

An overview of 1C: Enterprise 8.1

Introduction

In this session you will get a brief overview of 1C: Enterprise 8.1 software, and find out why 1C is a leader on CIS accounting software market. You will also get an understanding of the terms technological platform and configuration (applying to 1C), what kind of configurations exist and can be used with this platform, as well as more detailed information about objects included into the typical Kazakhstan's configuration. We will also briefly discuss 1C software localization issues.

Learning Objectives

This session will help you to learn:

- About 1C company and its success story
- What is technological platform, and its main characteristics
- How to distinguish between different configurations (business applications)
- Purpose and main features of a typical Kazakhstan's accounting configuration
- 1C: Enterprise 8.1 localization issues

Step-by-Step tasks

1. 1C and its Success Story.

1.1. 1C Company.



Founded in 1991 1C operates in the area of development, distribution, publishing and support of mass-market software.

1C is focused on three mainstream business directions: business software, multimedia software and distribution.

On multimedia software market 1C has a strong line of successful products represented by different games. 280 **software shops of 1C: Multimedia** franchising network operate in more than 100 cities for sales of home entertainment software products. 1C entertainment software is appreciated in the USA, the UK, France, Germany, Spain, Italy, Poland and other countries.

Educational software by 1C includes a series of 1C: Tutor software representing school education lessons of mathematics, the Russian language, physics, chemistry, biology, etc.

As an official distributor, through its partners 1C offers more than 5000 names of office and home software from such world-famous vendors as Microsoft, Intel, Novell, Symantec, IBM-Lotus, as well as domestic vendors: ProMT, ABBYY, INEC, Kaspersky Lab, Cognitive Technologies, Nikita, Buka, Russobit-M and others.

1.2. Business Strategy.

1C strategy is based on a community of 3300+ teams constituting the 1C: Franchising network that is the main channel of value-adding for 1C products. Nowadays 1C has the widest partnership network in CIS: 5300 partners in 570 cities of the former USSR.

Being a reliable supplier of business solutions, 1C Company itself does not sell, nor provide support for end users, giving more business opportunities to its partners.

Franchising network development has the goal of distribution of vertical business applications created by company's partners.

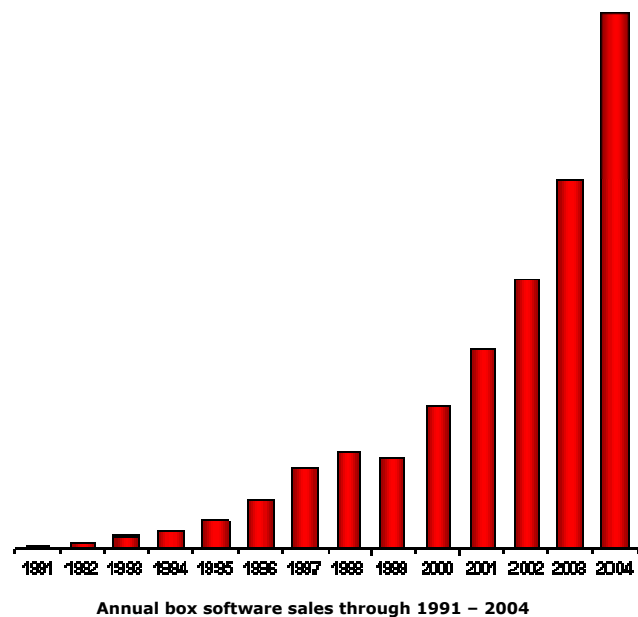
The franchising partners focus their attention on rendering services to end users and 1C provides advanced information and technological support (ITS) for its partners' official users of 1C: Enterprise. The purpose of this service is to provide users with a complete set of 1C software updates, accounting methodologies, office automation technologies, tutorials and new components of 1C: Enterprise system, consultations from chartered accountants, up-to-date legislation on taxation and business regulations and much more.

1.3. Outcome.

1C has the biggest software sales volume in CIS IT industry.

In 2004 the total volume of sales has increased both for home and business office software, produced by 1C Company, as well as for distribution software of international and domestic developers.

500+ employees make more than \$180 000 sales per employee per year. The sales department serves 250 companies a day, shipping over 40,000 units with overall weight of 8 tons.



According to several independent polls (such as "Company" magazine, Dator, Laminfo, MKF, Expert, etc.) in 1997-2003 1C was voted the most popular company in Russian IT industry.

Successful operation on business software markets for many years allowed 1C constantly extending its business activities and remain the leader on CIS IT market.

2. 1C: Enterprise – The System of Programs.

2.1. Introduction.

1C Company is widely known in CIS as a developer of 1C: Enterprise – system of programs for business automation.



1C: Enterprise is a series of business applications designed, developed and supplied by 1C. It's full-scale, flexible and powerful business software for automation of everyday routine operations, real-time accounting and providing timely and convenient information for taking business decisions at various management levels. Its business intelligence is used at small, medium companies and business-units of large enterprises in various spheres and branches: manufacturing and trade, service and financial companies, budget organizations, and allows automating many business tasks of economic and management activity, such as management accounting, business accounting, HR management, CRM, MRP, MRPII, etc.

For the development of 1C: Enterprise software in 2002 1C staff received The Government of the Russian Federation Award in the field of science and technology. The Ministry of Taxation approved 1C: Enterprise accounting analytical reports as the standard for receiving output accounting documents.

But why this program is so popular? Why so many companies are using it, but not the ERP software such as Oracle Financials, PeopleSoft OneWorld, Scala, SunSystems, SAP R/3, or Microsoft Business Solutions? First of all, these programs are very expensive and cost thousand of dollars, they are also very complex and difficult to learn. Thus, total cost of ownership (TCO) for 1C: Enterprise comparing to these programs is much lower (at the end of our course we'll compare different ERP programs to 1C: Enterprise).

Secondly, success of 1C: Enterprise is taking roots in its adaptability. Technological platform itself is developed and modified by the parent company located in Russia. But it would be impossible for this company to modify and adjust its program to different accounting standards used throughout the CIS countries, as all of them are using different accounting principles, have their own legislation, which is also frequently changed. This problem is solved by using the franchise approach. Company is acting as franchisor, and grants distribution and development rights to other companies that can meet franchise requirements. These companies are responsible for distributing the program, and adapting its configuration to the needs of end users in their countries. Now, let's find out some more facts about 1C.

1C: Enterprise 8.1 consists of two parts: software (technological) platform, which is program itself, **and business applications** (applied solutions or configurations) designed on the base of the platform. Configurations contain set of metadata objects such as, chart of accounts, directories, documents, journals, reports etc., and programming code linking all this objects together.

The platform itself isn't software for end-users – they interact with business applications being executed on the platform. Such architecture approach with separated software platform and business applications has permitted the establishment of entire industry for development, distribution and support of the most varied business applications, focusing on specific business tasks and abstracting from most of technological details.



1C: Enterprise platform supports modern three-tier architecture of database interaction, scalability – from standalone computers, through multi-user environment with a separate database server and to distributed information bases – and Web-technologies. The platform provides developed, business-oriented and user-friendly GUI, business processes management mechanisms, rich integration means, XML-based data exchange mechanisms, built-in (embedded) programming language, reporting engine, administration tools and more other features.

Meeting rapid application development (RAD) ideology the platform includes integrated business application development tools, providing comprehensive industrial business applications' maintenance.

Developed localization support tools provide the capability to create business applications for other countries and creation of multi-lingual business applications.

Meeting real business needs, 1C: Enterprise is used for building business applications offering functionality for CRM, SRM, SCM, trade management, warehouse management, business and tax accounting, business and budget planning, payroll calculation, HRM, production management, etc.

The modern international methods of enterprise management (MRP, SCM, and ERP) and integrated localization methods are used in 1C: Enterprise software and allow developing and promoting the software in other countries in accordance with their legislation and language. In CIS 1C offers various business applications, such as: 1C: Accounting, Payroll & HR, Trade Management, and Manufacturing Enterprise Management.

One of the most popular business applications is 1C: Accounting that was generally recognized and received approval of the Ministry of Finance of Russia.

Business applications from 1C include accounting business logic developed in close cooperation with PricewaterhouseCoopers Company and provide methodological basis for establishing accounting according to International Accounting Standards (IAS).

Thanks to its great flexibility and scalability of the complete technological platform 1C: Enterprise software is widely used in small (1-10 computers), medium- and large-scale companies (with hundreds PCs).

1C is also experienced in developing and distributing region-specific business applications based on 1C: Enterprise platform. There are regional business applications almost in all ex-USSR countries: Azerbaijan, Armenia, Georgia, Kirghizstan, Moldova, Ukraine, Kazakhstan, Byelorussia, Uzbekistan and Baltic States. Besides, the Company has representative offices in Ukraine and Kazakhstan.

Providing support, methodological and training materials on business accounting is an important part of 1C business.

On the base of 1C: Enterprise platform the franchise partners, independent developers and system integrators, as well as the customers themselves develop diverse business applications.

There are 30+ boxed business applications supplied for a wide range of tasks: accounting, sales and warehouse, payroll calculation and personnel records, manufacturing, financial planning, accounting and reporting for private entrepreneurs, public sector accounting, report consolidation, defense and military accounting and others. And more than 400 vertical solutions have been developed by 1C Company's partners across ex-USSR territory: for armed forces, transportation, public health, educational institutions, agriculture, public catering, insurance, non-profit organizations, manufacturing, tourism, service industry and others. Total number of companies using 1C: Enterprise platform-based solutions comes to 700 000.

2.2. Brief Overview of the Technological Platform.

First of all, the platform is a framework where a business application is functioning. I.e., on the one hand, the platform is an executing environment, on the other hand, the platform contains a set of tools, too, necessary to develop, administer and maintain business applications created on the platform.

The important thing about the platform is that it provides a developer with a **single development model** that isolates him from terms and details of lower-level technologies and other platforms where it operates (such as an operating system). This allows, first, to use various low-level technologies in the platform; second, business applications are created quicker, as a developer doesn't think of low-level details.

The platform includes a number of templates of **business components**, such as document templates (for invoices, orders, bills, etc), catalog templates (for various lists, like personnel roll, or catalog of customers), management accounting mechanism template, real-time asset movements' registration mechanism, templates for complex periodical calculation (such as payroll calculation, flexibly configurable for various economic conditions), etc. For example, if a developer creates a



General 1C: Enterprise architecture

business application with usual means (universal programming languages), he must think of many details concerning creation of tables, fields, relationships between tables, links, etc. In case of creation one on the platform, it isolates him from such details, providing him with a full set of tables, functions forms and properties in the templates.

At that the **scalability support** provided by the platform makes a business application indifferent whether it works on a standalone computer, with a file server (a native file server engine is included into the platform) within a distributed database (i.e. on a standalone PC interacting with a central database, but without a permanent connection with it), or in a three-tier architecture with MS SQL Server.

There is an **embedded language** (similar to Java Script) used for creation an application's business logic or modification of standard objects' behavior; a **native SQL-like query language**, supporting all SQL standard, but extending it with more business tasks-oriented features.

Reporting mechanism uses this query language to provide a quick and easy visual way for a developer to build representative reports, and for a user to compose his own (customized) reports or modify existing ones without the need to write some code but just using special report building tools. A report may include spreadsheet-styled information, as well as various types of diagrams (charts, histograms, Gantt charts, etc).

Integrated **localization support** allows to create business applications with multilingual interface with proper date/time formats and number-to-text conversion (for textual representation of totals, for example), so that end-users can use their own native language in a business application.

Data exchange support provides working with distributed databases. This is used, for example, for remote offices in arbitrary interaction scheme (centralized or hierarchical, for example). In this case there is one centralized file database server, and the information base is spread across several offices (warehouses, street vendors, etc.). Data exchange occurs only from time to time, at that various means can be used for this – from data upload over Internet to a courier service (with data on external media, such as floppy or flash drive, etc.).

Integration support provides integration with other business software (from 1C Company as well as from other companies) in various ways, supporting a number of means – through external components, plain text documents, XML, DBF files, a COM-connection, Automation Client/Server, ActiveX, ActiveDocument templates, interaction over HTTP (Internet), etc.

Web-extension uses .NET Framework technology and makes it possible to arrange access to a business application's functionality; this is very useful for mobile users or remote departments.

A powerful **access rights system** controls user access to various business information, from entire documents to particular fields in them (row-level security).

User productivity means include several aspects. First, this is the ergonomic user interface, designed for continuous user work. It provides such convenient features as 'data entry by line' (the system displays a drop-down list with items from a catalog, beginning with the one or several letters typed by user), speeding up mass data entry times faster; or 'auto select' mode, when a user, using a single adjustable hot-key, selects a unfilled field in a form, fills it with data and goes over to next field, etc. This is important for tasks involving mass data entry. The second thing is that a user is provided with a developed help system, on both the platform and the business application he's using. The third, there is a set of means making work with the system for a user more productive, such optimization of browsing broad lists and tables, data filtration by a substring, etc.

Developed **administration means** include 1C native authentication, also support Windows authentication, user actions log, database set up and maintenance, platform and business applications update, client-server and file server administration tools, file database restore tool, lists of active users, etc.

The complete set of **development tools** is intended for creation of complete commercial business applications and modifying existing ones. Designer is a powerful visual development tool (**IDE**) specially designed to provide **rapid application development (RAD)**. Development of economic business applications with 1C: Enterprise Designer is times faster than in case of using universal programming languages for the same goal. It is efficient and convenient way for a developer to create, debug and profile business applications. There are means for group development, including versioning, checking-in/out functionality, visual comparison of versions and other means.

This unique composition of integrated means and technologies makes 1C: Enterprise platform a very flexible and comprehensive tool for realization of the tasks being solved by business applications created and functioning on the base of the platform.

2.3. Brief Overview of Business Applications.

A business application (applied solution) is the part of the program system that a user interacts with, using forms, documents and business logic provided by the business application to solve relevant business tasks of the user.

A business application is an independent entity and may be a separate software product, but it is entirely based on the platform technologies.

There are two big groups of business applications: **boxed business applications** (developed by 1C Company and its partners) and **special (individual) business applications** (developed by 1C Company's partners only).

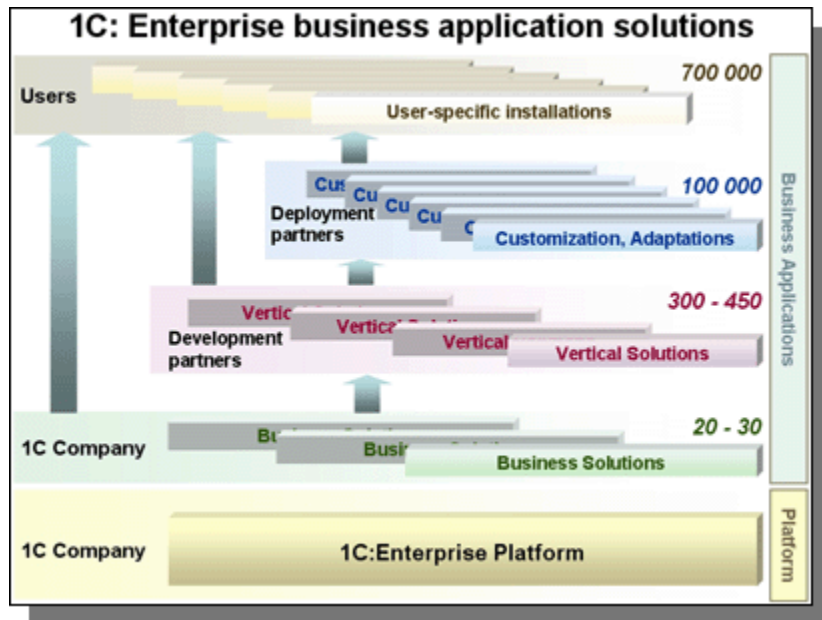
Among the boxed solutions there are *standard*, *regional* and *vertical business applications*. Standard ones include business applications for Trade Management, Human Resource Management, Enterprise Accounting and Manufacturing Enterprise Management. Regional

business applications are adapted standard applications (to make them meeting a particular region's conditions). Vertical business applications are standard ones adapted for requirements of a certain industry. This adaptation work and further maintenance is performed by 1C company's partners. Apart from adaptation of standard solutions, the partners can create and supply their own business applications – both based on boxed ones from 1C, as well as created by them from scratch.

