# JASP for Audit User Manual

Statistical Auditing Group

*"The best things in life are free."*

# Contents

# Preface

The **JASP for Audit User Manual** is the go-to guide for practitioners who wish to work with the Audit module in JASP.

# Getting Started

Statistical theory is fundamental to many auditing guidelines and procedures. Auditors need user-friendly software for statistical analyses and the knowledge to interpret these results. JASP (JASP Team, 2025) is an open-source, free, cross-platform statistical software that supports statistical auditing through its Audit module (Derks et al., 2021).

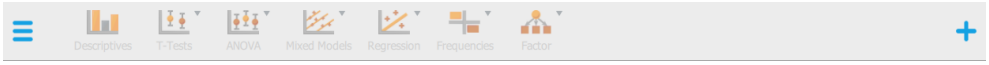
The Audit module allows auditors to plan, perform, and interpret most statistical auditing procedures using correct methods, minimizing programming errors. Designed with auditors in mind, it features a user-friendly interface aligned with audit processes and International Standards on Auditing. Besides standard frequentist methods, the module includes Bayesian methods to enhance audit transparency and efficiency by incorporating existing information. In summary, the Audit module handles the statistical heavy lifting, enabling you to plan, evaluate, and interpret your analyses using both classical and Bayesian techniques.

## Downloading JASP

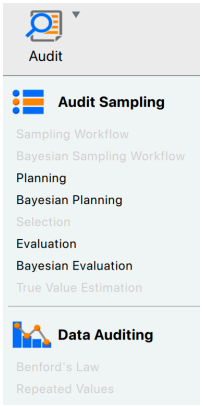
The Audit module is a part of JASP, which can be freely downloaded from www.jasp-stats.org. Click the 'Download JASP' button on the homepage to access the download page and choose your preferred installation. JASP is available for Windows, macOS, Linux, and Chrome OS. Installation follows standard procedures.


# Enabling the Audit module in JASP

After opening JASP, you will see the main menu bar at the top.




To find the Audit module, click the '+'-icon on the right of the menu bar. A menu will appear showing all available modules. Check the box next to 'Audit' to make it visible in the main menu bar. You can now access the Audit module and its analyses by clicking the module icon in the menu bar.



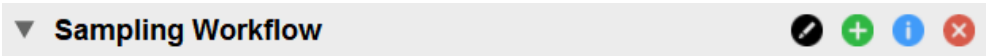

You are now ready to perform statistical audit analyses using the Audit module.

# Working with the Audit module

The Audit module is a powerful tool for statistical analysis in auditing. The following sections cover its accessibility features, including help files and result validation using the R package jfa.

## Help files

After opening an analysis in the Audit module, click the blue 'i' icon next to the analysis title to access a help file describing its functionality. For some options, like sampling units and algorithms, additional help files are available, indicated by a blue 'i' icon next to the option.




## Validation of statistical results

The Audit module's statistical results are derived from the R package jfa (Derks, 2025). For complete documentation and benchmarks, visit the package website at https://koenderks.github.io/jfa/.

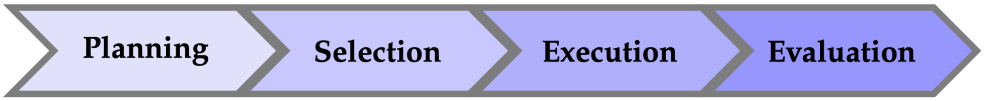
# Part I

# Audit Sampling

# Chapter 1

# Sampling Workflow

The goal of statistical audit sampling is to infer the misstatement in a population based on a representative sample. This can be challenging, but the Audit module simplifies the process into four stages: planning, selection, execution, and evaluation.




## 1.1 Theory behind the audit sampling workflow

More detailed information about the individual stages in the audit sampling workflow is provided below.

### 1.1.1 Stage 1: Planning

In the planning stage, you determine the sample size needed to support the assertion that the population's misstatement is below the performance materiality. This involves using prior audit outcomes and information about inherent risk and control risk. Expectations about error rates also influence the sample size required to maintain statistical confidence.

