

**classix Software GmbH**

# **Instruction manual of inventory sampling**

**Manual for carrying out inventory sampling**

**classix**

a class of its own

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## 1 Overview of inventory sampling

The most common inventory sampling procedure used with this software is the stratified inventory sampling procedure with free extrapolation.

The basic idea here is to divide the warehouse (the pending inventory items) into strata (groups) whose (statistical) variance is as small as possible. For such strata, it can then be assumed that the total value of the stratum can be approximated very well by means of a mean value estimate.

Therefore, a stratification must first be carried out with the inventory items: this is created using a heuristic procedure developed by GESTIN (see the document "Fundamentals of Inventory Sampling"). Inventory items with a negative quantity or value, items that must be excluded from sampling due to their value or items that were excluded from sampling in advance due to manual specifications are not included in the stratification.

Subsequently, the total number of necessary samples is determined according to a recognized mathematical-statistical procedure and with this number, in turn, the number of samples per shift is determined. The inventory items to be counted for each shift are determined using a random number generator ( $n$ -th item of the stratum, where  $n$  is a random number between 1 and the number of items in the stratum).

Now a first target extrapolation can be created by means of free mean value estimation with the samples and their target quantities.

Next, the drawn samples and the other inventory items to be counted are printed on counting slips, counted and the result is recorded in the system.

This count result can then be used to carry out the final, second - now "actual" - extrapolation. If the deviation from the first target extrapolation is too great ( $> 2\%$ ), the inventory sampling must be discarded.

## 2 Installation

### 2.1 Licensing

An installation program is available for installing the inventory sampling. Detailed step-by-step instructions can be found in the [Infothek](#).

When GESTIN is started for the first time, a warning message appears because no license file has been found yet. Please send the displayed HWID to [support@classix.de](mailto:support@classix.de) to get a license file.

A README file can be viewed before/after the installation is complete.

### 2.2 Database

With the installation of the software a database is delivered, which contains all system relevant data. This database is stored in the directory you specified during installation under ...

\Gestin\Projects with the name **Gestin.cxd**. A first copy of this file can also be found in this directory as **Gestin\_Master\_DB.cxd**.

With a re-executed copy of the Gestin\_Master\_DB.cxd file as Gestin.cxd you can reset your system to the first installation point at any time.

## 2.3 Calling the program

With the installation, a shortcut for calling the program can be created automatically. Please note that the installation can only be performed by a user with administrator rights.

If another user without administrator rights logs on later using a standard user account in Windows, this must be added to the permissions of the calling batch file. Otherwise an error message will appear at startup.

The procedure is described in detail in the [Infothek](#).

## 2.4 System backup

The only thing you have to do to backup your data is to backup the above mentioned database Gestin.cxd.

# 3 User help

## 3.1 Documents

In addition to these operating instructions, there are two other documents that should make it easier for you to carry out an inventory sampling.

The document “**Accuracy of inventory sampling**” provides the legal basis for an inventory sampling and explains all other requirements for a proper inventory sampling. These requirements must be observed. If they are not observed, an inventory sampling can be classified as not valid.

The document “**Fundamentals of inventory sampling**” describes the mathematical-statistical facts for an inventory sampling and refers to the statistical procedures used.

The document “**BIRT in GESTIN**” serves as installation and operating instructions for creating your own reports in GESTIN.

## 3.2 F1 Help

In addition to the information available in the above-mentioned documents, context-sensitive help from the Infothek ([www.appswarehouse.de](http://www.appswarehouse.de)) is available to the user at any time during operation of the software via the F1 key. Further technical documentation on the CyberEnterprise® business OS can be found at [www.instantview.org](http://www.instantview.org).

## 4 First steps after an initial installation (desktop application)

**Note:** The inventory sampling was created on the basis of the CyberEnterprise® business OS. The associated AppsWarehouse® program modules are active or not active depending on the delivery status. Therefore there may be menu entries or buttons in the program modules which do not react to an input.

### 4.1 Customizing the enterprise

Under the menu item "System/Cyber enterprises" you can enter the name and address of your company. This information will be used e.g. for printouts.

[See also the user documentation for the "Client" module, which can be accessed via the F1 help after calling the module].