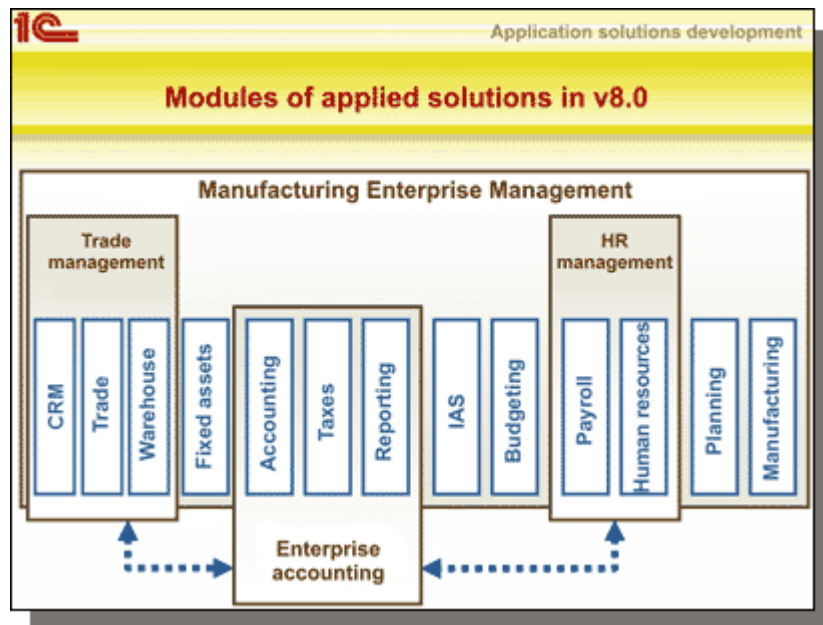
Special (individual) solutions are created by partners, too, and aimed to a particular business task or enterprise, which don't fit any industry or regional group.

All solutions can be customized corresponding a particular enterprise's needs and conditions. This adaptation work can be done by 1C specialists, certified specialists of a partner company or by staff of the enterprise itself, with or without participation of the solution's supplier's specialists.

Along with these groups of business applications there is one more term – **1C: Compatible Certified**. The certificate is assigned by 1C Company to a business application which has passed examination of its specialists for meeting a number of strict requirements, such proper code structure, general business application architecture, user dialog convenience, etc. The certificate implies that the business application is ready for replication. All boxed business applications are 1C: Compatible from the beginning, as well as vertical solutions supplied by 1C company's partners or other companies



There are several **applied solutions produced by 1C Company itself** (i.e. boxed business applications): 1C: Enterprise 8.1 Manufacturing Enterprise Management (meeting MRP, MRP II, CRM, SCM, ERP and IAS standards), 1C: Enterprise 8.1 Trade Management, 1C: Enterprise 8.1 HR Management (management and regulated accounts) and 1C: Enterprise 8.1 Enterprise Accounting. Solutions have modular structure and the same modules may be used in different business applications and various combinations. For example CRM



module is used in Trade Management and Manufacturing Enterprise Management (see the picture).

As 1C: Enterprise users and all partners receive the same development tools as 1C Company's developers have, they have full control over the solutions, too. Business applications created by 1C Company's partners or by ordinary users may include some of modules from boxed business applications, with some modifications or as they are, or they may also create their own modules using just some parts of those, or create entirely new modules interacting with them somehow, etc. Any combinations are possible.

For example, there is a payroll module in HR Management applied solution, providing a ready mechanism for payroll calculation, flexibly adjustable for any country, economic conditions and payroll calculation rules. It's easier to use this module in a new business application and adjust it, than to create a new one from scratch, as this task is very sophisticated.

3. Technological Platform.

3.1. Introduction.

From a user's point of view, the platform is invisible – one cannot see how it works and what exactly operations it does to solve a particular task. All a user can see and deal with – is a business application that in its turn operates on the platform. This is like any other application works on the platform of an operating system, or like Java applications (or applets) what are created and later executed on Java platform. The platform itself is invisible, but it performs a great deal of things, providing all the business functionality necessary to solve business tasks that a solution is intended for.

From a developer's point of view, applied solutions are developed on the platform and it provides a set of templates of business components, tools, means and functionality for a developer to use in the applied solution he's creating or modifying. It is a developer, not user, for whom it is more important what functionality, tools and means are provided by the platform and we are going to look at these issues in this document from this point of view.

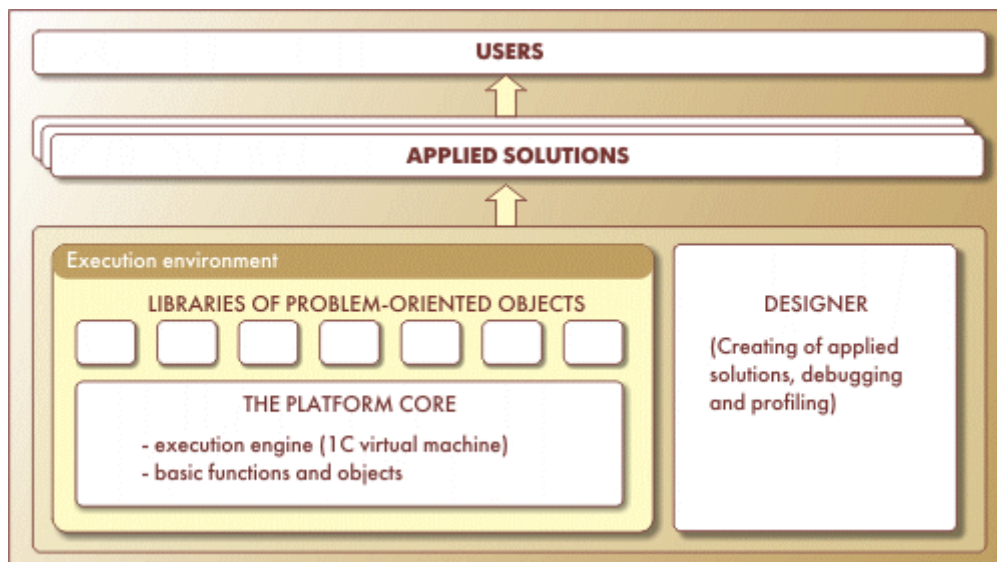
1C: Enterprise platform has a number of means and mechanisms defining a concept of quick creation of applied solutions – data structure creation, form designing, programming business logic, creation of interactive reports, etc. Presence of these mechanisms allows correlating technologic capabilities with a business scheme of development and introduction of applied solutions. Certainly, on the one hand, they limit (and quite deliberately) a developer's freedom in the way he creates a solution, on the other – protects him from designing and development mistakes and helps to get an operable solution within quite short period of time, that can be later developed and maintained by this or other developer, if necessary.

The key points of the platform to be emphasized here are that it provides **rapid application development (RAD)** through isolation of a developer from technologic details. For example, when a developer creates a business application using universal means (such as Delphi, or C++), he must take into account the database type it's supposed to interact with, take care of what tables should be created, with what fields in them, of which types, how they should be linked with each other, which fields should be indexed, how often, etc., etc. In case of creation of a business application on 1C: Enterprise platform, he just needs to understand what business entity he wants (a document, such as invoice, or a catalogue, such as a list of customers, etc.) and add the entity into the applied solution. The platform automatically creates all relevant tables, types, references, dialog forms, etc. Algorithmic programming is used for business logic only.

3.2. General Architecture of 1C: Enterprise 8.1 Platform.

From point of view of technology, 1C: Enterprise platform consists of the following basic items (see the picture):

- The platform core including an execution environment and a set of basic functions and business objects.
- Embedded libraries of problem-oriented objects.
- Application development tools.



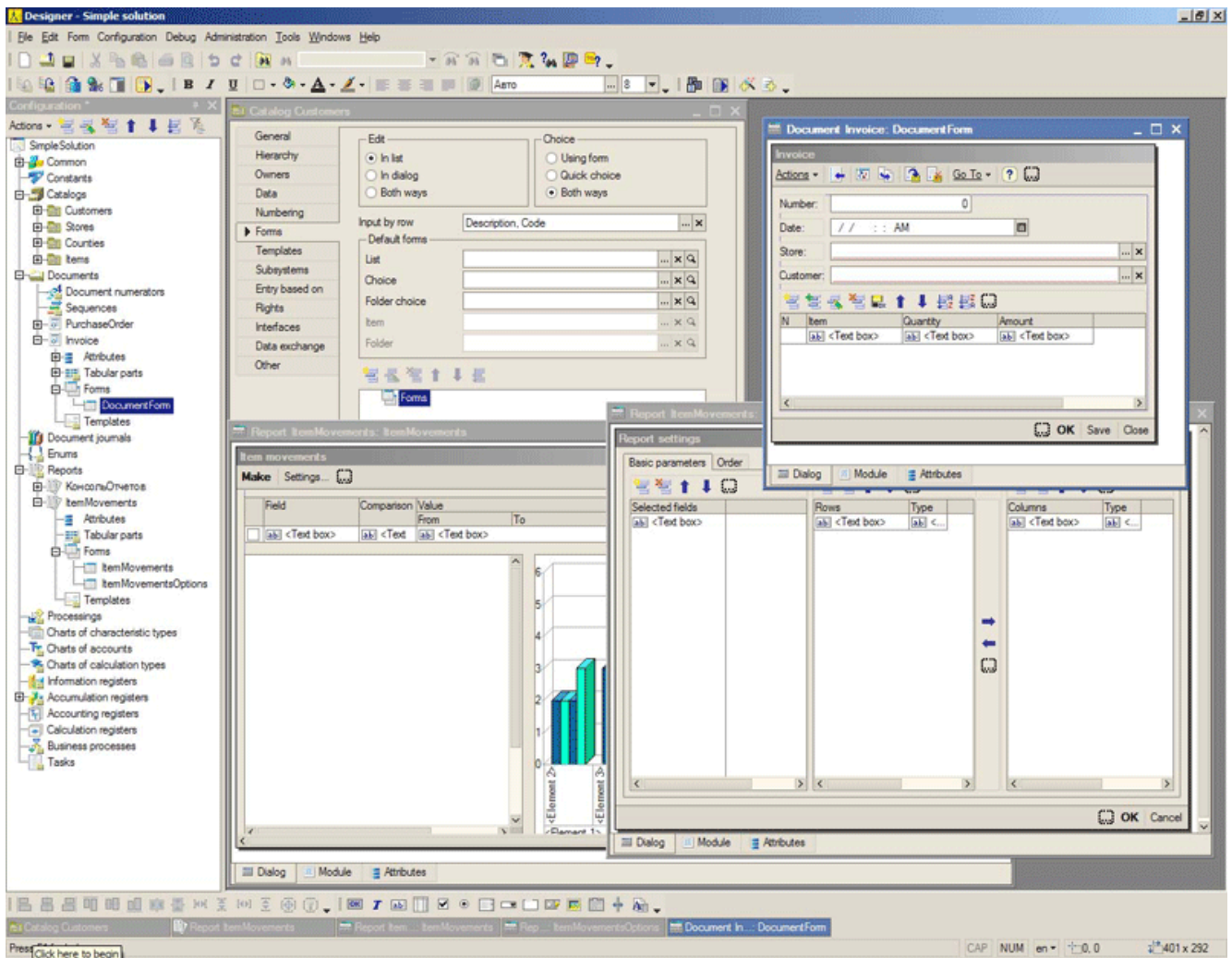
The structure of 1C: Enterprise system of programs

Such architecture provides the following unique characteristics:

- The capability for **RAD** and their quick subsequent modification.
- Maximum **standardization** of the design model and the business logic of applied solutions.
- **Isolation** of an application developer from technological details.
- **Openness** – final applied solutions are not like a black box, but they can be understood by end-users or other developers.
- The capability for **on-site adaptation** of applied solutions.
- Algorithmic **programming of business logic only**
- **Scalability** of applied solutions
- The capability for **on-going development** and **updating** of applied solutions

3.3. The Designer (Configuration Utility).

One of 1C: Enterprise system's components is Designer, a powerful visual development environment (IDE). It contains a set of tools for development and modification of applied solutions. Designer is included almost in all 1C: Enterprise products (with the exception of the simplest distribution kits) and any user of these products receive the same tool that is used by 1C developers.



Designer provides a business application developer with all necessary **toolkit for visual creation** of a business application's structure, data structure, dialog forms and their properties, build business reports, create command interface, specify access rights, create and edit modules in embedded language to handle various events and input/output data and specify special interaction algorithms, debug and profile his application, etc. The principles of development in Designer are described in the next section.

The development tools are intended to be used not only by professional programmers, but also by a wider group of users. Particular attention in these tools was paid to make them user-friendly. Experience has shown, for example, that an experienced accountant is perfectly capable of modifying certain parts of the accounting business application unassisted.

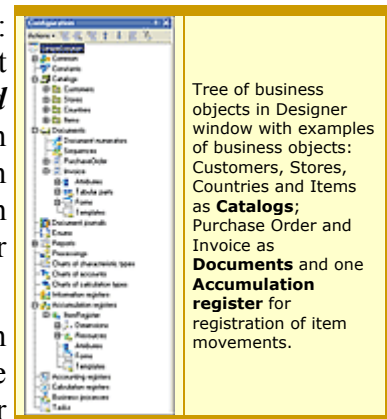
Another function of 1C: Enterprise Designer is **creation and editing of distributive packages of business applications**. A developer has a capability to compose a distributive package without the need to use special 3rd parties' products.

There is a possibility of creating a distribution package description. The description is used for composing required distribution packages. It helps to manage generation of the packages. Additionally it's possible to include other files to a distribution package, which are relevant to the solution supplied.

The distributive package includes an installation program and a number of archived files. User just runs Setup.exe installation program on his PC and follows the instructions on the screen. The installation program offers standard user interface.

3.4. Principles of Development on the 1C: Enterprise Platform.

A distinguishing feature of development of applied solutions in 1C: Enterprise platform, unlike development in universal systems, is that applications are developed in terms of classes of **problem-oriented business objects**. Any business application consists of a set of such objects and, in fact, a developer's task is to build a required application structure from these ready objects, like from a mechanic set, and then to specify specific operating and interaction algorithms, which differ from standard behavior of the objects.

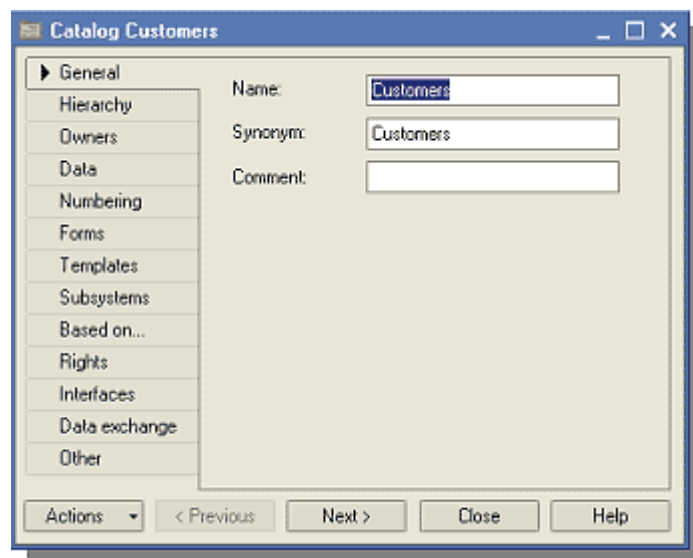


From this description the platform creates corresponding information structures in the database and defines ways to handle data stored in the structures. The developer does not have to think in which tables, for example, which data should be located, how they are modified or displayed to user. All these actions are performed by the platform basing on standard behavior of the objects used.

Thus, developer deals with **metadata**, i.e. with data on data, or configuration objects. When adding an object into applied solution's structure, in fact, a description is added on how corresponding data will be situated and how they will interact with other data in the information base (i.e. with actual data that are stored in a database).

