

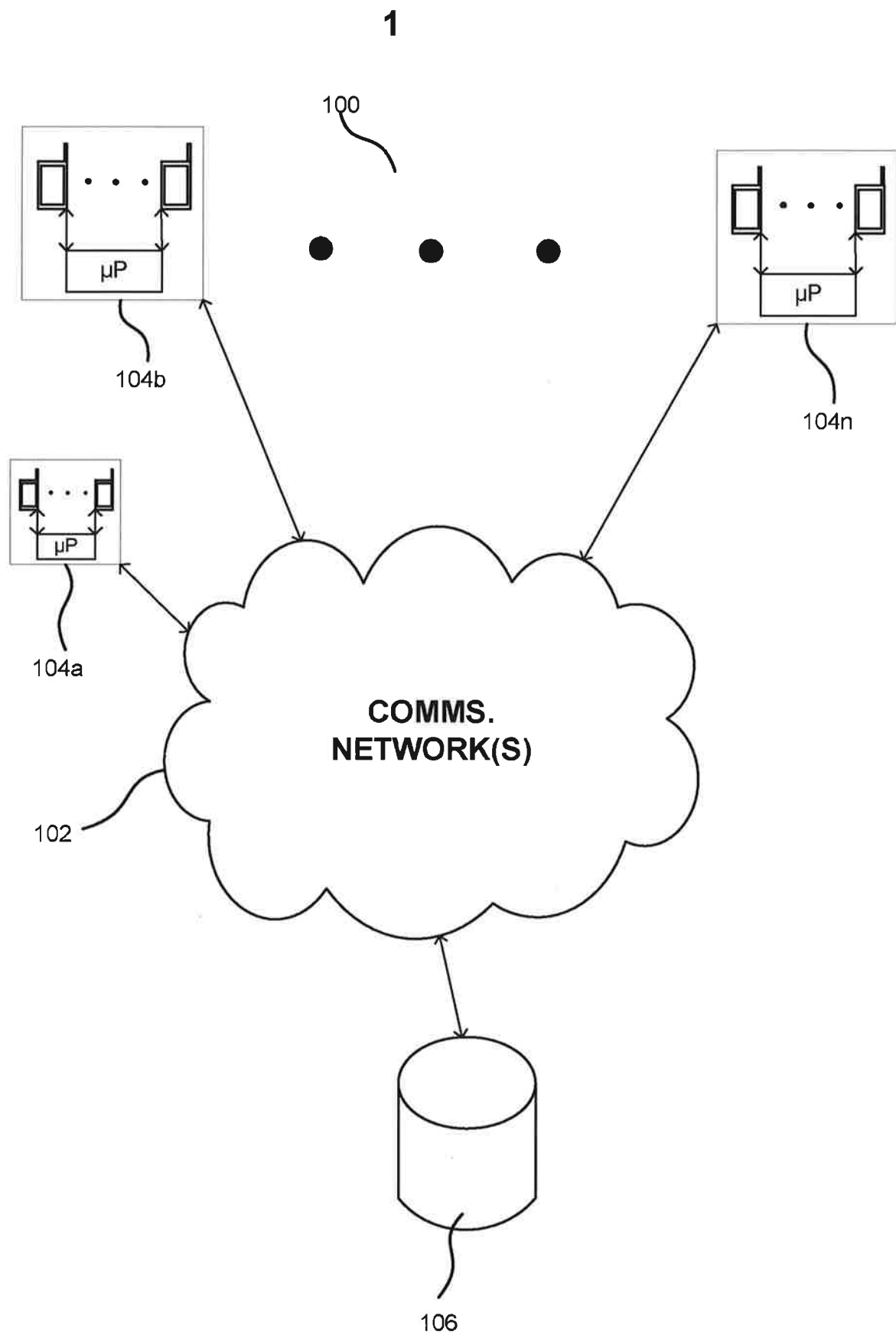


FIG. 1

2

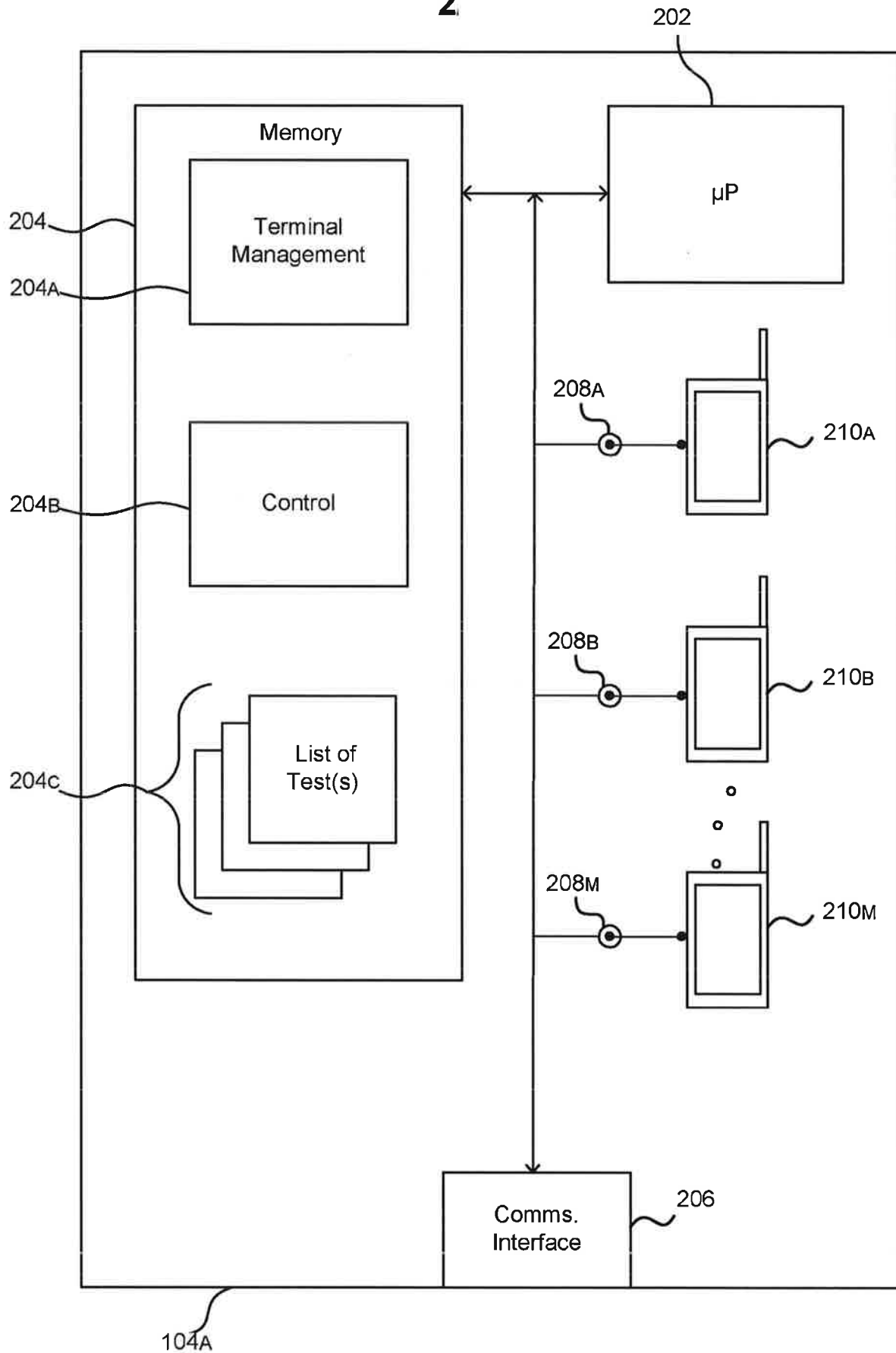


FIG. 2

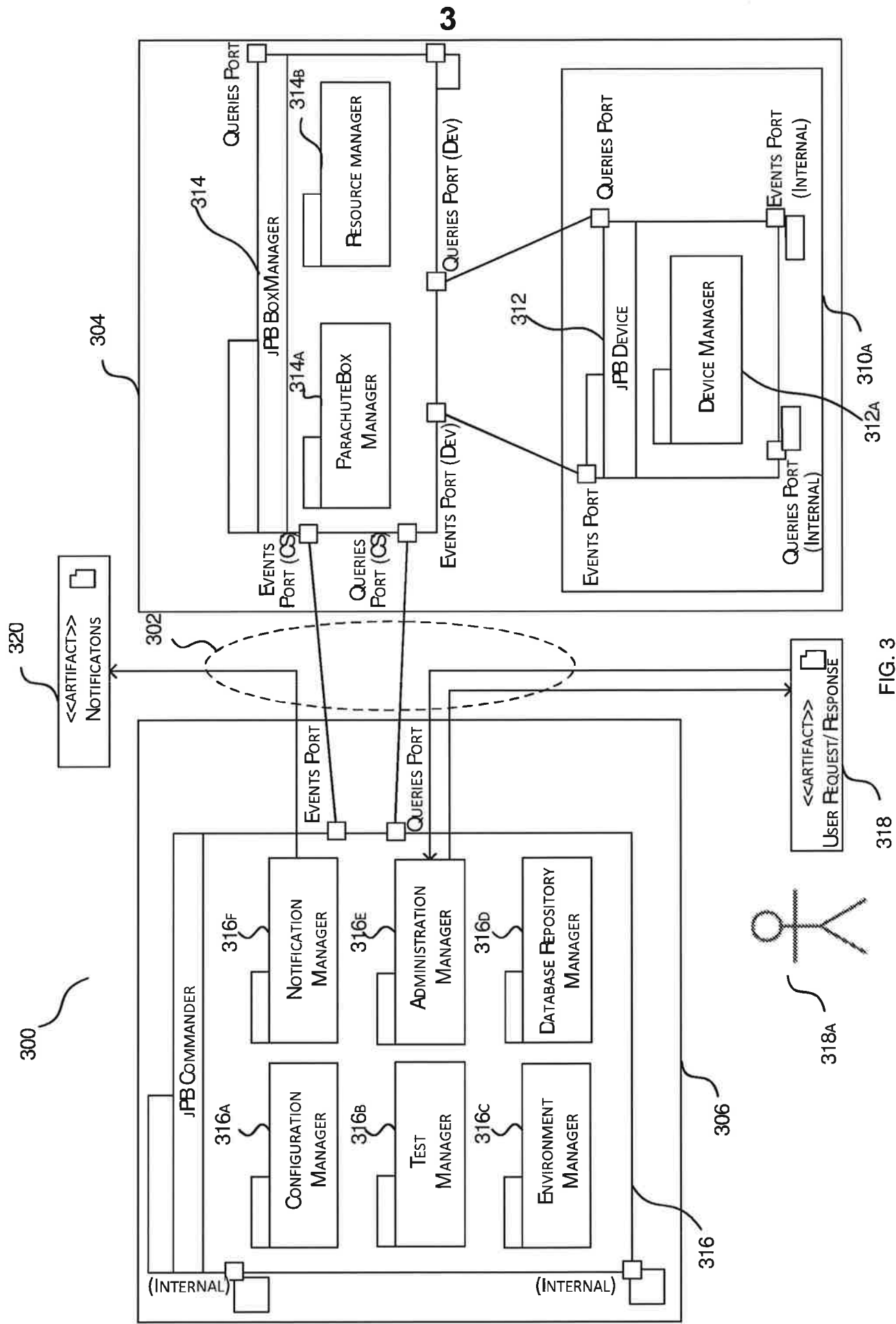


FIG. 3

400

4

402

CONFIGURE A CONTROL UNIT TO RUN NETWORK TEST(S)
USING ONE OR MORE REMOTE UNITS, EACH WITH
MULTIPLE TERMINALS

404

GENERATE A LIST OF TEST(S)

