JASP for Audit User Manual

Statistical Auditing Group

"The best things in life are free."

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Preface

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

Getting Started

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

The Audit module (i.e., JASP for Audit) allows auditors to plan, execute, and interpret a wide range of statistical auditing procedures using state-of-the-art statistical methods, thereby reducing programming errors and simplifying the process. Tailored for auditors, the module features an intuitive interface that aligns with audit processes and international standards on auditing. In addition to standard frequentist methods, the Audit module incorporates Bayesian methods to enhance audit transparency and efficiency by utilizing existing information.

In summary, the Audit module takes care of the complex statistical work, allowing you to concentrate on interpreting the results of your analysis. The remaining paragraphs in this chapter discuss how to get started using JASP for Audit.

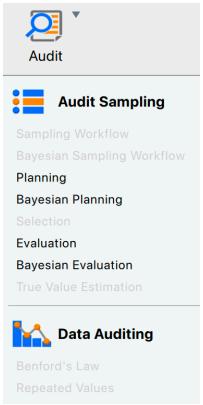
Downloading JASP

JASP for Audit is 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.

Enabling the Audit module in JASP

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

To find the Audit module, click the '+' icon on the right of this menu bar. A different menu will appear on the right side which shows all available modules. Check the box next to 'Audit' to make the module visible in the main menu bar. You can now access the Audit module and its analyses by clicking its module icon in the menu bar (see image below).



Working with the Audit module

The Audit module is a robust tool for statistical auditing. The following paragraphs detail its accessibility features, including where to locate help files and how to the

reliability of the statistical results is ensured.

Help files

Once you open an analysis in the Audit module, you can click the blue 'i' icon next to the analysis title to access a help file that explains its functionality. Additional help files for certain options can be accessed by clicking the blue 'i' icon next to those options.

Validation of statistical results

The statistical results generated by the Audit module are based on the R package jfa (Derks, 2025). For comprehensive documentation and information on the benchmarks used for validation, please visit the package website at https://koenderks.github.io/jfa/.

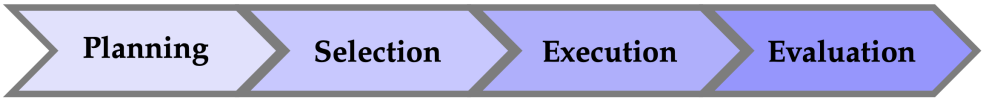
Part I

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.

