

# SUCCESS STORY

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## ISTA AND BOI WITH TABEX4 ON LINUX INTO THE FUTURE



### ISTA AND BOI

**Numerous possibilities of a mainframe application on a modern, contemporary system**

#### CUSTOMER PROFILE

ista, a global leading energy service provider, adds sustainable value to buildings for their residents. ista manages data and processes to make buildings climate-friendly, safe and comfortable. As a driver of innovation, ista consistently directs its infrastructure towards the Internet of Things.

- Employees: over 5.500 in 22 countries(2020)  
Turnover: EUR 887,8 million (2018)
- 13 million units with more than 25 million connected devices (2020)

#### Summary

Reference data for the control of business processes are an essential element of corporate management at ista. This data is used in countless ista applications. Quality assurance is of great importance especially when maintaining this reference data.

Since 2008, ista is using BOI software - TABEX4 - on the mainframe to maintain its reference data. As a leading, cross-platform standard software for table access and table maintenance, TABEX4 enables efficient and audit-proof management of reference, control, and parameter data. The user-friendly web interface offers secure data management, even with complex data organization in the company. Thus, even employees without IT or database knowledge can perform quality-assured, efficient maintenance of all data. At ista, TABEX4 is used to implement e.g. the parameterization of programs, control of automated maintenance tasks and accounting, software access control, and mapping of the corporate structure including address information and teams in an audit-proof, secure way.

During migration from mainframe to Linux, the TABEX4 installation was also moved to Linux. The project was realized cost- and time-efficient and the previous configuration was retained. Since November 2019, ista's reference data are being maintained in SQL databases on Linux by more than 100 professional users - with identical user interfaces and maintenance tasks similar to the mainframe.

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## INTERNATIONAL SUCCESS



ista supports customers around the globe to manage energy and water consumption individually.



ista headquarter in Essen, Germany  
Copyright: ista

### ISTA INTERNATIONAL GMBH

Since June 2008, ista international GmbH is a BOI customer. ista international GmbH is one of the leading companies worldwide in improving the energy efficiency of buildings. 21 European States as well as the United Arab Emirates belong to its business area.

With its high-quality products and services, ista supports sustainable savings in energy, CO2 and costs. To this end, ista has opted for so-called submetering: individual recording, billing and transparent visualization of consumption data for apartment buildings and commercial real estate.

ista's services are based on the most modern hardware components for energy data management. This includes radio-based heat cost allocators, water meters, heat meters, and corresponding mounting systems.

The company employs over 5.500 people in 22 countries worldwide and supports residents in around 13 million units (apartments and commercial real estate) in saving important resources. In 2018, the ista Group generated a turnover of 887,8 million Euro.

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## COMPETENT EFFICIENCY

„With BOI’s competent implementation and support, TABEX4 was successfully migrated from the mainframe to Linux in less than three months.“

Oliver Bilstein  
Senior IT Architect / IT Strategy & Architecture Management at ista

### TABEX4 AT ISTA: KEY ASPECTS

Since 2008, TABEX4 is in productive use for audit-proof maintenance of key tasks, such as:

- item master data and classifications
- parameterization of programs
- standard text templates
- control of automated tasks
- control of accounting
- maintenance of specific customer data
- calculation parameters
- software access control
- mapping of the corporate structure including address information and teams
- functionalities for audit-proof protocolling and archiving

To administer the entire system, just 10-15% working time of a full-time employee is needed.

### INITIAL SITUATION

#### Migrating the reference data maintenance from mainframe to Linux

For 12 years, ista has relied on TABEX4 for the maintenance of its reference data. With its configurable authorization and client system, TABEX4 enables mapping of the ista-specific organization of data and roles.

In 2018, ista decided to replace the mainframe and operating system z/VSE, and migrate all applications to Linux. At the same time, TABEX4 should be migrated to Linux as well.

ista maintains its reference data in TABEX4 and stores it in the BOI-specific table format. Data is centrally available for high-performance access by ista applications. For this purpose, the TABEX4 application data was stored on the VSE host. Daily operation, maintenance, and administration were carried out via the TABEX4 Client/Server System.

An important criterion was that the migration should not result in any changes in the reference data maintenance for the employees in the respective departments. In addition, tight deadlines had to be met. Once again, TABEX4 was able to prove its strengths and enabled a time- and cost-saving migration to Linux.

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## RELIABILITY AND TRANSPARENCY

„BOI's close adherence to schedules and budget made the successful, on-time migration of TABEX4 from mainframe to Linux possible.“

Andre Schmidt  
Senior Project Manager / Corporate Business Solution at ista

### ISTA REQUIREMENTS ON TABEX4:

1. Mapping ista's complex data organization of reference data maintenance
2. Table maintenance for professional users with no SQL knowledge
3. Configurable maintenance tasks for more than 100 users
4. Audit-proof protocolling and archiving of all data changes

### CHALLENGE

#### Migration of the audit-proof TABEX4 reference data maintenance from z/VSE to Oracle on Linux

The following project objectives were defined:

- The TABEX4 User Interface for professional users on Linux should be identical to z/VSE. There should be no change in reference data maintenance for the more than 100 professional users.
- The migration effort should be kept as low as possible. Settings and functionalities of z/VSE should be ported to Linux whenever reasonable and applicable. The focus was mainly on the permissions and menu settings, which should ideally be ported without any adaptations.
- The implementation was time-critical and had to be completed in a few weeks.