406

SEND LIST OF TEST(S) TO ONE OR MORE
REMOTE UNIT(S)

408

EXECUTE TEST(S) ON REMOTE UNIT(S)
AND RECEIVE TEST RESULT(S) GENERATED FROM
TERMINAL(S)

410

RETRIEVE TEST RESULT(S) OF NETWORK TEST(S)

412

ANALYSE TEST RESULT(S) IN RELATION TO NETWORK
TEST(S)

FIG. 4

5

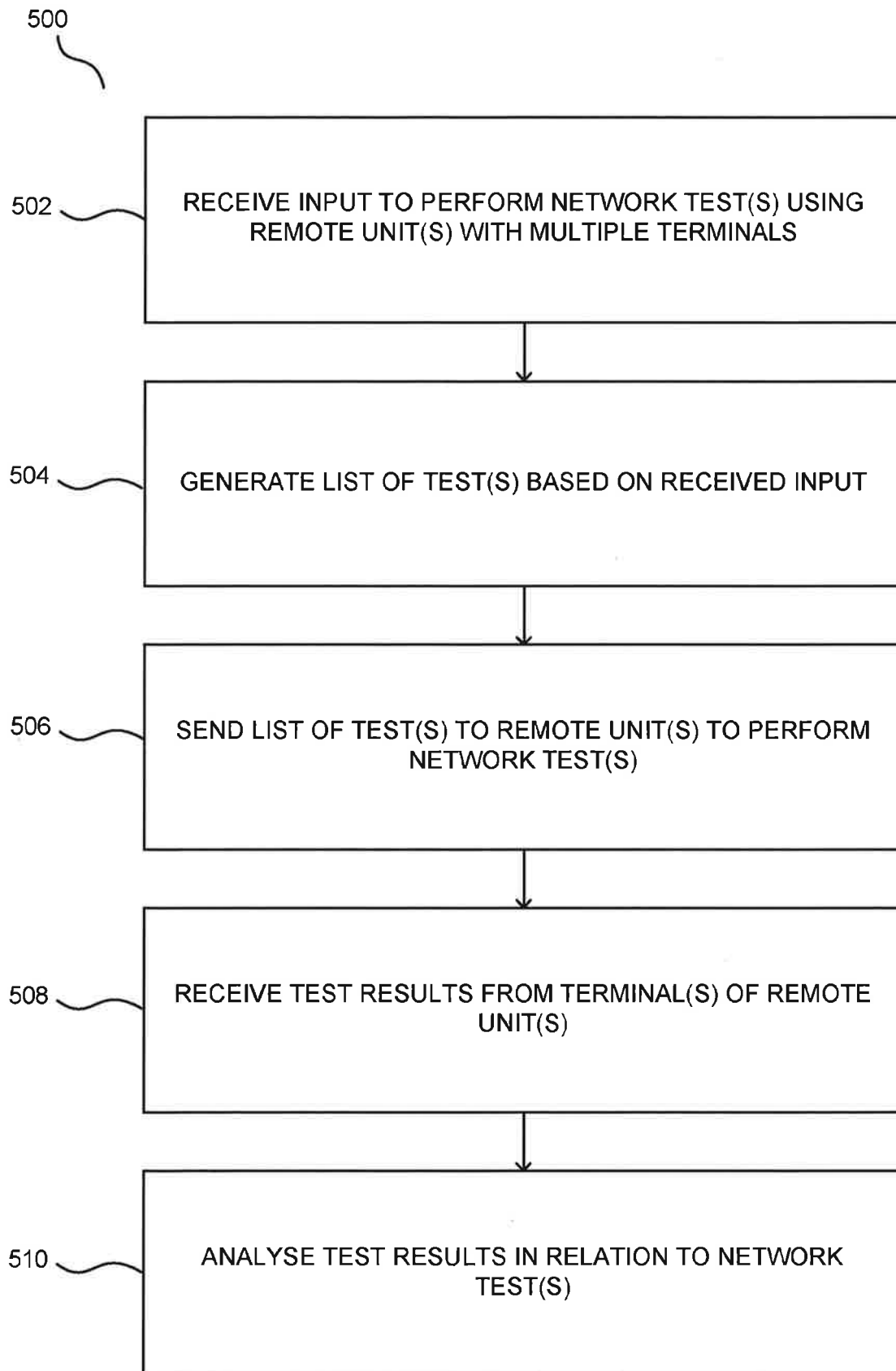


FIG. 5

6

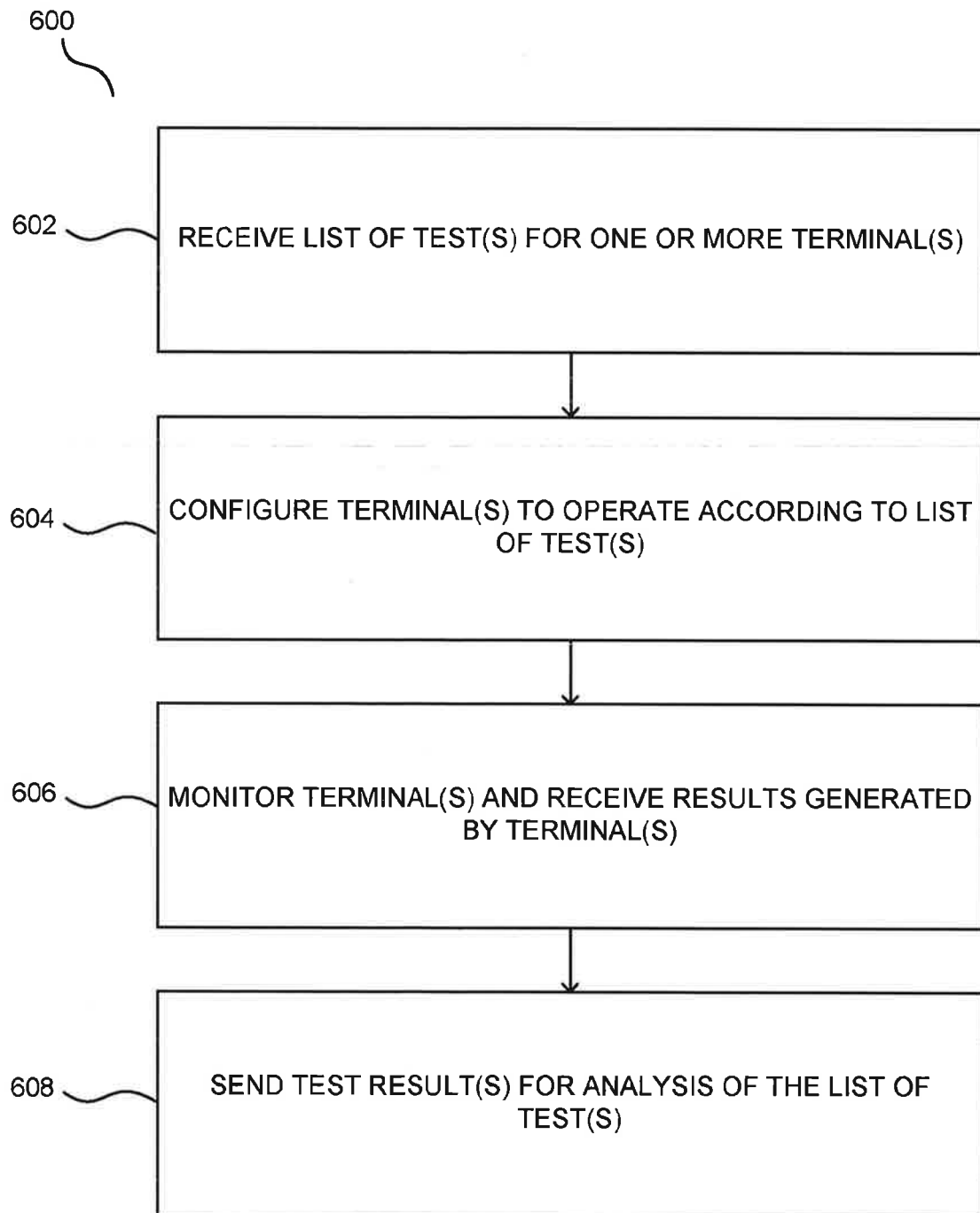


FIG. 6

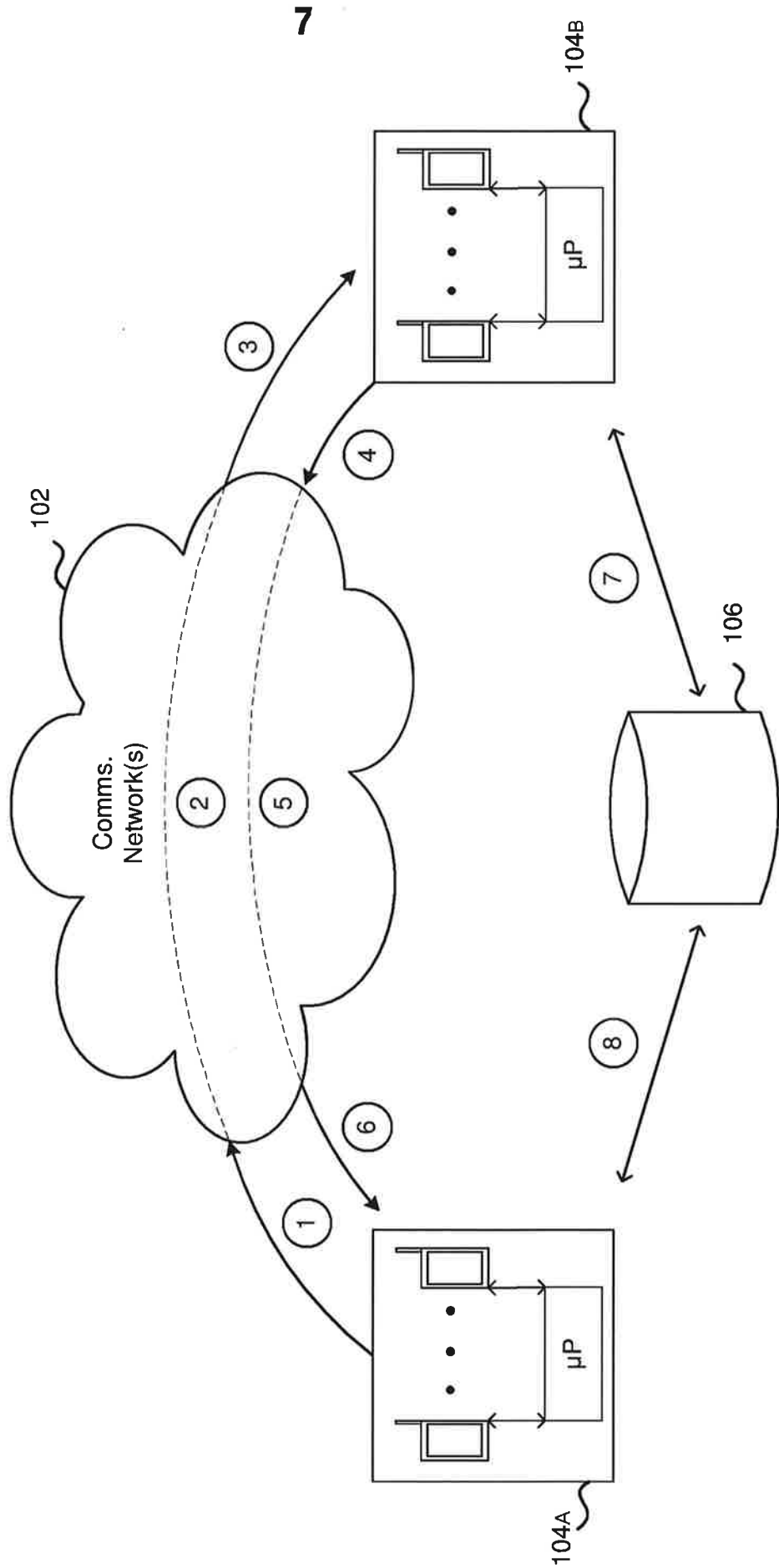


FIG. 7

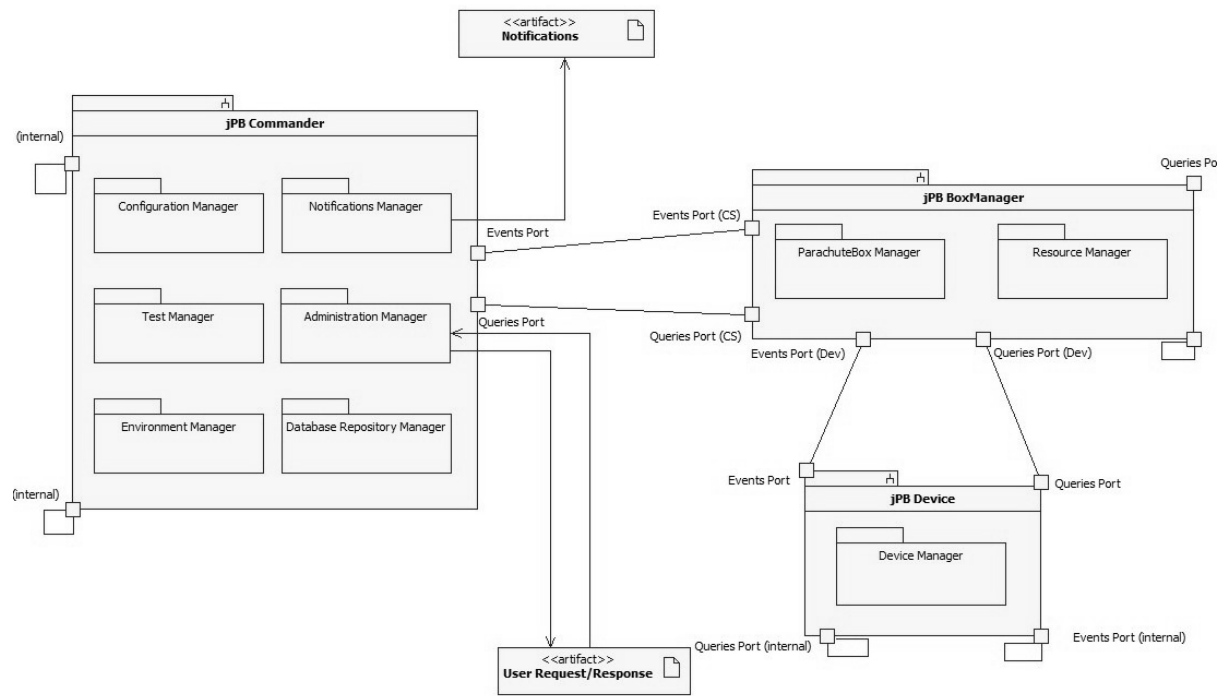


Fig. 8

Visual Paradigm for UML Community Edition [not for commercial use]

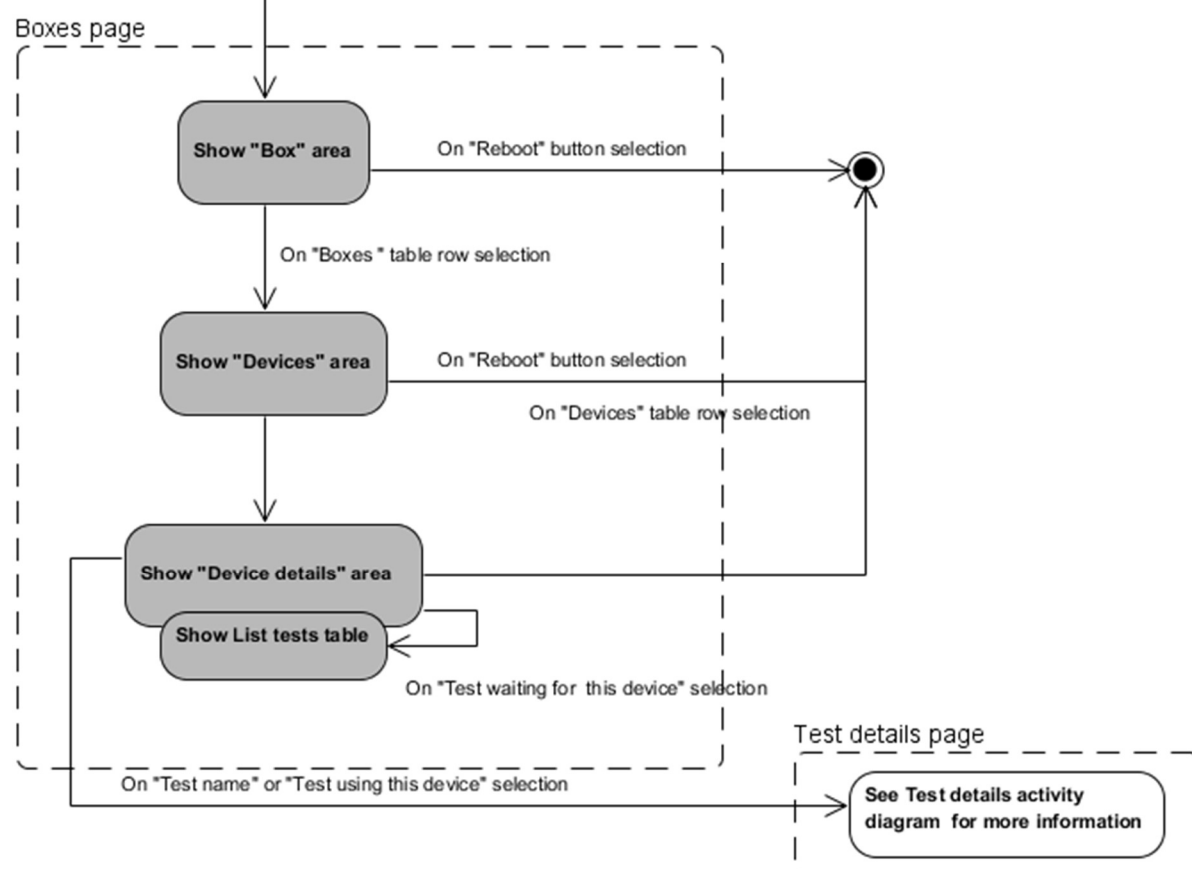


Fig. 9

The screenshot displays a web application interface for managing resources. The main content area is titled 'Boxes' and contains a table with the following data:

Box id	IP	Country	City	Count online devices
fr1	111.11.11.1	France	Paris	1
pt1	000.00.000.0	Portugal	Lisbon	4

Below the table, there is a 'Devices' section with a message: 'Select a "Boxes" table row to see online devices connected to selected box'. A 'Reboot' button is also visible.

The sidebar on the left contains the following navigation links:

- Overview
- Parachute Box
- Resources
 - List Boxes
 - List Devices
- Executions
 - In progress, planned and finished
 - List Executions
- Scenarios
 - List Scenarios
- Tests
 - List Tests
- Schedule
 - Scenario
- Test
 - Test
- Upload file

Fig. 10

Visual Paradigm for UML Community Edition [not for commercial use]