### 1.1.2 Stage 2: Selection

Using the sample size from the planning stage, you select a statistically representative sample. Each sampling unit receives an inclusion probability, and units are selected based on these probabilities. Monetary unit sampling assigns probabilities to individual monetary units, making higher-value items more likely to be selected. Record sampling assigns equal probabilities to all items.

### 1.1.3 Stage 3: Execution

In the execution stage, you assess the correctness of selected items. The simplest method categorizes items as correct or incorrect, while a more accurate method considers the true value (audit value) of items. Annotating samples with audit values provides a more precise estimate of misstatement. If book values are unavailable, use the correct/incorrect method.

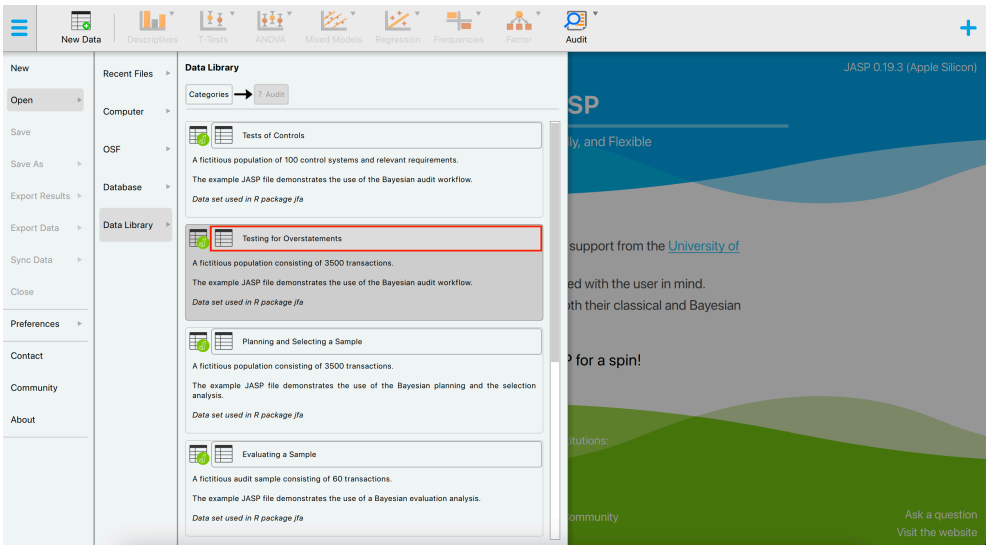
### 1.1.4 Stage 4: Evaluation

In the evaluation stage, you use the annotated sample to infer the total misstatement in the population. Statistical techniques calculate a projected maximum misstatement, and the population is approved if this is below the performance materiality.

## 1.2 The audit sampling workflow in JASP

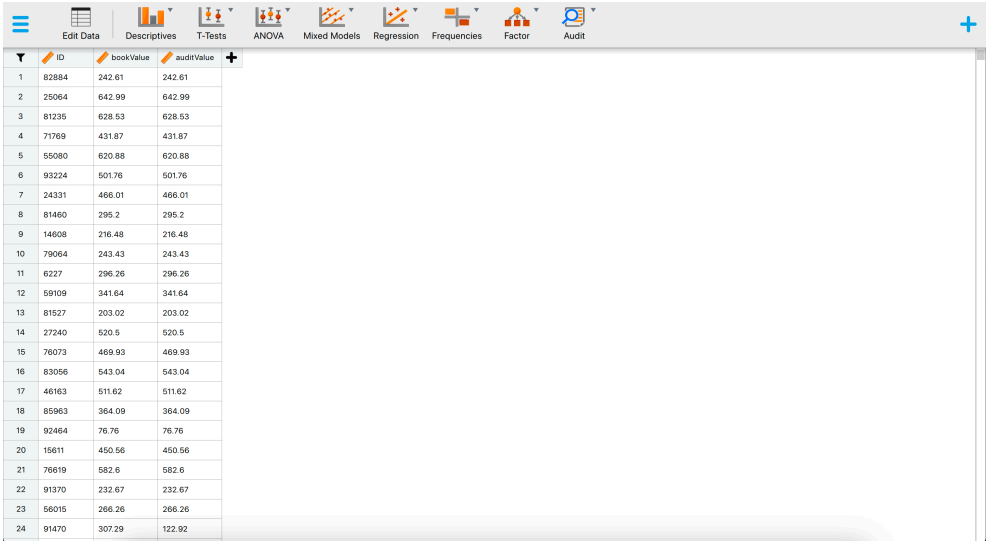
The Audit module in JASP offers two ways to navigate the audit sampling workflow: the Sampling Workflow analysis, which guides you through all four stages, and individual analyses for Planning, Selection, and Evaluation. This chapter uses the Sampling Workflow analysis to explain the Audit module's core functionality.