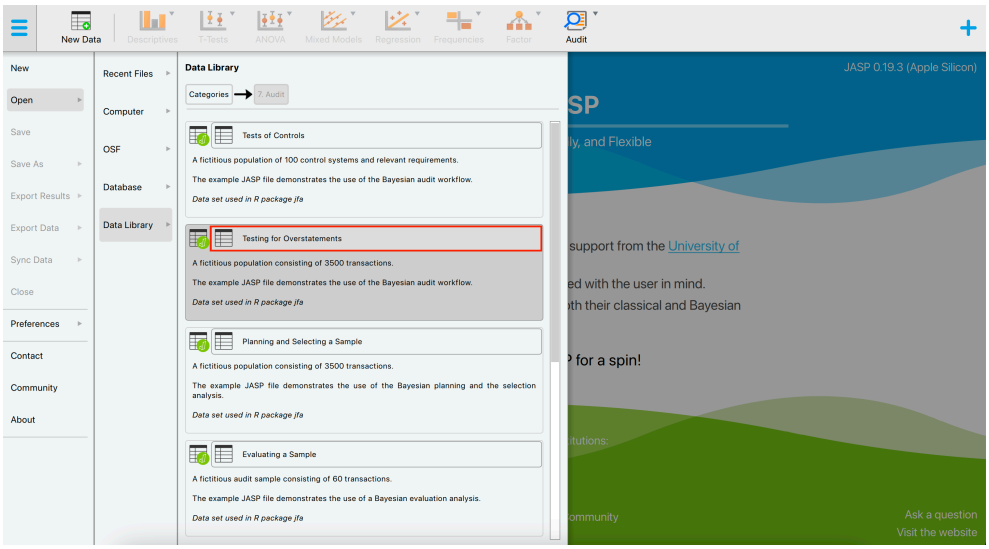
1.1.4 Stage 4: Evaluation

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

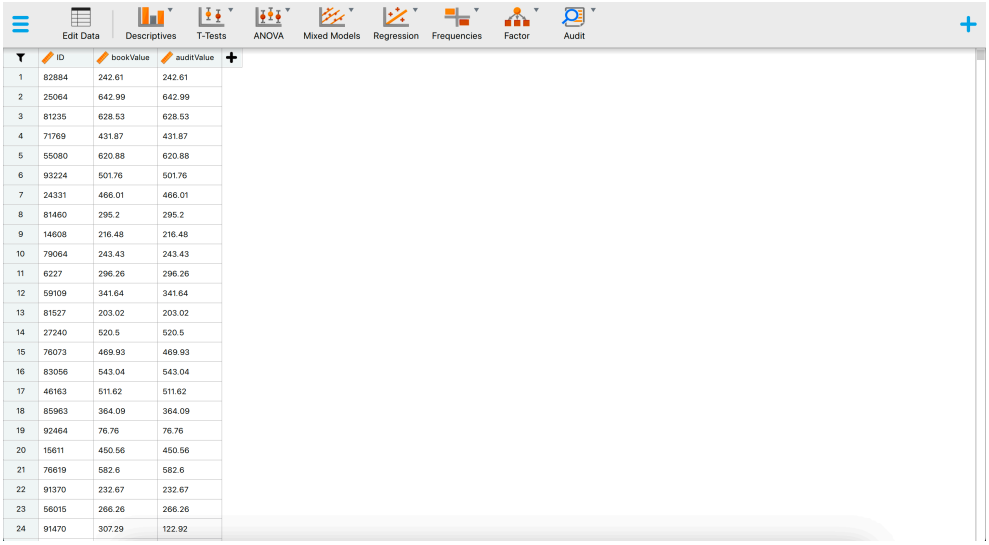
The Audit module in JASP offers two ways to navigate the audit sampling workflow: the Sampling Workflow analysis, which guides you through all four stages, and individual analyses for Planning, Selection, and Evaluation. This chapter uses the Sampling Workflow analysis to explain the Audit module's core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

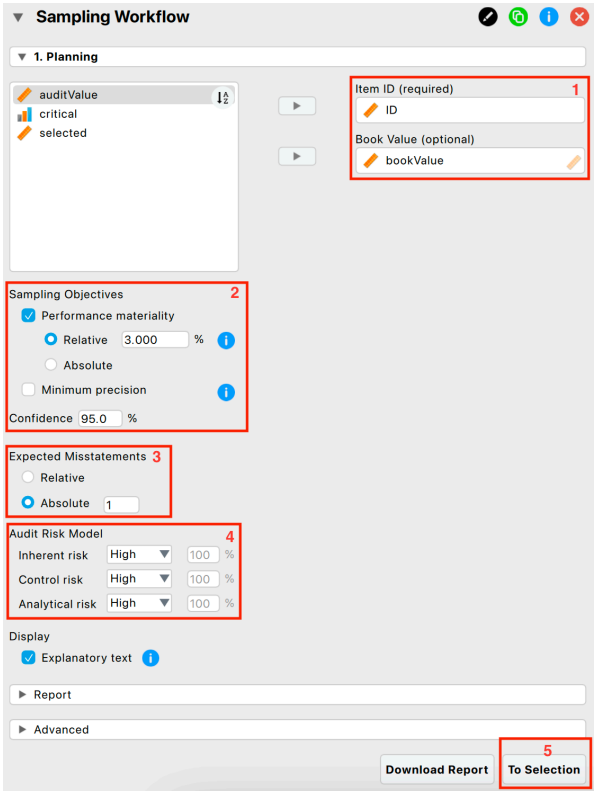
purposes, as auditors typically know the true values only for the audited sample, not for all items in the population.