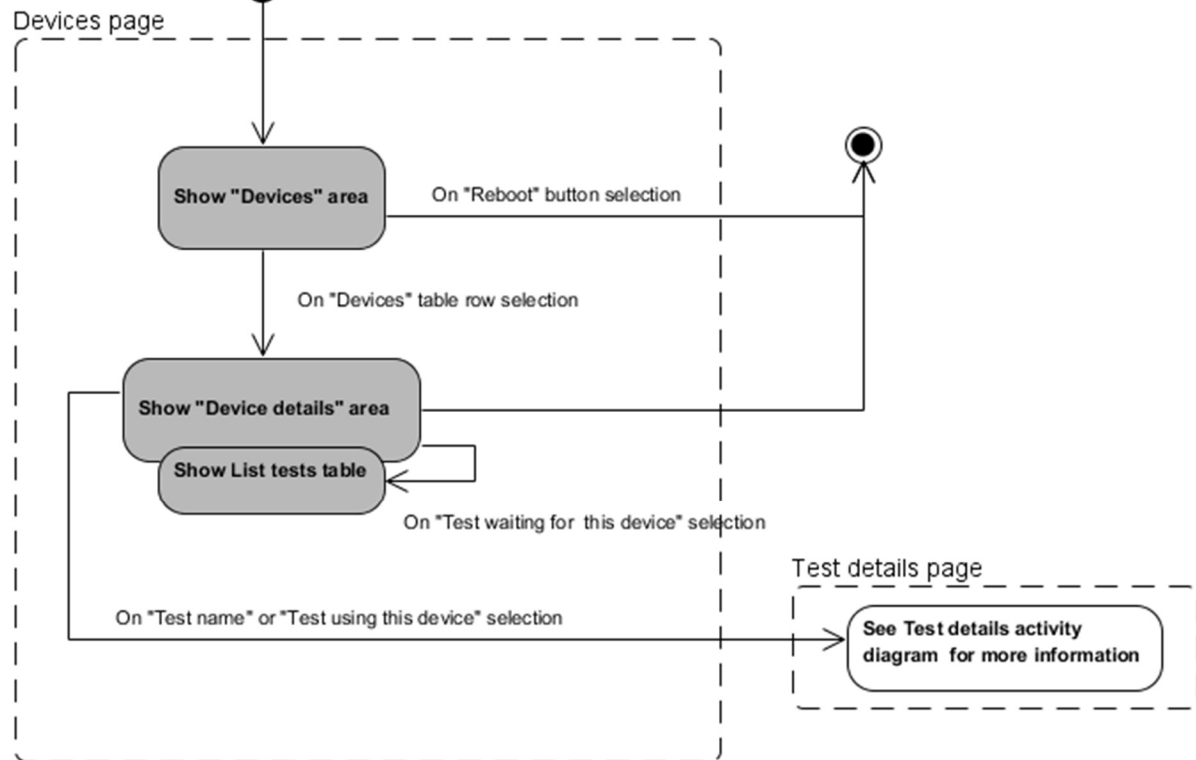


Fig. 11

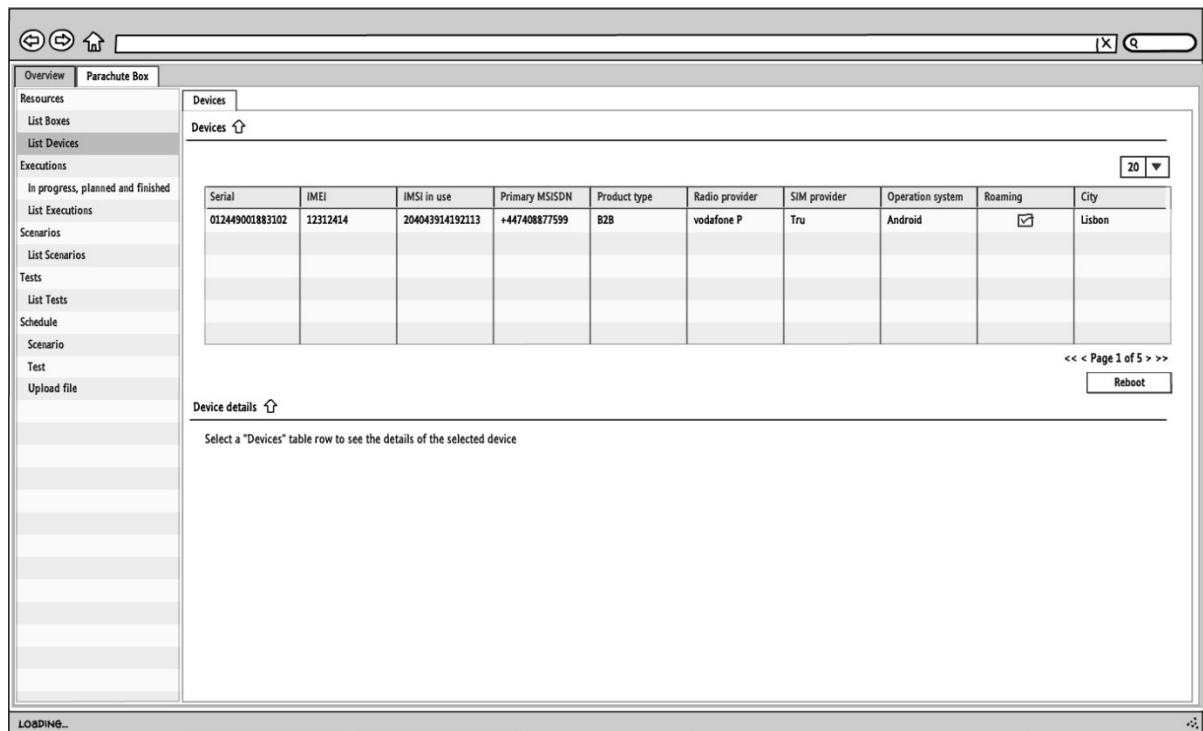


Fig. 12

Overview

Parachute Box

Resources

List Boxes

List Devices

Executions

In progress, planned and finished

List Executions

Scenarios

List Scenarios

Tests

List Tests

Schedule

Scenario

Test

Upload file

Devices

Device details

Name: device1

Radio provider: vodafone P

☒ Roaming

Serial: 012449002208135

IMEI: 14365

ADB: 42583930324237344C5A

Operation system: Android

Operation system version: 2.3.3

ICCID: 8944503503142556295

Product type: B2B

SIM provider: Tru

BOX

Country: Portugal

City: Lisbon

Box id: pt1

Tests

☒ In use

Tests waiting for this device

Test name: test123

Test Name

test037

test098

MSISDN

Country code	MSISDN	Primary
AU	+61466924182	☒
UK	+447408859842	☐
US	+17026660802	☐

IMSI

IMSI	In Use
204043914255629	☒
310300500255629	☐

LOADING...

Fig. 13

Visual Paradigm for UML Community Edition [not for commercial use]

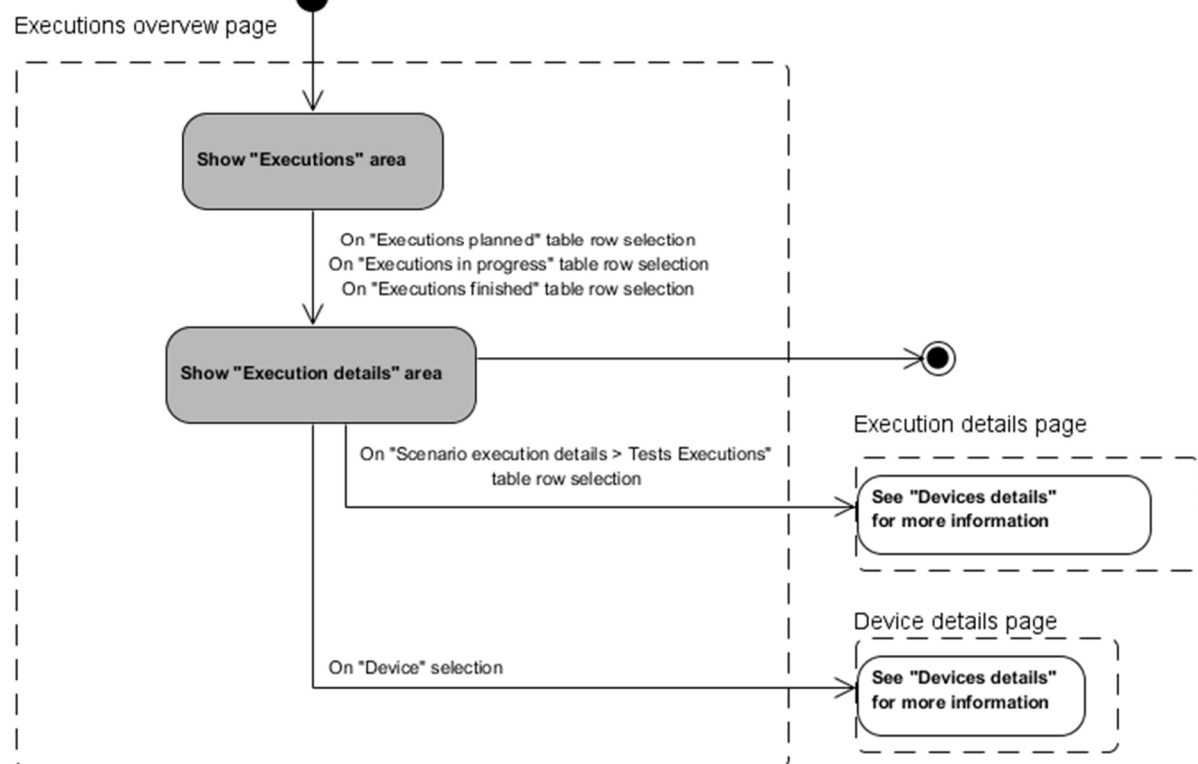


Fig. 14

The screenshot displays a web application interface for managing test executions. The left sidebar contains a navigation menu with options: Overview, Parachute Box, Resources (List Boxes, List Devices), Executions (Overview, List Executions), Scenarios (List Scenarios), Tests (List Tests), Schedule, Scenario, Test, and Upload file. The main content area is titled 'Executions overview' and features three expandable sections: 'Executions planned', 'Executions in progress', and 'Executions finished'. Each section contains a table of execution data. The 'Executions planned' and 'Executions in progress' sections include an 'Export' button and a pagination control showing 'Page 1 of 5'. The 'Executions finished' section also includes an 'Export' button and a pagination control showing 'Page 1 of 5'. Below the tables, there is a section for 'Execution details' with a note: 'Select a "Executions planned", "Executions in progress" or "Executions finished" table row to see the details of the selected execution'.

Executions planned

Name	Type	Start execution	MO City	MO Product type	MT City	MT Product type
execution1	Call	10-05-2013	Lisbon	B2B	Hong Kong	B2B
execution2	Incoming Call	11-10-2012	Lisbon	B2B	Hong Kong	B2B

<< < Page 1 of 5 > >> Export

Executions in progress

Name	Type	Start execution	MO City	MO Product type	MT City	MT Product type
execution1	Call	10-05-2013	Lisbon	B2B	Hong Kong	B2B
execution2	Incoming Call	11-10-2012	Lisbon	B2B	Hong Kong	B2B

<< < Page 1 of 5 > >> Export

Executions finished

Name	Type	Start execution	Stop execution	MO City	MO Product type	MT City	MT Product type	Result
execution1	Scenario	10-10-2012	11-11-2012	Lisbon	B2B	Hong Kong	B2B	Fail
execution2	SMS	10-10-2012	11-10-2012	Lisbon	B2B	Hong Kong	B2B	Success

<< < Page 1 of 5 > >> Export

Execution details

Select a "Executions planned", "Executions in progress" or "Executions finished" table row to see the details of the selected execution

Fig. 15

Visual Paradigm for UML Community Edition [not for commercial use]

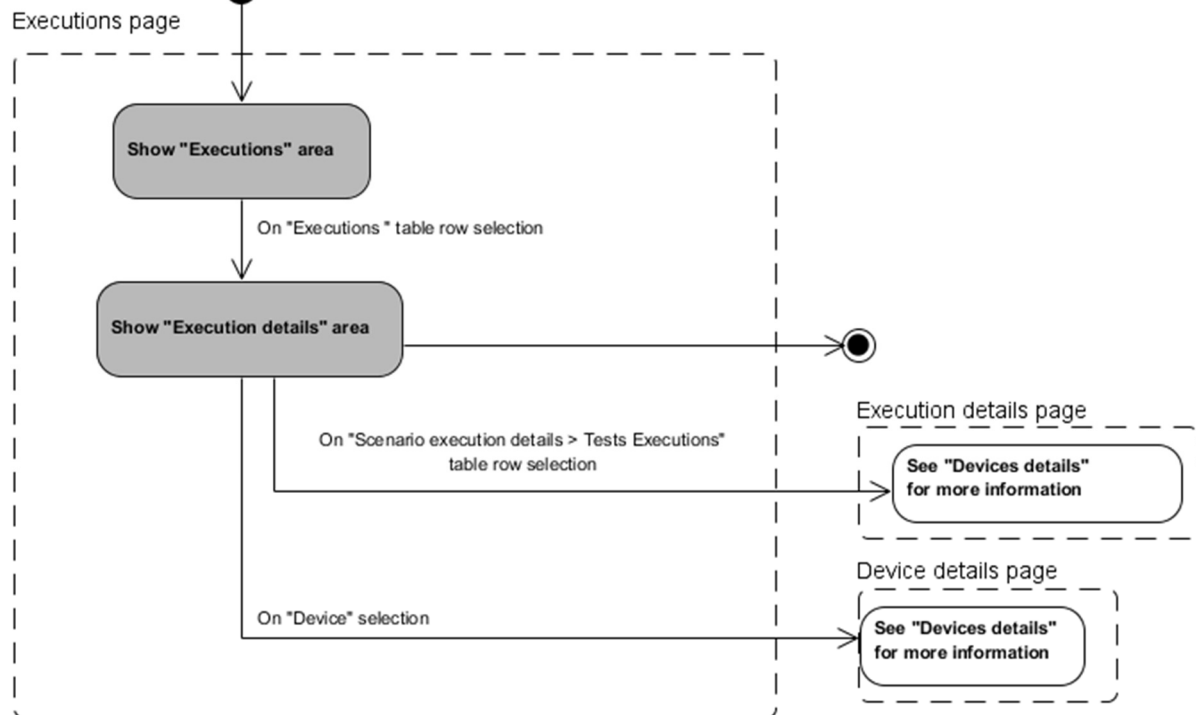


Fig. 16

Overview | Parachute Box

Resources

- List Boxes
- List Devices

Executions

- Overview
- List Executions
- Scenarios
- List Scenarios
- Tests
- List Tests
- Schedule
- Scenario
- Test
- Upload file

Executions ↑

Type	Priority	Start execution	Stop execution	MO City	MO Product type	MT City	MT Product type	Result
Scenario	Scheduled	10-10-2012 14:51:2	-	-	-	-	-	-
Call	Manual	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Hong Kong	B2B	Success
Outgoing call	Manual	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	-	-	Success
Incoming call	Manual	10-10-2012 14:51:2	11-10-2012 14:51:2	-	-	Hong Kong	B2B	Success
SMS	Manual	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Hong Kong	B2B	Success
Outgoing SMS	Manual	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	-	-	Success
Incoming SMS	Manual	10-10-2012 14:51:2	11-10-2012 14:51:2	-	-	Hong Kong	B2B	Success

<< < Page 1 of 5 > >>

Export

Execution details ↑

Select a "Executions" table row to see the details of the selected execution

LOADING...

