	Priority: 4 high	
Subject: Can't access VPN from home location	Owner: Jane Smith	Lock: unlock	Service: Network access	CustomerID: CUSTOMER	
			Service Level Agreement: Ext Business Hours		

Ticket#: 201208273894000023 – Please restore K:\Accounting\Overview.xls		Queue	First Response Time	Update Time	Solution Time
From: Jim User	Age: 3 m	Service Desk	1 h 57 m / 08/27/2012 13:06	3 h 57 m / 08/27/2012 15:06	29 h 57 m / 08/28/2012 17:06
To: Service Desk	Created: 08/27/2012 11:06:46	State: open	Type: Incident:ServiceRequest	Priority: 4 high	
Subject: Please restore K:\Accounting\Overview.xls	Owner: Jane Smith	Lock: unlock	Service: Backups and archiving	CustomerID: CUSTOMER	
			Service Level Agreement: Std Business Hours		

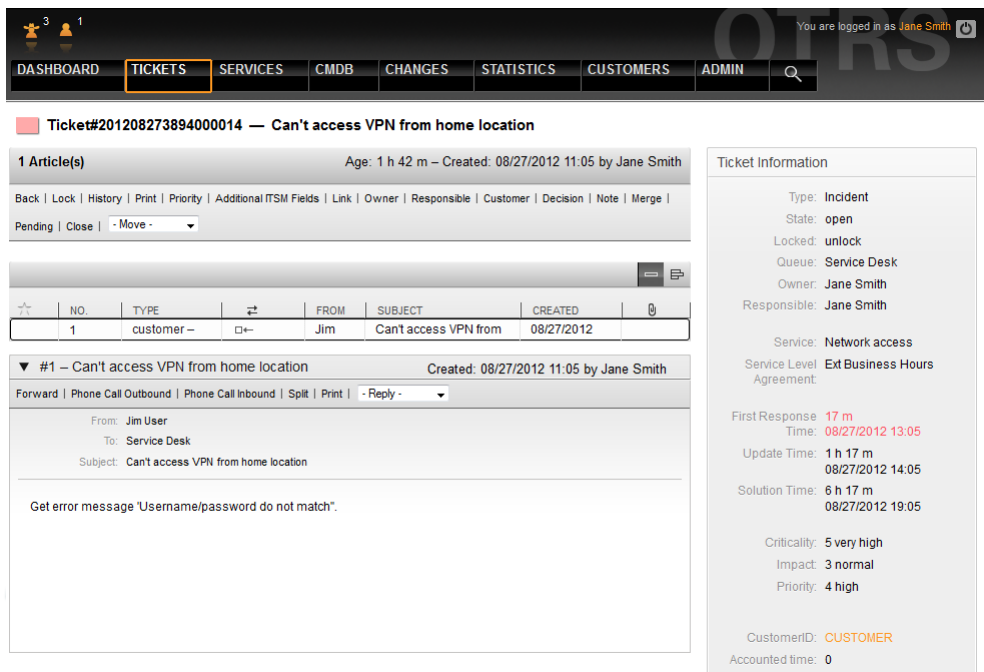
Powered by OTRS 3.1.9 Top of page

Warning

The design of a queue structure is a task which should not be underestimated. Our experience shows that it is highly recommendable to validate conceptual thoughts in a dry run against the existing IT infrastructure before configuring OTRS ITSM. It has proven of value to resort to external assistance, e.g. of OTRS or ITIL practice experts for the queue design.

4. Change ticket data

All changes to the ticket can be effected just as in OTRS using the links below the navigation bar.



The screenshot shows the OTRS web interface. At the top, there's a navigation bar with tabs: DASHBOARD, TICKETS (highlighted), SERVICES, CMDB, CHANGES, STATISTICS, CUSTOMERS, and ADMIN. Below the navigation bar, the ticket title is "Ticket#201208273894000014 — Can't access VPN from home location". The main content area is divided into two columns. The left column shows the ticket details, including a table with columns: NO., TYPE, FROM, SUBJECT, and CREATED. The right column shows the "Ticket Information" sidebar with fields like Type, State, Locked, Queue, Owner, Responsible, Service, Service Level, Agreement, First Response, Update Time, Solution Time, Criticality, Impact, Priority, CustomerID, and Accounted time.

NO.	TYPE	FROM	SUBJECT	CREATED
1	customer --	Jim	Can't access VPN from	08/27/2012

Ticket Information

- Type: Incident
- State: open
- Locked: unlock
- Queue: Service Desk
- Owner: Jane Smith
- Responsible: Jane Smith
- Service: Network access
- Service Level: Ext Business Hours
- Agreement:
- First Response: 17 m
- Time: 08/27/2012 13:05
- Update Time: 1 h 17 m
- 08/27/2012 14:05
- Solution Time: 6 h 17 m
- 08/27/2012 19:05
- Criticality: 5 very high
- Impact: 3 normal
- Priority: 4 high
- CustomerID: CUSTOMER
- Accounted time: 0

5. Approvals and decisions

In many cases, especially with service requests, decisions have to be taken before requests can be implemented. Depending on the competence framework, decisions are either taken directly by the service staff (standard changes) or by the approval of a supervising manager must be obtained first. This is primarily the case with permission changes (a user wants to access a restricted file system directory) or cost generating requests (new laptop).

In OTRS ITSM approvals and refusals are shown via the decision link and are permanently saved with the ticket:

Change Decision of Ticket : 201208273894000014 - Can't access VPN from home location

[Cancel & close window](#)

Options

*Subject:

*Text:

Format

Reason:

Attachment:

Note type:

Decision Result:

6. Generation of problem tickets from incidents

To generate a problem ticket from one or more incidents, generate a new ticket and link it with the relevant incident tickets. This way, the underlying incidents can be processed individually, can be closed with a workaround if necessary, and later be substituted with a permanent solution.

A merging of incident and problem tickets obscures the reporting and complicates controlling and the continuous improvement of the IT services.

7. Ticket closure

Unlike the OTRS standard, OTRS ITSM facilitates ITIL compliant ticket closure with a workaround.

8. Processing of service requests

Within OTRS, service requests and incidents are both regarded as tickets and initially processed equally. They are distinguishable from disruptions because of the ticket type Incident::Service Request.

Another difference, the SLA relevant times, is explained in greater detail in the service levels and service level agreements section.


You are logged in as **Jane Smith**

DASHBOARD | TICKETS | **SERVICES** | **CMDB** | CHANGES | STATISTICS | CUSTOMERS | ADMIN |

SLA: 24 / 7

[Back](#) | [Print](#)

▼ SLA: 24 / 7

Type: **Availability**
 Calendar: **Calendar 3 - 24 / 7**
 First Response Time: **120 minutes**
 Update Time: **120 minutes**
 Solution Time: **240 minutes**
 Minimum Time Between Incidents:

SLA Information

Created: 08/27/2012 10:57:21
 Created by: **Jane Smith**
 Last changed: 08/27/2012 11:03:43
 Last changed by: **Jane Smith**

Associated Services

STATE	SERVICE	TYPE	CRITICALITY	CHANGED
	Backups and archiving	IT Management	5 very high	08/27/2012 11:03:24
	Communication	End User Service	4 high	08/27/2012 11:00:31
	Desktop Management	End User Service	3 normal	08/27/2012 11:02:50
	Desktop productivity tools	End User Service	3 normal	08/27/2012 11:01:19
	File / Print	IT Operational	4 high	08/27/2012 11:01:03
	Helpdesk	Back End	2 low	08/27/2012 11:02:20
	IT Operations	IT Operational	2 low	08/27/2012 11:02:33
	Identity and Access Management	IT Management	5 very high	08/27/2012 11:03:09
	Internet	IT Operational	5 very high	08/27/2012 11:02:06

Chapter 8. Change Management

Change Management, according to ITIL, is a Service Transition process whose purpose is to manage IT changes, including planning, documentation, and implementation upon approval and clearance. The objective is to minimize negative effects on the IT infrastructure, particularly on critical services, resulting from ad-hoc or poorly-managed changes or amendments.

1. Change Management Module Requirements

1.1. Required Expertise

The implementation of OTRS ITSM requires significant technical specification and preparation. Prior to a technical implementation, key elements of the Change Management process, such as required workflows, metrics, or reports, must be defined.

1.2. Technical Requirements

The software below is necessary to implement the Change Management module:

1. OTRS Framework, version 3.3.1 or higher
2. ITSM "GeneralCatalog" package, version 3.3
3. ITSM "ITSMCore" package, version 3.3

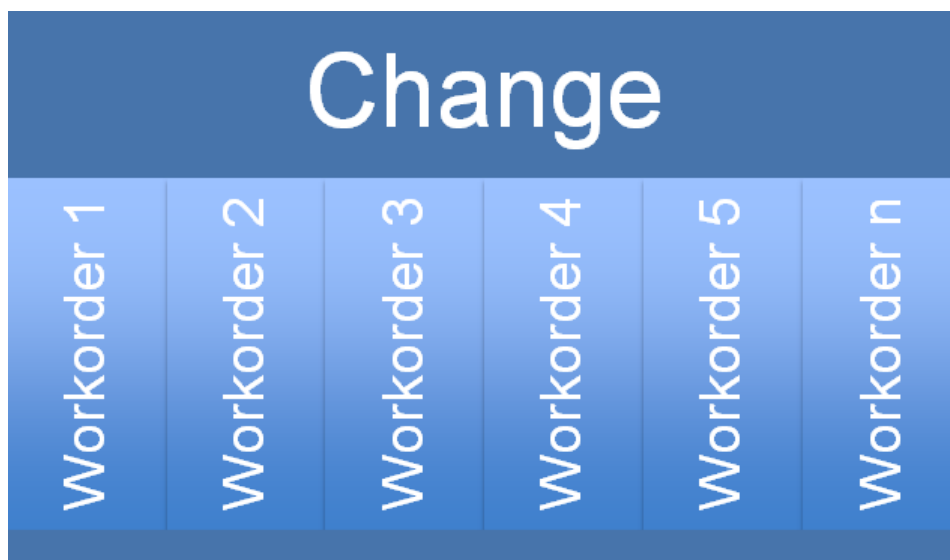
The following packages are recommended, but from a technical perspective they are not completely necessary:

- ITSM "ITSMIncidentProblemManagement" package, version 3.3
- ITSM "ITSMServiceLevelManagement" package, version 3.3
- ITSM "ITSMConfigurationManagement" package, version 3.3
- ITSM "ImportExport" package, version 3.3

2. Diagram of Change Management in OTRS ITSM

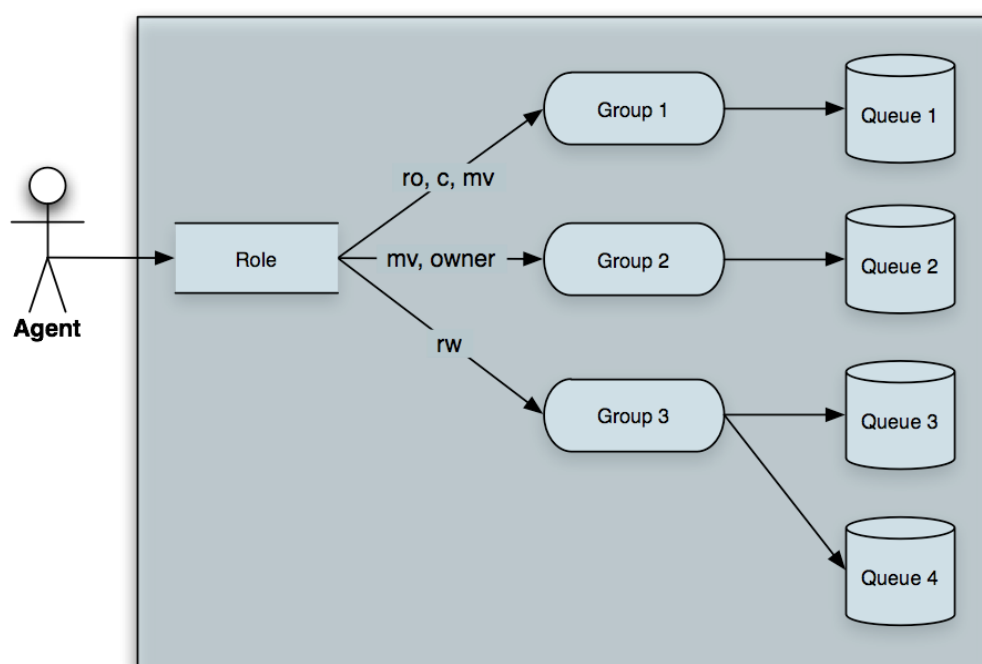
The Change Management implementation in OTRS ITSM defines a Change as an alteration of the existing IT landscape, such as the installation of a new mail server.

As Changes typically consist of several sub-tasks, OTRS ITSM allows any number of sub-tasks to be defined per change. These are known as Work Orders.



3. Available User Roles

Access to the Change Management module is managed on a role-based access concept. The required user roles are created via the OTRS Administrator, according to corresponding user group permissions in the Change Management module.