Let's explore an example of the audit sampling workflow. To follow along, open the 'Testing for Overstatements' dataset from the Data Library. Navigate to the top-left menu, click 'Open', then 'Data Library', select '7. Audit', and finally click on the text 'Testing for Overstatements' (not the green JASP-icon button).




This will open a dataset with three columns: 'ID', 'bookValue', and 'auditValue'. The 'ID' column represents the identification number of the items in the population. The 'bookValue' column shows the recorded values of the items, while the 'auditValue' column displays the true values. The 'auditValue' column is included for illustrative

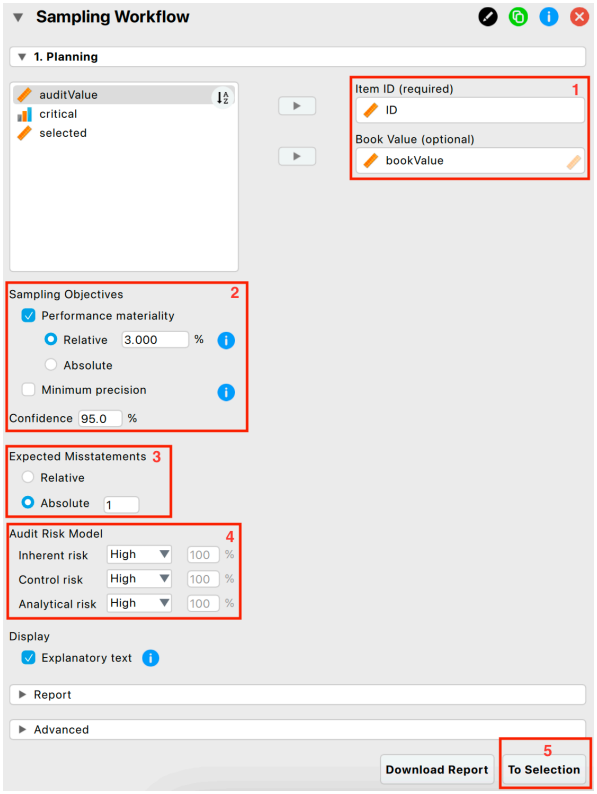
purposes, as auditors typically know the true values only for the audited sample, not for all items in the population.




| | ID | bookValue | auditValue |
|---|---|---|---|
| 1 | 82884 | 242.61 | 242.61 |
| 2 | 25064 | 642.99 | 642.99 |
| 3 | 81235 | 628.53 | 628.53 |
| 4 | 71769 | 431.87 | 431.87 |
| 5 | 55080 | 620.88 | 620.88 |
| 6 | 93224 | 501.76 | 501.76 |
| 7 | 24331 | 466.01 | 466.01 |
| 8 | 81460 | 295.2 | 295.2 |
| 9 | 14608 | 216.48 | 216.48 |
| 10 | 79064 | 243.43 | 243.43 |
| 11 | 6227 | 296.26 | 296.26 |
| 12 | 59109 | 341.64 | 341.64 |
| 13 | 81527 | 203.02 | 203.02 |
| 14 | 27240 | 520.5 | 520.5 |
| 15 | 76073 | 469.93 | 469.93 |
| 16 | 83056 | 543.04 | 543.04 |
| 17 | 46163 | 511.62 | 511.62 |
| 18 | 85963 | 364.09 | 364.09 |
| 19 | 92464 | 76.76 | 76.76 |
| 20 | 15611 | 450.56 | 450.56 |
| 21 | 76619 | 582.6 | 582.6 |
| 22 | 91370 | 232.67 | 232.67 |
| 23 | 56015 | 266.26 | 266.26 |
| 24 | 91470 | 307.29 | 122.92 |

### 1.2.1 Stage 1: Planning

To start the sampling workflow, click on the Audit module icon and select ‘Sampling Workflow’. This will open the following interface, where you need to fill in the options for the statistical analysis.




