Anritsu envision:ensure

Automation Test Introduction

Network Master Pro
MT1000A

- Proposal Outline
- Product Introduction
- Work Flow
- Application Examples
- Automation Steps
  - Step 1: Office Work
  - Step 2: Registering Test Scenario
  - Step 3: Field Work
- Operating Environment and Procurement
- Summary

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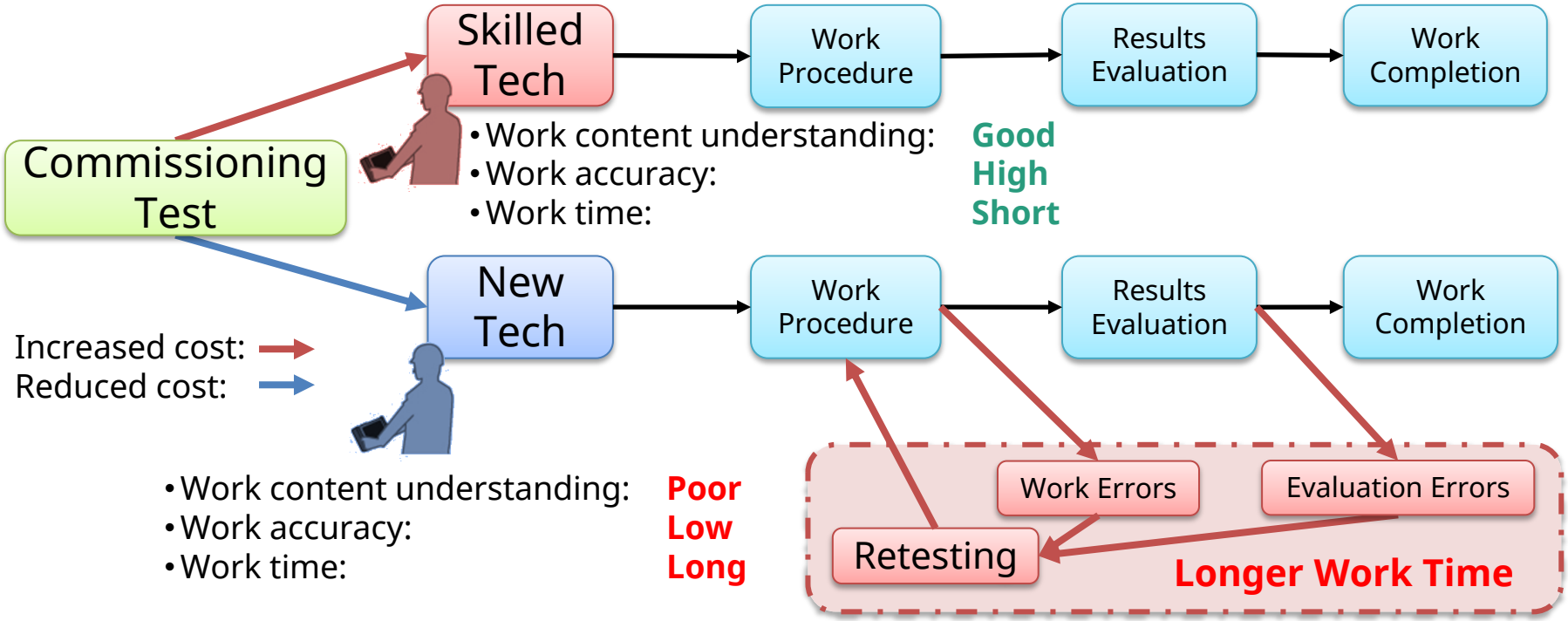
Proposal Outline (1/4)

Issues during Commission Testing

1. Varying Work Time and Test Results Quality Dependent on Technician's Experience
   - Although experienced technicians are efficient, they are high cost.
   - Inexperienced technicians are low cost, but their work efficiency is low, presenting a risk of increased total cost due to the need for retesting.

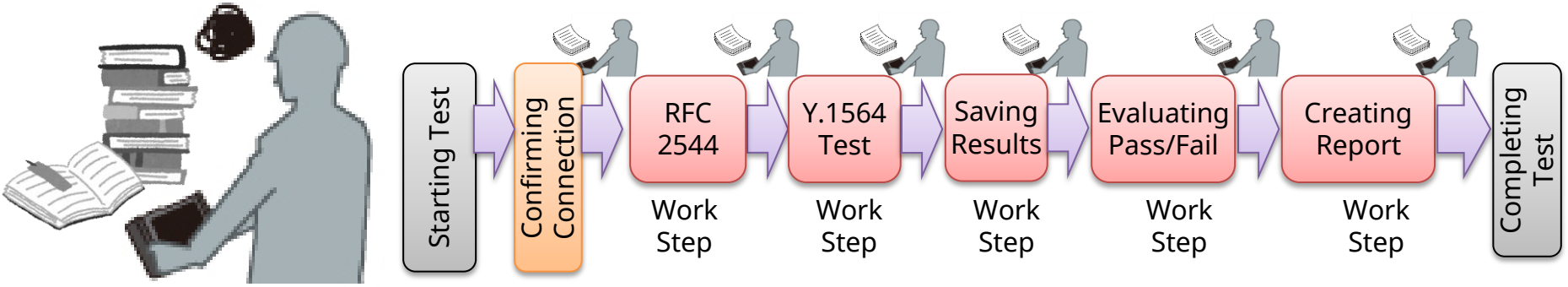


- **Issue:** **How to assure consistent quality irrespective of experience**

Proposal Outline (2/4)

Issues during Commissioning Tests

2. Increasing Risk of Work Errors as Test Items increase
   - Sometimes several tests are performed on each circuit. As the number of test items increases, time for work, such as confirming the procedure for each test, setting the measuring instruments, checking the connections, etc., increases too.
   - On-site test setting work not only wastes time, but is also a cause of human errors.