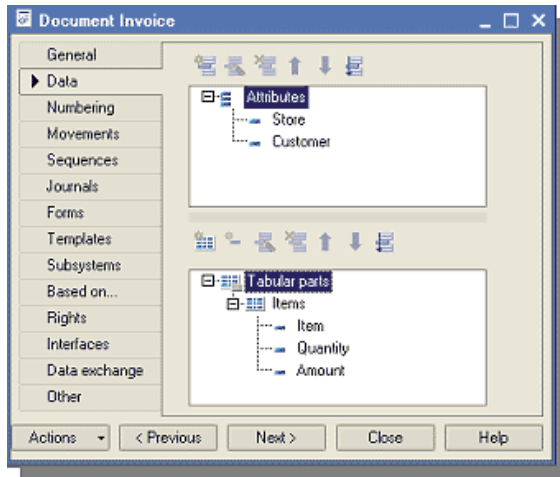
3.4.1. Application Business Components.

- **Catalogs.** They are used to describe such business objects as Items (goods), partners, currencies, warehouses, etc. They all have such common properties as internal object identification in the system, hierarchy and grouping support, nested tables support; these objects are included into business transactions.



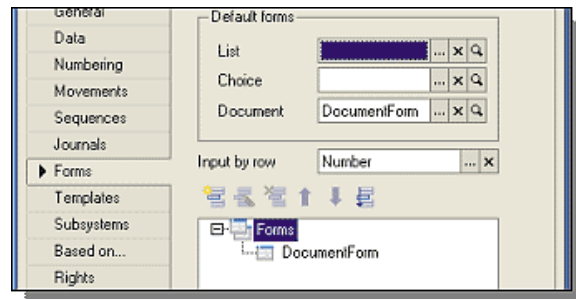
Window of properties of 'Customers' catalog includes several tabs, such as General, Hierarchy (shown), Owners and others.

- **Documents, Document journals, numerators and Sequences** are used to specify such business objects as invoices, orders, receipt slips, etc. An important feature of a document is its being bound to time. These documents reflect various business events in an enterprise's life. For them 1C: Enterprise platform supports identification of the economic event itself, nested tables, placement along a timeline, reflection of the event in record-keeping mechanisms, monitoring for consistency and the reflection of such events in real time (**Document numerators, and Sequences** are used for the latter). **Document journals** are intended for browsing documents of different types, at that every document form may be shown in one or more journals. **Document numerators** are used for through numbering of documents of different types. Several **Forms** are supported by the platform for Documents and **Catalogs**. The system can automatically generate all required form for a business object on the base of its description. At the same time, a developer can specify and design a particular form and assign it to be used instead of the default one. There are three types of forms: **List** form for browsing across documents of one type; **Document** forms for a particular document from the list; and **Choice** form selection of one or other document on the base of minimal information provided in the form.



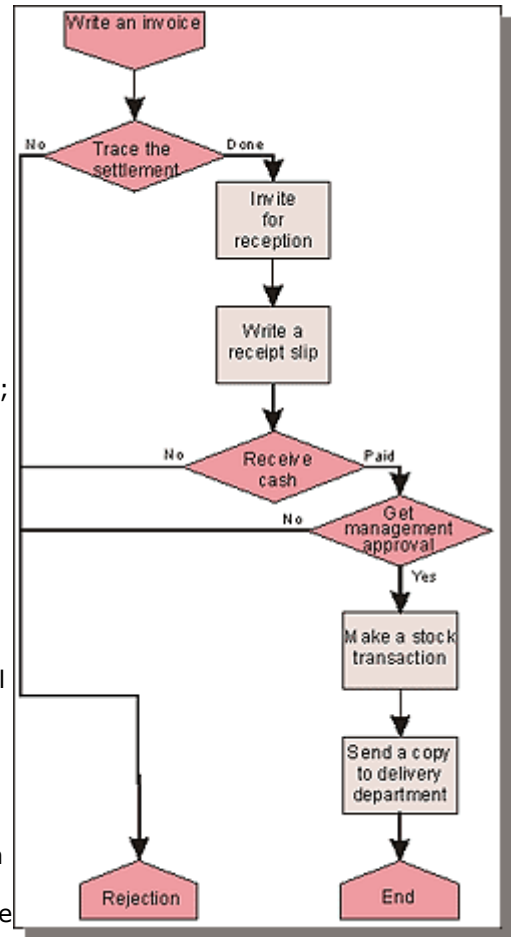
Documents and catalogs include some additional business information describing a particular document, for example information on a Store and a Customer. This set of information is the same for all documents of this type and document **Attributes** are used for this sort information.

Tabular parts are used for some set of information that is the same in its structure, but varies in amount. For example, a list of items invoiced, with price, quantity and amount.



To browse and modify documents' data there are several representation **forms**. The system is capable of generating all required **default forms** itself. At the same time, a developer can create special forms that will be used by the system instead of default ones.

- The Registers.** The document itself (above) only describes a business event. In real business these facts must be accounted and the movements of resources (products, finances, etc.) must be reflected in various record-keeping systems. For this the document must be posted (registered) and this is what registers are for. They store various information on objects, their characteristics, events, resource movements, business accounting and more. There are four types of registers:
 - Information registers** (to store multi-dimensional information on various values, such as currency exchange rates or competitors' production prices, etc.),
 - Accumulation registers** (responsible for resource movements accounting [financial, goods, materials, etc]; allows to automate warehouse accounting, mutual settlements, planning; their functionality allows getting balances at a certain point of time, totals calculation, etc.),
 - Accounting registers** (are used for implementation of double entry system in business accounting, support multi-layer hierarchical **Charts of accounts** with fixed or variable code capacity, multi-layer and multi-dimensional analytical accounting (defined with **Charts of characteristic types**), accounting across several charts of accounts and several organizations, optional quantitative, summary and currency accounting for separate analytical sets, etc.)
 - and **Calculation registers** (for implementation of payroll calculation models; allows describing various payroll types (salary, additional payment, alimony, fine, etc.), to specify rules how some payrolls may depend on other payrolls, to store intermediate data and final results; can be used to calculate income taxes for private persons, etc.; customizable by a business application developer for any economic conditions).



- Business processes** (workflows). This allows consolidating individual operations (such as writing out an invoice, payment acceptance and goods delivery) within a single workflow (for example, cash sale). Logic of business processes is created visually in the Designer. There may be routs with conditional jumps, paralleling and synchronization, nested business processes, etc. It can generate a list of tasks for a particular executive person automatically. Moving across routs can be done manually or automatically. The mechanism of business processes can be added to an existing applied solution without much effort. The mechanism is represented in 1C: Enterprise with two objects: **Task** and **Business Process**. **Task** object is intended for description of tasks (jobs) and describes their assignment across executive persons according to an enterprise's organizational structure. When a Task is done, the business process moves over to next one in the route map. Tasks in themselves consist of a list of assignments to an individual responsible person. **Business process** object describes business logic in the route map and controls a workflow lifecycle from the beginning through to its end. It includes a route map itself, action points, routing rules (there may be group, personal, positional and conditional routing).

3.4.2. The Embedded (Built-In) Language.

The built-in language allows a developer creating his own application business logic. It has many particulars similar to other script languages, such as Java Script, that makes it easier for mastering by beginning developers. Besides, Designer includes Syntax Assistant and context help (drop-down lists) that significantly speeds up creation of modules and reduces number of mistakes in the code.


```

Procedure ItemMovementsInitialization()
  //((REPORT_GENERATOR_REPORT_BUILDER_INITIALIZATION(ItemMovements)
  // This fragment was built by the wizard.
  // Warning! All manually made changes will be lost next time you use the wizard.

  ReportBuilderItemMovements.Text =
  "SELECT
  | ItemRegisterBalanceAndTurnovers.Item AS Item,
  | ItemRegisterBalanceAndTurnovers.Item.Presentation,
  | ItemRegisterBalanceAndTurnovers.Store AS Store,
  | ItemRegisterBalanceAndTurnovers.Store.Presentation,
  | ItemRegisterBalanceAndTurnovers.QuantityOpeningBalance AS QuantityOpeningBalance,
  | ItemRegisterBalanceAndTurnovers.QuantityClosingBalance AS QuantityClosingBalance,
  | ItemRegisterBalanceAndTurnovers.QuantityReceipt AS QuantityReceipt,
  | ItemRegisterBalanceAndTurnovers.QuantityExpense AS QuantityExpense
  |FROM
  | AccumulationRegister.ItemRegister.BalanceAndTurnovers AS ItemRegisterBalanceAndTurnovers
  |
  |TOTALS SUM(QuantityOpeningBalance), SUM(QuantityClosingBalance), SUM(QuantityReceipt), SUM(QuantityExpense)
  | OVERALL,
  | Item HIERARCHY,
  | Store";
  ReportBuilderItemMovements.FillSettings();
  ReportBuilderItemMovements.DetailFillType = ReportBuilderDetailsFillType.GroupValues;
  ReportBuilderItemMovements.HeaderText = "Item movements";
  Options = RestoreValue("OptionsReportsItemMovementsItemMovements_07b92cab-621b-47ae-bbe6-s8b908be9aa2");
  If Options <> Undefined Then
    ReportBuilderItemMovements.SetSettings(Options);
  EndIf;

  //))REPORT_GENERATOR_REPORT_BUILDER_INITIALIZATION
EndProcedure

```

3.4.3. The Query Language.

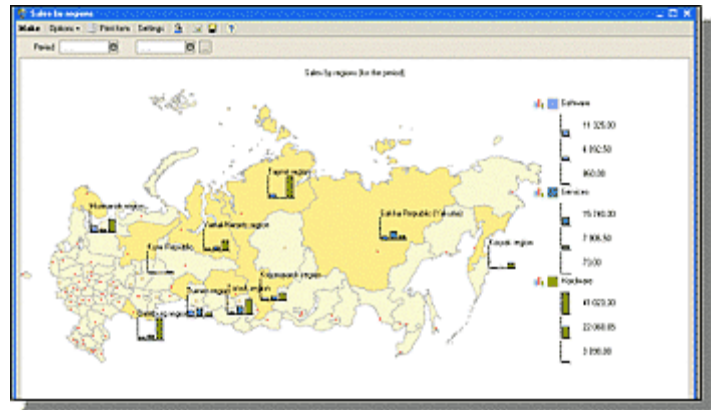
To provide a developer with a way to use queries to implement his own algorithms 1C: Enterprise platform includes a query language. The query language is SQL-based, but contains significant extensions, focused on business character of tasks it is intended for and to minimize efforts required for business application development. The most significant features of the query language are the following:

- Access to fields through '.' (dot). If some table fields are of reference type, a developer can reference to them using '..' (dot). At that number of nested references is unlimited.
- Access to nested tables (tabular parts of documents).
- Auto-ordering.
- Multi-dimensional and multi-layer totals.
- **Virtual tables** support. The virtual tables provided by the platform allow getting almost ready data for most applied solutions without the need to build complicated queries. For example, such a virtual table can provide balance data by periods at a certain point of time. At that, virtual tables use information stored as much as possible, for example, totals calculated earlier.
- Standard SQL-operations, such as Union, Join, etc.

3.4.4. Economical and Analytical Reporting.

The platform provides wide possibilities for designing and interactive work with reports:

- intellectual creation of hierarchical, multidimensional and cross reports;
- retrieving user-specified analytical data without modifications in an applied solution;
- tables support grouping and aggregation of information, drill-down functionality;
- summary table to analyze multidimensional data, dynamical report structure modification;
- various charts and diagrams for graphic representation of economical information;
- geographic chart – for Visual data representation from geographical location point of view;



Sales volumes by regions as bar charts

For geographic chart shape-files with topologic data are used. They can be created with ESRI ArcGIS-compatible software.

At that one can change the chart scale, getting detailed information, as well as create new charts.

The platform provides a unique and universal tool for creation reports of any complexity – Report Builder. To generate a report with the help of Report Builder it's enough to define a set of data to be analyzed and a type of a report wanted. This source information is specified with the **query language**, usually it is built visually, using the data present in the **query wizard** (it's worth noting that the query wizard allows building queries of almost unlimited complexity, including joints, nested queries, and it's capable of presenting any query text visually). All remaining is executed by Report Builder – generation of database queries, forms, charts, interfaces, tables, etc. On the base of thorough analysis Report Builder creates all infrastructure required for getting the reports, as well as for browsing and fine-tuning it by a user.

3.4.5. Business Data Analysis.

Business data analysis mechanism provides users with a way to detect not obvious patters (regularity) in data accumulated in their information base. This mechanism allows:

- search for patters in initial information base data;
- adjust analysis parameters;
- generate a tabular document on the base of analysis result;
- create forecast models allowing to forecast further events or values of some characteristics of new objects.

This mechanism gives a developer a possibility with minimal efforts to include to the business application means for mathematical analysis of management information. To represent results of the analysis there is a set of various diagrams and charts, including Gantt chart.

For the analysis not only database data can be used as input data, but also data from external source being loaded into a table document.

Types of analysis implemented include:

- General statistics. It's a mechanism for collecting information on data contained in the set being analyzed. Intended for preliminary examination.
- Search for associations. It searches for groups of objects or characteristics' values often seen together and searches for association rules. It can be used to detect groups of items (or services) often bought together.
- Search for sequences. Detects sequences of events in the source data, such as a series of items or services often bought one after another.
- Cluster analysis. Breaks source set of objects being analyzed into groups of more similar objects. Examining these groups (clusters) one can find out what is typical of one of other group and to make a decision as to how to operate on objects from different groups.
- Decision tree. This type of analysis allows building a hierarchical structure of classifying rules. Analyzing various characteristics of objects it provides a forecast. For example, analyzing known characteristics of partners, (such as annual turnover, number of stores, amount of purchases, etc.) it can forecast, for example, for how long time this partnership will go on.

3.4.6. Interface Mechanisms.

1C: Enterprise provides a modern GUI design and improved user convenience for continuous work with the system. It is implemented for business (economical) and managerial character of tasks the system is intended for, and focused on providing high ergonomic and efficiency in work with business applications. It supports attached, floating and hiding windows, selective maximization mode (not supported by Windows windowing model), linked MDI-windows, etc.

Interface mechanisms also include forms (automatically generated or created by a developer) and control elements ('controls'). They are used for entering, displaying and editing information contained in a database.

The system has a special set of business task-oriented controls with specific characters, such as entry fields with function buttons and others.

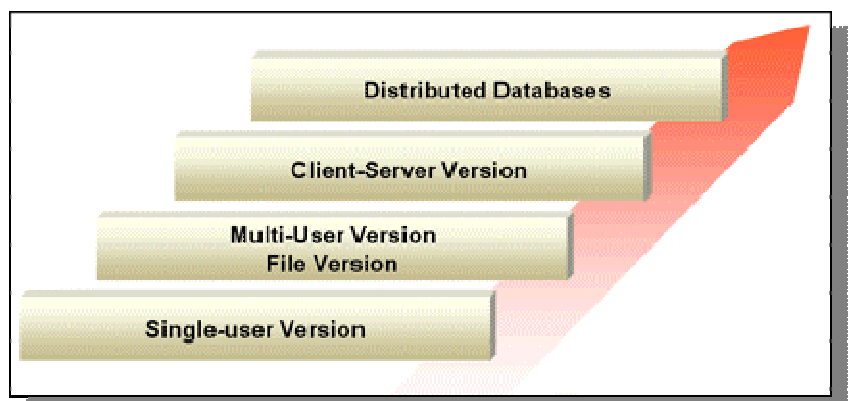
3.4.7. Scalability.

Using 1C: Enterprise 8.1 platform allows efficient operation and data safety when working with tens and hundreds users.

Modern three-tier architecture provides high performance for resource-consuming tasks and allows to increase data bandwidth through increasing capacity of hardware used, saving costs concerned modifications or changing business software.

The platform provides various options for a business application to operate: from a standalone single-user PC through to operation within larger workgroups with a local network with tens of users.

As a database, a **file server** can be used (the platform includes a native database engine for file



server version) or **Client-Server** version based on **three-tier architecture** with MS SQL Server. It also supports **distributed databases configuration**, when one information base is spread across several work places without a permanent connection between them and a central database server.