### 4.2 Create business years

When the system is delivered, some business years and their periods are already created. By default, the business years are defined according to calendar years.

Since inventories must be assigned to a business period as accounting documents, it is advisable to define the period to be used before an inventory is carried out.

Each time the program is started, the system searches for and assigns the corresponding period according to the date.

You can maintain the required business period under the menu option "Basic data/business years".

[See also the user documentation for the "business year" module, which can be accessed via the F1 help after calling up the module].

### 4.3 Setting up user accounts

As long as no users are defined in the system, no user login mask opens after starting the program. Only with the creation of the first user in the system, one must log in afterwards at the system always with a user abbreviation.

Under the menu item "System/User" you can create users. In the simplest case, users can only be created with an abbreviation and a password; if you want to create further, person-related data, you can assign the user to an employee of the company ("Person" button).

[See also the user documentation for the "User" module, which can be accessed via the F1 help after calling the module].

### 4.4 Rights management

When the system is delivered, some access rights are defined, and an access group "Recording of meter results" already exists in the database. If users are created and assigned access rights, these users can only execute on the system what they were authorized to do. This applies in particular to access to data (classes Security), which is completely blocked by the assignment of even one access right. Therefore, there must always be a release for reading

and/or writing data in the assigned access rights (see the access right "Release all classes" in the database).

Access rights are created under the menu item "System/Rights management", an assignment to users is made in the user management module (see above).

(See also the user documentation for the modules "Message access", "Class access" and "Object access", which can be accessed via the F1 help after calling the module).

#### **4.5 Definition of units**

Standard units such as "m" for meters or "€" are predefined in the system. When transferring inventory items from other systems, the quantity units specified there are checked and translated if necessary, e.g. "pcs" to "pieces".

A preliminary check whether the units of measure occurring in a transfer file are known in the system or can be translated can be carried out after calling up the first point "1. Import book inventory" and there under "Test import inventory data".

Any missing units can be added under the menu item "System/Units".

If a conversion of units is necessary, e.g. because the units in the interface file are numbers, then you can write your own routines to read in and out the data (see the following chapter).

(See also the user documentation for the "Units" module, which can be accessed via the F1 help after calling the module).

#### **4.6 Import options**

Before importing the first inventory, you should check the options for data exchange and adjust them if necessary.

(See also the user documentation for the "Inventory" module (and there under "Functionality" under the keyword "Option window"), which can be accessed via the F1 help after calling up the module).

#### **4.7 Definition of own program routines**

The routines predefined in the system - e.g. those for importing the data - can be overwritten.

For this, the files `invenedt_gestin.lod` and/or `invanaly_gestin.lod` must be inserted into the directory `. \Gestin\AppsWH\Gestin` the files `invenedt_gestin.lod` and/or `invanaly_gestin.lod` with the corresponding code.

Please contact your GESTIN technical advisor in this regard.

## 5 First steps in the cloud application

**Note:** was created on the basis of the CyberEnterprise® business OS. Its associated AppsWarehouse® program modules are active or not active depending on the delivery state. Therefore there may be menu entries or buttons in the program modules which do not react to an input.

### 5.1 Customizing the enterprise

Under the menu item "Administration/System/Cyber enterprise" you can enter the name and address of your company. This information will be used e.g. for printouts.

(See also the user documentation for the "Client" module, which can be accessed after calling up the module via the button at the top right  Help for the app ).

### 5.2 Create business periods

When the system is delivered, some business years and their periods are already created. By default, the business years are defined according to calendar years.

Since inventories must be assigned to a business period as accounting documents, it is advisable to define the period to be used before an inventory is carried out.

Each time the program is started, the system searches for and assigns the corresponding period according to the date.

Under the menu item "Administration/System/business years" you can maintain the required business period.

To create a new business year, click on the button "New" and enter the year at period. Afterwards you can save the new business year. At the moment it is still in the status "created". In order to be able to start the business year, still business periods must be entered. Between the menu item "?" and "Help for the app" you will find the menu item "Business year". With this button and its sub-function "Generate periods automatically-> Months" the business periods are created automatically.

Once this is done, the fiscal year can be activated.

(See also the user documentation for the "business year" module, which can be accessed after calling up the module via the button at the top right  Help for the app ).