Fig. 17

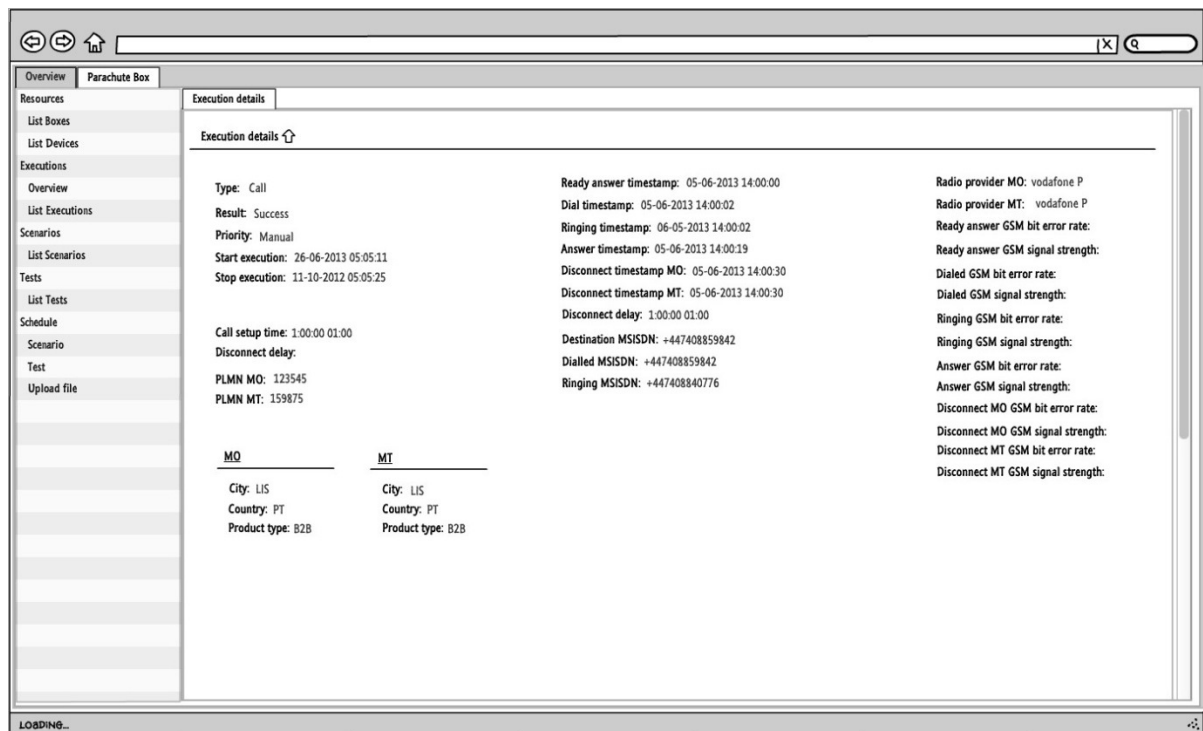


Fig. 18

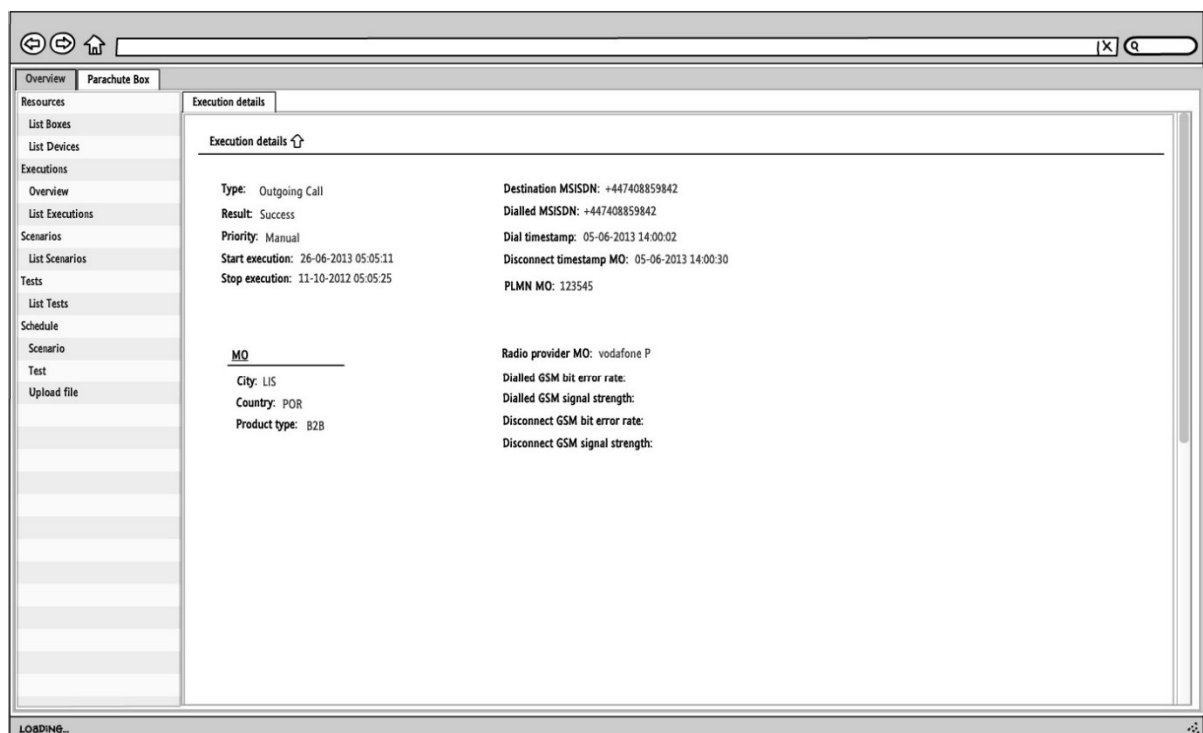


Fig. 19

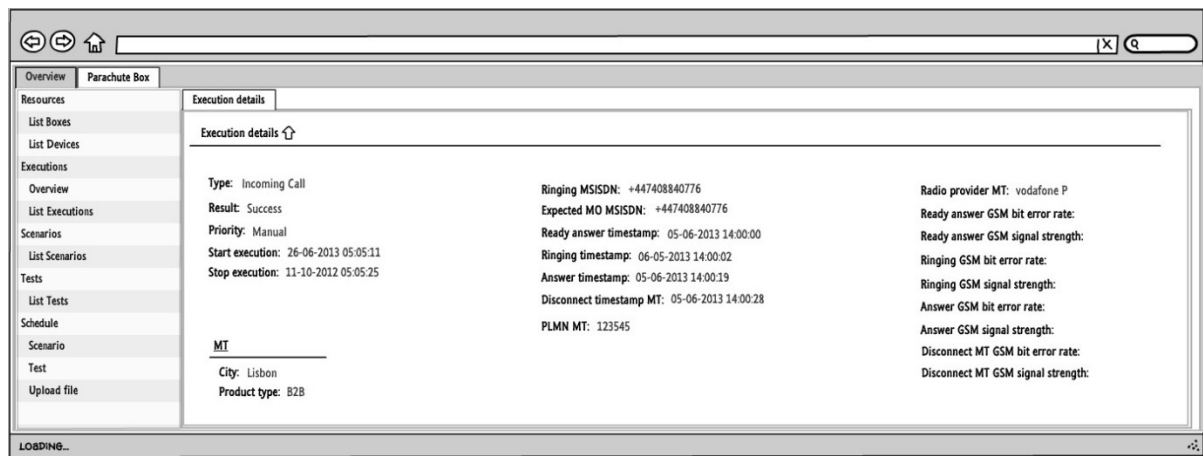


Fig. 20

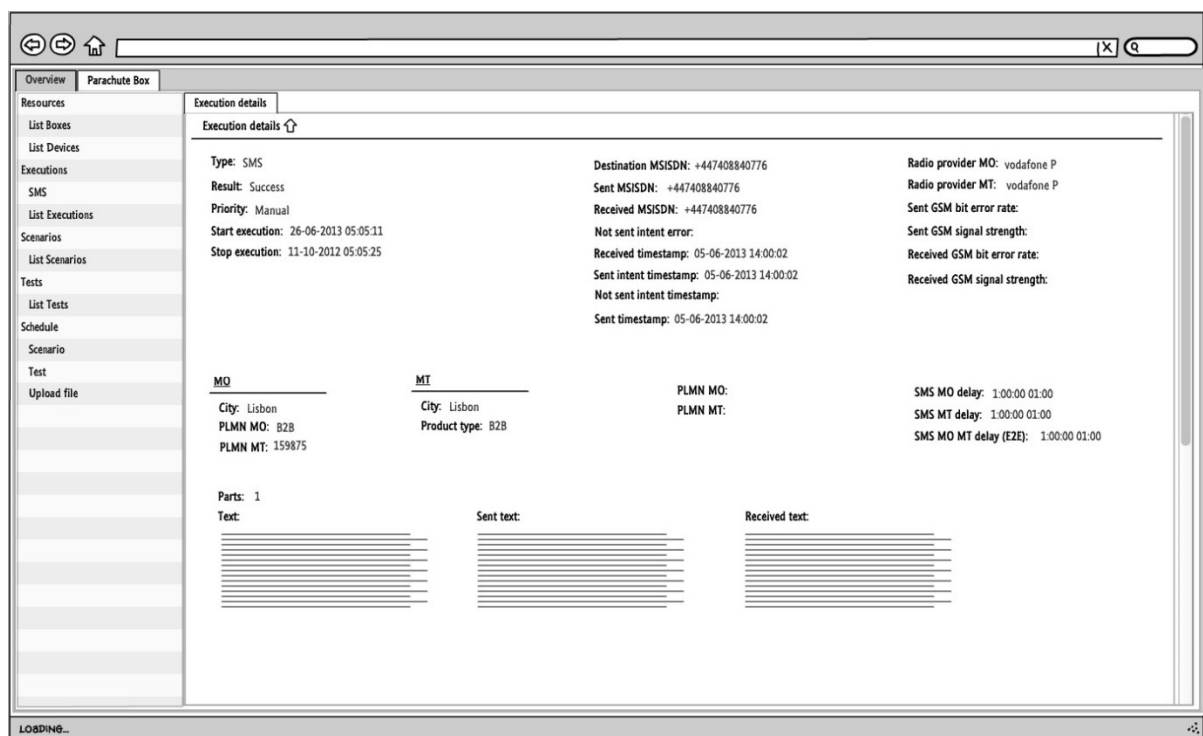


Fig. 21

Overview Parachute Box

Resources

List Boxes

List Devices

Executions

Overview

List Executions

Scenarios

List Scenarios

Tests

List Tests

Schedule

Scenario

Test

Upload file

Execution details

Execution details ↑

Type: Outgoing SMS

Result: Success

Priority: Manual

Start execution: 26-06-2013 05:05:11

Stop execution: 11-10-2012 05:05:25

Destination MSISDN: +447408840776

Sent MSISDN: +447408840776

Not sent intent error:

Sent timestamp: 05-06-2013 14:00:02

Sent intent timestamp: 05-06-2013 14:00:02

Not sent intent timestamp:

Radio provider MO: Vodafone

PLMN MO: vodafone P

Sent GSM bit error rate:

Sent GSM signal strength:

SMS MO delay:

MO

City: LIS

Country: PT

Product type: B2B

Parts: 3

Text:

Sent text:

LOADING...