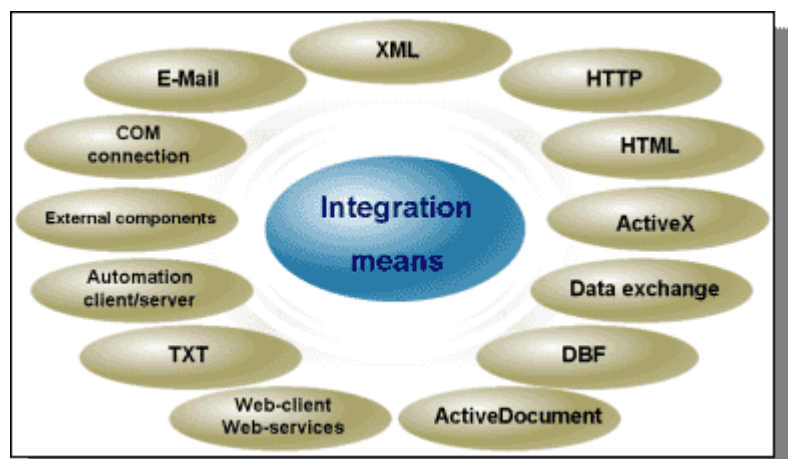
An applied solution works the same way whichever version is used regardless. A database can be converted from one version into other by means of standard tools supplied with the platform, without losing any user data. Native database engine is used to operate with a particular database, so 1C: Enterprise database model is completely abstracted from real database format, therefore an applied solution developer neither has to think on which version of the solution is going to be used, nor on how to modify it when migrating from one version to another.

The key point of scalability is that a performance growth is achieved by means of the platform, and business applications do not require modifications when number of users working simultaneously grows.

3.4.8. Integration.

The application supports integration with almost any external applications (such as bank client systems, e-mail clients, schedulers, etc.) and hardware (control equipment, warehouse terminals) using commonly adopted open standards and data transfer protocols supported by 1C: Enterprise 8.1 platform.

There is a whole set of means in 1C: Enterprise to create, handle and exchange data of various formats; to access all objects of 1C: Enterprise system realizing its functionality; to support various data exchange protocols; to support interaction standards with other subsystems; and to create own Internet solutions.



3.4.8.1. Text documents

Embedded language of 1C: Enterprise allows creating, dynamically building and writing text documents. Establishing data exchange with text documents (files) may be as one of the least resource-intensive ways to arrange interaction with other information systems.

In addition to usual ways of working with text documents (such as reading/writing, add strings, get strings), a developer has the possibility of dynamic building of text documents, basing on templates created in advance.

A text template's capabilities:

- Creation of the template's named areas, specifying the area's language;
- Text template's fields' layout description;
- Field's data output format description;
- Field alignment description;
- Description for automatic word-wrapping for a field's value representation at report formatting;
- Use of blanking when text cannot fit its field;
- Getting a text template as similar as possible to the report being built on its basis, or to a initial document's form.

3.4.8.2. Consecutive reading of text files

Operation on text files – the simplest data exchange mechanism. It can be used for a wide range of tasks. Its main advantage is that it is simple to start using it, and textual representation of information.

A developer can use the following features:

- Create new and open existing text files, specifying one of the text formats: UTF-8, -16, or ANSI;
- Read a string of specified length, or the file entirely;
- Read next string from the file, limited by a separator;
- Write a text string to a file, with or without a separator.

3.4.8.3. XML

1C: Enterprise allows establishing integration with applied systems using XML-documents that is a commonly acknowledged data representation mean at present.

Operation on XML-documents can be performed immediately from 1C: Enterprise 8.1 embedded language.

It's possible to:

- Convert a string from an item's or XML-element's text into a value according to the type specified.
- Get string representation of a value to put to item's text, or XML attribute's value.
- Get XML data types according to the type passed as a parameter.
- Check if the value of the type specified can be read from XML.
- Write a value in XML format. The following values' types can be written to XML: Undefined, null, Boolean, Number, String, Date, Type, UniqueIdentifier, BinaryData, ValueStorage, TypesDescription, also data object references and data object themselves, set of registries' entries, constant value manager. The list can be updated later.
- Return a type, appropriate to XML data type.

Using COM-connection and XML mechanisms one can arrange integration with applied systems according to the formats accepted in the systems. XSL-conversion mechanisms are used for this.

3.4.8.4. DBF-files

The mechanism allows working on DBF format data from 1C: Enterprise embedded language. It supports almost any operations on such data.

There is a special object in the system – XBase – to make it possible to work on DBF (dBase III) data formats. The mechanism allows working on DBF format data from 1C: Enterprise embedded language. It supports almost any operations on such data.

In addition to supporting operations on existing databases, XBase object includes a set of methods to create a new database of arbitrary structure, new indexes and new index file. It's worth to note that it's possible to use methods modifying a database structure only for those objects, which are not linked with existing database (i.e. for new created databases only); while creation of new indexes and index files is also possible for existing and opened databases.

3.4.8.5. COM-connection

The main task to be solved with COM-connection is to provide a reliable and efficient way to access 1C: Enterprise 8.1 data from external applications. In general, operation on 1C: Enterprise 8.1 through a COM-connection is similar to working with it in Automation-server mode.

The main differences are the following:

- In case with Automation-server, it starts a normal 1C: Enterprise 8.1 application, while with COM-connection relatively small in-process COM-server is started.
- When working through COM-connection features, which one way or other relates to 1C: Enterprise 8.1 user interface, are not available; when COM-connection is being used, and 1C: Enterprise 8.1 applied solution application module does not work; external connection module acts as applied solution application module.

There are following advantages in using a COM-connection before using Automation-server to access 1C: Enterprise 8.1 data:

- Quicker establishing a connection;
- Quicker access to properties and methods of 1C: Enterprise 8.1 system objects;
- Less OS resource-consuming.

3.4.8.6. Client/Server Automation

The main goal of 1C: Enterprise 8.1 Automation-server is to control 1C: Enterprise 8.1 system application from other applications and performing actions similar to interactive ones.

1C: Enterprise 8.1 Automation-server provides access to all properties and methods of its global context.

3.4.8.7. Operation on HTML-documents

Means of operation on HTML-documents allow integrating them into an applied solution's forms and editing them by means of the embedded language.

There is a control item - 'HTMLDocumentField' - in applied solution forms to work on HTML documents.

An HTML-document can be build programmatically in a control item, loaded from a resources at a certain URL, or from a HTML-template. It's possible to handle events from the control item, including those from HTML document.

For example, there can be an HTML-document's field in an applied solution's form to work on the applied solution's catalogs. Apart from other actions, such form allows to browse catalogs' contents as HTML document and save the document to disk.

3.4.8.8. Technology of external components

It was developed for special integration tasks, where tight interaction between 1C: Enterprise 8.1 system and other applications is required.

3.4.8.9. ActiveX

1C: Enterprise platform allows embedding additional control items into forms and tabular documents, supporting ActiveX technology.

3.4.8.10. ActiveDocument templates

The technology is intended for editing documents by external (in respect to 1C: Enterprise 8.1) software editors.

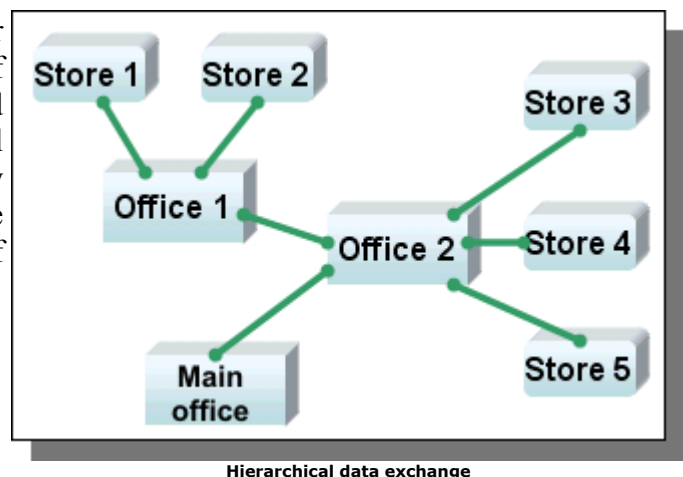
3.4.8.11. Interaction with Internet

It's possible to do directly from the embedded language. A developer can send/receive e-mails, and perform data exchange by HTTP(S) and FTP protocols.

3.4.9. Data Exchange Mechanisms.

1C: Enterprise 8.1 implements support for distributed databases, providing operation of one business application with databases spread over territories, structured as a multi-level hierarchical system. This gives the possibility to apply Manufacturing Enterprise Management application in enterprises of holding or multi-level structures.

Being implemented in technologic platform of 1C: Enterprise 8.1, it is possible to establish **geographically distributed information systems** on the basis of 1C: Enterprise 8.1 information bases, as well as with participation of other systems, not based on 1C: Enterprise 8.1.



There can be different schemes of data exchange with a distributed database: hierarchical, with many levels; star topology, etc. The system provides several ways to resolve collisions, if data were modified at different nodes of the distributed system. Data exchange scheme is restored in case of database restoration from back up archive. For data exchange XML-documents are used.

Data exchange mechanisms include:

- **Exchange Plan** applied solution's objects. Exchange Plans contain information on participating nodes, define data to be exchanged, etc. There may be several Exchange Plans in one business application with their own data exchange order. For example, if there is a need to arrange data exchange with remote stores and offices, then most probably there will be two exchange plans, as data composition in exchange with stores is much "narrower" than in case with exchange with offices.
- **XML-serialization means**
- **Reading/Writing XML-documents**

3.4.10. Access Rights System.

It controls user access to those only data which are necessary for him to perform certain actions in a business application. An access rights' structure is defined by an applied solution. A developer can visually define sets of permissions corresponding to users' positions or their kind of activity. For example, there may be such sets of permissions (**Roles**), as 'Chief accountant', 'Storekeeper', 'Manager', 'Head of department', etc. At that several Roles can be assigned to one user.

The system includes a feature – access restriction on the level of records and fields (row-level security), when certain form's fields can be read only or hidden at all from a specified user (or a user with a specified role).

3.4.11. Team Development.

1C: Enterprise Designer allows establishing team development of an applied solution by a group of developers. At that, access rights for modification of every applied solution's object are specified, so required modifications are performed simultaneously, not one after other. There are also visual tools for versioning, keeping history of versions, modifications done, etc.

3.4.12. Comparison, and Merging of Solution Configurations.

The mechanism of comparison and merging of configurations is very important in development of applied solutions. In particular, it allows one to incorporate elements of other configurations into an application being developed with ease and precision, to ensure synchronization of solutions being developed, etc.

This possibility is used, for example, when one applied solution is developed by several independent developers, or when an existing solution configuration should be updated with modifications done.

This mechanism provides not only comparison of general properties of business objects, but their *Attributes*, *Tabular parts* and *Forms*: it compares text in modules, descriptions and *Templates*.

3.4.13. Business Application Update Service.

Existing updating means in 1C: Enterprise provide **industrial support** and updating of integrated solutions without interruption of real work that is essential for developers and users of automated accounting and management systems.

If there were no changes in a business application made by the user, 1C: Enterprise provides completely automatic update. If the user modified the business application, the platform guarantees that synchronization of these modifications with any updates provided by the supplier (developer) will be done safely, preserving the modifications made by the user. Business application update can be performed through standard protocols (for example, such as HTTP, over Internet).

3.4.14. Localization Support.

The localization support provided by the platform includes several aspects:

- All applied solution configuration texts are stored in a database in **UNICODE** format. This format allows using characters from different languages at a time. So a user can enter data in various languages, for example if an item description should include some text in the language of the manufacturer. At that the system allows performing filtration and sorting across such texts.
- **International dates and numbers support** for main European languages. At that settings used in a database may be set by an administrator other than the default system settings.
- **Two variants of embedded language.** At present all embedded language operators have Russian and English variants. No additional modifications required – both variants are equally accepted by the system.
- **Bilingual documentation and Syntax Assistant** included.
- **Localized platform interface.** Apart from the Russian version, the platform interface currently includes English, Ukrainian, Lithuanian, Latvian and Romanian versions.
- **Localization support in the embedded language.** There are functions for:
 - getting a string in a relevant language from a set of pre-defined strings in different languages;
 - formatting numbers according to standard formats of a country selected; generating a report in a language specified;
 - numbers and periods spelling functionality for the following languages: Russian, English, Byelorussian, Bulgarian, Kazakh, Lithuanian, Latvian, German, Romanian, Ukrainian, Finnish;
- **Multilingual business application interface.** It's possible to create multilingual applied solutions due to the possibility to use additional localized interfaces. With them the following localized interface items are possible: system menu, dialogs, messages, and help.
- **Applied solution localization.** There is a mean of rapid localization in 1C: Enterprise. It allows localizing and translating all occurrences of a string in an applied solution configuration, replacing it or just adding a translation into the configuration.

3.4.15. Administration Means.

The platform provides business application administrator with wide control over user's actions and their operations. The system also includes powerful business application update mechanisms using various data exchange protocols, including over Internet.

They include 1C native authentication, also support Windows authentication, user actions log, database set up and maintenance, platform and business applications update, client-server and file server administration tools, file database restore tool, lists of active users, etc.

4. 1C: Enterprise 8.1 - Functionality of the Business Applications.

4.1. Introduction.

This section describes 1C: Enterprise 8.1 business applications' functionality (or 'applied solutions' in 1C: Enterprise platform terms) produced by 1C Company in 1C: Enterprise 8.1 software system.

The unique composition of business functionality, applied solutions development and administration means, software integration and data exchange tools provided by 1C: Enterprise platform offers outstanding possibilities for rapid application development (RAD) and drastically lowers development and maintenance costs. This caused a whole industry for creation of business applications based on the platform to appear across former USSR territory.

Business applications created by 1C Company and its partners on the base of 1C: Enterprise platform cover many business areas. In very general, all business applications can be divided into two big groups: produced by 1C company and those produced by the Company's partners.

There are four **standard boxed business applications** produced and supplied by 1C Company:

- 1C: Enterprise 8.1. Trade Management
- 1C: Enterprise 8.1. Payroll & HR Management
- 1C: Enterprise 8.1. Enterprise Accounting (also called 1C: Accounting 8.1)
- 1C: Enterprise 8.1. Manufacturing Enterprise Management



* Including applied solutions on the platform of previous versions

A distinguishing feature of boxed business applications made by 1C is their functional compositions being thoroughly worked out. Standard solutions contain only those functions which are really required for a significant part of enterprises. This allows making them rather compact and easy-to-use, providing direct correspondence between legal system and business specific and the solutions, also to maintain and develop them further. Besides, this makes possible for them to be used by the Company's partners when developing their own business applications.

These four applied solutions are described in details in the consequent sub-sections.

Vertical applied solutions are created by 1C Company's partners for automation of some branches or fields of activities of enterprises. Presence of the single platform and common development methodology allows developing such solutions using boxed solutions from 1C as a basis, adding only required components aimed to a particular branch or an enterprise specificity. This provides quick development and introduction of business applications due to using proven functionality implemented in the boxed applied solutions; this also reduces costs of vertical solutions – the expenditures are significantly lower in comparison to development of a business application from scratch.

Armed Forces - Accounting - Uniform inventory - Cash allowance	Transportation - Transportation companies - Auto dealers - Service and repairs, parts	Public Health - Medical statistics - Clinic, hospital - Diet food catering	Educational Institutions - Calculation of scholarships and stipends - Library system automation
Agriculture - Accounting - Wage calculation	Public Catering Automation of public catering businesses	Insurance - Ins. contracts bookkeeping - Calculating insurance reserves - Accounting	Non-Profit Organizations - Accounting - Monitoring of the use of all costed funds
Manufacturing - Manufacturing planning, scheduling and control - Accounting	Tourism - Airline ticket sales - Travel agencies - Hotels	Service Industry - Video rental - Organizations operating on commission - Pawn shops, beauty salons etc..	General Solutions - International accounting standards, planning, management, interaction with clients, etc.
Construction - Accounting - Calculation of estimates - Construction-site management	Housing - Rent calculation	Real Estate - Calculation of rental agreements - Netting of mutual obligations - Accounting legal and administrative records	... and much more... - Investment companies - Franchises - Lumber and other businesses ...

Examples of vertical solutions on the base of 1C:Enterprise platform

* Including applied solutions on the platform of previous versions

4.2. 1C: Enterprise 8.1. Trade Management.

"1C: Enterprise. Trade Management" applied solution is a boxed business application offering a complex automation of management accounting tasks, analysis and planning of commercial transactions, providing efficient trading enterprise management.



4.2.1. Trade Management.

Sales management subsystem allows solving tasks of management accounting and sales control, in both natural and money terms. It includes two blocks – sales planning and customers' orders management.

Sales planning block is intended for providing management personnel with information on actual and planned values of the enterprise activity. Planning is performed for groups of items, or on separate items. It's also allowed to select a category of customers (by region, for example) and make up individual plans for each of the groups.