First, enter the variable indicating the identification numbers of the items in the corresponding box (indicated with a 1). Optionally, if you have access to the book values of the items, you can enter this variable as well.

Next, formulate your sampling objectives (indicated with a 2). Enable the 'Performance materiality' objective if you want to test whether the total misstatement in the population exceeds a certain limit (i.e., the performance materiality). This approach allows you to plan a sample such that, when the sample meets your expectations, the maximum error is said to be below performance materiality. Enable the 'Minimum precision' objective if you want to obtain a required minimum precision when estimating the total misstatement in the population. This approach allows you to plan a sample such that, when the sample meets expectations, the uncertainty of your estimate is within a tolerable percentage. In the example, we choose a performance materiality of 3.5%.

Then, indicate how many misstatements are tolerable in the sample (indicated with a 3). In the example, we choose to tolerate one full misstatement in the sample.

Additionally, indicate the risks of material misstatement via the audit risk model (indicated with a 4). According to the Audit Risk Model, audit risk can be divided into three constituents: inherent risk, control risk, and detection risk. Inherent risk is the risk posed by an error in a financial statement due to a factor other than a failure of internal controls. Control risk is the probability that a material misstatement is not prevented or detected by the internal control systems of the company (e.g., computer-

managed databases). Both these risks are commonly assessed by the auditor on a 3-point scale consisting of low, medium, and high categories. Detection risk is the probability that an auditor will fail to find material misstatements in an organization's financial statements. For a given level of audit risk, the tolerable level of detection risk bears an inverse relationship to the other two assessed risks. Intuitively, a greater risk of material misstatement should require a lower tolerable detection risk and, accordingly, more persuasive audit evidence. Here, we choose to set all risks to 'High'.

The output below shows that the required sample size for these options is 134 items.

***Table 1.*** *Planning Summary*

| | Value |
|---|---|
| Performance materiality | 0.035 |
| Inherent risk | 1.000 |
| Control risk | 1.000 |
| Analytical risk | 1.000 |
| Detection risk | 0.050 |
| Tolerable misstatements | 1.000 |
| Minimum sample size [a] | 134 |

*Note.* The minimum sample size is based on the binomial distribution (p = 0.035)
[a] Based on this sample size, the selection interval spans 10471.8 units.

Finally, progress to the selection stage by clicking the 'To Selection' button (indicated with a 5).

### 1.2.2 Stage 2: Selection

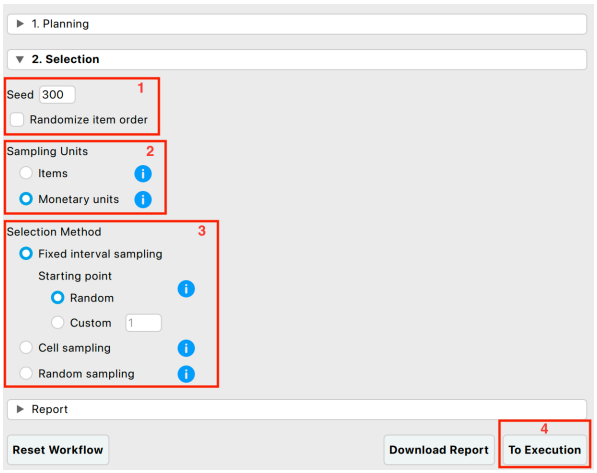


***Table 3.*** *Selection Summary* ▼

| No. units | No. items | Selection value | % of population value |
|---|---|---|---|
| 134 | 134 | €67,821.22 | 4.8% |