By installing the OPMs listed under "Technical Requirements", the user groups in the table below will be created:

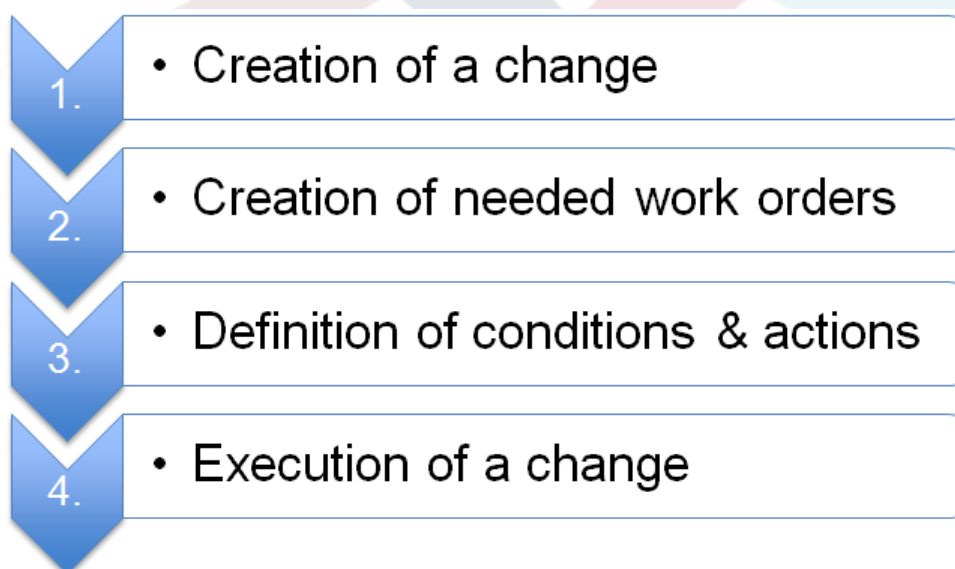
Table 8.1. User roles

User role	Access and privileges
itsm-change	Members of this user group have access to the Change Management module. All poten-

User role	Access and privileges
	tial Work Order Agents should be assigned to this group. All Changes and Work Orders can be viewed by these users.
itsm-change-builder	Members of this user group can create new Changes and Work Orders in the system. All Changes and Work Orders can be viewed by this group. Changes and Work Orders created by the Change Builder, or that have been defined as accessible to the Change Builder, may be edited by these users.
itsm-change-manager	Members of this user group can create new Changes and Work Orders in the system. All Changes and Work Orders can be viewed by this group. These users can edit all Changes and Work Orders.

4. Underlying Workflow

The implementation of a change, including all required Work Orders, follows the underlying workflow shown below.



5. Creating a New Change

5.1. Attributes of a Change

To create a new Change, the following attributes must be entered.

Table 8.2. Attributes of a Change

Attribute	Required Field	Details
Title	Yes	Short description / name of Change
Description	No	Longer text description of the Change
Justification	No	Text explanation of the reasons behind the Change; answer to the question: "What is the likely consequence if the Change is not implemented?"
Category	Yes	Defines the type of Change, e.g "3 normal" etc.
Impact	Yes	Defines the effects or impact the Change will have, eg. "4 high", etc.
Priority	Yes	Defines the priority of the Change, eg. "5 very high", "3 normal", etc. .
State	Yes	When creating a new Change, the status is automatically set. When modifying an existing Change, the Change Builder and Change Manager can manually set the status. Available status and result status are defined by the integrated State Machine, see Section 5.3, " Change State Machine " [36] .
Requested (by customer) Date	No	If required, this attribute can be deactivated via SysConfig for the 'ChangeEdit', 'ChangeAdd' and 'ChangeZoom' templates, and display the customer's desired implementation date.
Attachment	No	Enables related files and documents to be attached

5.2. Category - Impact - Priority Matrix

To determine the priority of a Change, OTRS ITSM supports the Change Builder through an integrated matrix which suggests a priority for selection, based on the chosen category and change impact entered in the system. This suggested priority can always be overridden by the Change Builder.

The category, impact and priority values given upon installation can be customized in the General Catalog by the administrator.

Priority allocation

IMPACT \ CATEGORY	1 VERY LOW	2 LOW	3 NORMAL	4 HIGH	5 VERY HIGH
1 very low	1 very low	1 very low	2 low	2 low	3 normal
2 low	1 very low	2 low	2 low	3 normal	4 high
3 normal	2 low	2 low	3 normal	4 high	4 high
4 high	2 low	3 normal	4 high	4 high	5 very high
5 very high	3 normal	4 high	4 high	5 very high	5 very high

Here, the menu item "General Catalog" should be selected in the OTRS ITSM Administration interface.

5.2.1. ITSM::Change Management::Category

Upon installation, OTRS ITSM Change Management generates the following values for the Category selection field:

- 1 very low
- 2 low
- 3 normal
- 4 high
- 5 very high

5.2.2. ITSM::Change Management::Impact

Upon installation, OTRS ITSM Change Management generates the following values for the Impact selection field:

- 1 very low
- 2 low
- 3 normal
- 4 high
- 5 very high

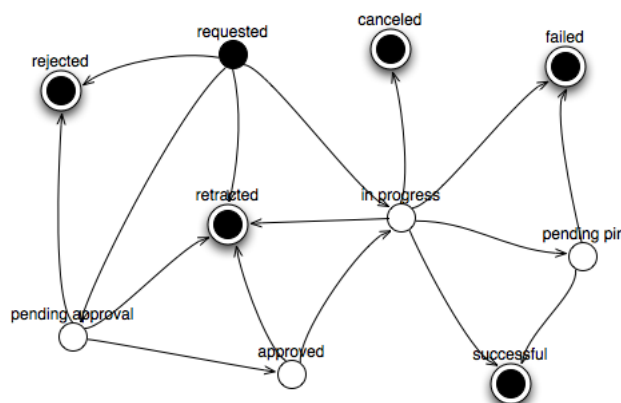
5.2.3. ITSM::Change Management::Priority

Upon installation, OTRS ITSM Change Management generates the following values for the Priority selection field:

- 1 very low
- 2 low
- 3 normal
- 4 high
- 5 very high

5.3. Change State Machine

OTRS ITSM features a State Machine which defines valid statuses and possible result statuses for a Change. The standard installation generates suggestions based on the following logic model:



Adjustments to the State Machine can be made by the system administrator in the administration front end, under menu option "State Machine". The statuses and possible result statuses should be defined here.

Where necessary, additional statuses can be defined under the menu option "General Catalog" -> "ITSM::Change Management::Change::State". In OTRS ITSM, this is illustrated as a table:

Admin State Machine

Actions

[Go to overview](#)

Overview over state transitions for ITSM::ChangeManagement::Change::State

STATE	NEXT STATE	DELETE
START	Requested	
Requested	In Progress	
Requested	Pending Approval	
Requested	Rejected	
Requested	Retracted	
Pending Approval	Approved	
Pending Approval	Rejected	
Pending Approval	Retracted	
Rejected	*END*	
Approved	Retracted	
Approved	In Progress	
In Progress	Canceled	
In Progress	Failed	
In Progress	Pending PIR	
In Progress	Retracted	
In Progress	Successful	
Pending PIR	Failed	
Pending PIR	Successful	
Successful	*END*	
Failed	*END*	
Canceled	*END*	
Retracted	*END*	

5.4. Defining Participant Roles / Persons Related to a Change

After entering the basic data of the Change, the persons participating in implementation can be defined in the Involved Persons feature.

Involved Persons

★ Change Manager: "Jack Brown" <jack@otrs.com>

★ Change Builder: "Jane Smith" <jane@otrs.com>

Submit

Change Advisory Board

CAB Template: ▾

Apply Template

Save this CAB as template

Add to CAB:

Add

Current CAB:

TYPE	LOGIN	DELETE
Agent	joe (Joe Johnson)	
Agent	mary (Mary Mars)	
Customer	claudie (Claude Green)	

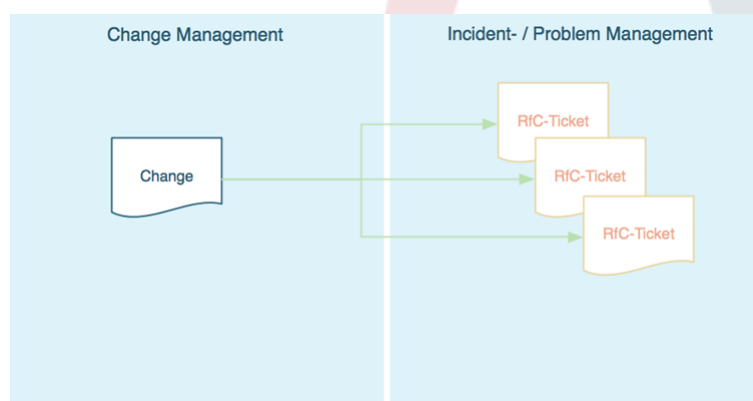
Here, the system offers convenient access to all connected client backends and agent backends, such as SQL databases or LDAP directory services. If specified, the CAB can be defined according to an existing CAB template.

Table 8.3. Involved Persons

Attribute	Required Field	Details
Change Manager	Yes	Assigns Change Manager privileges to an agent, for the current Change.
Change Builder	Yes	Defines the agent who processes and defines the current Change. When creating a new Change, the current agent is automatically entered as the Change Builder.
Change Advisory Board	No	Defines a group of people which can include agents and customers.

5.5. Linking a Change with a Request for Change

Through the OTRS Framework's renowned linking mechanism, the system allows a change to be linked to a ticket. In this way, the origin of a change ie. the Request for Change or problem can be easily identified.



Furthermore, it is possible to open the corresponding Change directly from a ticket within the Incident or Problem Management process i.e., the ticket system from which it originated. In this case, the system creates a transparent link between the ticket and Change. In the configuration, this feature can be restricted to only those agents who are permitted to create Changes. It is also possible to restrict the usage of the ticket type "RfC" to only those agents who have access to the Change Management area. Please have a look at the following sysconfig options:

- Ticket -> Core::TicketACL - Ticket::Acl::Module###200-Ticket::Acl::Module
- ITSM Change Management -> Core::ITSMChange - ITSMChange::AddChangeLinkTicketTypes
- ITSM Change Management -> Core::ITSMChange - ITSMChange::RestrictTicketTypes::Groups

5.6. Defining Conditions

OTRS ITSM allows conditions and actions to be defined based on the attributes of a Change and/or Work Order. Through the administration front-end, these attributes can be activated or deactivated for the Change Builder.

Workflows can be defined here. For example, a workflow to set the entire Change to "canceled" or request review / approval clearance when a Work Order is canceled.

Condition

★ Name:
Test Conditions

Matching:
☐ Any expression (OR)
☒ All expressions (AND)

Validity:
valid

Comment:

Expressions

OBJECT	SELECTOR	ATTRIBUTE	OPERATOR	VALUE	DELETE
Change	20120828389400001	Category	is	4 high	
Workorder	any	Workorder State	is	Canceled	

Add new expression

Actions

OBJECT	SELECTOR	ATTRIBUTE	OPERATOR	VALUE	DELETE
Change	20120828389400001	Change State	set	Canceled	
Change	20120828389400001	Priority	set	5 very high	

Add new action

It should be noted that the defined conditions are not executed in a certain order; rather, actions are processed in the order they were set.

5.6.1. Conditions Available at the Change Level

The following attributes can be used to define Conditions at the Change level

Table 8.4. Conditions available at the Change level

Change Attribute	Logical Operator
AccountedTime	is
PlannedEffort	is not
	is empty
	is not empty

Change Attribute	Logical Operator
	is greater than is less than
Category	is
ChangeBuilder	is not
ChangeState	
Impact	
Priority	
ChangeManager	is is not is empty is not empty
ChangeTitle	begins with ends with contains does not contain is is not is empty is not empty

5.6.2. Conditions Available at the Work Order Level

The following attributes can be used to define conditions at the Work Order level.

Table 8.5. Conditions available at the Work Order level

Work Order Attribute	Logical Operator
AccountedTime	is
PlannedEffort	is not is empty is not empty is greater than is less than
WorkOrderNumber	is is not is greater than

Work Order Attribute	Logical Operator
	is less than
WorkOrderState	is
WorkOrderType	is not
WorkOrderAgent	
WorkOrderTitle	begins with ends with contains does not contain is is not is empty is not empty

5.7. Defining Actions

After the conditions have been established, OTRS ITSM allows you to define any number of actions to be executed on the current Change or all / one of the Work Orders of the current change.

5.7.1. Actions Available at the Change Level

The following actions can be performed for Change objects. The operator "set" enables the selected attribute to be set at a specific value, if the defined condition is true. On the other hand, the operator "lock" freezes the selected attribute, for as long as the defined condition is true ie. a manual change is not possible.

Table 8.6. Actions available at the Change level

Change Attribute	Action
Category	set
Impact	
Priority	
ChangeState	set lock

5.7.2. Actions Available at the Work Order Level

The following actions can be performed for Work Order objects. The operator "set" enables the selected attribute to be set at a specific value, if the defined condition is true. On the other hand, the operator "lock" freezes the selected attribute, for as long as the defined condition is true ie. a manual change is not possible.