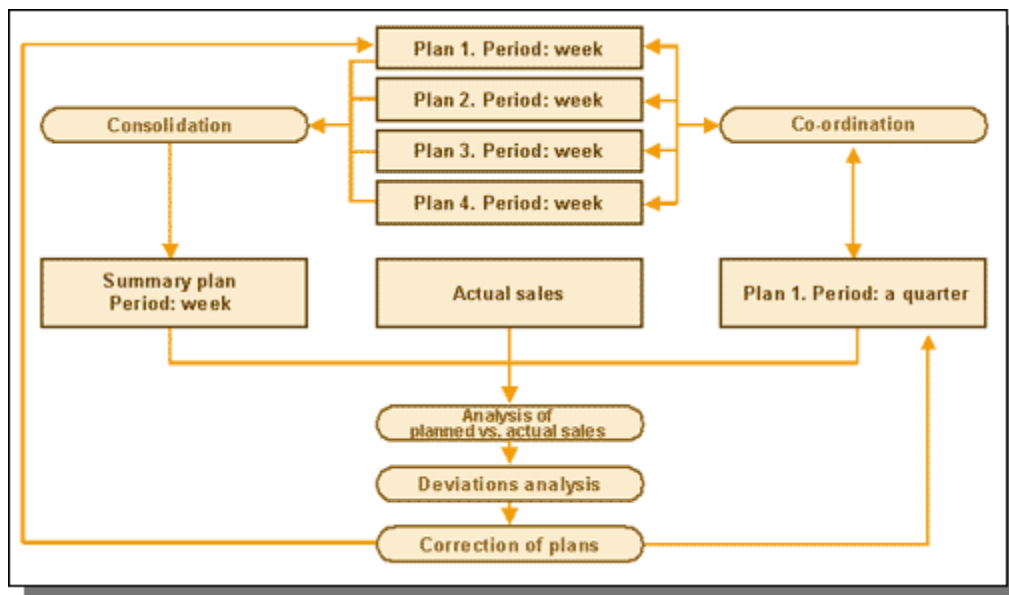
It allows making up plans with various time scales (from a day to a year period), so strategic (for a quarter, or annual) as well as work plans can be built for the same period. For example, an annual plan can be built in the beginning of a year, and monthly plans can be approved according to that.

Sales planning can be performed for an enterprise in general or by its departments separately. This allows department managers to make up plans for their directions, which can be composed into a summary sales plan for the company in general.

Later, the plans can be compared to actual sales, deviations are analyzed and the plans can be corrected.

The applied solution offers the following functionality:

- Sales management
- Purchases management
- Supply management
- Sales and purchases planning
- Stock management
- Orders management
- Customer relationship management (CRM)
- Enterprise commodity turnover analysis
- Price analysis and pricing management
- Personnel monitoring and job rating
- Monitoring and commercial efficiency analysis
- Manager's report
- Analytical reporting
- Sales equipment attachment



Sales planning diagram

Comparative analysis of planned and actual sales can be performed for various periods (for example, for the same periods of current and last year) and various levels of details.

Customers' orders management subsystem allows implementing the most efficient for the enterprise strategy of working out customers' orders, according to the business strategy selected on the enterprise (sales from stock, to order, etc.); reservation items on a stock with subsequent shipment, adding a customer's order to earlier created orders for suppliers, etc. An algorithm is provided for automatic goods reservation and accommodation, allowing optimal placement of a customer's order to supplier's orders and to free items on stock.

The system provides meeting delivery terms for the items ordered, satisfying as many customers' demands as possible, also avoiding overstocks. 'Orders analysis' report gives information for current state of customers' orders.

There is a capability of analyzing an order expected profit when the order is being drawn up. This excludes situations when discounts could make the price lower than minimal admissible value.

There are several **Sales schemes** provided in the application: with tentative reservation of goods, or without it (from actual stock remainders); by preliminary orders with suppliers for particular orders from customers; sales on credit or on the conditions of full (or partial) prepayment.

Purchases management functionality provides managers with information necessary for planning timely purchases of goods and for optimization of purchase costs.

The sub-system allows automating such operations as the following:

- Making up purchase orders for suppliers basing on customers' orders.
- Monitoring bill settlements and delivery of good for the orders.
- Correction and closing purchase orders
- Suppliers' prices monitoring.

4.2.2. Warehouse Management.

Warehouse management implements **detailed records management** on stocks (warehouses), providing full control over an enterprise's goods stocks, for both wholesale and retail trades.

- **Warehouse accounting**
- **Internal orders management**
- **Overhead expenses records**

Multiple warehouses and **units** are supported. It provides **separated accounting** of goods owned, accepted and passed for sale, accepted for safe keeping, also accounting of reusable containers.

Operations over sets, making them up and de-packaging are also provided.

Inventory functionality calculates the difference between accounted (registered in the information base) and actual goods found during the stock-taking. Then writing-off or posting documents are made up.

Internal orders processing functionality allows a company departments to order goods with other departments to supply their own stocks. Internal orders are also processed in sales and purchases planning with the same algorithms. An internal order is considered closed upon taking the good on target stock.

Overhead expenses may be included into goods' cost. Depending on the nature of the expenses they may be spread pro rata to costs of goods received, their weight or quantity. Overhead expenses may be fixed before goods receipt (according with a particular agreement or order).

4.2.3. Customer Relationship Management (CRM).

As **contact information** it there may be such parameters as address, telephone number, e-mail address, local phone number, etc. Also, there may be several contact persons for a customer, with additional contact information for each of them.

'Contacts' may also include arbitrary information received from customers as well as information entered by a user himself to be sent out. Analysis of contacts efficiency is performed with the help of 'Contacts and information sources analysis' report. At that, various parameters may be used to estimate results. For example, one can see how sales volumes grew up after ringing customers round. Or, what was the company's profit after an advertising company, and advertising in which newspaper brought the best result.

- Allows solving the following tasks:
- Storing contact information on customers, automatic notification about future contacts with a customer.
 - Contact information exchange with external mail programs.
 - CRM analysis with grouping customers into various categories (ABC- and XYZ-analysis) .
 - History of contacts with customers.

The capability of **contact data exchange with external e-mail programs** increases work efficiency, keeps the contact database integrated, and helps to avoid its duplicating.

Data exchange is arranged in CSV format with 'Data import/export' functionality.

CRM analysis provides **customers appeal analysis (ABC)** and **customer relation stages analysis (XYZ)**.

ABC analysis allows estimating relative value (appeal) of various groups of customers and to distribute business efforts for them correctly.

ABC analysis is performed with a corresponding report, basing on data, entered to a database. From the report data one can re-arrange lists of partners according with the importance groups. There may be three such importance groups:

- "A" – high importance
- "B" – medium importance
- "C" – low importance

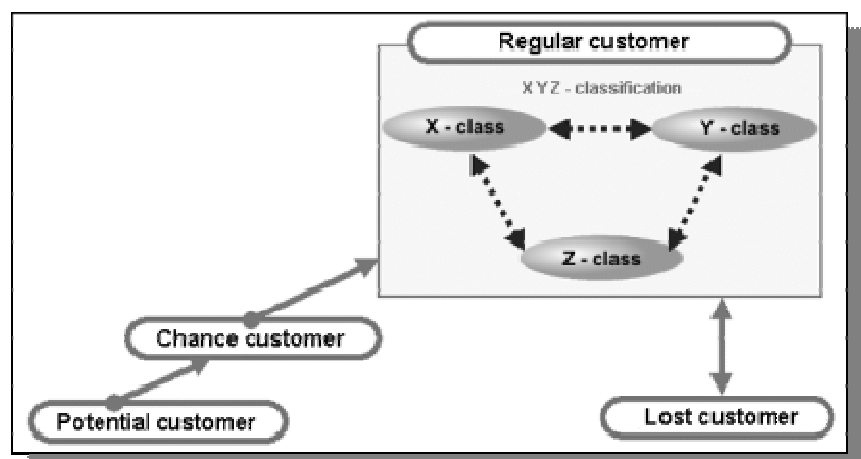
An automatic ABC-classification is provided for automatic re-arranging the partners.

Values and criteria of the processing are defined by a user in the processing settings. After the processing, every partner (contact) receives a proper category; however they may be modified by a user manually, too.

XYZ analysis and relation history can be also applied to the list of contacts and classify them by stages of relations.

A customer relation stage can obtain one of the following values:

- Potential customer
- Chance customer
- Regular customer
- Lost customer



In order to understand tendencies of customers' inclinations, more detailed information is also displayed for 'Regular customer' group, such as X, Y and Z classes. (Arrows on the scheme represent transition directions between states).

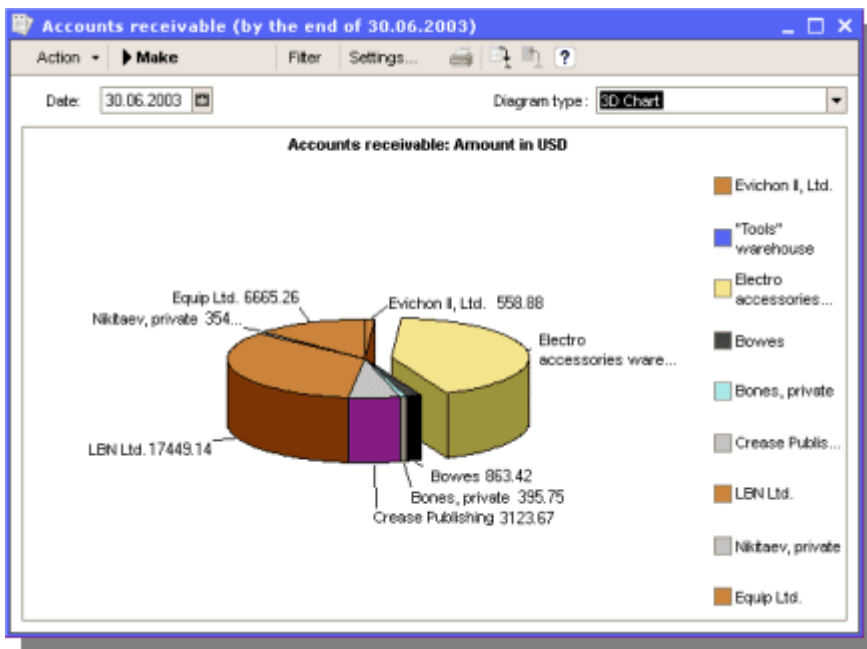
XYZ analysis is performed with 'XYZ analysis of customers' report. 'XYZ processing' automatically assigns proper classes to contacts, it can be manually modified, as well.

4.2.4. Reporting.

The application offers **analytical reporting** functionality as a **powerful and flexible mean** for analysis of all aspects of enterprise business activity.

One can get information on stock states, orders, sales, mutual settlements from any analytical points of view with required level of details.

For example, one can get sales information by regions for one or other group of goods or monitor sales volumes for a period of time with details by days.



User can adjust level of details on his own, as well as grouping parameters and sorting conditions in reports according with his tasks. Such individual settings (in fact – special reports the user created) can be saved for further using.

For **visual data representation** it provides graphical views (charts and diagrams) and drill-down functionality for getting more details on a particular item.

The reporting module includes many reports, such as:

- Warehouses assessment.
- ABC-analysis of goods.
- XYZ-analysis of goods.
- Comparative analysis of prices.
- Orders analysis
- Goods turnover analysis
- Turnover means structure report

Personnel monitoring and job rating functionality provides estimation of managers' work by a set of various parameters:

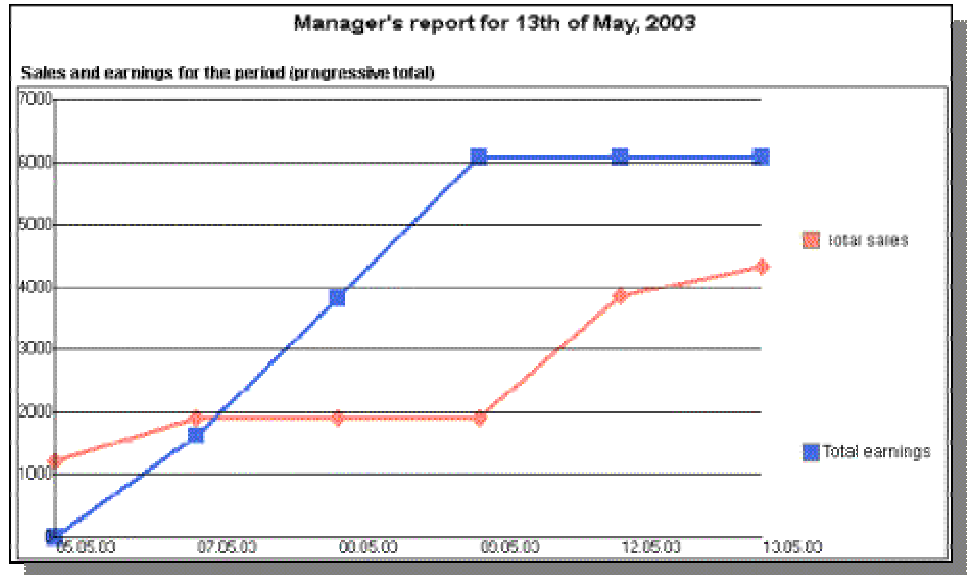
- Quality and completeness of contact information in the database.
- Number of contacts with customers.
- Analysis of changes of relationships stages.
- Number of lost customers vs. total number of customers.
- Number of completed customers' orders.
- Totals of sales, profit, paid sum.

The list of parameters can be adjusted by a user. Estimation can be performed in absolute figures, as well as in relative values.

The capability for comparative estimation of managers is also provided, as a rated list of the best managers.

The Manager's Report is a report of a special kind allowing regular delivery of crucial information to the company's top management. This represents information on current state of business in the company in a convenient and concentrated form.

The important thing is that the report should not be composed every time it's needed, nor even 1C: Enterprise application should be started. Once set up, **The Manager's Report** engine automatically makes up and send out the report according with the schedule and to the e-mail addresses specified.



The report contains records analysis for various parameters, such as sales volumes, receivable and payable accounts, flows of funds from point of view of items, etc. The list of parameters can be adjusted individually for each manager of the company's top management.

For better presentation data are provided also in graphical form: comparison diagrams, charts, etc.

The report is sent out by e-mail according with a mailing list specified.

4.2.5. Trade Equipment Attachment.

The capability is implemented to attach trade equipment, such as bar code scanners, data accumulation terminals, customer displays, scales, cash registers.

The list of equipment attached to a user's PC is stored in 'Trade equipment' catalog. An easy and convenient way to adjust connection of the equipment is provided; it's also possible to attach several devices of each type.

And much more...

There are more useful features implemented in the 1C: Enterprise 8.1 Trade Management business application:

- Storing additional information. The catalogs in the application have the capability of containing additional information as files, such as object pictures or text information.
- Specifying additional users permissions, such as: to read and edit documents for a particular company, for a particular department by its manager, responsible for the commercial transactions; set the denial of posting the documents that have good remainders exceeding the remainders for the company as a whole; set the denial of editing prices and discounts in a document; set the denial of issue goods with price exceeding a specific price; to print out non-posted documents; to edit documents and reports before printing.
- Reassessment of currency funds.
- Distribution of funds across revenue and expense items.
- Monitoring for remainders from point of view of companies. All reports analyzing mutual settlements with partners have the capability of filtering and grouping the information by the companies.
- Data export into other 1C: Enterprise Trade Management application in XML format. At that, one can export only data for a particular department, warehouse, company, or by type of documents.
- Checking for updates. The wizard providing this functionality checks for updates, downloads from a 1C Company's Web0server and installs them.
- Additional expenses accounting.
- Internal goods and funds transfer.
- Data exchange with other software.

4.3. 1C: Enterprise 8.1. Payroll & HR Management.

"1C: Enterprise 8.1. Human Resource Management" is a boxed business application intended for enterprise manpower policy management.