Fig. 22

Overview Parachute Box

Resources

List Boxes

List Devices

Executions

Overview

List Executions

Scenarios

List Scenarios

Tests

List Tests

Schedule

Scenario

Test

Upload file

Executions

Executions ↑

Name	Type	Priority	Status	Start execution	Stop execution	MO City	MO Product type	MT City	MT Product type	Result
execution1	Scenario	Automatic	In Progress	10-10-2012 14:51:2	-	-	-	-	-	-
execution2	Call	Manual	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Hong Kong	B2B	Success
execution3	Outgoing call	Manual	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	-	-	Success
execution4	Incoming call	Manual	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	-	-	Hong Kong	B2B	Success
execution5	SMS	Manual	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Hong Kong	B2B	Success
execution6	Outgoing SMS	Manual	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	-	-	Success
execution7	Incoming SMS	Manual	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	-	-	Hong Kong	B2B	Success

<< Page 1 of 5 >>

Export

Execution details

Execution details ↑

Type: Incoming SMS

Result: Success

Priority: Manual

Start execution: 26-06-2013 05:05:11

Stop execution: 11-10-2012 05:05:25

Received MSISDN: +447408840776

Wait to receive timestamp: 2013-06-05 14:00:02

Received timestamp: 2013-06-05T14:00:02+01:00

Radio provider MT: vodafone P

PLMN MT: 159875

Received GSM bit error rate:

Received GSM signal strength:

SMS MT delay: 1:00:00 01:00

Parts: 3

MT

City: LIS

Country: PT

Product type: B2B

Text:

Sent text:

LOADING...

Fig. 23

The screenshot displays a web application interface for 'Parachute Box'. The interface is divided into a sidebar on the left and a main content area on the right. The sidebar contains a list of navigation items: Overview, Resources, Executions, Scenarios, and Tests. The main content area is titled 'Execution details' and shows information for a specific execution. It includes fields for Type (Scenario), Priority (Automatic), Start execution (10-10-2012 14:51:2), and Stop execution (-). Below this, there is a table titled 'Tests executions' which lists two tests: 'Call' and 'SMS'. The 'Call' test was executed on 17/09/2013 at 14:00:03 and resulted in 'Success'. The 'SMS' test was executed on 18/09/2013 at 14:00:03 and resulted in 'Error'. The table also includes columns for MO City, MO Product Type, MT City, and MT Product Type.

Type	Start execution	Stop execution	MO City	MO Product Type	MT City	MT Product Type	Result
Call	17/09/2013 14:00:03	17/09/2013 14:10:03	LIS	B2B	Hong Kong	B2B	Success
SMS	18/09/2013 14:00:03	18/09/2013 14:10:03	LIS	B2B	Hong Kong	B2B	Error

Fig. 24

Visual Paradigm for UML Community Edition [not for commercial use]

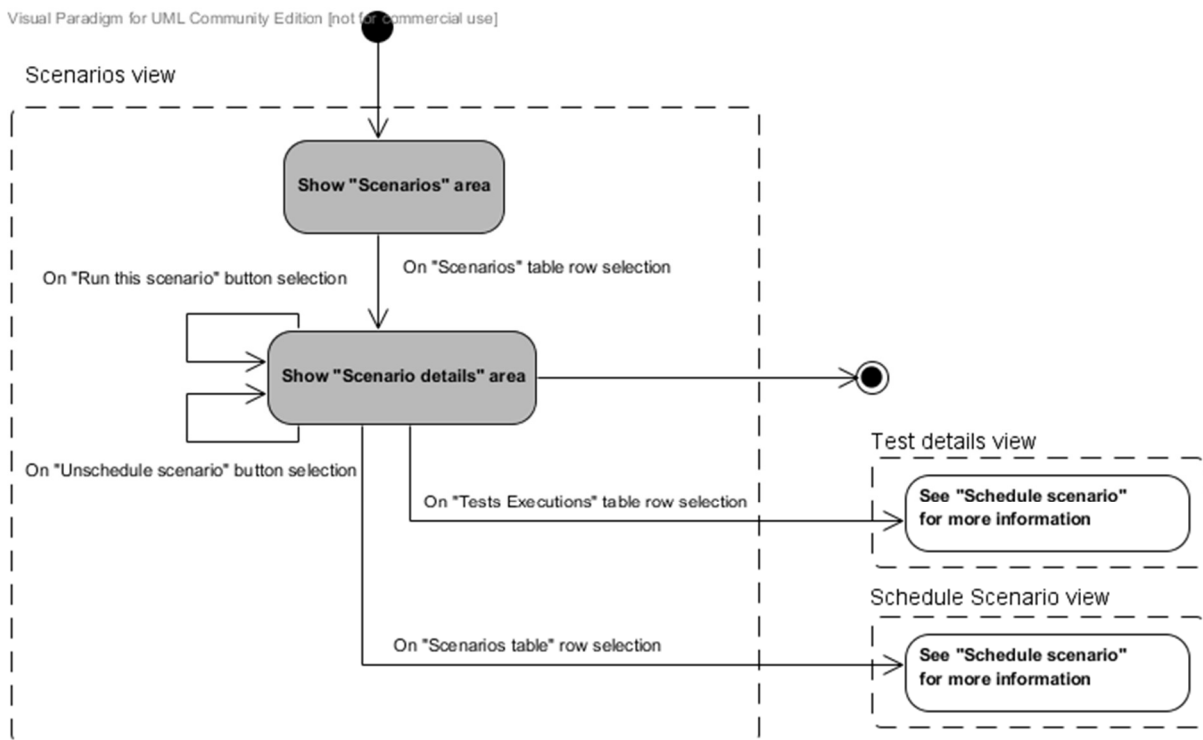


Fig. 25

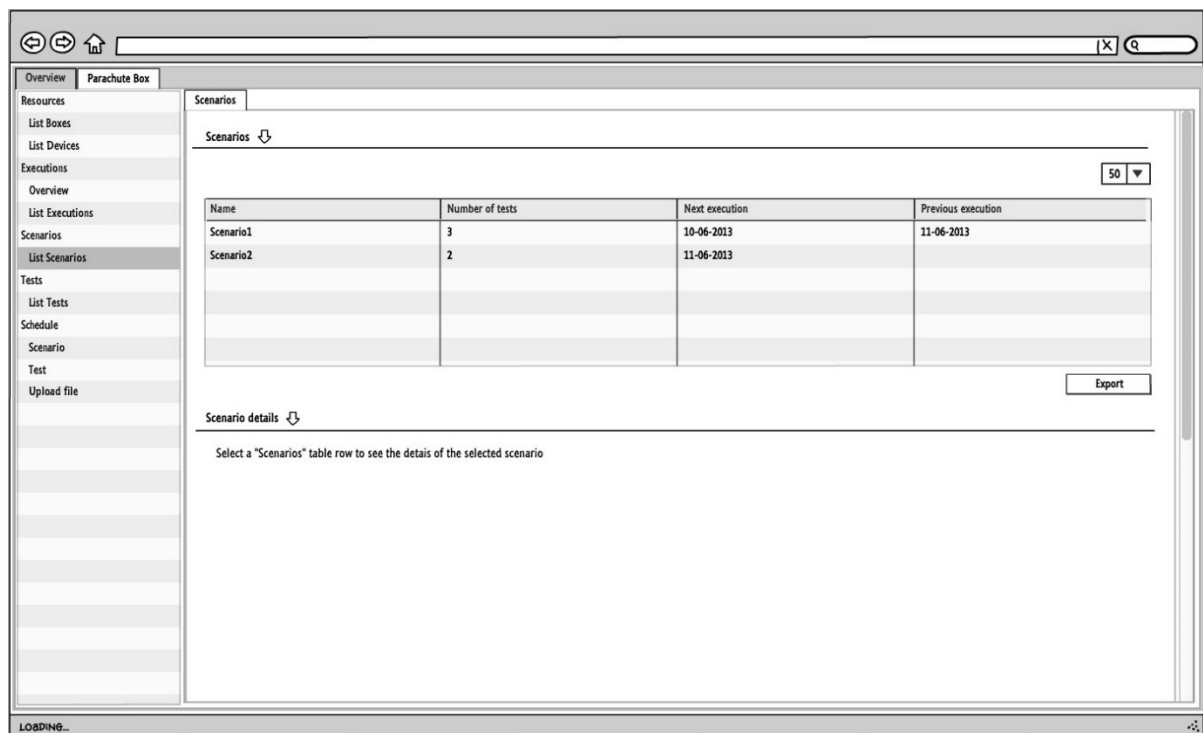


Fig. 26

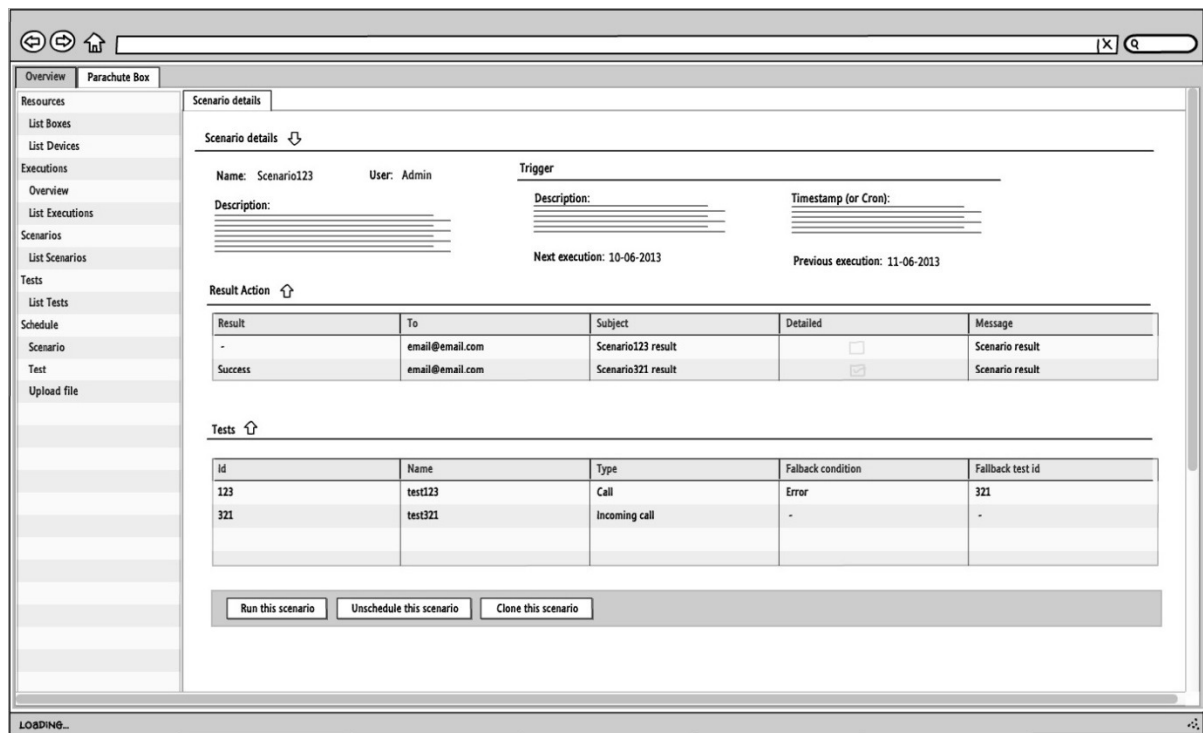


Fig. 27

Visual Paradigm for UML Community Edition [not for commercial use]