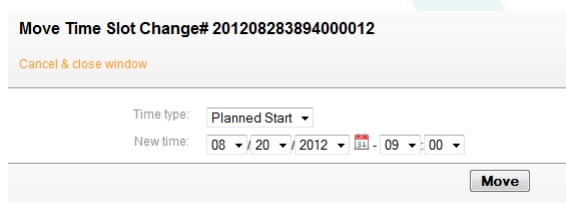
Table 8.7. Actions available at the Work Order level

Work Order Attribute	Action
WorkOrderState	set
	lock

5.8. Rescheduling (Postponing) the Start / End Time of a Change

In practice, the planned start or end time of a Change may need to be revised. The system allows the Change Builder to do this with the "Move Time Slot" feature.

Through selector fields, the Change Builder has the ability to shift the planned Change implementation timeframe.



6. Creating a Work Order

Within a Change, the system offers a "Add Work Order" feature which enables any number of sub-tasks (Work Orders) related to a selected Change to be entered.

6.1. Attributes of a Work Order

Once a Change is created, it effectively serves as a container for the definition of sub-tasks, ie. Work Orders, and these Work Orders can now be defined by the Change Builder.

Table 8.8. Attributes of a Work Order

Attribute	Required Field	Details
Title	Yes	Short description / name of Work Order.
Instruction	No	Longer text description of the Work Order.
Work Order Type	Yes	Selection list to define the type of Work Order, eg. approval, work order, PIR, etc.
Category	Yes	Defines the type of Change, e.g "3 normal" etc.
Impact	Yes	Defines the effects or impact of the Change, eg. "4 high", etc.
Priority	Yes	Defines the priority of the Change, eg. "5 very high", "3 normal", etc.
State	Yes	When creating a new Change, the status is auto-

Attribute	Required Field	Details
		atically set. When modifying an existing Change the Change Builder and Change Manager can manually set the status. Available statuses and result statuses are defined by the integrated State Machine, see Section 5.3, " Change State Machine " [36] .
Requested (by customer) Date	No	If required, this attribute can be deactivated via SysConfig for the 'ChangeEdit', 'ChangeAdd' and 'ChangeZoom' templates, and display the customer's desired implementation date.
Attachment	No	Enables related files and documents to be attached

In addition to these attributes, the assigned Work Order agent can collect attributes through the "Report" feature, which is explained in detail in the "Work Order Agent Report" chapter.

6.2. Work Order Type

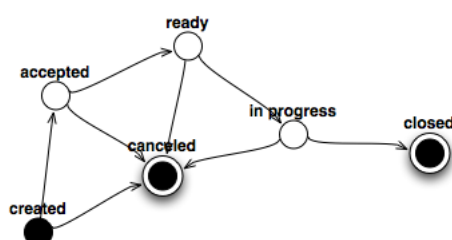
The following entries for the "Work Order Type" attribute are available in the standard installation of OTRS ITSM Change Management:

- Approval
- Work Order
- Backout
- Decision
- PIR (Post Implementation Review)

The administrator can freely define and specify Work Order types, as well as add new types.

6.3. Work Order State Machine

OTRS ITSM features a State Machine which defines valid statuses and possible result statuses for a Work Order. The standard installation generates suggestions based on the following logic model:



Adjustments to the State Machine can be made by the system administrator in the administration front end, under menu option State Machine. The statuses and possible result statuses should be defined here.

Where necessary, additional statuses can be defined under the menu option "General Catalog" -> "ITSM::ChangeManagement::WorkOrder::State".

In OTRS ITSM, this is illustrated as a table:

Overview over state transitions for ITSM::ChangeManagement::WorkOrder::State

STATE	NEXT STATE	DELETE
START	Created	
Created	Accepted	
Created	Canceled	
Accepted	Ready	
Accepted	Canceled	
Ready	Canceled	
Ready	In Progress	
In Progress	Canceled	
In Progress	closed	
closed	*END*	
Canceled	*END*	

6.4. Defining the Work Order Agent

Each Work Order can be assigned to a "Work Order agent", i.e. a person responsible for the execution of the Work Order.

The system offers access to all connected agent back-ends here. It is important to note that only agents who have full access rights to the user group "have itsm-change" are displayed.

Workorder Agent:

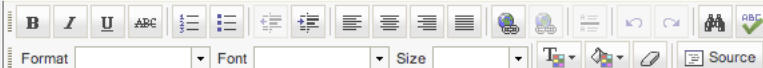
"Jack Brown" <jack@otrs.com> (4)
 "Jane Smith" <jane@otrs.com> (2)
 "Mary Mars" <mary@otrs.com> (5)
 "Admin OTRS" <root@localhost> (1)

6.5. Work Order Agent Report

The assigned Work Order agent can document related information such as comments, the actual Work Order start and end times, required processing time and status.

Report

Report:



 Format Font Size

State:

6.6. Linking Work Orders to Configuration Items / Services

Within a Work Order, OTRS ITSM allows linking to other objects.

In the standard installation, a Work Order can be linked to the following objects:

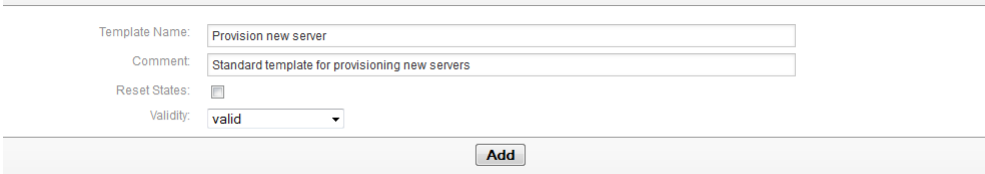
- CIs
 - CI-Class Computer
 - CI-Class Hardware
 - CI-Class Location
 - CI-Class Network
 - CI-Class Software
- Services
- Tickets

These settings are defined via SysConfig under "Framework -> Core::LinkObject" and can be extended when desired.

6.7. Saving a Work Order as a Template

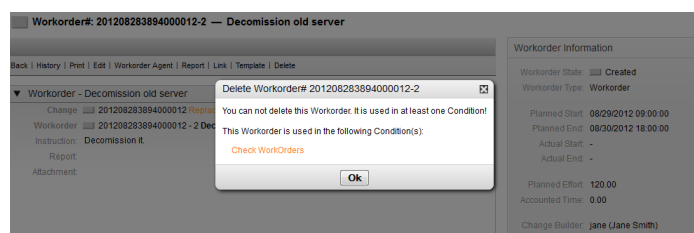
A Work Order can be saved as a template through the "Template" feature, within the Work Order itself.

The dialog box requires the Change Builder to give the template a name and an optional comment. Once the user leaves the dialog box by clicking the "Add" button, the Work Order will be available as a template when a new Work Order is being created.



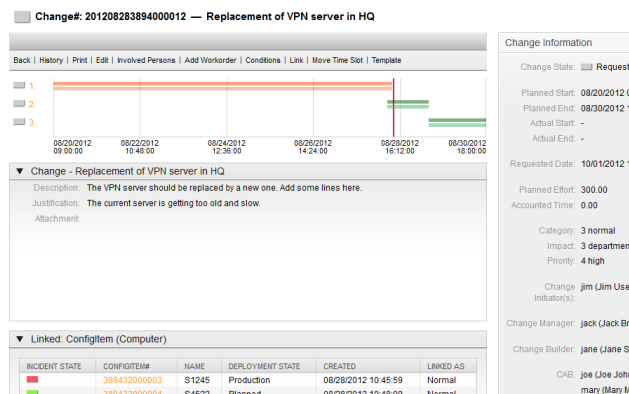
6.8. Deleting a Work Order

The Change Builder can delete a Work Order as long as it is not referred to in a Condition (see the "Defining conditions" section).



7. Viewing the Content of a Change

After creating a Change and its associated Work Order, the system has the capability to display other information related to the Change, including corresponding Work Orders, linked tickets and CIs.

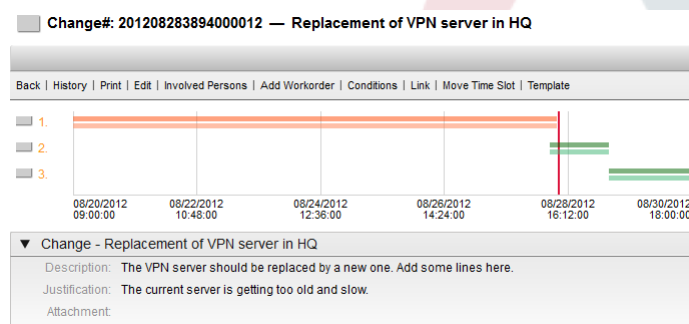


The defined Work Orders are numbered in order of their planned execution and displayed in a timeline. The color of the displayed Work Order in the timeline reflects their type, and can be customized via SysConfig "ITSM Change Management -> Frontend::Agent::ViewChangeZoom" as required.

The system generates two bars per Work Order in the Change timeline. The upper, darker bar represents the planned Work Order implementation time, while the lower, lighter bar displays the actual Work Order implementation time.

The status of each Work Order is represented by traffic lights, as seen in the following view:

- Gray - Work Order is "created"
- Yellow - Work Order is "pending approval"
- Green - Work Order is "closed"
- Red - Work Order is "canceled"



8. Change Views

OTRS ITSM offers a variety of ways to view the Changes saved in the system. Access to these views can be disabled where desired.

8.1. Change Overview

All Changes are displayed in an overview screen, which can be sorted in ascending or descending order per column.

Overview: Changes: All

All 3

Requested 3

Pending Approval 0

Rejected 0

Approved 0

In Progress 0

Pending PR 0

Successful 0

Failed 0

Canceled 0

Retracted 0

1-3 of 3

STATE	CHANGE#	CHANGE TITLE	CHANGE BUILDER	WORKORDERS	CHANGE STATE	PRIORITY	PLANNED START	PLANNED END
	201208283894000012	Replacement of VPN server in HQ	jane (Jane Smith)	3	Requested	4 high	08/20/2012 09:00:00	08/30/2012 18:00:00
	201208283894000021	Migrate OTRS test environment to 3.2 beta.1	jane (Jane Smith)	0	Requested	2 low		
	201208283894000031	Implement OTRS interface with SAP Solution Manager	jane (Jane Smith)	0	Requested	3 normal		

The columns can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewChangeOverview" with the following available attributes:

Table 8.9. Change Overview

Attribute	Active	Details
ActualStartTime	No	Date and time at which the Change implementation began
ActualEndTime	No	Date and time at which the Change implementation ended
Category	No	Category or type of Change
ChangeBuilder	Yes	Change Builder's name
ChangeManager	Yes	Change Manager's name
ChangeNumber	Yes	System generated Change number
ChangeState	Yes	Change status
ChangeStateSignal	Yes	Change status indicator, shown as traffic light
ChangeTitle	Yes	Name of Change
CreateTime	No	Date and time at which the Change was created
Impact	No	Expected effect of the Change
PlannedStartTime	Yes	Planned Change implementation start date and time
PlannedEndTime	Yes	Projected Change implementation end date and time
Priority	Yes	Priority level of the Change
RequestedTime	No	Customer's desired implementation date
Services	Yes	Services affected by the Change
WorkOrderCount	Yes	Number of Work Orders related to the Change

Additionally, the Change Overview can filter and display changes according to various attributes. The following filters are available and can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewChangeOverview":

Table 8.10. Change Overview Filters

Attribute	Details
requested	Displays all changes that have the status "requested"
pending approval	Displays all changes that have the status "pending approval"
rejected	Displays all changes that have the status "rejected"
approved	Displays all changes that have the status "approved"
in progress	Displays all changes that have the status "in progress"
successful	Displays all changes that have the status "successful"
failed	Displays all changes that have the status "failed"
canceled	Displays all changes that have the status "canceled"
retracted	Displays all changes that have the status "retracted"

8.2. Change Schedule

In the Change Schedule view, all Changes which have the status "approved" ie. are in the queue for implementation, are displayed. The column titles can be sorted by the following attributes in ascending or descending order:

Overview: Change Schedule: Approved

Approved 3 | 1-3 of 3 |

STATE	CHANGE#	CHANGE TITLE	CHANGE BUILDER	WORKORDERS	CHANGE STATE	PRIORITY	PLANNED START	PLANNED END
Approved	201208283894000012	Replacement of VPN server in HQ	Jane (Jane Smith)	3	Approved	4 high	08/20/2012 09:00:00	08/30/2012 18:00:00
Approved	201208283894000031	Implement OTRS interface with SAP Solu[...]	Jane (Jane Smith)	0	Approved	3 normal		
Approved	201208283894000021	Migrate OTRS test environment to 3.2 bet[...]	Jane (Jane Smith)	0	Approved	2 low		

The displayed attributes can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewChangeScheduleOverview":

Table 8.11. Change Schedule

Attribute	Active	Details
ActualStartTime	No	Date and time at which the Change implementation began
ActualEndTime	No	Date and time at which the Change implementation was completed
Category	No	Category or type of Change

Attribute	Active	Details
ChangeBuilder	Yes	Change Builder's name
ChangeManager	Yes	Change Manager's name
ChangeNumber	Yes	System generated Change number
ChangeState	Yes	Change status
ChangeStateSignal	Yes	Change status indicator; shown as traffic light
ChangeTitle	Yes	Name of the Change
CreateTime	No	Date and time at which the Change was created
Impact	No	Expected effect of the Change
PlannedStartTime	Yes	Planned Change implementation start date and time
PlannedEndTime	Yes	Projected Change implementation completion date and time
Priority	Yes	Priority level of the Change
RequestedTime	No	Customer's desired implementation date
Services	Yes	Services affected by the Change
WorkOrderCount	Yes	Number of Work Orders related to the Change

8.3. PIR - Post Implementation Review

This view displays work orders of the "PIR" type, which can be sorted in ascending or descending order by the given column headings.