### 5.3 Setting up user accounts

As long as no users are defined in the system, no user login mask opens after starting the program. Only with the creation of the first user in the system, one must log in afterwards at the system always with a user abbreviation.

Under the menu item "Administration/User" you can create users. Users can be created in the simplest case only with an abbreviation and a password, if you want to create further, person-related data, you can assign the user to an employee of the company (menu item "User ..." -> Person -> Create or Select).

(See also the user documentation for the "Users" module, which can be accessed after calling up the module via the button at the top right). <sup>?</sup> Help for the app

## 5.4 Definition of units

Standard units such as "m" for meters or "€" are predefined in the system. When transferring inventory items from other systems, the quantity units specified there are checked and translated if necessary, e.g. "pcs" to "pieces".

A preliminary check whether the units of measure occurring in a transfer file are known in the system or can be translated can be carried out via "Workflow -> Import 1st book inventory(s)" with activated checkbox "Only test whether file can be imported" (at the very bottom).

Any missing units can be added under the menu item "Administration/Units".

To do this, click on the "New" button in the unit overview.

Enter the name in the new window, activate the radio button "New base unit", select the area and then save.

(See also the user documentation for the "Units" module, which can be accessed after calling up the module via the button at the top right). <sup>?</sup> Help for the app

## 5.5 Import options

Before importing the first inventory, you must check the options for data exchange and adjust them if necessary.

Depending on the file you use for importing, the options must be adjusted before importing.

With fixed file formats, the file structure is predetermined and cannot be changed. These file formats include:

- .lep (GESTIN)
- .BS (viad@t from viastore systems)

With the free file formats (free field pos. length) the file structure can be adapted to the file to be imported.

Supported file types are csv, xlsx (Excel 2010 and later), xls (Excel) and SQL query.

The data fields which have a \* at the end of the name are mandatory fields and must be set.

If you use our [template file](#) to import your data directly, you only need to save the preset data and can start importing the data.

### 5.5.1 Customize options when importing

In addition to setting the options once in the main window - Quick Start Guide Step 0: Inventory File Setting (bottom right button), you can also adjust the options during the import (Steps menu - 1. Import WMS Inventory data) using the "Advanced Settings" button.

### **5.5.2 Save options**

The Save button saves your settings in the database, the Set button only remembers the settings during the browser session.

### **5.6 Definition of own program routines**

The routines predefined in the system - e.g. those for importing the data - can be overwritten.

For this, the files `invenedt_gestin.lod` and/or `invanaly_gestin.lod` must be inserted into the directory `. \Gestin\AppsWH\Gestin` the files `invenedt_gestin.lod` and/or `invanaly_gestin.lod` with the corresponding code.

Please contact your GESTIN technical advisor in this regard.