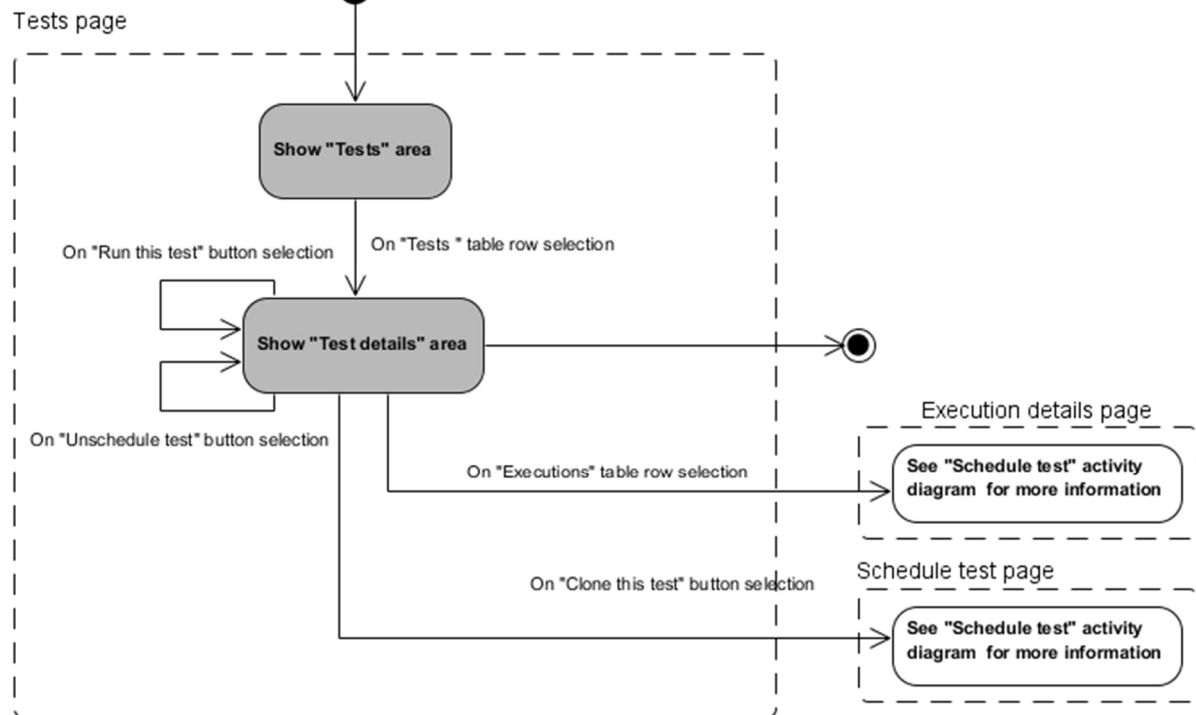


Fig. 28

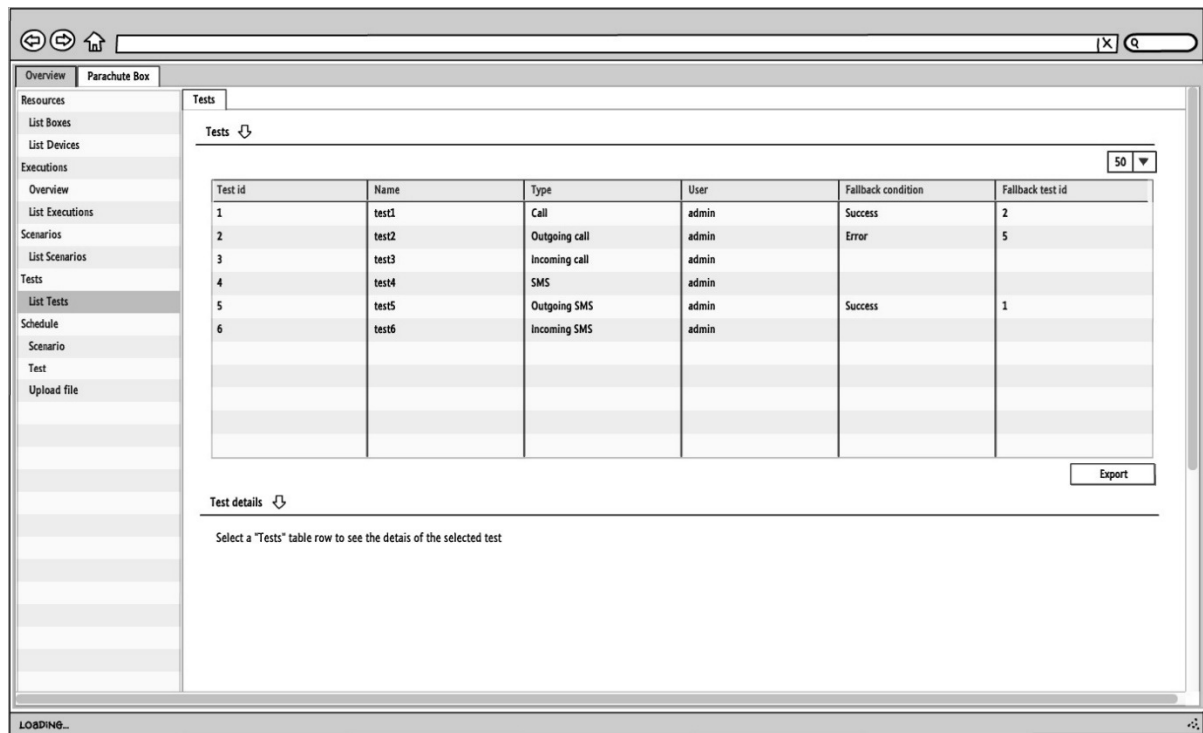


Fig. 29

The screenshot shows the 'Parachute Box' interface with the 'Overview' tab selected. The left sidebar contains a menu with options: Overview, List Executions, Scenarios, List Scenarios, Tests, List Tests, Schedule, Scenario, Test, and Upload file. The main content area displays the following details for test 'test123':

- Name:** test123
- Type:** Call
- User:** admin
- Description:** (empty field)
- Wait resources timeout:** 3000
- Duration:** 200
- Max dialling delay:** 1000
- Ringing time:** 3000
- Max disconnect delay:** 1000
- MSISDN format:** International format
- Disconnect call MO:** True
- Disconnect call MT:** False
- Fallback Condition:**
 - Execute nonexistent condition: True
 - Result to met condition: Success, Error
 - Test id: test321

Below the details, there are two sections for device selection: 'Device selection MO' and 'Device selection MT', both with empty input fields. At the bottom, there is an 'Executions' section with a table showing two scheduled executions:

Priority	Start execution	Stop execution	MO City	MO Product type	MT City	MT Product type	Result
Scheduled	10/10/2012 14:51:02	-	Lisbon	B2B	Hong Kong	B2B	-
Scheduled	10/10/2012 14:51:02	11/10/2012 14:51:02	Lisbon	B2B	Hong Kong	B2B	Success

Below the table are three buttons: 'Schedule', 'Unschedule', and 'Clone'. The status bar at the bottom indicates 'LOADING...'.

Fig. 30

The screenshot shows the 'Parachute Box' interface with the 'Overview' tab selected. The left sidebar contains a menu with options: List Devices, Executions, Overview, List Executions, Scenarios, List Scenarios, Tests, List Tests, Schedule, Scenario, Test, and Upload file. The main content area displays the following details for test 'test123':

- Name:** test123
- Type:** Outgoing Call
- User:** admin
- Description:** (empty field)
- Wait resources timeout:** 3000
- Destination MSISDN:** 965845689
- Duration:** 1000
- Fallback Condition:**
 - Execute nonexistent condition: True
 - Result to met condition: Success, Error
 - Test id: test321

Below the details, there is a 'Device selection MO' section with an empty input field. At the bottom, there is an 'Executions' section with a table showing two executions: one manual and one scheduled:

Priority	Start execution	Stop execution	MO City	MO Product type	Result
Manual	10-10-2012 14:51:2	-	Lisbon	B2B	Hong Kong
Schedule	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Success

Below the table are three buttons: 'Schedule', 'Unschedule', and 'Clone'. The status bar at the bottom indicates 'LOADING...'.

Fig. 31

The interface shows a sidebar with navigation options: Overview, Resources (List Boxes, List Devices), Executions (Overview, List Executions), Scenarios (List Scenarios), Tests (List Tests, Schedule, Scenario, Test, Upload file), and Parachute Box. The main content area is titled 'Test details' and contains the following information:

Test details

Name: test123
 Type: Incoming Call
 User: admin

Description:

Wait resources timeout: 3000
 Disconnect call MT:
 Duration: 1000
 Expected MO MSISDN:
 Max disconnection delay:
 Ringing time:
 Wait ringing time:
 MO MSISDN: 965845689

Device selection MT: ---

Fallback Condition

Execute unexistent condition: True
 Result to met condition: Success, Error
 Test id: test321

Executions

Priority	Start execution	Stop execution	MT City	MT Product type	Result
Manual	10-10-2012 14:51:2	-	Lisbon	B2B	Hong Kong
Scheduled	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Success

Buttons: Schedule, Unschedule, Clone

LOADING...

Fig. 32

The interface shows a sidebar with navigation options: Overview, Resources (List Boxes, List Devices), Executions (Overview, List Executions), Scenarios (List Scenarios), Tests (List Tests, Schedule, Scenario, Test, Upload file), and Parachute Box. The main content area is titled 'Test details' and contains the following information:

Test details

Name: test123
 Type: SMS
 User: admin

Description:

Wait resources timeout: 3000
 Max Duration: 2000
 Late: 1000
 MSISDN format: International standard

Text:

MO: --- MT: --- Fallback Condition: N/A

Executions

Priority	Start execution	Stop execution	MO City	MO Product type	MT City	MT Product type	Result
Scheduled	10/10/2012 14:51:02	-	Lisbon	B2B	Hong Kong	B2B	-
Scheduled	10/10/2012 14:51:02	11/10/2012 14:51:02	Lisbon	B2B	Hong Kong	B2B	Success

Buttons: Schedule, Unschedule, Clone

LOADING...

Fig. 33

Overview | Parachute Box

Resources

- List Boxes
- List Devices

Executions

- Overview
- List Executions

Scenarios

- List Scenarios

Tests

- List Tests
- Schedule
- Scenario
- Test
- Upload file

Test details

Test details

Name: test123 Wait resources timeout: 3000 Description:

Type: Outgoing SMS Max Duration: 2000

User: admin Destination MSISDN: 95687455

Device selection MO Fallback Condition Text:

... N/A

Executions

Priority	Start execution	Stop execution	MO City	MO Product type	Result
Manual	10-10-2012 14:51:2	-	Lisbon	B2B	Hong Kong
Schedule	Finished	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B

Schedule Unschedule Clone

LOADING...

Fig. 34

Overview | Parachute Box

Resources

- List Boxes
- List Devices

Executions

- Overview
- List Executions

Scenarios

- List Scenarios

Tests

- List Tests
- Schedule
- Scenario
- Test
- Upload file

Test details

Test details

Name: test123 Wait resources timeout: 3000 Description:

Type: Incoming SMS Max Duration: 2000 Text:

User: admin Late: 1000

MO MSISDN: 95687455

Device selection MO Device selection MT Fallback Condition

... ... N/A

Executions

Priority	Start execution	Stop execution	MO City	MO Product type	Result
Manual	10-10-2012 14:51:2	-	Lisbon	B2B	Hong Kong
Scheduled	10-10-2012 14:51:2	11-10-2012 14:51:2	Lisbon	B2B	Success

Schedule Unschedule Clone

LOADING...