Overview: PIR: All

All 1

Accepted 0

Ready 1

In Progress 0

closed 0

Canceled 0

1-1 of 1

1

STATE	WORKORDER#	WORKORDER TITLE	CHANGE TITLE	WORKORDER AGENT	WORKORDER STATE	PLANNED START	PLANNED END
	201208283894000012-4	Post Implementation Review	Replacement of VPN server in HQ		Ready	09/03/2012 09:00:00	09/07/2012 16:00:00

The columns to be displayed can be defined via SysConfig "ITSM Change Management - > Frontend::Agent::ViewPIROverview":

Table 8.12. PIR - Post Implementation Review

Attribute	Active	Details
ActualStartTime	No	Date and time at which the Change implementation began
ActualEndTime	No	Date and time at which the Change implementation was completed
Category	No	Category or type of Change
ChangeBuilder	Yes	Change Builder's name

Attribute	Active	Details
ChangeManager	Yes	Change Manager's name
ChangeNumber	No	System generated Change number
ChangeState	No	Change status
ChangeStateSignal	No	Change status indicator; shown as traffic light
ChangeTitle	Yes	Name of Change
CreateTime	No	Date and time at which the Change was created
Impact	No	Expected effect of the Change
PlannedStartTime	Yes	Planned Change implementation start date and time
PlannedEndTime	Yes	Projected Change implementation completion date and time
Priority	Yes	Priority level of the Change
RequestedTime	No	Customer's desired implementation date
Services	Yes	Services affected by the Change
WorkOrderAgent	Yes	Agent assigned to the PIR
WorkOrderNumber	Yes	Work Order number
WorkOrderState	Yes	Number of Work Orders related to the Change
WorkOrderStateSignal	No	Work Order status indicator to be shown as traffic light
WorkOrderTitle	Yes	Name of the Work Order
WorkOrderType	No	The type of Work Order

8.4. Template

This view displays all the defined templates in the system. The agent can sort the displayed information in ascending or descending order by the given column headings.



Overview: Template: All

Filter

All (1) | Change (0) | Workorder (1) | CAB (0)

NAME	TYPE	COMMENT	VALIDITY	DELETE	CREATED BY	CREATED
Provision new server	Workorder	Standard template for provisioning new servers	valid		jane (Jane Smith)	2012-08-28 11:48:32

1-1 of 1

The columns to be displayed can be defined via SysConfig "ITSM Change Management - > Frontend::Agent::ViewTemplateOverview":

Table 8.13. Template

Attribute	Active	Details
ChangeBy	No	Username of the agent who last modified the template
ChangeTime	No	Date and time of the last modification

Attribute	Active	Details
Comment	Yes	Comments / description of the template
CreateBy	Yes	Username of the agent who created the template
CreateTime	Yes	Date and time at which the template was created
Delete	Yes	Option to delete a chosen template
Name	Yes	Name of the template
TemplateID	No	The template's internal database identity
Type	Yes	Type of template
Valid	Yes	Defines the validity of the template (valid, invalid, and temporarily invalid). Invalid / temporarily invalid templates cannot be used by Change Builders.

After installing the Change Management module, the following template types are available in the system. These can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewTemplateOverview":

Table 8.14. Template Types

Attribute	Details	
ITSMChange	Templates for Changes	
ITSMWorkOrder	Templates for Work Orders	
CAB	Templates for Change Advisory Boards	

8.5. Search

To find Changes or Work Orders which meet specific search criteria, the system is equipped with a separate search function based on the following search query attributes:

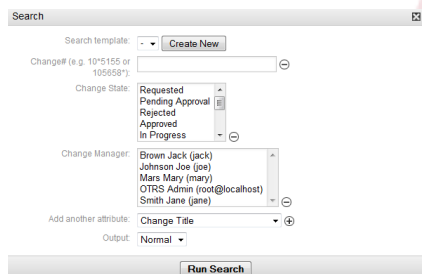


Table 8.15. Template

Attribute	Details
Change#	Search by Change number; an asterisk ("*") may be used as a wildcard
ChangeTitle	Search by Change title or name

Attribute	Details
Work Order Title	Search by the title/name of a Work Order
CABAgent	Search by CAB member, defined in the system as an agent
CABCustomer	Search by CAB member, defined in the system as a customer. Here, the auto-complete function can offer suggestions when typing in the CAB customer field
Change Description	Search in the Change description text
Change Justification	Search in the reason / justification for the Change
Work Order Instruction	Search in Work Order instructions
Work Order Report	Search in a Work Order report
Change Priority	Search by Change priority level
Change Impact	Search by Change effect / impact level
Change Category	Search by Change category or type
Change State	Search by Change status
Change Manager	Search by Change Manager
Change Builder	Search by Change Builder
Created by Agent	Search by agent user name who created the Change
Work Order State	Search by the status of a Work Order
Work Order Agent	Search by the entered Work Order agent
Requested (by customer) Date	Search by the customer requested Change implementation date. Search can be performed using absolute time values (eg. from date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).
Planned Start Time	Search by the planned start date and time of a Change implementation. Search can be performed using absolute time values (eg. from date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).
Planned End Time	Search by the projected end date and time of a Change implementation. Search can be performed using absolute time values (eg. from date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).
Actual Start Time	Search by the actual start date and time of a Change implementation. Search can be performed using absolute time values (eg. from date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).
Actual End Time	Search by the actual end date and time of a Change implementation. Search can be performed using absolute time values (eg. from

Attribute	Details
	date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).
Create Time	Search by the Change creation date and time. Search can be performed using absolute time values (eg. from date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).
Change Time	Search by the date and time a Change was modified. Search can be performed using absolute time values (eg. from date 1 to date 2) or in relative time values (eg. Changes created in the last x days / weeks).

8.6. Change Manager

OTRS ITSM offers a separate view to currently logged in agents, which displays the Changes for which they are registered as the Change Manager.

Overview: Change Manager: All

AM 2

Requested 1

Pending Approval 0

Approved 0

In Progress 0

Pending PIR 1

1-2 of 2

STATE	CHANGE	CHANGE TITLE	CHANGE BUILDER	CHANGE MANAGER	WORKORDERS	CHANGE STATE	PRIORITY	PLANNED START	PLANNED END
	201208283894000021	Migrate OTRS test environment to 3.2 belf...	jane (Jane Smith)	jane (Jane Smith)	0	Pending PIR	2 low		
	201208283894000049	Enable Cloud Printing	jane (Jane Smith)	jane (Jane Smith)	0	Requested	2 low		

The displayed column headings can be sorted according the following attributes in ascending or descending order. The columns to be displayed can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewChangeManagerOverview":

Table 8.16. Change Manager

Attribute	Active	Details
ActualStartTime	No	Date and time at which the Change implementation began
ActualEndTime	No	Date and time at which the Change implementation was completed
Category	No	Category or type of Change
ChangeBuilder	Yes	Change Builder's name
ChangeManager	Yes	Change Manager's name
ChangeNumber	Yes	System generated Change number
ChangeState	Yes	Change status
ChangeStateSignal	Yes	Change status indicator to be shown as traffic light
ChangeTitle	Yes	Name of Change
CreateTime	No	Date and time at which the Change was created
Impact	No	Expected effect of the Change

Attribute	Active	Details
PlannedStartTime	Yes	Planned Change implementation start date and time
PlannedEndTime	Yes	Projected Change implementation completion date and time
Priority	Yes	Priority level of the Change
RequestedTime	No	Customer's desired implementation date
Services	Yes	Services affected by the Change
WorkOrderCount	Yes	Number of Work Orders related to the Change

In addition, the Change Manager Overview can filter the displayed Changes by various attributes as follows These can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewChangeManagerOverview" if desired:

Table 8.17. Change Manager Filter

Attribute	Details
requested	Displays all Changes which have status "requested"
pending approval	Displays all Changes which have status "pending approval"
approved	Displays all Changes which have status "approved"
in progress	Displays all Changes which have status "in progress"

8.7. My Changes

The "My Changes" view displays all Changes created by the agent currently logged in, where the agent is registered as the Change Builder.

Overview: My Changes: All

AT 2 | Requested 1 | Pending Approval 0 | Approved 0 | In Progress 0 | Pending PIR 1

STATE	CHANGE#	CHANGE TITLE	CHANGE BUILDER	WORKORDERS	CHANGE STATE	PRIORITY	PLANNED START	PLANNED END
	201208283894000049	Enable Cloud Printing	jane (Jane Smith)	0	Requested	2 low		
	201208283894000021	Migrate OTRS test environment to 3.2 bet[...]	jane (Jane Smith)	0	Pending PIR	2 low		

1-2 of 2 |

The display can be sorted by the column headings in ascending or descending order. The attributes can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewMyChangesOverview":

Table 8.18. My Changes

Attribute	Active	Details
ActualStartTime	No	Date and time at which the Change implementation began
ActualEndTime	No	Date and time at which the Change was completed
Category	No	Category or type of Change

Attribute	Active	Details
ChangeBuilder	Yes	Change Builder's name
ChangeManager	Yes	Change Manager's name
ChangeNumber	Yes	System generated Change number
ChangeState	Yes	Change status
ChangeStateSignal	Yes	Change status indicator to be shown as traffic light
ChangeTitle	Yes	Name of Change
CreateTime	No	Date and time at which the Change was created
Impact	No	Expected effect the Change will have
PlannedStartTime	Yes	Planned Change implementation start date and time
PlannedEndTime	Yes	Projected Change completion date and time
Priority	Yes	Priority level of the Change
RequestedTime	No	Customer's desired implementation date
Services	Yes	Services affected by the Change
WorkOrderCount	Yes	Number of Work Orders related to the Change

In addition, the My Changes Overview can filter the displayed Changes by various attributes as below. These can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewMyChangesOverview":

Table 8.19. My Changes Filter

Attribute	Details
requested	Displays all Changes which have status"requested"
pending approval	Displays all Changes which have status"pending approval"
approved	Displays all Changes which have status"approved"
in progress	Displays all Changes which have status"in progress"

8.8. My Work Orders

Similar to the OTRS Ticket Engine's "Locked Tickets" view, OTRS ITSM offers the currently logged-in agent a separate view of the Work Orders assigned to him / her.

Overview: My Workorders: All

All 2 Created 2 Accepted 0 Ready 0 In Progress 0

STATE	WORKORDER#	WORKORDER TITLE	CHANGE TITLE	WORKORDER AGENT	WORKORDER STATE	PLANNED START	PLANNED END
	201208283894000049-1	Provision new server	Enable Cloud Printing	jane (Jane Smith)	Created	08/28/2012 13:29:00	08/29/2012 21:29:00
	201208283894000021-1	Check Chef script	Migrate OTRS test environment to 3.2 beta[...]	jane (Jane Smith)	Created	08/28/2012 13:30:00	08/28/2012 14:30:00

The displayed information can be sorted by column heading in ascending or descending order. The attributes used can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewMyWorkOrdersOverview":

Table 8.20. My Work Orders

Attribute	Active	Details
ActualStartTime	No	Date and time at which the Change implementation began
ActualEndTime	No	Date and time at which the Change implementation was completed
Category	No	Category or type of Change
ChangeBuilder	No	Change Builder's name
ChangeManager	No	Change Manager's name
ChangeNumber	No	System generated Change number
ChangeState	No	Change status
ChangeStateSignal	No	Change status indicator to be shown as traffic light
ChangeTitle	Yes	Name of Change
CreateTime	No	Date and time at which the Change was created
Impact	No	Expected effect the Change will have
PlannedStartTime	Yes	Planned Change implementation start date and time
PlannedEndTime	Yes	Projected Change completion date and time
Priority	No	Priority level of the Change
RequestedTime	No	Customer's desired implementation date
Services	Yes	Services affected by the Change
WorkOrderAgent	Yes	Agent assigned to the PIR
WorkOrderNumber	Yes	Work Order number
WorkOrderState	Yes	Number of Work Orders related to the Change
WorkOrderStateSignal	No	Work Order status indicator to be shown as traffic light
WorkOrderTitle	Yes	Name of the Work Order
WorkOrderType	No	The type of Work Order

In addition, the My Work Orders Overview can filter the displayed Work Orders by various attributes as below, which can be defined via SysConfig "ITSM Change Management -> Frontend::Agent::ViewMyWorkOrdersOverview":

Table 8.21. My Work Orders Filter

Attribute	Details
created	Displays all Work Orders which have the status "created"
accepted	Displays all Work Orders which have the status "accepted"
ready	Displays all Work Orders which have the status "ready"
in progress	Displays all Work Orders which have the status "in progress"

9. Change Management Statistics

OTRS ITSM provides the following reports for the evaluation of key indicators in supervising Change Management. All reports can be accessed through the integrated report generator.