## 6 Seven steps for a stratified inventory sampling

### 6.1 Introduction

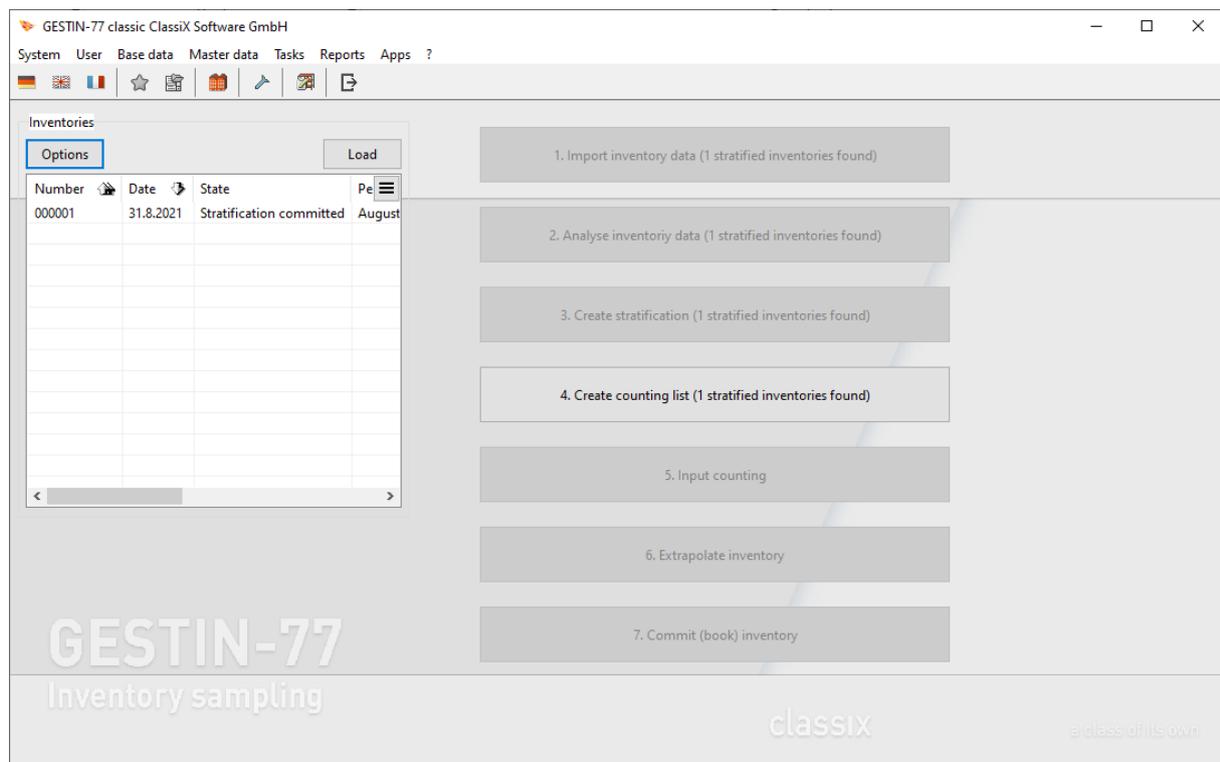
An inventory is based on one or more inventory documents stored in the system. An inventory document is a document whose items represent the individual inventory items, that is, the book quantity and the book value of articles in storage bins.

In the case of a complete inventory, all items of an inventory document are counted. In the case of an inventory sampling, only those items that were selected using the inventory sampling procedure are counted.

In order to increase the size of the basic total, several inventory documents can also be included in the sampling procedure. In this case, however, it must be ensured that the origin of the data of the inventory documents comes from at least very similar warehouse organisations, as otherwise the statistical assumptions about the basic total could be incorrect.

A stratified inventory sampling can be carried out with a total of seven steps. Depending on the state of the inventory documents, the individual buttons on the main screen can be selected or not.

Regardless of the state of the buttons on the main screen, you can access all program modules directly via the main menu or via the menu items or icons in the toolbar.



## GESTIN-77 web

## Steps

1. Import WMS inventory data (1 samples inventories available)
2. Analyse inventory data (1 samples inventories available)
3. Sampling (1 samples inventories available) >
4. Output counting list (1 samples inventories available) >
5. Take inventory (1 samples inventories available) >
6. Probe sampling (1 samples inventories available)
7. Book inventory (1 samples inventories available)

## User guide

0. → 1. → 2. → 3. → 4. 5. 6. 7.

## 4. Output counting list

For the current inventories in the system, you can print out the count lists or have them output as files.

In this case, a separate count list/file is output for each inventory document, i.e. even if the sampling was carried out over several different inventory documents (to increase the statistical population), the counting is again carried out separately for each warehouse/inventory document.

You can repeat this step via the main menu at any time, e.g. to have them output in Excel despite printed count lists.

## 6.2 Step 1: Import inventory data

The first button on the main screen can only be selected if there are no or not yet processed inventory documents in the system. This also applies to the next two buttons (see below).

To carry out an inventory, you must first create one or more inventory documents. In this application, this data is transferred to the system as inventory sampling via an import interface.

The import file contains the book values of parts and their quantities in storage bins. In addition to the quantities - which must be checked by means of inventory - it must be ensured in particular that the parts are already correctly valued before the import file is created.

Duplicate inventory items, i.e. the same part in the same storage bin, are detected by the system during the import and read in only once. After the import, a corresponding error message is issued, the error log for the import is written in the notes of the inventory document.

Each call of the import interface creates a single inventory document with the corresponding number of inventory items.

The "Inventory Reconciliation List" report is available for reconciling the import data (fourth button from the left in the toolbar).