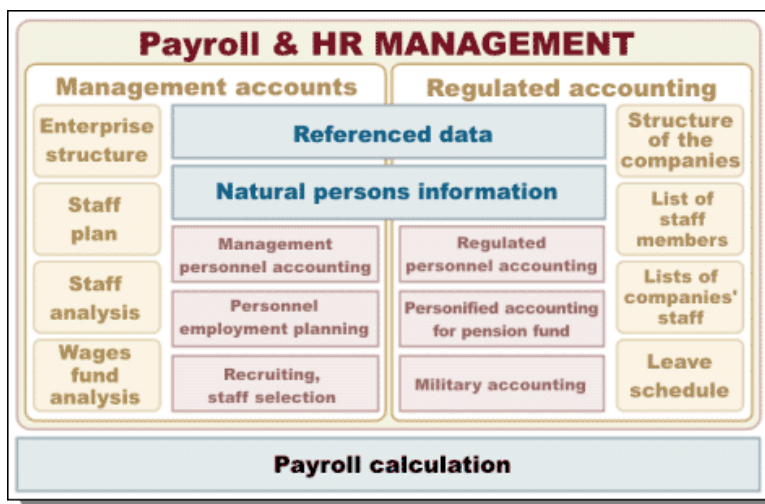
The application allows performing human resource management for several companies, legal entities or natural persons, constituting a single enterprise.

Two forms of accounting are carried out in the application at a time: **management accounts** and **regulated accounting**. Management accounts are carried out for an enterprise as a whole, and regulated accounting – for separate companies.

The application covers the following business areas:

- **Human resource demands planning.**
- **Staffing.**
- **Personnel competence and certification management.**
- **Financial motivation management.**
- **Efficient personnel employment planning.**
- **Personnel accounting.**
- **Labor relations, personnel bookkeeping.**
- **Payroll calculation.**

The business application's structure is the following:



4.3.1. Management Accounts.

Staff plan functionality allows making up the following plans:

- Positional-organizational structure (number of employees by positions and departments).
- A plan for changes in the structure by events and personnel expenditures.
- Planning expenses for wage of employees

Staff plan changes approval is used by managers to browse the changes, edit and approve them.

Thanks to references on changes and personnel expenditures a manager gets thorough information for taking a decision.

Wage fund analysis functionality uses planned monthly expenditures assigned by the staff plan.

The main goal of the report is to provide wage fund volume. An arbitrary period can be specified in the report.

The analytical report for the wage fund displays calculated values as a usual table or a diagram from point of view of groups specified by a user, as well as a summary table that allows analyzing data from various points of view.

Recruiting subsystem automates the process of recruiting and estimation of candidates.

The subsystem allows to:

- Store information on candidates, as natural persons.
- Store documents from the work with candidates (CVs, questionnaires, etc.).
- Plan meetings with candidates and registration of decisions taken, up to job offer.

The application can store the questions used in questionnaires, like a kind of a knowledge base. This helps to consider a candidacy from various points of view.

Staff selection tool is arranged as a specialized human resource manager's workplace.

Enterprise human resource accounting subsystem provides storing of the following information:

- Personal information on employees, as natural persons.
- Employee's department and position.
- Work phones, e-mails, other contact information

Various reports can be drawn up from accumulated HR information:

- Lists of employees.
- Staff turnover rate.
- Staff statistics.
- Leave reports (schedules, used leaves, leave schedule completion).

Analytical reports allow building various lists of employees, selected and grouped by various criteria. The reports provide information from point of view of departments, positions and other dimensions.

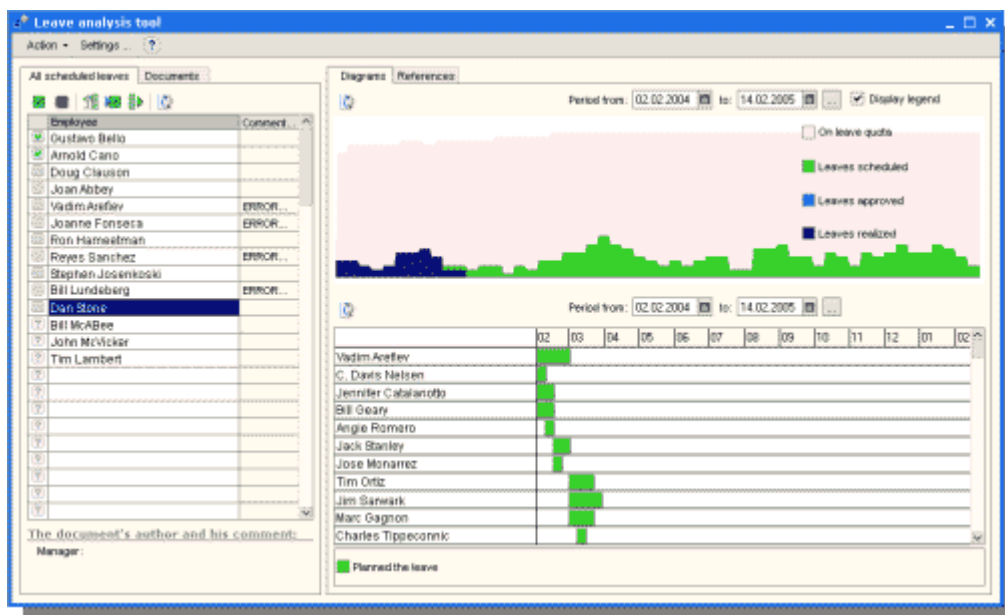
This allows to thoroughly analyze enterprise personnel and to take more weighed decisions.

User can adjust grouping parameters and selection criteria in reports according with character of tasks. These specific settings can be stored for future use.

Personnel employment planning helps to arrange employees' working time. In particular, plan meetings, arrangements (both internal and external), also location of events planned.

Leave schedule tool is used for employees' leave approval. Together with distributed leave planning system it allows to plan leave schedule for a big number of employees.

With this tool a manager can find out whether an employee can be given a leave, if his leave contradicts with arrangements planned, who is on leave at that time more, etc.



Visual aids represent time distribution of leaves. The tool includes a leave-checking system that finds errors and simplifies approval procedure.

It also provides information on amount of days not assigned yet to an employee.

4.3.2. Regulated Accounting.

Regulated personnel accounting provides signing work contracts with every employee of a company, making up fixed forms, pension and military accounting.

Structure of the companies represents a formal enterprise structure description that may include several transaction units actually owned by one the same owner (or owners).

These companies can be:

- Juridical persons;
- Detached departments of juridical persons;
- Private entrepreneurs

Companies' **staff lists** can be analyzed with reports. There is a fixed report form with a company staff list and monthly wage fund for every item. Staff list analytical report displays data in two variants: as a list of staff items, or as staff positions.

The information can be grouped by the following items:

- Companies
- Departments and companies' positions;
- Types of base wage rates;
- Currencies of base wage rates;

Personnel accounting in companies is performed in parallel and independently on enterprise personnel accounting and provides the same possibilities.

A natural person can be placed in a job in several companies of an enterprise or in several departments of one company.

The system registers all staff movements, from placing in a job, leaves and business trips and retiring.

Analytical report on employees provides the capability of making up various lists of employees, with filters and groups.

Personified accounting and **Military accounting** are arranged according with state legislation and normative documents.

4.3.3. Payroll Calculation.

Payroll calculation subsystem is intended for salary accounting according to adopted rules and conditions.

It provides complete automation of the task: from entering documents on an employee job, actual working hours, medicine and other insurance, sick-lists, leaves, obligatory payments, etc. through to generation documents for salary payments and reports to state supervising authorities.

Results of payroll calculations are reflected in management, business and tax accounting with required details.

The payroll calculation module can be adjusted for any particular enterprise conditions and/or legislation demands, without programming efforts. This significantly saves implementation time of the application in a real business (enterprise).

It should be mentioned that for big scale companies having hundreds or thousands of employees working under different payroll systems such as fixed salary, or hourly payments, it could be a good choice to purchase Payroll & HR configuration. This configuration will compliment capabilities of 1C: Accounting and will make it more easy to keep track of company's employees, their working records, list of benefits, deductions, and personal historical information. It also allows proper computations for sick benefits, writs of execution, part-time workers and much more.

4.4. 1C: Accounting 8.1.

The 1C: Accounting software series has been the most popular 1C product for more than ten years now, and has become an industrial standard of accounting systems in Russia. The new version 1C: Accounting 8.1 includes all the best features from its predecessors.

1C: Accounting 8.1 provides high level of business accounting and tax accounting automation and generation of regular reports.

It includes **functional modules for various kinds of activities** and can be used in wholesale and retail, rendering of services, manufacturing, etc.

One can run accounting for several companies within one information base. The companies can use shared catalogs of goods, expense items, contractors, etc.

The application includes **integrated warehouse accounting features**, for quantitative (physical) or monetary-quantitative (combined) accounting.

Purchases and sales operations are automated. When items are being sold, pay slips and invoices are written out. For imported items it includes country of origin and customs declaration ID. The application supports several types of prices, such as 'wholesale price', 'small-scale wholesale price', 'retail price', 'purchasing price', etc.

It also includes **commission business automation** means for both items received for commission and for those transferred for further sales.

The application provides **cash and non-cash transfer accounting**.

Operations of settlements with suppliers, customers and advance holders are automated. Basing on cash documents cash-book is generated.

The application provides the following functionality:

- Cash and bank transactions.
- Several entities within one information base.
- Inventory accounting at average costs, LIFO or FIFO.
- Group calculation.
- Tax accounting.
- Physical or combined accounting.
- Fixed assets and intangible properties accounting.
- Manual and automatic posting of accounting transactions.
- Payroll, HR and personalized accounting.
- Reporting system.
- Flexible accounting customization.
- Multi-user operation mode (when working with MS SQL server).
- Modern and convenient user interface.
- Configuration and administration means.
- Support for distributed information bases.
- and more...



Integration with bank client software is supported.

Settlements with contractors can be run in currency, conventional units or foreign currency. Rates differences are automatically calculated. Settlements can be done by every payment document or by an agreement as a whole. This is specified individually for a particular contractor, or for all contractors.

It provides **production costs calculation** for production and services offered by main and auxiliary production, also **indirect costs accounting**.

The application allows running **payroll, HR and personalized accounting**. It performs automated payroll calculation according to pay rates, with calculation proper taxes and fees, taking into account all features of a particular enterprise.

Regulated reporting is generated automatically and information on individuals can be exported for presenting to supervising authorities.

Regulated monthly operations are automated, such as currency re-estimation, writing off costs of succeeding periods, determination of financial results and others.

Reporting system includes standard accounting reports and provides regulated reporting for business accounting, taxation, statistics, for individuals, and reporting to be provided to various funds.

The application can be used in integration with other 1C business applications – Trade Management and Payroll & HR Management.

Kazakhstan's Accounting 8.1 configuration includes:

- the Chart of Accounts, containing typical settings of the analytical, currency and quantitative accounting;
- the directory of currencies used for conducting currency accounting;
- a set of directories for creating source documents and maintaining lists of objects of the analytical accounting;
- a set of transfers for organizations of the analytical accounting with a regulated set of values;
- a set of documents intended for input, storage and printing of source documents, and for automatic formation of accounting operations;
- a set of constants used for adjusting general parameters of book-keeping in the concrete organization;
- the list of correct transactions that allows to check correctness of transactions input and to optimize input of accounts codes in documents and operations;
- special modes of processing documents and operations, carrying out service functions.

Set of documents included into configuration is designed for automating the most important sections of accounting:

- accounting for cash operations;
- accounting for bank operations;
- accounting for Fixed Assets;
- accounting for Intangible Assets;
- accounting for materials;
- accounting for goods;
- accounting for manufacturing expenses;
- accounting for costs for the period;
- accounting for production;
- accounting for payments to/from suppliers and buyers;
- accounting for contracts;
- accounting for advance holders.

4.5. 1C: Enterprise 8.1. Manufacturing Enterprise Management.

“1C: Enterprise 8.1. Manufacturing Enterprise Management” business application is a complex solution covering main management and accounting directions. It allows establishing a common information system for management of various aspects of enterprise activities.

Manufacturing Enterprise Management application is targeted to enterprises with the personnel number from tens to several thousands, with tens and hundreds workstations, such as holding companies and multi-level companies.

The application was produced with close co-operation with **PricewaterhouseCoopers** and includes modern international enterprise management methods (such as **MRP II**, **CRM**, **SCM**, **ERP**, others) as well as the experience accumulated by 1C Company itself and its partners in automating manufacturing enterprises.

4.5.1. Production Management.

Production management subsystem helps to significantly reduce production costs through building and optimizing an enterprise's production plan.

Functionality of the subsystem is targeted to planning departments, production departments, production control departments and others.

The production management subsystem includes several modules, described below.

4.5.1.1. Production Planning

It's intended for medium- and long-term production and resource demands planning, also for analysis of planned plans vs. actual completion of them. Production planning takes into account many parameters, feasibility control and plan execution monitoring from various points of view at a time:

- By departments and managers;
- By projects and sub-projects;
- By key resources;
- By nomenclature groups and individual nomenclature items.

From the plans made up in “Sales management” subsystem it draws up expected production volumes from point of view of nomenclature groups (or, if necessary, of individual items, too).

It detects differences between aggregated and adjusted plans, planned daily tasks, and real production data.

Production goals are drawn up, execution monitoring and production lag estimation.

The solution provides the following management functionality:

1. Production management:

- Production planning.
- Expenses management and cost value calculation.
- Product data management.

2. Fixed assets management and repair planning.

3. Financial management:

- Enterprise budgeting.
- Funds management.
- Mutual settlements management.
- Enterprise accounting and tax accounting.
- International Accounting Standards (IAS).
- Consolidated reports generation.

4. Warehouse management.

5. Sales management

6. Purchases management

7. Customer relations management

8. Personnel monitoring and job rating

9. HR & Payroll calculation

10. Enterprise monitoring and economic activity analysis

There is a capability to produce **consumption tables** and **availability of the main (key) types of resources** when producing nomenclature groups or individual nomenclature items.

Aggregated production plan is checked for conformity with limiting factors, such as availability of the main resources. Key resources' availability is monitored.

4.5.1.2. Planning Production in Shifts

The subsystem is intended for short-term production planning from point of view of individual nomenclature units, also for production plan execution analysis by production control department.

It provides the following capabilities:

- Forming production plan in shifts
- Determination of available resource capacities
- Execution control

4.5.1.3. Cost Management and Manufacture Costs Calculation

One of the most important points in competitive activity is production cost saving, cost management. The system reflects **real production costs**; that allows making efficient measures to reduce manufacture costs and manufacture costs, improving business profitability.

The main functions of the subsystem are the following:

- Accounting of actual expenditures for a reporting period from required points of view, in monetary and real terms.
- Real-time quantitative resources accounting in incomplete production.
- Accounting of actual remainders of incomplete production by the end of reporting period, from required points of view.
- Accounting of spoilage in production and on stocks.
- Calculation of actual manufacture costs.
- Manufacture costs calculation for a month for issue documents – for direct costs and for planned manufacture costs.
- Accounting of reduction of goods made on commission
- Calculation of actual cost of incomplete production remainders by the end of reporting period.
- Providing reports on manufacture cost composition order.
- Providing report for shifts for goods production and production services.
- Providing data on manufacture costs structure for estimation of deviations from figures defined.

4.5.1.4. Product Data Management

This functionality gives control over product composition data and product routes through production departments and stocks.

4.5.2. Fixed Assets Management and Repair Planning.

Using the subsystem functionality one can plan and control maintenance works and hardware maintenance:

- Provide standard documents for fixed assets maintenance
- Schedule fixed assets maintenance and resource for this.
- Store results of the maintenance performed.
- Analyze deviations of terms and volumes of maintenance

The system all main operations of fixed assets accounting and supports a wide range of amortization calculation ways.

4.5.3. Financial Management.

Using this subsystem together with the distributed database support allows arranging efficient financial management for holding companies and corporations, improving transparency of their activity and investment attractiveness.

This subsystem can be used by chief financial officer, accounts department's and economic planning department's staff, other financial departments.

4.5.3.1. Enterprise Budgeting

The subsystem implements functions for financial planning on an enterprise:

- Planning of movements of funds for any period from point of view of time periods, financial centers, projects, balances and turnovers, additional analytics.
- Monitoring for actual enterprise activity for the same points of view
- Summary reporting by results of the monitoring.
- Checking for conformity of expenditure applications to work plan for the period.
- Financial analysis
- Funds availability analysis
- Analysis of deviations of planned and actual data

4.5.3.2. Funds Management (Treasury)

It performs the following functions:

- Multi-currency balance accounting
- Registration of planned earnings for future payments, on bank accounts and cash registers.
- Placing funds to expected in-payments.
- Making up a payment schedule.
- Drawing up all necessary basic documents.
- Integration with 'bank client' systems.
- Spreading a payment document's sum across several agreements and deals.