9.1. Number of Changes Within a Defined Period

The report allows the definition of a relative (eg. Changes within the last x days) or absolute time period (eg. Changes from date1 to date 2). In addition, it is also possible to define the Change status to be reported.

Reports are available in "CSV" or "Print" (PDF) output formats.

9.2. Number of Changes by Change Category

The report allows the definition of a relative (eg. Changes within the last x days) or absolute time period (eg. Changes from date1 to date 2). In addition, it is also possible to define the Change status to be reported.

Reports are available in "CSV" or "Print" (PDF) output formats.

9.3. Number of Rejected Changes

The report allows the definition of a relative (eg. Changes within the last x days) or absolute time period (eg. Changes from date1 to date 2). In addition, it is also possible to define the Change status to be reported.

Reports are available in "CSV" or "Print" (PDF) output formats.

9.4. Number of Withdrawn Changes

The report allows the definition of a relative (eg. Changes within the last x days) or absolute time period (eg. Changes from date1 to date 2). In addition, it is also possible to define the Change status to be reported.

Reports are available in "CSV" or "Print" (PDF) output formats.

9.5. Ratio of Changes to Incidents

The report allows the definition of a relative (eg. Changes within the last x days) or absolute time period (eg. Changes from date1 to date 2). In addition, it is also possible to define the Change status to be reported.

Reports are available in "CSV" or "Print" (PDF) output formats.

9.6. RFCs Per Requester

The report allows the definition of a relative (eg. Changes within the last x days) or absolute time period (eg. Changes from date1 to date 2). In addition, it is also possible to define the RFC Requester to be reported.

Reports are available in "CSV" or "Print" (PDF) output formats.



Chapter 9. Release Management

Please note that the we are planning to introduce the release management process with a future OTRS ITSM version. Basic information, however, can be configured, captured and controlled as of version 1.0.

As an example, approval rules or overviews from DSL (Definitive Software Library) can be configured and used.



Chapter 10. Service Level Management

The introduction of OTRS version 2.1 marked a complete revision of the internal statistics framework by allowing the creation of nearly every imaginable ticket-based report via the web interface, as well as the export or import thereof. In addition to that, by making use of OTRS existing access control features, administrators were allowed to restrict the generation and display of statistics and charts to specific users, groups, and/or roles. During the development, special care was given to ensure cross-version compatibility, meaning that statistics modules generated by previous OTRS versions could continue to be used. When used in combination with OTRS ITSM, additional statistics relevant to ITSM become available with the installation of the ITSMServiceLevelManagement package.

Example of a report overview:

Overview: Stats
 Actions
 Add
 Import

List

STAT#▲	TITLE	OBJECT	DESCRIPTION
10001	List of tickets closed last month	Ticketlist	List of all tickets closed last month. Order by ag[...]
10002	New Tickets	TicketAccumulation	Total number of new tickets per day and queue whic[...]
10003	List of open tickets, sorted by time left until response deadline expires	Ticketlist	List of open tickets, sorted by time left until ref[...]
10004	List of tickets closed, sorted by response time.	Ticketlist	List of tickets closed last month, sorted by respo[...]
10005	List of tickets created last month	Ticketlist	List of all tickets created last month. Order by al[...]
10006	List of the most time-consuming tickets	Ticketlist	List of tickets closed last month which required t[...]
10007	List of open tickets, sorted by time left until escalation deadline expires	Ticketlist	List of open tickets, sorted by time left until es[...]
10008	List of tickets closed, sorted by solution time	Ticketlist	List of tickets closed last month, sorted by solu[...]
10009	Overview about all tickets in the system	TicketAccumulation	Current state of all tickets in the system without[...]
10010	List of open tickets, sorted by time left until solution deadline expires	Ticketlist	List of open tickets, sorted by time left until so[...]
10011	Changes of status in a monthly overview	StateAction	Monthly overview, which reports status changes per[...]
10012	Total number of all tickets ever created per Ticket-Type and Priority.	TicketAccumulation	Total number of all tickets ever created per Ticke[...]

XML export of report settings:

View: Stat# 10002
 Actions
 Go to overview
 Edit
 Delete
 Export config
 Hint
 With the input and select fields you can influence the format and contents of the statistic. Exactly what fields and formats you can influence is defined by the statistic administrator.

Stat Details
 Stat#: 10002
 Title: New Tickets
 Object: TicketAccumulation
 Description: Total number of new tickets per day and queue which have been created during the last month.
 Format:
 Sum rows:
 Sum columns:
 Cache:
 Validity:
 Exchange Axis:
 Created:
 Created by:
 Changed:
 Changed by:
 Create Time:
 X-axis:
 Value Series:
 Queue: Misc
 Postmaster
 Service Desk

Opening New_Tickets_2012-08-30_10-05.xml
 You have chosen to open
 New_Tickets_2012-08-30_10-05.xml
 which is a: XML Document (692 bytes)
 from: http://vo1298.vo.otrs.com
 What should Firefox do with this file?
☐ Open with Internet Explorer (default)
☒ Save File
☐ Do this automatically for files like this from now on.
 OK Cancel

Dialog-based creation of a new report template:

Edit: Stat# 10002

Step 1
General Specifications

Step 2
Select the element that will be used at the X-axis

Step 3
Select the elements for the value series

Step 4
Select the restrictions to characterize the stat

Actions
Go to overview

General Specifications (1/4)

* Title:
New Tickets

* Description:
Total number of new tickets per day and queue which have been created during the last month.

* Dynamic-Object:
TicketAccumulation

* Permissions:
itsm-change-builder
itsm-change-manager
itsm-configitem
itsm-service
stats

* Result format:
CSV
Print
graph-area
graph-bars
graph-hbars

You can select one or more groups to define access for different agents.

A PDF generator is incorporated as well, which enables you to export the print view of your previously generated tickets, stats, and search results in PDF format:

Stat#10002

New Tickets 2012-07-01 00:00:00-2012-07-31 23:59:59

printed by Jane Smith (jane@otrs.com) 08/30/2012 10:21:08

Queue	Sun 1	Mon 2	Tue 3	Wed 4	Thu 5	Fri 6	Sat 7	Sun 8	Mon 9	Tue 10	Wed 11	Thu 12	Fri 13	Sat 14	Sun 15	Mon 16	Tue 17	Wed 18	Thu 19	Fri 20	Sat 21	Sun 22	Mon 23	Tue 24	Wed 25	Thu 26	Fri 27	Sat 28	Sun 29	Mon 30	Tue 31	Sum
Misc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Postmaster	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Service Desk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Stat#10009

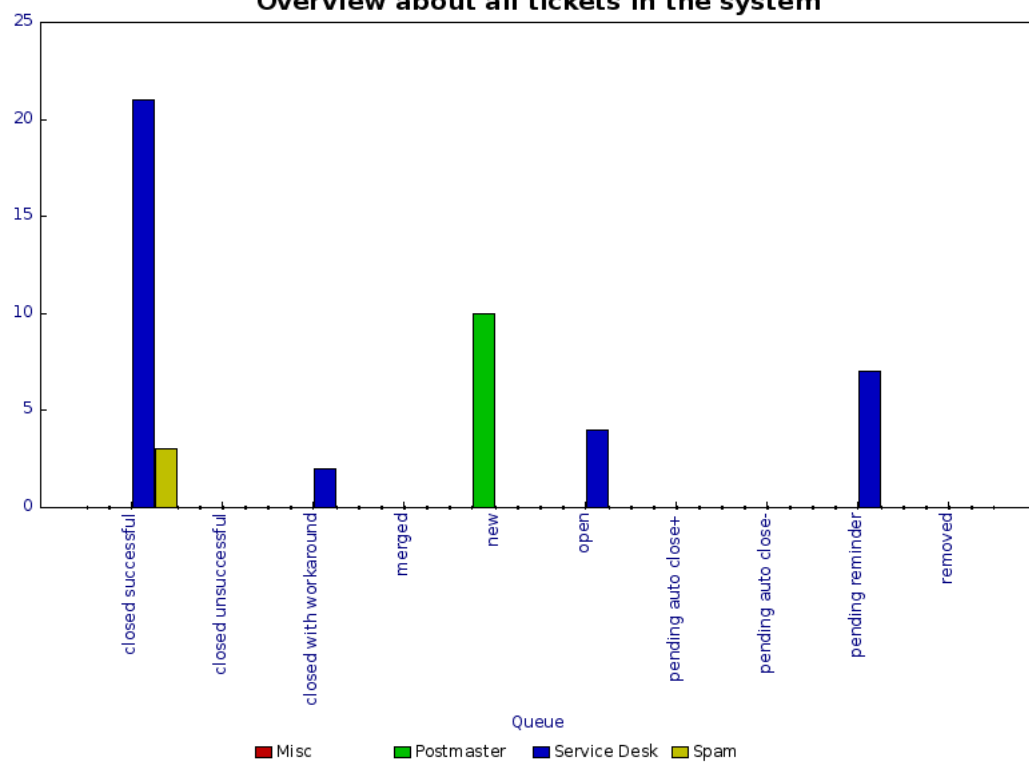
Overview about all tickets in the system

printed by Jane Smith (jane@otrs.com) 08/30/2012 10:24:26

Queue	closed successful	closed unsuccessful	closed with workaround	merged	new	open	pending auto close	pending auto close	pending reminder	removed	Sum
Misc	0	0	0	0	0	0	0	0	0	0	0
Postmaster	0	0	0	0	42	0	0	0	0	0	42
Service Desk	1	0	0	0	4	0	0	0	0	0	5
Spam	0	0	0	0	0	0	0	0	0	0	0
Sum	1	0	0	0	42	4	0	0	0	0	47

Example of a graphical ticket overview:

Overview about all tickets in the system



Chapter 11. The admin area of OTRS ITSM

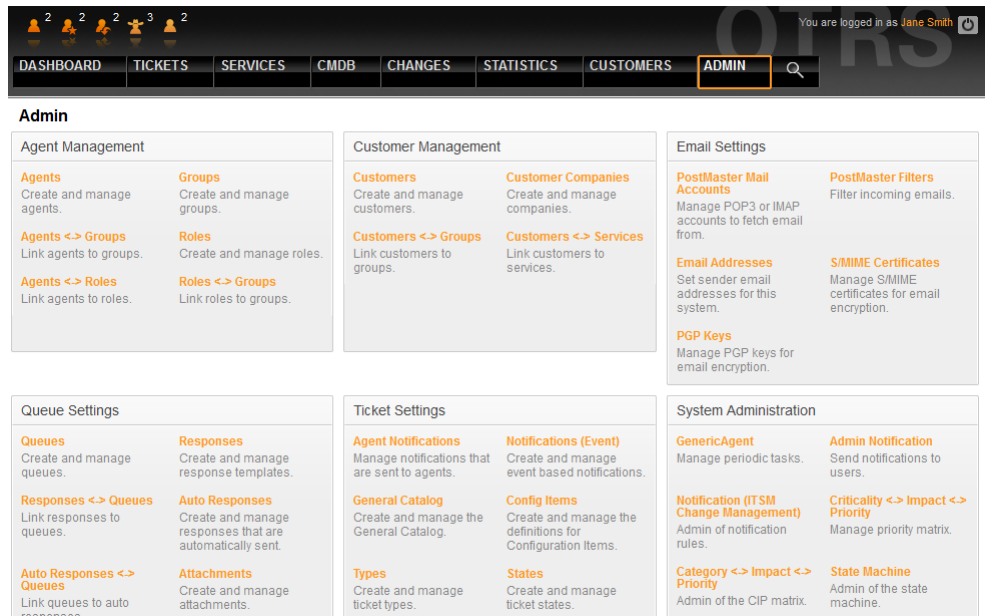
The admin area is the central interface for the administrator of the ticket system. All important settings of the system configuration can be checked and/or changed here, and the system can be customized to suit individual needs.

The admin area can be accessed via the "admin" link in the agent interface navigation bar. The link is only shown to users logged on to the system that have been granted administrator privileges. After the completion of a default installation you can log on to the system as OTRS admin using the user name "root@localhost" and the password "root".

Warning

WARNING: Make sure to change the password of root@localhost in the user preferences as quickly as possible. Using the widely known default password is not recommended!