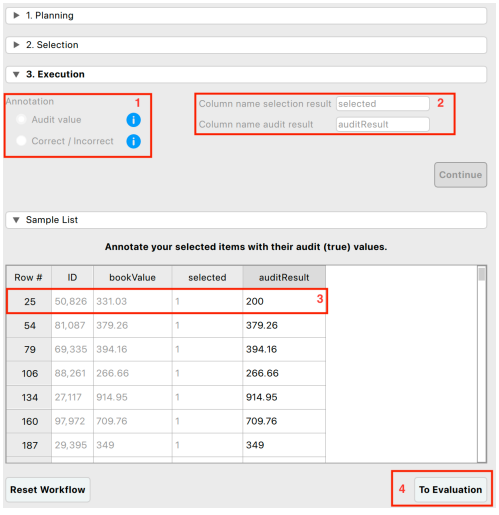
*Note.* From each of the intervals of size 10471.8, unit 9584 is selected using seed 300.

***Table 4.*** *Information about Monetary Interval Selection*

| | Items | Value | Selected items | Selected units | Selection value | % of total value |
|---|---|---|---|---|---|---|
| Total | 3,500 | €1,403,220.82 | 134 | 134 | €67,821.22 | 4.8% |
| Top stratum | 0 | €0 | 0 | 0 | €0 | 0% |
| Bottom stratum | 3,500 | €1,403,220.82 | 134 | 134 | €67,821.22 | 4.8% |

*Note.* The top stratum consists of all items with a book value larger than a single interval.

### 1.2.3 Stage 3: Execution



### 1.2.4 Stage 4: Evaluation

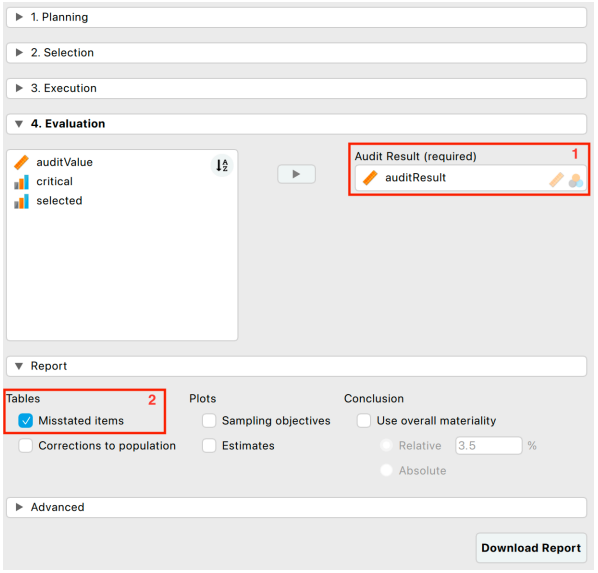



***Table 4.*** *Evaluation Summary*

| | Value |
|---|---|
| Performance materiality | 0.035 |
| Sample size | 134 |
| Misstatements | 1 |
| Taint | 0.396 |
| Most likely misstatement | 0.003 |
| 95% Upper bound | 0.027 |
| Precision | 0.025 |
| p-value | 0.019 |

*Note.* The results are computed using the binomial distribution.

***Table 5.*** *Misstated Items*

| ID | Book value | Audit value | Difference | Taint | Counted |
|---|---|---|---|---|---|
| 50,826 | €331.03 | €200 | €131.03 | 0.396 | x1 |
| Total | | | €131.03 | 0.396 | |

# Chapter 2

# Planning

# Chapter 3

# Selection

# Chapter 4

# Evaluation

# Part II

# Data Auditing

# Chapter 5

# Benford's Law

# Chapter 6

# Number Bunching

# Part III

# Algorithm Auditing

# Chapter 7

# Fairness

This is the user manual for **JASP for Audit**, which is a module for the free and open-source statistical software program **JASP** that integrates the functionality of the **jfa** package and offers a user-friendly graphical interface that caters specifically to statistical auditing (**https://jasp-stats.org**).