This resulted in the following steps:

1. Creation of TABEX maintenance structures for Oracle tables
2. Adoption of the existing TABEX4 configuration
3. Customizing of TABEX4 on Linux for ista

Due to missing data formats in Oracle, some TABEX-specific definitions, such as inspection attributes and date formats, were not directly transferred to the RDB. The challenge was to handle Oracle data in the TABEX4 data maintenance process in a way to preserve previous security and convenience in table maintenance.

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## USER-FRIENDLY INTERFACE



With the web-based TABEX4 User Interface, even professional users without specialized IT skills can maintain reference and control data in a secure, efficient way.



## TABEX4 ULTIMATE WITH RELATIONAL BRIDGE

is the ideal solution for modern, up-to-date maintenance of reference data by the department.

Even complex roles and data organization in heterogeneous environments can be mapped with TABEX4.

Various RDB systems such as e.g. Oracle can be used as source and target database.

TABEX4 Ultimate thus enables individually configurable, audit-proof reference data maintenance.

## SOLUTION

### TABEX4 Migration from z/VSE to Oracle on Linux

#### Identical maintenance process for reference data on Linux

TABEX4 Ultimate is platform neutral and thus compatible with many common operating systems. Therefore, TABEX4 can be used not only on the mainframe but also on server systems.

By default, TABEX4 is used with the proprietary table format. With the add-on „Relational Bridge“, all TABEX4 functionalities can also be used for tables from relational databases: „Relational Bridge“ enables the comfortable and audit-proof maintenance of table data from different RDBs with the same TABEX4 User Interface.

## THE TASKS IN DETAIL

### Creating TABEX4 maintenance structures for Oracle tables

The host system was ported 1:1 to a Java environment in 2019. The TABEX4 application data were migrated from the VSE host system to an Oracle database.

Oracle does not map the attributes required by TABEX4. Thus, the first task was to create the necessary maintenance structures in TABEX4 for the TABEX4 Tables that were migrated to Oracle. To do so, TABEX4 was extended to enable TABEX-specific attributes and field formats to be reinstated and to also offer them in the future for the maintenance of Oracle tables, e.g.:

- a mandatory attribute which is directly implemented as a check by the TABEX4 Editor
- TABEX4 date formats
- a format which, in the case of a character field, only allows the input of digits

**Result: All TABEX4 maintenance structures are now available for Oracle databases.**

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## FLEXIBILITY WITH TABEX4



With TABEX4, ista can flexibly configure on which tables and environments the 2- or 4-eyes-principles shall apply.



### RESTORING SOFTWARE-SPECIFIC ATTRIBUTES

is always a challenge and should only be performed by experienced software engineers.

ista relied on the competent software team of BOI.

### TABEX4 on Linux

In the next step, TABEX4 Ultimate was installed on Linux. After basic configuration, which included e.g. the setup of database connections, TABEX4 system settings and clients were restored on Linux in a second step. The adjustment of approval procedures, ista-specific tasks, and settings from the mainframe were also carried out.

The following tasks were performed:

- Switching all configurations to Linux
- Migrating existing permissions, roles and menu settings
- Porting and, where necessary, creating new housekeeping jobs
- Adding Linux-specific functionalities to the TABEX4 tasks, such as calling a shell script after successful table activation
- Cleaning up the old configurations or adapting them to the new TABEX4 Release

**Result: All relevant TABEX4 tasks, functionalities and settings were successfully migrated and adjusted. Also, all permissions and menu settings were completely migrated from z/VSE.**

### TABEX4 Customizing for ista

During migration, TABEX4 was adapted to meet the new requirements of ista. TABEX4 Utilities were extended to design low-maintenance and flexible tasks. For example, conditional execution of utility commands is now possible. Furthermore, Linux environment variables can be controlled in utility placeholders.

**Result: The migration from mainframe to Linux was successfully implemented using TABEX4 Ultimate with Relational Bridge. Maintenance tasks were identically mapped – and thus remained complete and unchanged for professional users.**

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## COMMON SUCCESS



High-quality cooperation set the conditions to achieve all goals of the migration project.



**TABEX4 HAS BECOME AN  
INDISPENSABLE PART**  
of ista's daily business:

Over 150

|  
tables are daily updated with  
TABEX4.

Over 100

|  
professional users maintain these  
tables.

## WITH TABEX4 ON LINUX INTO THE FUTURE

**Numerous possibilities of a mainframe application on a modern, contemporary system**

All project objectives were achieved with the successful migration from z/VSE to Linux-Oracle:

- TABEX4 continues to be fully used: The TABEX4 User Interface as well as the audit-proof maintenance process are now available on Linux. More than 100 professional users at ista can continue their daily reference data maintenance unchanged. And, the performance for TABEX4 Users even increased.
- With the identical implementation of z/VSE on Linux, the TABEX4 reference data maintenance can be carried out in the usual quality. Time- and cost-intensive retraining can thus be completely omitted.
- Migration of the reference data maintenance from z/VSE to Linux was implemented in a time- and cost-efficient way: BOI supported the entire conversion with approx. 25 consulting days. The complete migration was done in less than 2 months.
- Important tasks were automated to reduce the effort of customizing the TABEX4 maintenance application for ista.

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ORGANIZED  
INFORMATION

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