- from OTRS ITSM 1.0 on
 - [General Catalog]
 - [Criticality - Impact - Priority]
 - [ConfigItem]
- from OTRS ITSM 1.1 on
 - [Import/Export]
- from OTRS ITSM 2.0 on
 - [Notification (ITSM Change Management)]
 - [Category - Impact - Priority]
 - [State Machine]
- from OTRS 2.2 on
 - [Type]
 - [Status]
 - [Service]
 - [SLA]
- from OTRS 2.3 on
 - [Priority]

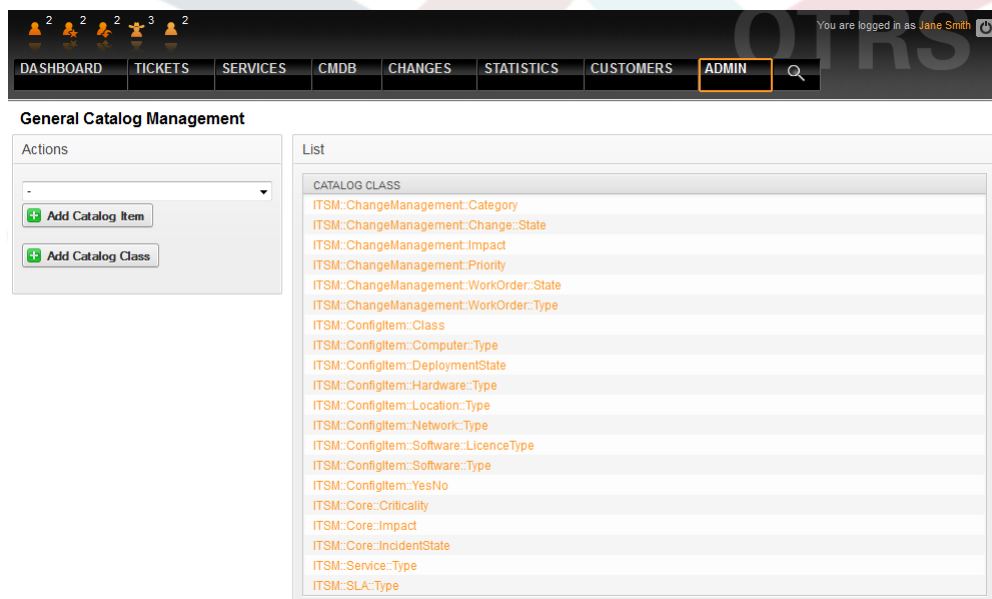


The screenshot shows the OTRS Admin menu. At the top, there is a navigation bar with tabs: DASHBOARD, TICKETS, SERVICES, CMDB, CHANGES, STATISTICS, CUSTOMERS, and ADMIN (highlighted). Below the navigation bar, the Admin section is divided into several categories:

- Agent Management**
 - Agents**: Create and manage agents.
 - Agents <-> Groups**: Link agents to groups.
 - Agents <-> Roles**: Link agents to roles.
 - Groups**: Create and manage groups.
 - Roles**: Create and manage roles.
 - Roles <-> Groups**: Link roles to groups.
- Customer Management**
 - Customers**: Create and manage customers.
 - Customers <-> Groups**: Link customers to groups.
 - Customer Companies**: Create and manage companies.
 - Customers <-> Services**: Link customers to services.
- Email Settings**
 - PostMaster Mail Accounts**: Manage POP3 or IMAP accounts to fetch email from.
 - PostMaster Filters**: Filter incoming emails.
 - Email Addresses**: Set sender email addresses for this system.
 - S/MIME Certificates**: Manage S/MIME certificates for email encryption.
 - PGP Keys**: Manage PGP keys for email encryption.
- Queue Settings**
 - Queues**: Create and manage queues.
 - Responses <-> Queues**: Link responses to queues.
 - Auto Responses <-> Queues**: Link queues to auto responses.
 - Responses**: Create and manage response templates.
 - Auto Responses**: Create and manage responses that are automatically sent.
 - Attachments**: Create and manage attachments.
- Ticket Settings**
 - Agent Notifications**: Manage notifications that are sent to agents.
 - General Catalog**: Create and manage the General Catalog.
 - Types**: Create and manage ticket types.
 - Notifications (Event)**: Create and manage event based notifications.
 - Config Items**: Create and manage the definitions for Configuration Items.
 - States**: Create and manage ticket states.
- System Administration**
 - GenericAgent**: Manage periodic tasks.
 - Notification (ITSM Change Management)**: Admin of notification rules.
 - Category <-> Impact <-> Priority**: Admin of the CiP matrix.
 - Admin Notification**: Send notifications to users.
 - Criticality <-> Impact <-> Priority**: Manage priority matrix.
 - State Machine**: Admin of the state machine.

1. The general catalog

As the name indicates, the general catalog serves for basic ITSM relevant configurations in OTRS ITSM.

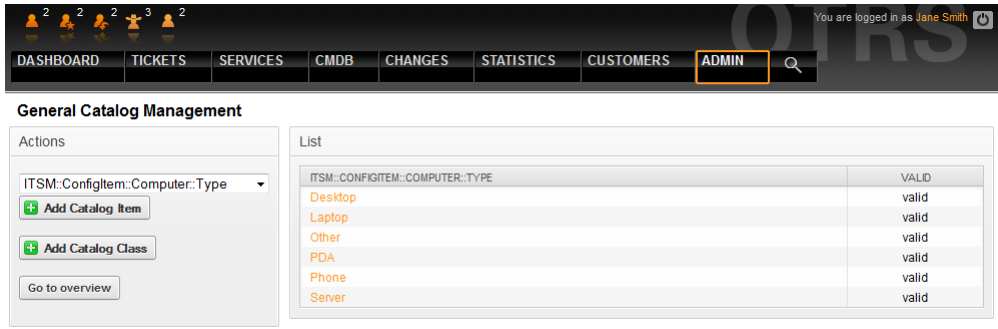


The screenshot shows the OTRS General Catalog Management interface. At the top, there is a navigation bar with tabs: DASHBOARD, TICKETS, SERVICES, CMDB, CHANGES, STATISTICS, CUSTOMERS, and ADMIN (highlighted). Below the navigation bar, the General Catalog Management section is divided into two main areas:

- Actions**: A sidebar on the left containing a dropdown menu and two buttons: "Add Catalog Item" and "Add Catalog Class".
- List**: A table on the right displaying a list of catalog items. The table has a header "CATALOG CLASS" and a list of items with their full names and types.

CATALOG CLASS
ITSM::ChangeManagement:Category
ITSM::ChangeManagement:Change:State
ITSM::ChangeManagement:Impact
ITSM::ChangeManagement:Priority
ITSM::ChangeManagement:WorkOrder:State
ITSM::ChangeManagement:WorkOrder:Type
ITSM::ConfigItem:Class
ITSM::ConfigItem:Computer:Type
ITSM::ConfigItem:DeploymentState
ITSM::ConfigItem:Hardware:Type
ITSM::ConfigItem:Location:Type
ITSM::ConfigItem:Network:Type
ITSM::ConfigItem:Software:LicenceType
ITSM::ConfigItem:Software:Type
ITSM::ConfigItem:YesNo
ITSM::Core:Criticality
ITSM::Core:Impact
ITSM::Core:IncidentState
ITSM::Service:Type
ITSM::SLA:Type

For example the editing of reference chart entries for drop-down fields:



The screenshot shows the OTRS Admin interface. The top navigation bar includes links for DASHBOARD, TICKETS, SERVICES, CMDB, CHANGES, STATISTICS, CUSTOMERS, and ADMIN (highlighted). The user is logged in as Jane Smith. The main section is titled "General Catalog Management". On the left, under "Actions", there is a dropdown menu set to "ITSM::ConfigItem::Computer::Type", and buttons for "Add Catalog Item", "Add Catalog Class", and "Go to overview". On the right, a table titled "List" shows the following data:

ITSM::CONFIGITEM::COMPUTER::TYPE	VALID
Desktop	valid
Laptop	valid
Other	valid
PDA	valid
Phone	valid
Server	valid

2. Configuring configuration item classes

By default OTRS ITSM provides five CI classes to represent all relevant IT elements:

- [Computer]

All CIs, which are classically referred to as computers, e.g. desktop PCs or laptops as well as all other intelligent, configurable and non-peripheral appliances such as switches, routers or other active network components.

- [Hardware]

All hardware components not classified as computers, possibly ranging from a "blade center" chassis to printers and USB sticks, depending on the level of granularity of your CI structure.

- [Network]

Logical networks (LAN, WLAN, WAN etc.), which span IP address spaces.

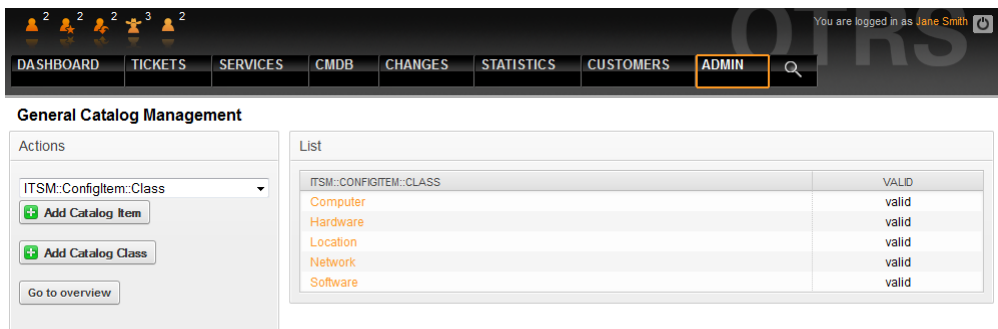
- [Software]

All software products and licenses.

- [Locations]

All Locations, e.g. building, workplace, IT facility.

If the five classes do not suffice to describe your IT environment, further classes can be added via the "general catalog" link in the OTRS ITSM admin area. After creating a new CI class in the general catalog, a definition must be entered in ConfigItem".



The screenshot shows the OTRS Admin interface. The top navigation bar is the same as the previous screenshot. The main section is titled "General Catalog Management". On the left, under "Actions", there is a dropdown menu set to "ITSM::ConfigItem::Class", and buttons for "Add Catalog Item", "Add Catalog Class", and "Go to overview". On the right, a table titled "List" shows the following data:

ITSM::CONFIGITEM::CLASS	VALID
Computer	valid
Hardware	valid
Location	valid
Network	valid
Software	valid

Warning

The design of a CMDB data model and of the associated CIs is a task which should not be underestimated. Our experience shows that it is highly recommendable to validate conceptual thoughts in a dry run against the existing IT infrastructure, before changing the OTRS ITSM standard data model and/or CI classes. It has proven to be of value to resort to external assistance, e.g. of ITIL practice experts for the CMDB design.

Please find below a part of the self-explaining default configuration for the "computer" CI class:

```
[
  {
    Key => 'Description',
    Name => 'Description',
    Searchable => 1,
    Input => {
      Type => 'TextArea',
    },
  },
  {
    Key => 'Type',
    Name => 'Type',
    Searchable => 1,
    Input => {
      Type => 'GeneralCatalog',
      Class => 'ITSM::ConfigItem::Computer::Type',
    },
  },
  {
    Key => 'Owner',
    Name => 'Owner',
    Searchable => 1,
    Input => {
      Type => 'Customer',
    },
  },
  {
    Key => 'AssetTag',
    Name => 'Asset Tag',
    Searchable => 1,
    Input => {
      Type => 'Text',
      Size => 50,
      MaxLength => 100,
      Required => 1,
    },
    CountMin => 0,
    CountMax => 1,
    CountDefault => 0,
  },
  :
  :
  :

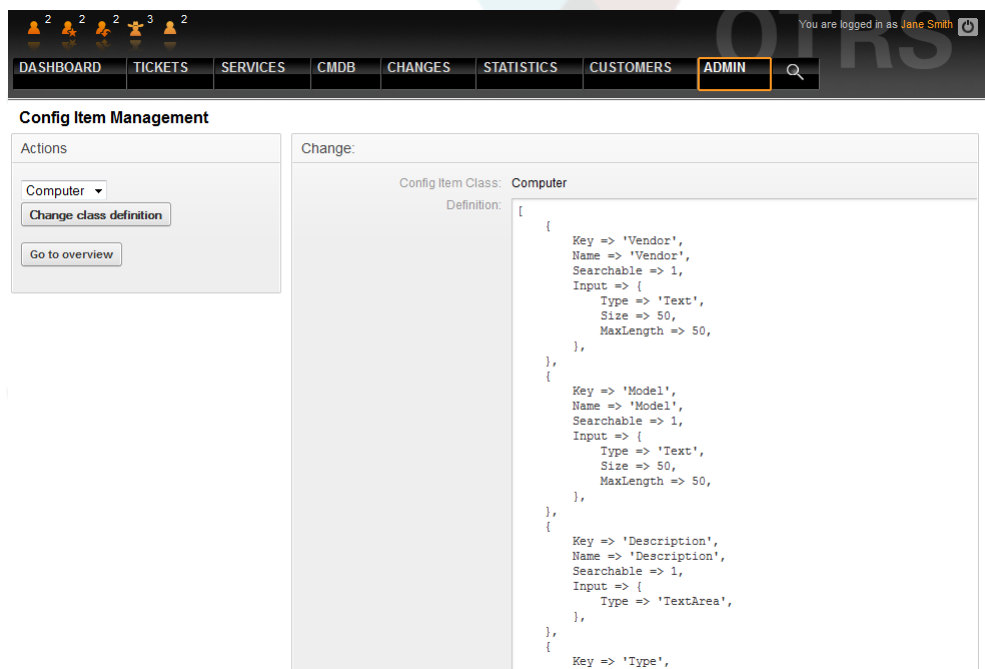
  {
    Key => 'Model',
    Name => 'Model',
    Searchable => 1,
    Input => {
      Type => 'Text',
      Size => 50,
      MaxLength => 50,
    },
  },
  {
    Key => 'OperatingSystem',
```

```

    Name => 'Operating System',
    Input => {
      Type => 'Text',
      Size => 50,
      MaxLength => 100,
    },
  },
  {
    Key => 'CPU',
    Name => 'CPU',
    Input => {
      Type => 'Text',
      Size => 50,
      MaxLength => 100,
    },
    CountMin => 1,
    CountMax => 16,
    CountDefault => 1,
  },
];

```

Attribute changes and amendments can be done in the graphical configuration area by selecting "change definition":

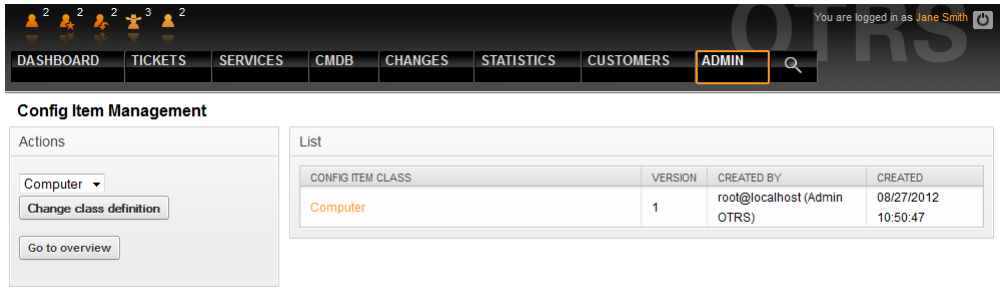


Warning

In order to assure the consistency of the data managed in OTRS ITSM, information created in the admin area of the system cannot be deleted as a general rule. If you want to deactivate such information, change the value in the respective listbox settings from "valid" to "invalid" or to "invalid-temporarily".