All inventory documents created in the system are displayed as a list in the main window. By double-clicking on an entry in the list, you can open an inventory document in its editing window.

After importing an inventory document from an import file, it is therefore necessary to check it for possible errors. For this purpose, you can call up statistics on items with zero quantity or zero prices.

Each inventory document can be processed on its own - even without being transferred to a sampling procedure. This means that you can create a count list, carry out the count, enter the counted quantities, check the differences and post the inventory document at the end.

Whether individual inventory items may be included in an inventory sampling or whether they are excluded from it (full inclusion) is determined before the import by specifying the options for data exchange (in the "Inventory" module, menu "Options", tab "Data exchange") or can also be done subsequently by clicking the right mouse button on an inventory item (context menu "Exclude/include inventory sampling").

Inventory items with a negative value (negative quantity or negative unit price) are automatically excluded from sampling by the system and cannot be changed.

(See also the user documentation for the "Inventory" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the button at the top right  Help for the app ).

### **6.3 Step 2: Analyse inventory data**

Like the first button, this button can only be selected if there are no inventory documents in the system or if they have not yet been processed further.

The analysis of one or more inventory documents is intended, on the one hand, to produce key figures about these inventory documents (for example, number of all items, number of items with zero quantity, number of items with negative quantity, and so on), but it is intended, in particular, to check the suitability of the basic total defined by the compilation of the inventory documents.

For this purpose, the inventory statistics mentioned above can be called up via the menu in the inventory analysis module, and the frequency and density distribution of the basic total can be examined. Results of these analyses can either be printed or copied into an Excel table.

Results of this check are used to set the options for creating a stratification correctly accordingly. In particular, the information on the inventory type ("Inventory" tab) and on the upper limits of the first and last stratum ("Historical inventory sampling" tab) must be checked.

(See also the user documentation for the "Inventory Analysis" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the button at the top right  Help for the app ).

### **6.4 Step 3: Create stratification**

Like the first button, this button can only be selected if there are no inventory documents in the system or if they have not yet been processed further.

After you have checked the suitability of the basic inventory total for an inventory sampling in the previous step and selected the appropriate settings options for a stratification, a stratification is created for all unposted inventory documents.

So far, a stratified inventory sampling has been implemented. Under Options (accessible in every window of the inventory sampling), the permissible sampling error and the statement probability can be set. According to IDW, these are to be set to 1% and 95% respectively. The cumulative upper limit of the last stratum should be 55%. The standard GESTIN procedure is used for stratification (see "Fundamentals of Inventory Sampling").

A stratification can be repeated at any time with further adjusted options until one has created a stratification which on the one hand is correct (among other things regarding the deviation start projection), but on the other hand also contains an optimal number of positions to be counted.

It should be noted here that when using the "Standard GESTIN Stratification", the stratification is largely determined by the value "Upper limit first stratum": as a rule of thumb, the smaller this is selected, the lower the variance of the first stratum. The smaller the variance of the first stratum, the more strata are created, the smaller the number of samples per stratum.

The value "Upper limit last shift" is to be selected accordingly in such a way that the most valuable inventory items in the warehouse are always supplied to a full inventory.

The stratification finally considered as optimal is then finally linked to the previously selected inventory documents via the menu item "Accept stratification". This changes the status of the system in such a way that the first three buttons of the main screen are now locked and now the fourth step "Create count list" is pending.

For the items that are not to be counted - that is, the items that belong neither to a sample nor to a full inventory item - the actual quantity is automatically set to the same value as the original target or book quantity.

The entire inventory document is then still considered to be an inventory, even if not all inventory items are to be counted.

For the documentation of the stratification, the stratifications made and their strata can be copied into an Excel spreadsheet. For the stratification finally selected, the report "Stratified Sampling Inventory" is available, which contains all selected parameters, the strata, the calculated quantities and the results of the extrapolation(s).

(See also the user documentation for the "Inventory Analysis" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the button at the top right).  Help for the app

## 6.5 Step 4: Create counting list

This button is active if there are inventory documents in the system that are assigned to a stratification but whose count list has not yet been printed.

With this button one calls up an already layered but not printed inventory document in the form of the display option "Count list". The sorting of the list can be done directly in the list by pressing on the column headers, a multiple sorting is possible by holding down the "Ctrl" key as well.