4.5.3.3. Mutual Settlements Management

The subsystem is used for optimization of financial and substantial streams. It allows analyzing a debt changing in time and it operates with two types of debts – actual and expected.

The subsystem's main goals are the following:

- Detection of a debt appearance (of the enterprise, as well as before the enterprise).
- Detection of reasons of the debt.
- Current debt state analysis and history.

4.5.3.4. Business Accounting

Accounting capabilities implemented in the system are designed to meet the state legislation, as well as business demands, and include:

- Bank and cash transactions
- Fixed assets and intangible property
- Accounting of materials,, goods, production
- Cost accounting and manufacture cost calculation
- Currency transactions
- Settlements with companies and private persons
- Wage settlements
- Budget settlements

Accounting for several legal entities within an information base is supported. Such structure of organization of accounting allows automating enterprises with quite complicated organizational structure.

4.5.3.5. Tax Accounting

Tax accounting for profit tax is carried out independently on business accounting. Business transactions are reflected in parallel in both business and tax accounting. The documents recording business transactions provide the possibility to enter and to show data for tax accounting later.

Accounting methods and information storage mechanisms are similar in business and tax accounting, providing the possibility to compare data from both sides.

4.5.3.6. Accounting According to IAS

The subsystem of accounting according to **International Accounting Standards (IAS)** developed by IC Company in co-operation with PricewaterhouseCoopers Company provides a complete methodological basis for enterprises to establish their accounting in concordance with IAS. It may be customized for a particular enterprise character.

The subsystem includes a separate chart of accounts as provided by IAS, customizable by a user, and provides:

- Financial accounting and preparation of individual as well as aggregated financial reports according to IAS;
- Translation of most of transactions from business accounting subsystem, with customizable rules;
- Accounting according local and international standards in parallel – for the areas where there are significant differences between the standards' requirements.
- Posting of user-specified regulation documents.

The subsystem can be also adjusted for accounting and producing reports according to other international standards, such as US GAAP.

4.5.4. Warehouse Management.

This module's functionality corresponds to that in '**Trade Management**' application, though it meets specific manufacturing enterprise's needs.

Apart from warehouse management sub-system itself, it also provides timely and thorough information for an enterprise's chief commercial officer. It provides stock information from any points of view with high level of details: up to goods specification (color, size, dimensions, etc.) or serial numbers and use-by dates. Stock cost estimations are also provided.

Statistical check means allow estimating commercial appeal of every item by its share in the enterprise's turnover or profit, detecting those being sold with hard, considering such criteria as average time spent on stock, cost for a period and turnover rate.

4.5.5. Sales Management.

This module corresponds to that in '**Trade Management**' application, providing complete automation of sales process on a manufacturing enterprise, in both wholesale and retail.

4.5.6. Purchase Management.

This module corresponds to that in '**Trade Management**' application. It provides purchase managers with information necessary for timely and optimal purchases.

4.5.7. CRM and Personnel Monitoring and Job Rating.

This module corresponds to that in '**Trade Management**' application. Capabilities of the subsystem are used in relations with any contractors and used by chief commercial officer, chief marketing officer, personnel of marketing and supply departments.

In addition to the standard e-mail functionality, the subsystem also includes developed e-mail means:

- Assigning responsible persons and completion control.
- Keeping correspondence history;
- Access right control for address book (down to particular e-mail addresses);
- Contact information import from popular e-mail clients;
- Sending out e-mails upon event occurrence (such as payment settlement).

4.5.8. Human Resources and Payroll Calculation.

This module corresponds to the one in '**HR Management and Payroll**' application.

4.5.9. Enterprise Monitoring and Economic Activity Analysis.

Manufacturing Enterprise Management application includes powerful and flexible reporting system, allowing analyzing and controlling almost all aspects of production and commercial activity of an enterprise on-the-fly.

Basic features of the system include:

- Intellectual report generation tools, not requiring programming.
- Spreadsheet design
- Summary tables
- Linear, hierarchical and cross reports
- Grouping support
- Drill-down functionality
- Visual data representation means

Information can be presented from any points of view and with required details. Level of details can be adjusted by a user, as well as grouping and filtering parameters, according to specificity of tasks.

Individual reports settings can be saved for future use.

4.5.10. Manager's Report.

This module corresponds to the one in '**Trade Management**' application.

To conclude this section, company has a variety of options: it can purchase only Accounting configuration to cope with most commonly faced business situations, and then, as company grows, purchase additionally configuration for Payroll & HR Management, or for extended Trade Management. All of them can be installed simultaneously complimenting each other. Payroll and Trade configurations have also option of exporting data to the Accounting configuration.

If necessary, company can purchase a Manufacturing Enterprise Management configuration, which actually includes all 3 mentioned before.

Going further, company could have some specifics that cannot be automated with help of standard configurations. In this case, company could contact a developer asking to implement more specialized solution. Examples of such configurations include oil and gas companies, budget organizations, small-scale companies such as video rent outlets, computer clubs, small retail outlets, etc. Some configurations of such kind have already been implemented and are available for purchase.

5. 1C: Enterprise 8.1 – Localization Issues.

5.1. Introduction.

The main goal of localization process is to provide a business application capable of working in the local conditions of a particular country, including language, economical and business aspects.

Localization of 1C: Enterprise platform includes: translation of all texts in menus, messages, dialogs, forms, reports, and the help system; also, modification of business logic for meeting local conditions. Each of the items is complex and may include several iterations to get them localized properly.

Any business application that a user deals with includes GUI text coming from both the applied solution and from the platform. For example, the main menu line includes items provided by the platform (such as 'File', 'Edit', etc.) and those provided by the business application ('Documents', 'Accounts', 'Customers' or others, as defined in the solution). Besides, this is a business application that implements application business logic, which is also a subject for consideration.

Therefore, a business application localization process includes two big parts: localization of the platform and localization of an applied solution.

5.2. Localization of the Platform.

5.2.1. Localization Support by Functionality of Platform.

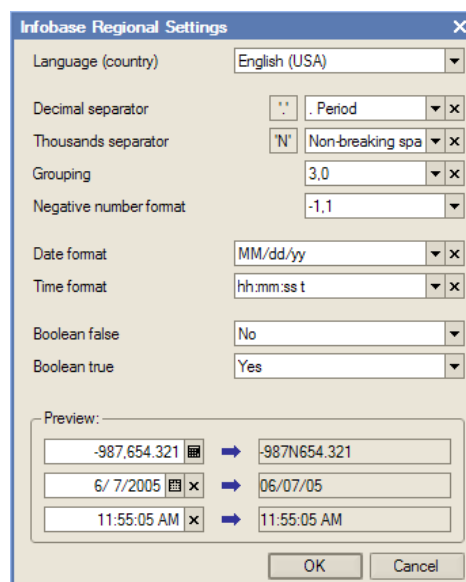
The localization support of 1C: Enterprise platform allows using various interface languages when developing an applied solution, also at user's work. Besides, there are means for international data/time/numbers representation and written form for numbers and periods (spelling).

All applied solution configuration texts are stored in a database in **UNICODE** format. This format allows using characters from different languages at a time. So a user can enter data in various languages, for example if a product item description should include some text in the language of the manufacturer. At that the system allows performing filtration and sorting across such texts.

5.2.1.1. International dates and numbers support for most European languages

There is a capability to adjust a particular applied solution to use locales specific for a particular country. At that, regional settings used in a database may be set by an administrator, other than the default system settings (see the picture).

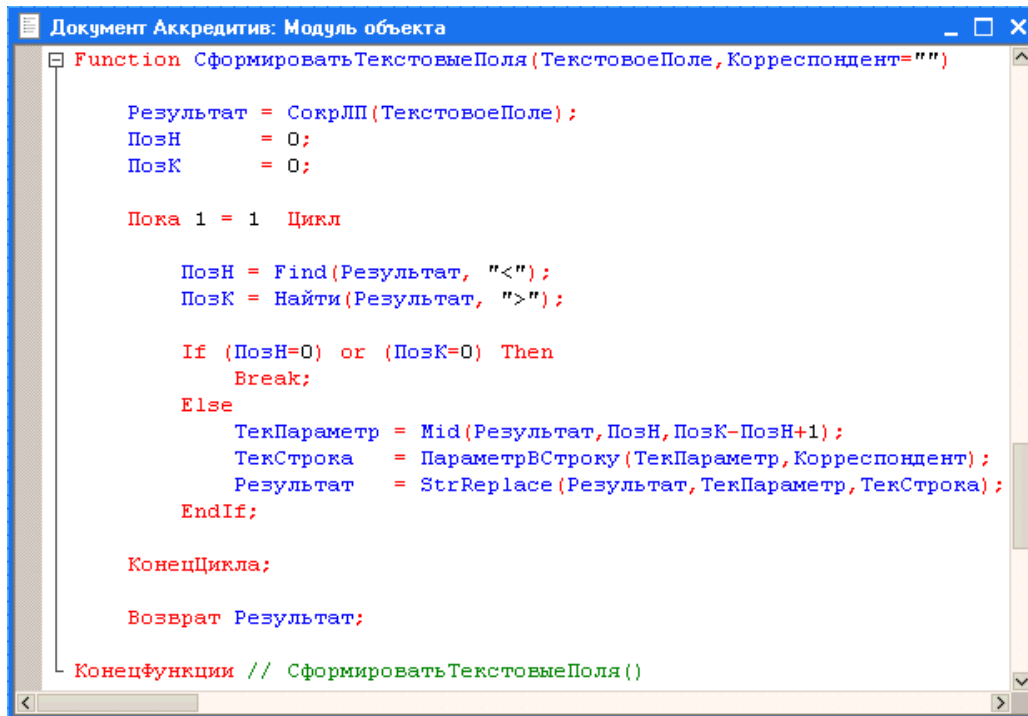
If none of the properties is set, the locales are defined by the operating system settings.



'Language (country)' field defines a set of predefined locales for a certain country. Selection of a country provides proper formatting of dates, time, numbers and strings collator functionality for the country. Bottom pane of the window shows representation of formats according to a locale selected.

5.2.1.2. Two variants of the embedded language

All embedded language operators have Russian and English variants, both are accepted by the system equally without any special settings.



```
Function СформироватьТекстовыеПоля(ТекстовоеПоле, Корреспондент="")
    Результат = СокрЛП(ТекстовоеПоле);
    ПозН = 0;
    ПозК = 0;

    Пока 1 = 1 Цикл

        ПозН = Find(Результат, "<");
        ПозК = Найти(Результат, ">");

        If (ПозН=0) or (ПозК=0) Then
            Break;
        Else
            ТекПараметр = Mid(Результат, ПозН, ПозК-ПозН+1);
            ТекСтрока = ПараметрВСтроку(ТекПараметр, Корреспондент);
            Результат = StrReplace(Результат, ТекПараметр, ТекСтрока);
        EndIf;

    КонечЦикла;

    Возврат Результат;
КонечФункции // СформироватьТекстовыеПоля()
```

No additional modifications during localization process are required.

Documentation and Syntax Assistant contain English syntax and synonyms for all constructions of the embedded language.

5.2.2. Internationalization Support by the Embedded Language.

The embedded language itself provides a number of means for applied solutions to be multi-lingual.

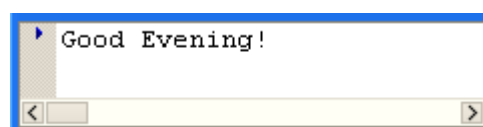
There are functions in the language that return text strings according with the language settings specified. So an applied solution can generate texts in languages according to user's preferences.

5.2.2.1. NStr function

The function returns a string in the user's language or the main language of the applied solution, taking it from a predefined set of strings in different languages. For example, the string

```
Message ( NStr ( "ru = "" Добрый вечер !""; en = ""Good Evening!""", "en" ));
```

results in the following:

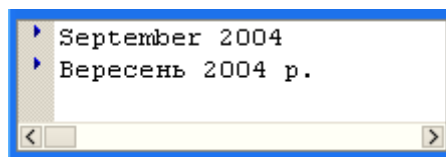


5.2.2.2. PeriodPresentation function

This function allows building a period description, defined as start date and end date in one of the supported languages. Execution of the code:

```
CurrentDate = CurrentDate ();  
BegOfPeriod = BegOfMonth ( CurrentDate );  
EndOfPeriod = EndOfMonth ( CurrentDate );  
Message ( PeriodPresentation ( BegOfPeriod , EndOfPeriod , "L = en_US" ));  
Message ( PeriodPresentation ( BegOfPeriod , EndOfPeriod , "L = uk_UA" ));
```

results in the following:



At present, this functionality is provided for the following languages:

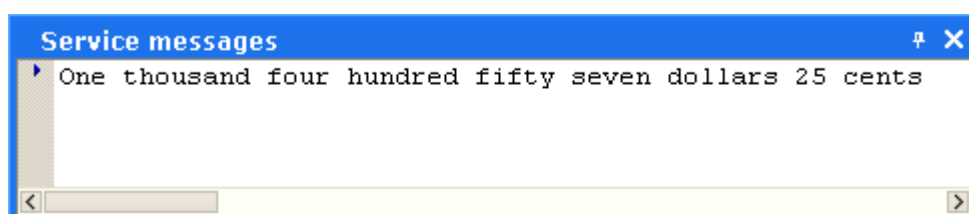
- English
- Estonian
- Byelorussian
- Bulgarian
- Finnish
- German
- Georgian
- Kazakh
- Latvian
- Lithuanian
- Romanian
- Russian
- Ukrainian

5.2.2.3. NumberInWords function

This function generates a written representation of a number in one of the supported languages, according to a formatting string. Here is an example:

```
Message ( NumberInWords( 1457.25 , "L=en_US" , "dollar, dollars, cent, cents, 2" ));
```

Result of this function looks like the following:



At present, the number spelling functionality is provided for the following languages:

- English
- Estonian
- Byelorussian
- Bulgarian
- Finnish
- German
- Georgian
- Kazakh
- Latvian
- Lithuanian
- Romanian
- Russian
- Ukrainian

5.2.2.4. Format function

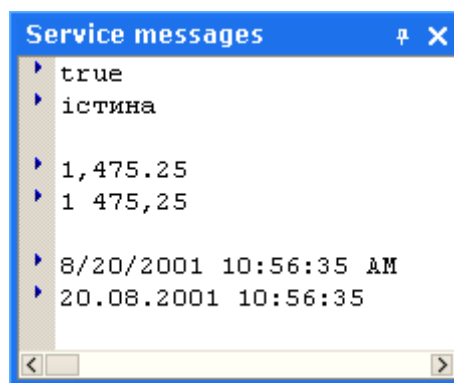
This function formats values representation for convenient reading. The representation may reflect standard format of a selected language or country. For example, Boolean, numeric and date type values:

```
Message ( Format ( True, "L=en_US ) );  
Message ( Format ( True, "L=uk_UA ) + Chars.CR );
```

```
Message ( Format ( 1475.25 , "L=en_US ) );  
Message ( Format ( 1475.25 , "L=uk_UA ) + Chars.CR );
```

```
Message ( Format ( '20010520105635' , "L=en_US ) );  
Message ( Format ( '20010520105635' , "L=uk_UA ) + Chars.CR );
```

will result the following representation in English and Ukrainian:



With this function one can use a values representation format from one of 80+ locales.