3. Version management of CI classes

Version management for all CI classes is integrated into the system. The latest versions are used for the processes represented in OTRS ITSM.

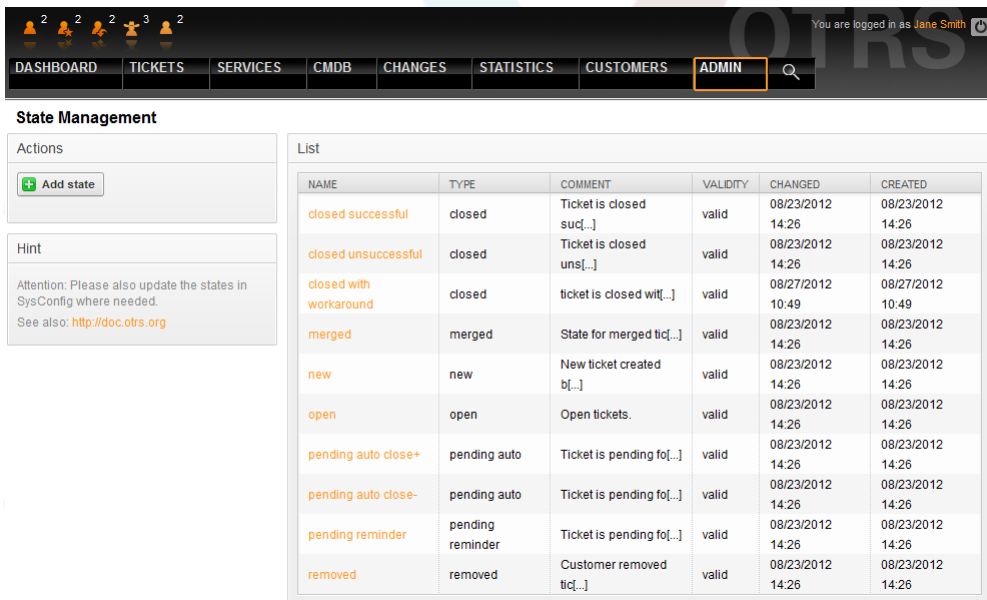


The screenshot shows the OTRS Admin interface. The top navigation bar includes links for DASHBOARD, TICKETS, SERVICES, CMDB, CHANGES, STATISTICS, CUSTOMERS, and ADMIN (highlighted). The user is logged in as Jane Smith. The main section is titled "Config Item Management". On the left, there are "Actions" (Computer, Change class definition, Go to overview) and a "List" table.

CONFIG ITEM CLASS	VERSION	CREATED BY	CREATED
Computer	1	root@localhost (Admin OTRS)	08/27/2012 10:50:47

4. Adjustment of ticket state

In ITIL aligned incident management, incidents are either resolved successfully or closed with a workaround. To address the latter closure category, OTRS ITSM by default includes the ticket state "closed with workaround".



The screenshot shows the OTRS Admin interface for "State Management". The left sidebar has "Actions" (Add state) and a "Hint" section. The main "List" table shows various ticket states.

NAME	TYPE	COMMENT	VALIDITY	CHANGED	CREATED
closed successful	closed	Ticket is closed suc[...]	valid	08/23/2012 14:26	08/23/2012 14:26
closed unsuccessful	closed	Ticket is closed uns[...]	valid	08/23/2012 14:26	08/23/2012 14:26
closed with workaround	closed	ticket is closed with[...]	valid	08/27/2012 10:49	08/27/2012 10:49
merged	merged	State for merged tic[...]	valid	08/23/2012 14:26	08/23/2012 14:26
new	new	New ticket created b[...]	valid	08/23/2012 14:26	08/23/2012 14:26
open	open	Open tickets.	valid	08/23/2012 14:26	08/23/2012 14:26
pending auto close+	pending auto	Ticket is pending fo[...]	valid	08/23/2012 14:26	08/23/2012 14:26
pending auto close-	pending auto	Ticket is pending fo[...]	valid	08/23/2012 14:26	08/23/2012 14:26
pending reminder	pending reminder	Ticket is pending fo[...]	valid	08/23/2012 14:26	08/23/2012 14:26
removed	removed	Customer removed tic[...]	valid	08/23/2012 14:26	08/23/2012 14:26

With OTRS ITSM you can change existing ticket states or add new ones. There are two important options: the name of the state "state-name" and the type of it "state-type". All states and types available by default are pictured above.

State names can be chosen freely. In the "state" settings within the admin interface new states can be added or changed for existing state types.

Please consider that changes made to the "new" state require changes to be made in the configuration file kernel/config.pm or in the graphical configuration front-end.

```
[...]
# PostmasterDefaultState
# (The default state of new tickets.) [default: new]
$self->{PostmasterDefaultState} = 'new';

# CustomerDefaultState
# (default state of new customer tickets)
$self->{CustomerDefaultState} = 'new';
[...]
```

The same applies to changes made to the "open" state: changes in the kernel/Config.pm or in the graphical configuration frontend are necessary.

```
[...]
# default phone new state
$Self->{'Ticket::Frontend::PhoneNextState'} = 'open';

# PostmasterFollowUpState
# (The state if a ticket got a follow up.) [default: open]

$Self->{'PostmasterFollowUpState'} = 'open';
[...]
```

Warning

In order to assure the consistency of the data managed in OTRS ITSM, information created in the admin area of the system cannot be deleted as a general rule. If you want to deactivate such information, change the value in the respective listbox settings from "valid" to "invalid" or "invalid-temporarily".

5. The criticality impact priority matrix

OTRS ITSM provides five ticket priority levels:

- [Criticality]

Significance ("criticality") of the service for the IT user(s)/customer(s)

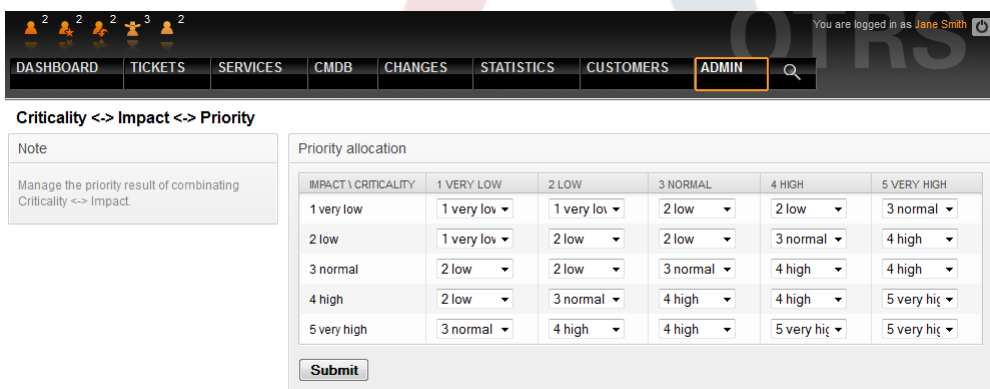
- [Impact]

Impact of failures of the concerned service on the user(s)/customer(s)

- [Priority]

Priority within OTRS ITSM as resulting from criticality and impact

The OTRS ITSM ticket priority is determined with the matrix shown below and the prioritized ticket is integrated in the queue views.



Criticality <=> Impact <=> Priority

Note

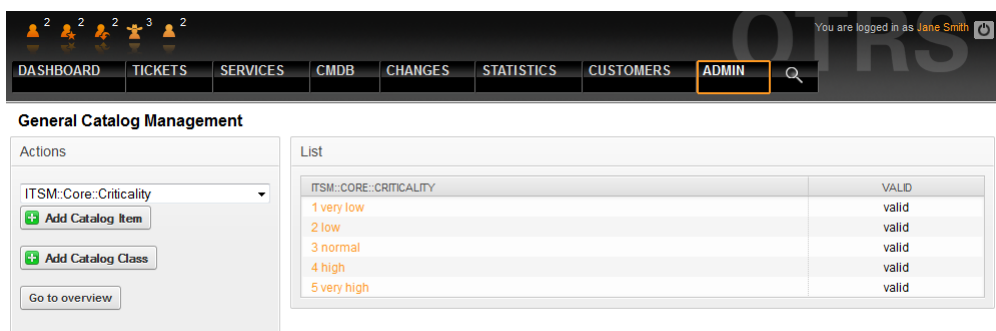
Manage the priority result of combining Criticality <=> Impact.

Priority allocation

IMPACT \ CRITICALITY	1 VERY LOW	2 LOW	3 NORMAL	4 HIGH	5 VERY HIGH
1 very low	1 very low	1 very low	2 low	2 low	3 normal
2 low	1 very low	2 low	2 low	3 normal	4 high
3 normal	2 low	2 low	3 normal	4 high	4 high
4 high	2 low	3 normal	4 high	4 high	5 very high
5 very high	3 normal	4 high	4 high	5 very high	5 very high

Submit

The level number, descriptions and validity can be accessed and changed in the admin interface via the "general catalog" link:



General Catalog Management

Actions

ITSM::Core::Criticality

Add Catalog Item

Add Catalog Class

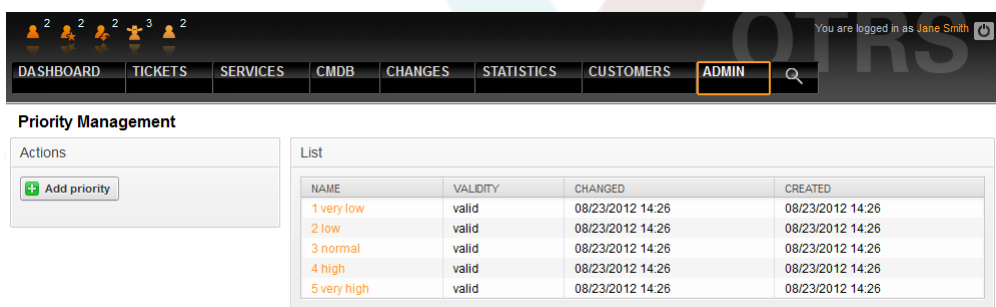
Go to overview

List

ITSM::CORE::CRITICALITY	VALID
1 very low	valid
2 low	valid
3 normal	valid
4 high	valid
5 very high	valid

6. Adjustment of ticket priorities

Tickets are arranged within OTRS ITSM on the basis of ticket priorities, i.e. tickets with a higher priority are displayed further up in the queue views and lower priority ones in lower positions. Priorities can be adjusted, re-named and amended in the graphical admin frontend.



Priority Management

Actions

Add priority

List

NAME	VALIDITY	CHANGED	CREATED
1 very low	valid	08/23/2012 14:26	08/23/2012 14:26
2 low	valid	08/23/2012 14:26	08/23/2012 14:26
3 normal	valid	08/23/2012 14:26	08/23/2012 14:26
4 high	valid	08/23/2012 14:26	08/23/2012 14:26
5 very high	valid	08/23/2012 14:26	08/23/2012 14:26

More detailed information can be found in the OTRS Admin Manual.