	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. 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. In this example, we choose to set all risks to 'High' and solely rely on evidence from substantive testing.

The primary output from the planning stage, shown below, indicates that a minimum sample size of 134 items is required to achieve 95% assurance that the misstatement in the population is below 3.5%, while allowing for one misstatement in the sample.

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). For a more detailed explanation of the options and output in the planning stage, see Chapter 2.

1.2.2 Stage 2: Selection

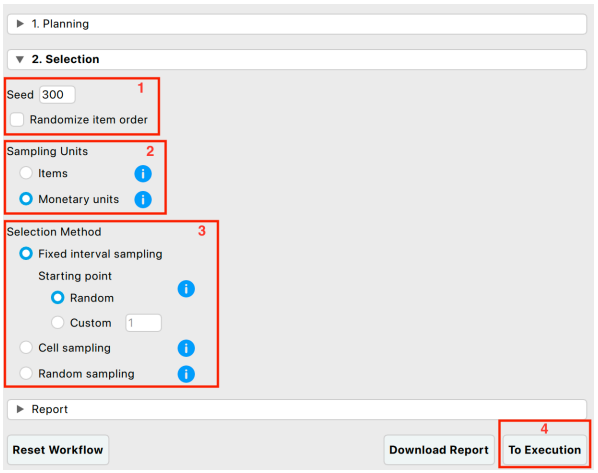


Table 3. *Selection Summary* ▼

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.

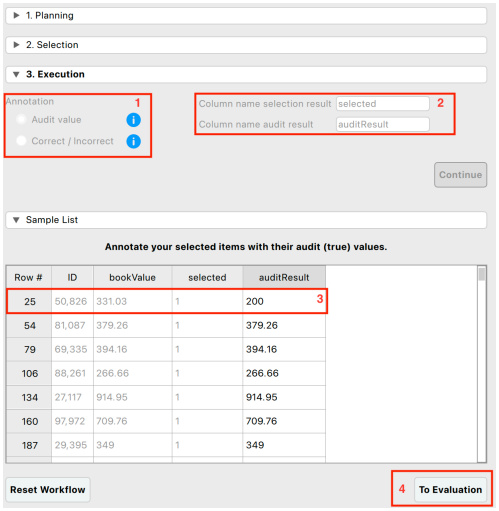
Table 4. *Information about Monetary Interval Selection*

	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.

Finally, progress to the execution stage by clicking the 'To Execution' button (indicated with a 4).

1.2.3 Stage 3: Execution



Finally, progress to the evaluation stage by clicking the 'To Evaluation' button (indicated with a 4). For a more detailed explanation of the options and output in the evaluation stage, see Chapter 4.

1.2.4 Stage 4: Evaluation

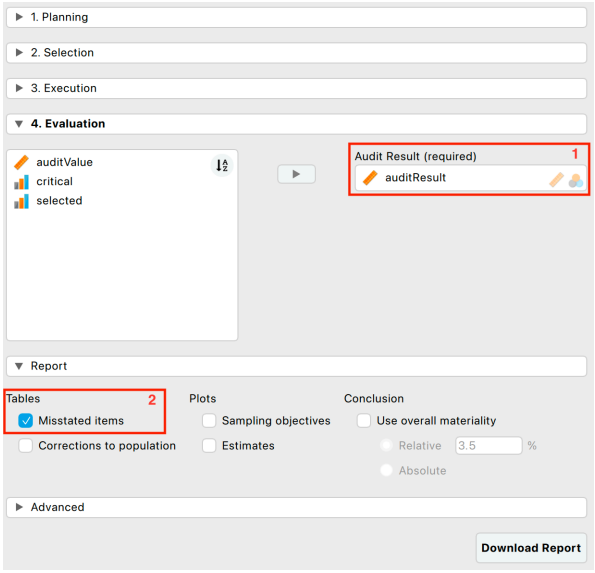


Table 4. *Evaluation Summary*

	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**).