5.2.2.5. Getting a template in a language specified

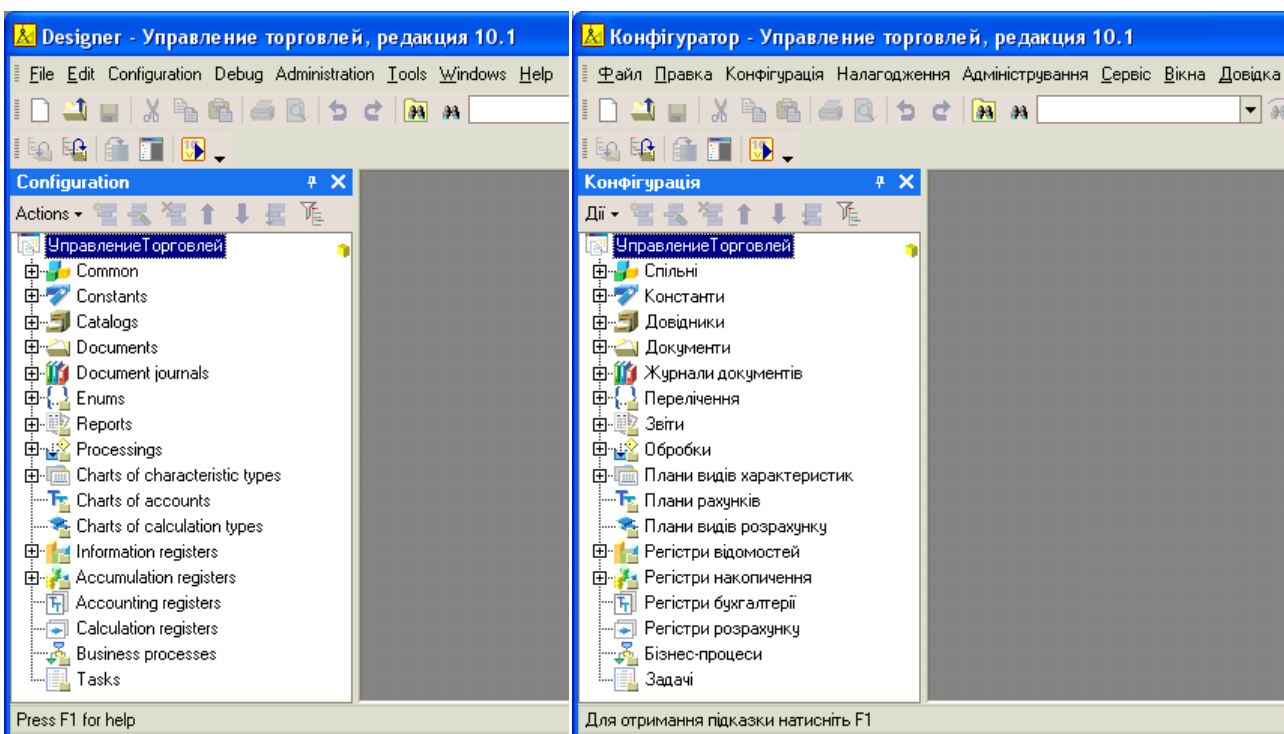
When a developer creates output report forms from templates of text and spreadsheet documents, he can specify a language for the template; the language may differ from the one used by current business application user.

5.2.3. The Platform Interface.

When developing an applied solution one can choose GUI language. At present, the platform interface includes the following versions:

- English
- Bulgarian
- German
- Georgian
- Kazakh
- Latvian
- Lithuanian
- Romanian
- Russian
- Ukrainian

and more to come.



1C: Enterprise Designer in English and in Ukrainian
(Trade Management application is loaded)

5.2.4. Localization of the Platform into Other Languages.

Process of localization of the platform into other languages includes the following parts:

- Localization of date/time/number formats according to formats of the target locales. They must be formatted according with the standards accepted in the particular country (region).
- Localization of string collator functionality. Strings in reports and forms must be sorted properly.
- Localization of spelling totals and periods functionality.

These three localization parts are always done by 1C developers on the basis of formalized information on wording algorithms for spelling numbers, provided by the company partner. The partner can only check if they work properly setting a required **InfoBase Regional Settings**, after a test release of localized platform.

5.2.4.1. Localization of the platform interface

The platform interface must be readable in standard user conditions without special (3 rd party's) software support.

This work is usually done by 1C Company's partners and implies translation work. For this work to be done there is a resource database (in 1C: Enterprise 8.1 format) that is used by company's partners. They unload resources from the database into external files and then use special localization tools (also provided) to localize them.

For localization purpose, the database and the localization tools can be sent to 1C partners by e-mail. It's required the partner to have 1C: Enterprise 8.1 platform, to open the resource database.

Localizable resources include:

- Pictures. Can be edited with any graphic editor.
- Templates – are localized with 'hlpedit' utility.
- Help - is localized with 'hlpedit' utility, too. When translating, it's suggested to go through the tree in 'Files' tab, translating each file included into a particular .hbk file. Going through "Contents" cannot guarantee all help files will be translated.
- Strings – translated directly in the database itself, without unloading into external files. Can be accessed through 'Operations - Catalog – Strings' menu items.
- Forms – are localized with 'FormDes' utility.

Help resources can also be exported into .xml format, edited with 3 rd party software and then imported back into resource files.

After translation of resources, they are uploaded back into the database and in its turn it's sent back to 1C.

If these points are completed and checked for proper functioning, the platform is considered localized.

5.2.4.2. Localization of the installation wizard

The installer generates several messages during installation process. To be represented in a proper language, these messages should be localized as well. Since there may be several localization processes going at a time, for different locales, these strings are sent separately by 1C, as the localization process goes.

5.2.5. The Platform Localization Process Management.

1C Company provides all relevant materials and the platform localization technology to its partners (contractor). The partner performs the localization and sends a resulted database back to 1C. 1C builds in the localized resources with the main release and produces a localized version of the platform.

One should also take into account, that localization, like development, is an on-going process. Help and forms are updated as the development moves on, and localizer is responsible for keeping localized version up-to-date, even after a format software release. All contract terms with localizer are detailed in a separate Localization Agreement, signed between a localizing entity (a company) and 1C.

5.3. Localization of Business Applications.

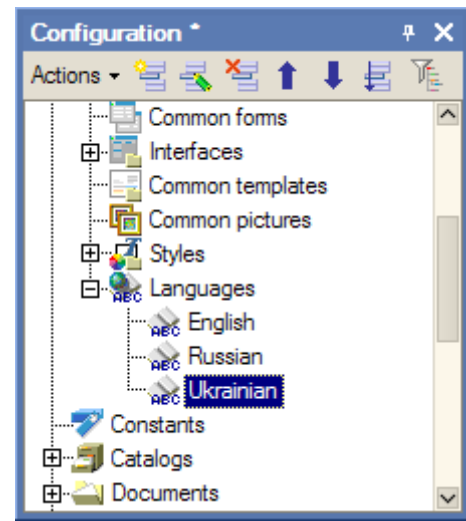
Business applications (applied solutions) have their part of interface and business logic in the software product.

5.3.1. Interface of Multilingual Applied Solutions.

Using a single localized platform, one can create multilingual applied solutions due to the possibility to use additional localized interfaces. After installation of the following localized interface items are available:

- system menu,
- dialogs,
- messages,
- help system.

Selection of one or other localized interface implies no restrictions to operations on an information base, therefore several users with different interfaces can operate with one the same database at a time. It's also possible to run several instances of 1C: Enterprise with different interfaces on one PC.

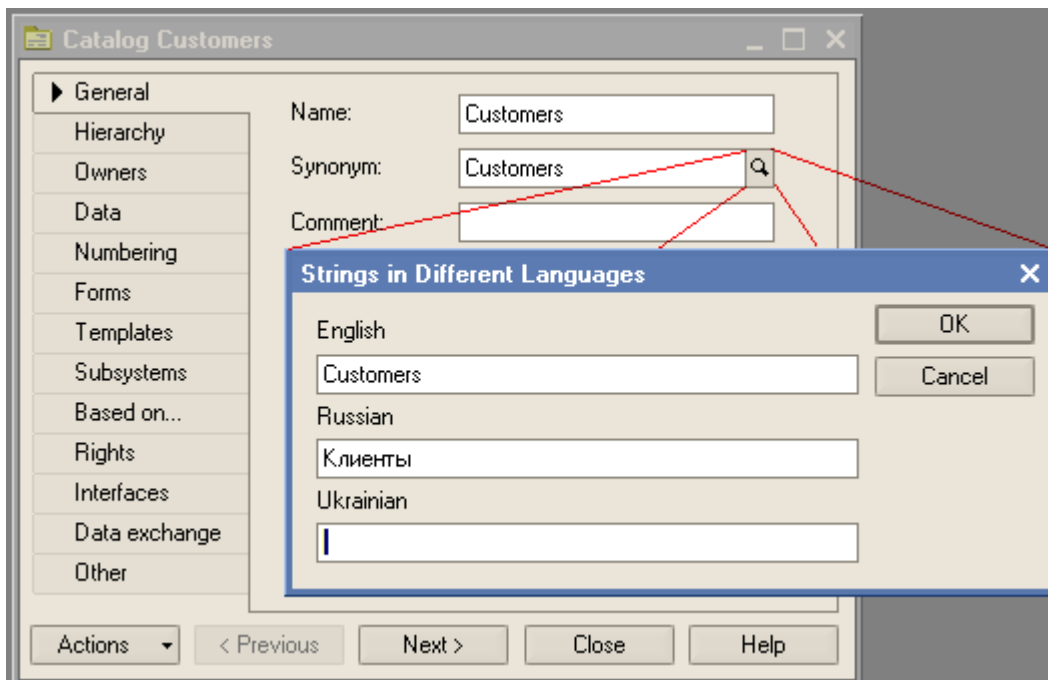


Additional applied solution interface languages

5.3.1.1. Languages

An applied solution can include several different interface languages.

Since all strings are stored in a database in UNICODE format, a developer is allowed to enter several variants of spelling in different languages for one string.



Creation of multilingual applied solution interface

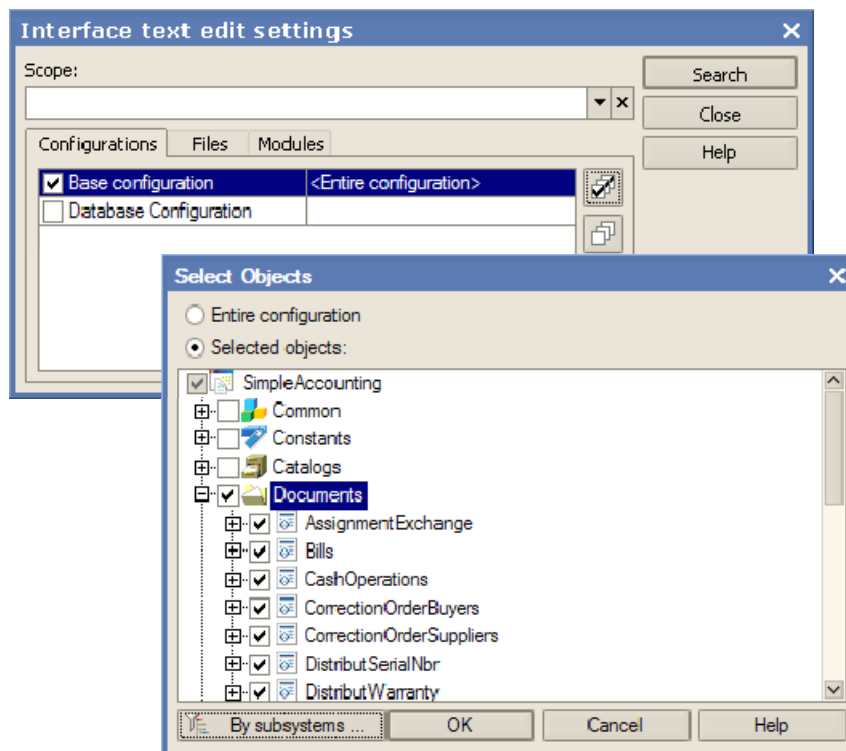
Besides, if a multi-lingual applied solution is developed, one can quickly switch from one language into other. This is very useful when developing forms: one can preview a form in English first, and then – in Russian.

5.3.1.2. Localization of interface texts

Localization of interface texts is one of the most difficult tasks and it implies looking for places to enter texts in other languages. Therefore, localization of applied solutions' interface implies forming string values in required languages, for them to be displayed in user interface.

There is a mean for rapid applied solution interface localization in 1C: Enterprise platform. It allows locating, grouping and translating all occurrences of a string in an applied solution configuration, replacing it or just adding a translation into the configuration “in one click”.

First, one specifies applied solutions to look at:



This search can be performed for an applied solution entirely, across external files, opened documents or through particular applied solution's parts.

Result of this search is represented as a list items, containing locations of the text found and its meaning in different languages.

Edit interface texts					
Actions	Collapse: Matches in all languages				
Arrange	Русский (ru)	English (en)	Ukrainian (uk)	#	ru...
Base configurat...	Платежный календарь	Calendar of payments			
Base configurat...	Снять флажки	Cancelling flags			
Base configurat...	Снятие резервов и размещения	Cancelling reservations and placements			
Base configurat...	ГТД	Cargo Custom Daclaration			
<Prefixes: 9>	ГТД	Cargo Custom Declaration			
Base configurat...	Номер ГТД	Cargo custom declaration ID			
Base configurat...	ГТД	Cargo Custom Declarations			
Base configurat...	ГТД	Cargo Custom Declarations	ГТД		
Base configurat...	ГТД организаций	Cargo Custom Declarations			
Base configurat...	Касса	Cash			
Base configurat...	Касса компании:	Cash department:			
Base configurat...	Кассы компании	Cash departments			
<Prefixes: 2>	Кассы компании	Cash departments of the company			
Base configurat...	Кассы компании	Cash departments of the company	КассыКомпании		
Base configurat...	Расход денежных средств прочее	Cash disbursement other			
<Prefixes: 4>	Расходный кассовый ордер	Cash disbursement receipt			
Base configurat...	Авансовые отчеты	Cash disbursement report			

By mouse click one can jump to the applied solution item containing the string, to edit it; the string values can be also edited right in this list, too.

As a result of defining required values for all strings in each language, the applied solution is localized for using with interface in these languages. If any string is not localized, it shows nothing (empty string) at corresponding text fields.

5.3.2. Creation of a Business Application Localized for a Certain Country.

In order for a business application to be applicable in a certain country business conditions its business logic should be localized for these conditions, too.

Providing 1C: Enterprise business applications for other countries (such as Ukraine or Lithuania), 1C Company's partners in those countries have a good experience in creation of business applications for local markets. At present, there are localized versions of applied solutions for Ukraine, Kazakhstan, Byelorussia and Baltic States, more are expected to come.

Some parts of business logic are moved to localized applied solutions without modifications, as there are no special requirements (like CRM, for example), while other parts require adaptation and there are examples of such adaptations.

'To localize' here doesn't means 'to translate into other language'. In fact, it means 'to adapt for operation in other locale's conditions'.

It's not possible immediately to translate business logic in modules (i.e. lines of the code implementing application business logic).

One of the advantages of the product is its ability to be easily customized, even by end-users. Therefore, we cannot allow incorrect lines of the code (or comments) to be shown in the designer window. Furthermore, there were attempts to translate business logic of some business applications. Results were far from being good.

In other words, adaptation includes not only translation of the interface, but also re-working of the business logic. It's closer to development process, than to 'translation'.

Some parts of an applied solution's business logic can be localized easier, while some parts are more difficult than others.

1C usually provides a real business application as an example, on development 'stage', for its partners. Company's experience shows that adaptation of a business application takes 50% of the time spent for initial development of it (i.e. from scratch). For example, for an applied solution like Trade Management it takes approximately 6 men/months work (usually 2–3 developers work for 3-2 months).

From point of view of adaptation of a business application for a certain economic conditions, generally, modules responsible for the application's business logic are usually re-written from scratch, since economical conditions and standards are different in different countries.

In case with 1C: Enterprise business applications, most business logic modules need only some modifications, due to special means provided by the platform and 1C: Enterprise Designer. For example, there is Payroll Calculation module that can be adjusted by standard visual tools for

almost any economic requirements. So, a developer does not need to re-write the whole module, he just needs to 'adjust' it. In cases like this, the core of the code implementing the business logic is generated by the platform, according to the interface language selected (i.e. English operators, with relevant comments inserted, etc.).

Boxed business applications from 1C company, including accounting business logic, are developed in close cooperation with PricewaterhouseCoopers and provide methodological basis for arranging accounting according with IAS (International Accounting Standards). So the mentioned above is applicable to many areas of creation of business logic of applied solutions.

Source: <http://v8.1c.ru>



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Recommended Readings:

- 1) <http://v8.1c.ru> (Russian & English versions)
- 2) <http://www.1c.ru>
- 3) 1C official promotional materials (brochures, booklets, leaflets, PowerPoint presentations, and Flash demos)



1С: БУХГАЛТЕРИЯ 8.0