Warning

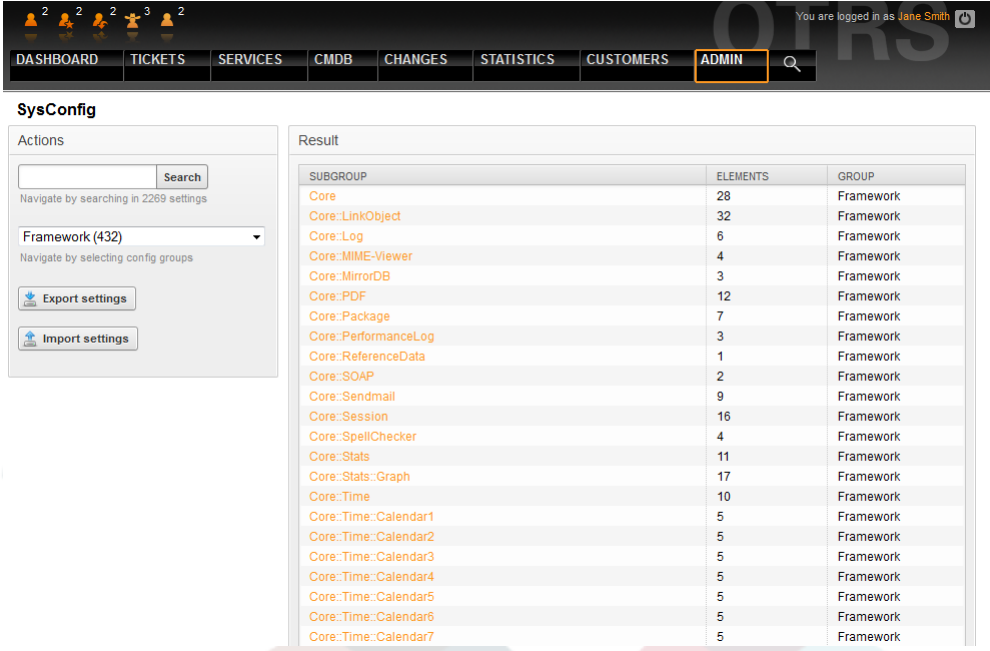
The "id" attribute decides the OTRS ITSM internal sequence of priorities. 1 corresponds to the minimum and 5 (or higher) to the maximum. The number in the priority name is used to implement the correct sequence within the priorities.

Warning

In order to assure the consistency of the data managed in OTRS ITSM, information created in the admin area of the system cannot be deleted as a general rule. If you want to deactivate such information, change the value in the respective listbox settings from "valid" to "invalid" or "invalid-temporarily".

Chapter 12. Additional OTRS applications - calendar

OTRS 3.3 initially supports up to 9 calendars, which can be configured graphically. Using the SysConfig framework found in the admin interface, this number can be increased to 99, by using the calendar 1 etc. links:



SysConfig

Actions

Search

Navigate by searching in 2269 settings

Framework (432)

Navigate by selecting config groups

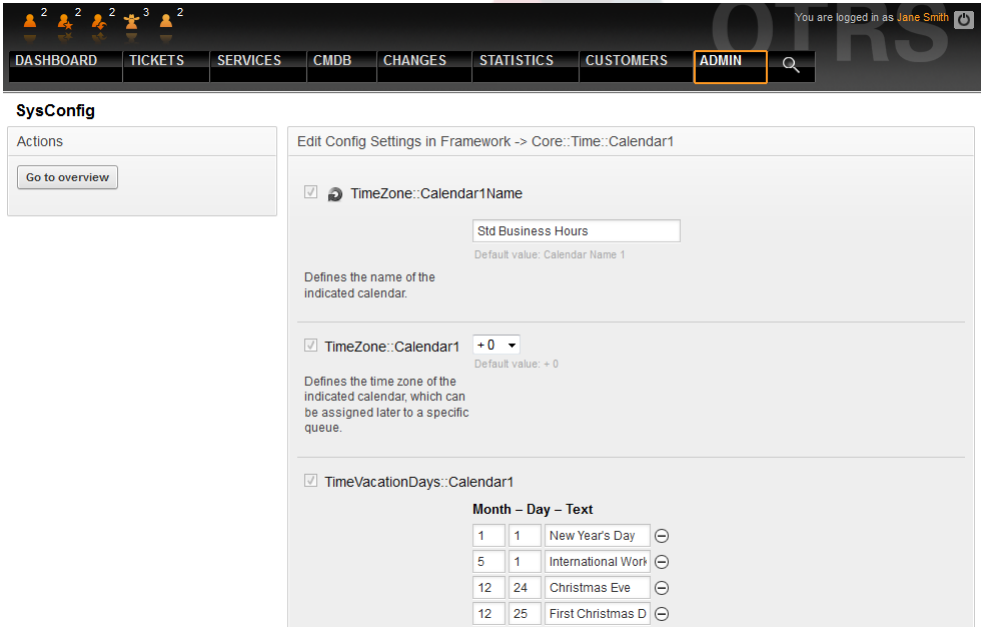
Export settings

Import settings

Result

SUBGROUP	ELEMENTS	GROUP
Core	28	Framework
Core::LinkObject	32	Framework
Core::Log	6	Framework
Core::MIME-Viewer	4	Framework
Core::MirrorDB	3	Framework
Core::PDF	12	Framework
Core::Package	7	Framework
Core::PerformanceLog	3	Framework
Core::ReferenceData	1	Framework
Core::SOAP	2	Framework
Core::Sendmail	9	Framework
Core::Session	16	Framework
Core::SpellChecker	4	Framework
Core::Stats	11	Framework
Core::Stats::Graph	17	Framework
Core::Time	10	Framework
Core::Time::Calendar1	5	Framework
Core::Time::Calendar2	5	Framework
Core::Time::Calendar3	5	Framework
Core::Time::Calendar4	5	Framework
Core::Time::Calendar5	5	Framework
Core::Time::Calendar6	5	Framework
Core::Time::Calendar7	5	Framework

"TimeWorkingHours" can be used in OTRS ITSM to define so-called "service level windows" time frames in which your organization guarantees certain service levels to your customers. If required, these can then be monitored and/or evaluated to ensure compliance with any possible Service Level Agreements.



SysConfig

Actions

Go to overview

Edit Config Settings in Framework -> Core::Time::Calendar1

☒ TimeZone::Calendar1Name

Std Business Hours

Default value: Calendar Name 1

Defines the name of the indicated calendar.

☒ TimeZone::Calendar1 +0

Default value: +0

Defines the time zone of the indicated calendar, which can be assigned later to a specific queue.

☒ TimeVacationDays::Calendar1

Month - Day - Text

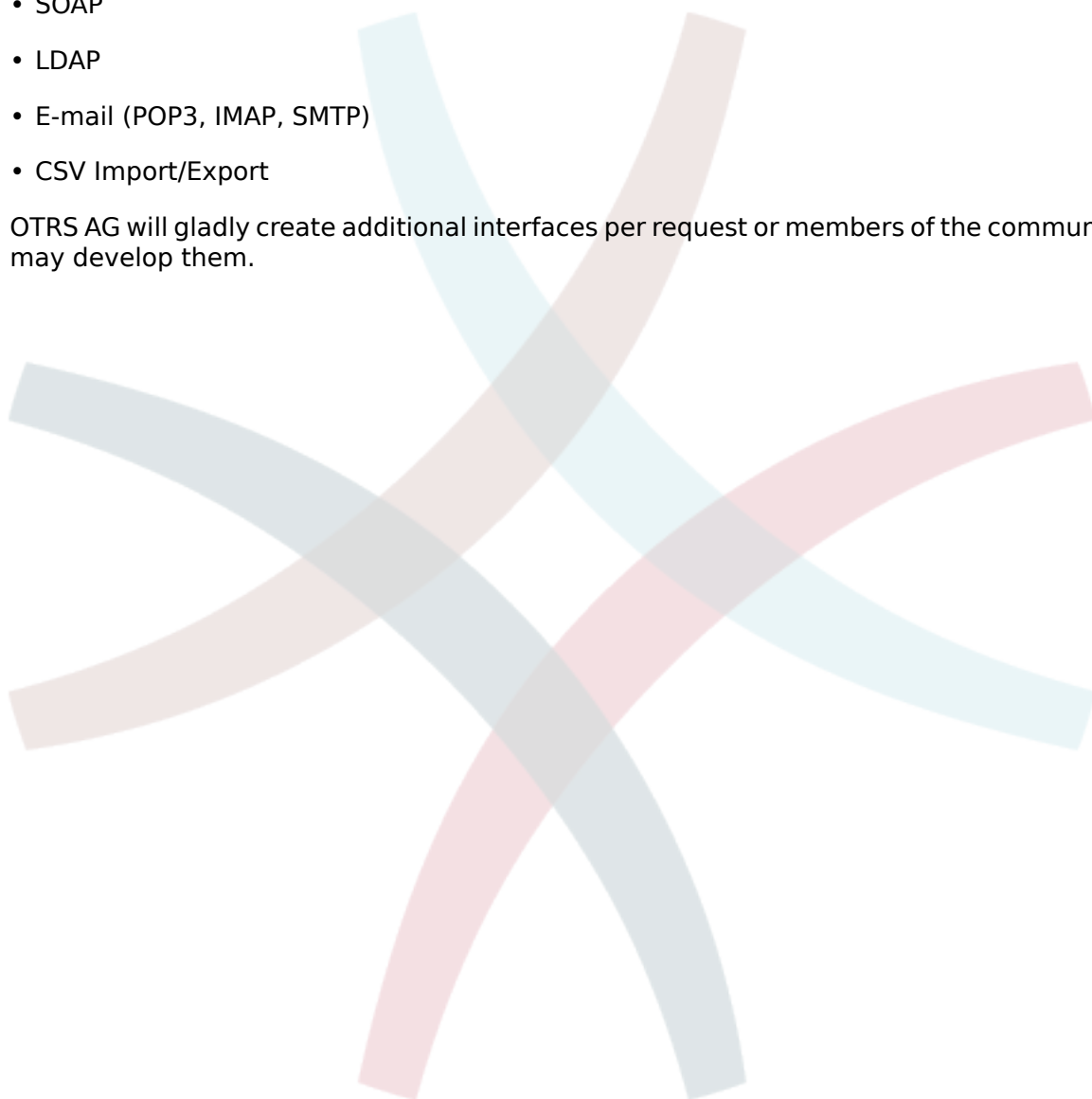
1	1	New Year's Day	⊖
5	1	International Work	⊖
12	24	Christmas Eve	⊖
12	25	First Christmas D	⊖

Chapter 13. OTRS ITSM interfaces

The following partly-generic interfaces can be used for data exchange between OTRS ITSM and other (ITSM) software products:

- NAGIOS
- SOAP
- LDAP
- E-mail (POP3, IMAP, SMTP)
- CSV Import/Export

OTRS AG will gladly create additional interfaces per request or members of the community may develop them.



Appendix A. GNU Free Documentation License

Version 1.1, March 2000

Copyright (C) 2000 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

0. PREAMBLE

The purpose of this License is to make a manual, textbook, or other written document "free" in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondly, this License preserves a way for the author and publisher to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation; a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

1. APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. The "Document", below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "you".

A "Modified Version" of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A "Secondary Section" is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (For example, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The "Invariant Sections" are certain Secondary Sections, whose titles are designated as being those of Invariant Sections, in the notice that says that the Document is released under this License.

The "Cover Texts" are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License.

A "Transparent" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, whose contents can be viewed and edited directly and straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup has been designed to thwart or discourage subsequent modification by readers is not Transparent. A copy that is not "Transparent" is called "Opaque".

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML designed for human modification. Opaque formats include PostScript, PDF, proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML produced by some word processors for output purposes only.

The "Title Page" means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

2. VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or non-commercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

3. COPYING IN QUANTITY

If you publish printed copies of the Document numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a publicly-accessible computer-network location containing a complete Transparent copy of the Document, free of added material, which the general network-using public has access to download anonymously at no charge using

public-standard network protocols. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

4. MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

- A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.
- B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has less than five).
- C. State on the Title page the name of the publisher of the Modified Version, as the publisher.
- D. Preserve all the copyright notices of the Document.
- E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.
- F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.
- G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.
- H. Include an unaltered copy of this License.
- I. Preserve the section entitled "History", and its title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section entitled "History" in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.
- J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.
- K. In any section entitled "Acknowledgements" or "Dedications", preserve the section's title, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.

- L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.
- M. Delete any section entitled "Endorsements". Such a section may not be included in the Modified Version.
- N. Do not retitle any existing section as "Endorsements" or to conflict in title with any Invariant Section.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties--for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

5. COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections entitled "History" in the various original documents, forming one section entitled "History"; likewise combine any sections entitled "Acknowledgements", and any sections entitled "Dedications". You must delete all sections entitled "Endorsements."

6. COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

7. AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, does not as a whole count as a Modified Version of the Document, provided no compilation copyright is claimed for the compilation. Such a compilation is called an "aggregate", and this License does not apply to the other self-contained works thus compiled with the Document, on account of their being thus compiled, if they are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one quarter of the entire aggregate, the Document's Cover Texts may be placed on covers that surround only the Document within the aggregate. Otherwise they must appear on covers around the whole aggregate.

8. TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License provided that you also include the original English version of this License. In case of a disagreement between the translation and the original English version of this License, the original English version will prevail.

9. TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense, or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

10. FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See <http://www.gnu.org/copyleft/>.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

. How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

Copyright (c) YEAR YOUR NAME. Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.1 or any later version published by the Free Software Foundation; with the Invariant Sections being LIST THEIR TITLES, with the Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST. A copy of the license is included in the section entitled "GNU Free Documentation License".

If you have no Invariant Sections, write "with no Invariant Sections" instead of saying which ones are invariant. If you have no Front-Cover Texts, write "no Front-Cover Texts" instead of "Front-Cover Texts being LIST"; likewise for Back-Cover Texts.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.