Fig. 35

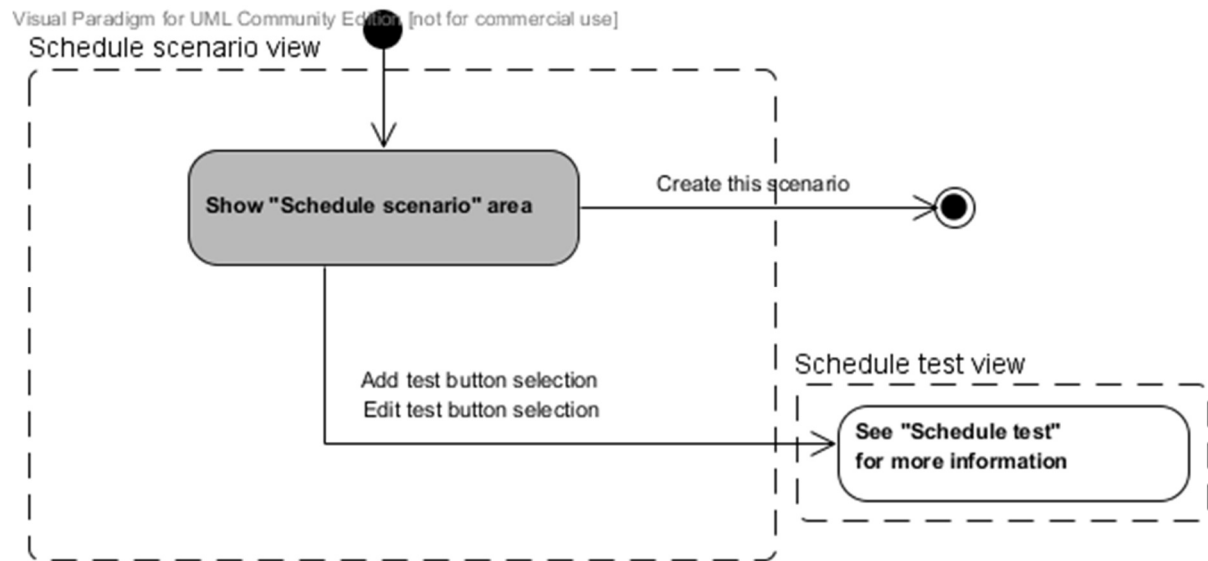


Fig. 36

Overview | Parachute Box

Schedule scenario

Schedule scenario ↕

Name: Description:

Trigger ↕

Type: ▼

Result Action ↕

Result	To	Subject	Detailed	Message

Tests ↕

Id	Name	Type	MO City	MO Product Type	MT City	MT Product Type	Fallback Condition	Fallback Test Id

LOADING...

Fig. 17

Visual Paradigm for UML Community Edition [not for commercial use]

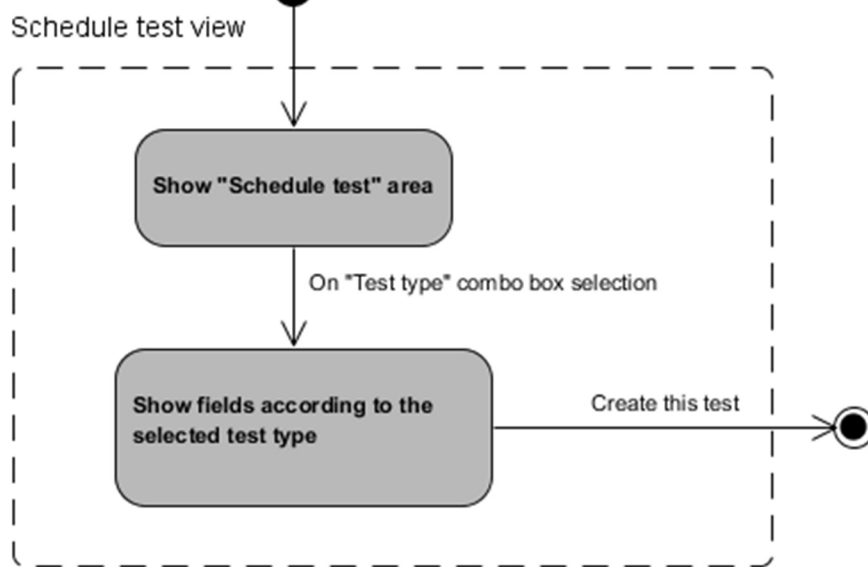


Fig. 38

Overview Parachute Box

Schedule test

Schedule test ↕

Test name: Test type: Description:

Scenario name: scenario123

Trigger ↕

Type: Execute Now

Result Action ↕

Result	To	Subject	Detailed	Message

Add Remove

LOADING...

Fig. 39

The screenshot shows a web application interface for scheduling a test. The left sidebar contains a navigation menu with the following items: Overview, Parachute Box, Resources (List Boxes, List Devices), Executions (Overview, List Executions), Scenarios (List Scenarios), Tests (List Tests), Schedule, Scenario, Test, and Upload file. The 'Test' item is currently selected. The main content area is titled 'Schedule test' and contains the following fields and sections:

- Test name:** A text input field.
- Test type:** A dropdown menu set to 'Call'.
- Description:** A text input field.
- Scenario name:** A text input field with the value 'scenario123'.
- Wait resources timeout:** A text input field.
- MO:** A dropdown menu.
- MT:** A dropdown menu.
- Duration:** A text input field.
- Max dialling delay:** A text input field.
- Ringing time:** A text input field.
- Trigger:** A section header.
- Type:** A dropdown menu set to 'Execute Now'.
- Result Action:** A section header.
- Table:** A table with 5 columns: Result, To, Subject, Detailed, and Message. It has 2 empty rows for data entry.
- Buttons:** 'Add' and 'Remove' buttons are located at the bottom right of the table.
- Create this test:** A button at the bottom of the form.

The status bar at the bottom left indicates 'LOADING...'.

Fig. 40

The screenshot shows the same web application interface as Fig. 40, but with the 'Test type' dropdown menu set to 'Outgoing call'. The 'Wait resources timeout' field is highlighted with a red box. The 'MO' dropdown menu is also highlighted with a red box. The 'Duration' field is also highlighted with a red box. The 'Result Action' section and the table are the same as in Fig. 40.

The status bar at the bottom left indicates 'LOADING...'.

Fig. 41

Overview | Parachute Box

Resources

- List Boxes
- List Devices

Executions

- Overview
- List Executions

Scenarios

- List Scenarios

Tests

- List Tests

Schedule

- Scenario
- Test**
- Upload file

Schedule test ↕

Test name: Test type: Incoming call ▼ Description:

Scenario name: scenario123

Wait resources timeout: Duration: MO MSISDN:

Waiting ringing time: Ringing time: MSISDN

MT ↕

Expected MO MSISDN:

Trigger ↑

Type: Execute Now ▼

Result Action ↑

Result	To	Subject	Detailed	Message

Add Remove

LOADING...

Fig. 42

Overview | Parachute Box

Resources

- List Boxes
- List Devices

Executions

- Overview
- List Executions

Scenarios

- List Scenarios

Tests

- List Tests

Schedule

- Scenario
- Test**
- Upload file

Schedule test ↕

Test name: Test type: SMS ▼ Description:

Scenario name: scenario123

Wait resources timeout: Text:

Max duration:

Late:

MO ↕ MT ↕

Trigger ↑

Type: Execute Now ▼

Result Action ↑

Result	To	Subject	Detailed	Message

Create this test

LOADING...

Fig. 43

Overview Parachute Box

Schedule test

Schedule test ↕

Test name: Test type: Outgoing SMS ▼ Description:

Scenario name: scenario123

Wait resources timeout: Max duration: Destination MSISDN: Text:

MO ↕

Trigger ↕

Type: Execute Now ▼

Result Action ↕

Result	To	Subject	Detailed	Message

Add Remove

Create this test

LOADING...

Fig. 44

Overview Parachute Box

Schedule test

Schedule test ↕

Test name: Test type: Incoming SMS ▼ Description:

Scenario name: scenario123

Wait resources timeout: Max duration: Late: Expected MO MSISDN: MO MSISDN:

MSISDN

 Text:

MT ↕

Trigger ↕

Type: Execute Now ▼

Result Action ↕

Result	To	Subject	Detailed	Message

Add Remove

Create this test

LOADING...

Fig. 45

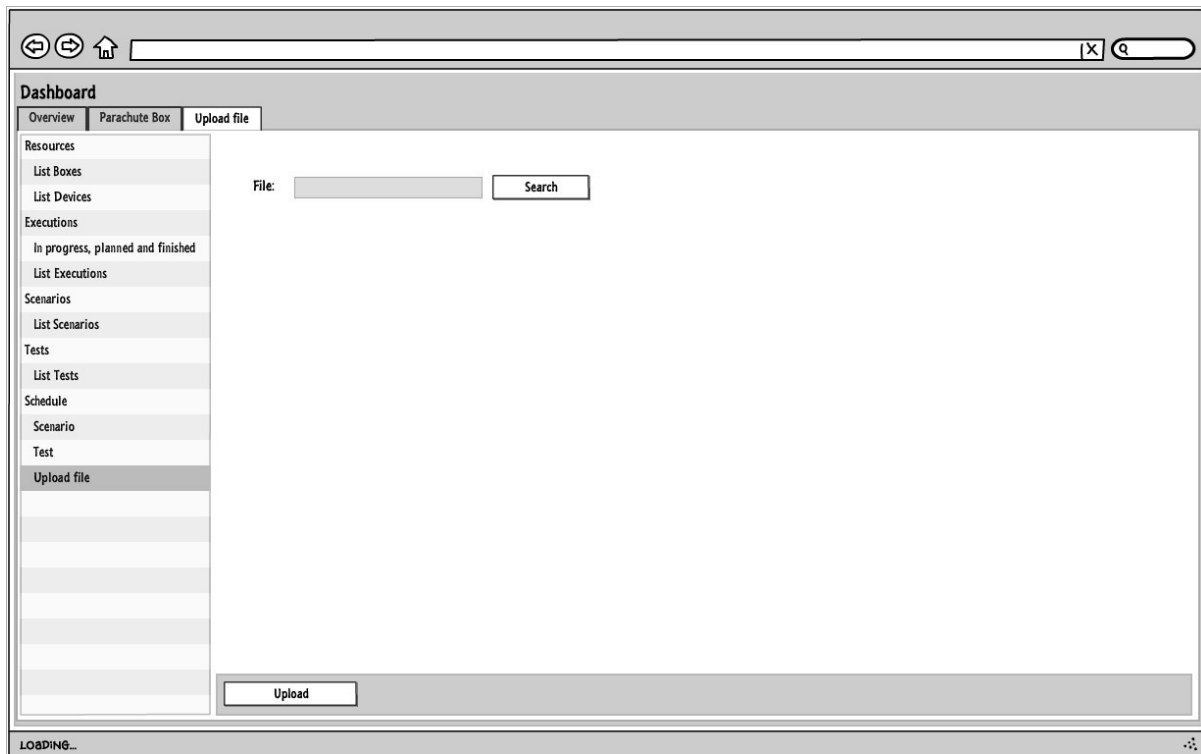


Fig. 46

Trigger 

Type: ▼ Description:

Fig. 47a

Trigger 

Type: ▼ Timestamp:

Description:

Fig. 47b

Trigger 

Type: ▼ Cron:

Description:

Fig. 47c

Trigger 

Type: 

	Type	Description	Timestamp or Cron
☐	Cron	description123	cron123
☒	Timestamp	description321	timestamp321

Fig. 47d

Specific device selection ▼	
ICCID:	<input type="text"/>
MSISDN to use:	<input type="text"/>
Name:	<input type="text"/>
Serial:	<input type="text"/>

Fig. 48

Characteristics device selection ▼	
Location	
City:	<input type="text"/>
Country:	<input type="text"/>
MSISDN	
Country code	Primary
<input type="text"/>	☐
<div> Radio provider: <input type="text"/> ▼ </div> <div> SIM provider: <input type="text"/> ▼ </div> <div> Product type: <input type="text"/> ▼ </div> <div> Operating system: <input type="text"/> ▼ </div>	

Fig. 49