The last selected sort sequence of the inventory items can be frozen using the menu item "Edit/Count list/Set count item number".

The printout of the count list can be printed using a Word template (menu item "Edit/Count list/Print count list") or as a report (fourth button from the left in the toolbar). It is recommended to print the count list only from Word 2012 using the Word template, otherwise the print of the count list is very slow.

After the successful printing of the count list you can check in the main window in the list of the inventory documents whether the print indicator was set (column "Printed"), if this should be missing, you can set it manually over the menu option "Edit/Count list/Count list print indicator" accordingly or remove it again.

If the count is to be carried out on the leading host merchandise management system, then the count list does not have to be printed, via the menu item "Edit/Data exchange/Gestin file format/Export count positions" a file is generated which must be transferred to the host system.

If there are no more unprinted inventory documents, the next button opens for entering the counted quantities.

(See also the user documentation for the "Inventory" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the  button at the top right). Help for the app

## 6.6 Step 5: Input counting

This button is active if there are inventory documents in the system that have been assigned to a stratification, whose count lists have been printed, but none or not all count items have been entered.

This button is used to call up an inventory document that has already been stratified, completely printed but not completely entered with regard to the count quantity - as in the previous step - in the form of the "Count list" display option.

The sequence of the entry can be specified by sorting the list accordingly; double-clicking on an inventory item opens the dialog for entering the counted quantity. By means of the Up/Down keys it is possible to switch to the next or previous inventory item. Even if no entry is made, the inventory item is considered to be entered after switching to another inventory item.

Differences can already be checked during entry. For this purpose, the display options are changed to "Inventory list" in the options under the tab "General", whereby columns such as the column "Deviation" are additionally displayed.

The inventory items can also be maintained under this display option by double-clicking - but then with the additional entry field "Value" and displaying the field "Target" (quantity). We recommend that you only use this function if you need to make corrections to the quantity and value after the counted quantities have been completely entered.

In each - as described above - entered inventory position the date and the time of the entry is deposited. Whether all inventory items have been recorded can be checked using the menu item "Edit/Count list/Check for complete count/Set identifier". If the check is successful, the identifier is set, this button is deactivated and the next button for extrapolation of the inventory becomes active.

If the count was carried out on the leading host merchandise management system, the inventory items counted on the host system are read in again via the menu item "Edit/Data exchange/Gestin file format/Import count items".

(See also the user documentation for the "Inventory" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the button at the top right). <sup>?</sup> Help for the app

## 6.7 Step 6: Extrapolate inventory

After the complete count of the inventories, this button is used to call up the stratification assigned to the inventory and to carry out the final extrapolation with the counted quantities.

The deviation between the start extrapolation and the final extrapolation must not exceed 2.00%, otherwise the inventory sampling is not permissible.

However, this step always causes the stratification to be stored as extrapolated and the inventory documents assigned to it must now either be posted properly or reversed.

To document the results, the report "Historical Sampling Inventory" is again available here.

If the inventory has to be cancelled, it is called up by double-clicking from the list in the main screen and cancelled by means of the menu item "Edit/Cancel inventory".

If the extrapolation is accepted, the inventory can be posted and thus completed with the next button.

(See also the user documentation for the "Inventory Analysis" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the button at the top right). <sup>?</sup> Help for the app

## 6.8 Step 7: Commit (book) inventory

With this button all inventories, whose extrapolated count results were within the tolerance range of 2.00%, are closed by a posting.

Once all the inventory documents stored in the system have either been posted or canceled, the inventory sampling cycle starts again, i.e. the first button on the main screen is active again.

(See also the user documentation for the "Inventory" module, which can be accessed after calling up the module via the F1 help (desktop application) or in the cloud application via the button at the top right). <sup>?</sup> Help for the app

## 7 Verification of the regularity of inventory sampling

At the end of these operating instructions, please refer once again to the document "**Accuracy of an inventory sampling**".

The software described here can help to carry out an inventory sampling properly and efficiently.

However, the user of this software must ensure that, on the one hand, the requirements for inventory sampling are met and, on the other hand, that the inventory is carried out properly - in the warehouse and on the system.