- **Issue:** **Important issue is how to decrease the number of work procedures to cut work times and lower the risk of operation errors.**

Proposal Outline (3/4)

Issues at Commissioning Tests

3. Reducing work burden to minimize errors
   – Automating testing not only lightens the technician's work burden but also assures consistent quality.

New Anritsu Proposal

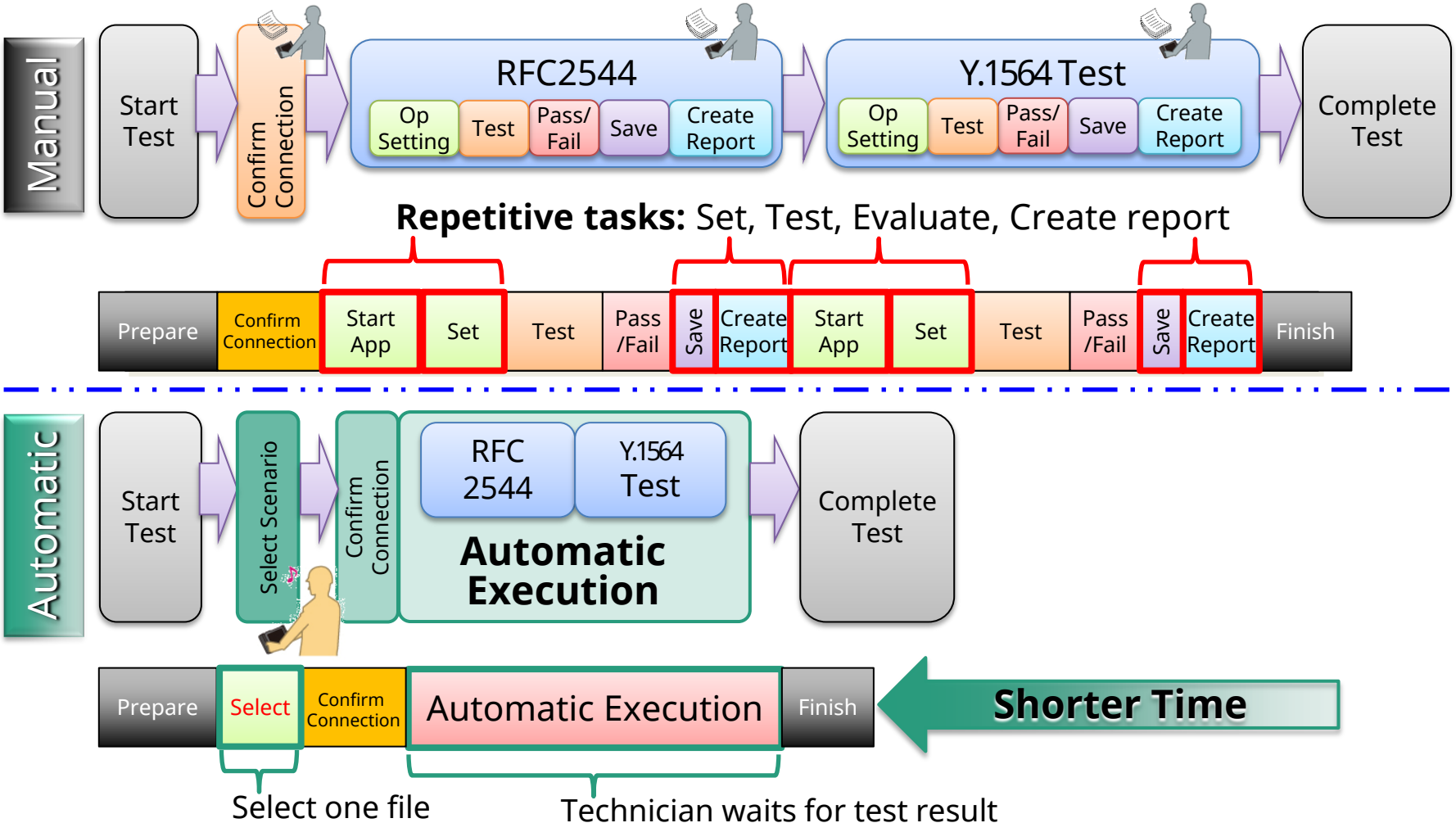
Setting Test Equipment:	**Manual**	Setting Test Equipment:	**Auto**
Executing Test:	**Manual**	Executing Test:	**Auto**
Evaluating Results:	**Judgment by the technician**	Evaluating Results:	**Auto**
		→ One-button automation	

- **Issue: Automating on-site testing work procedures prevents work and evaluation errors to reduce the retesting risk.**

Proposal Outline (4/4)

Issues at Commissioning Tests

4. Anritsu's Automated testing cuts timing time



Product Introduction (1/2)

Network Master Pro MT1000A

- Full range of Transport, OTDR and CPRI RF modules
- Supports optical mobile backhaul, fronthaul, metro and core networks
- Upgradeable structure to support to future network requirements
- Highly efficiency for large-capacity core and metro I&M
- Automated measurement functions simplifying work processes

Network Master Pro MT1000A

MU100010A: 10G Multi-rate Module

MU10002xA: OTDR Module

MU100040A: CPRI RF Module

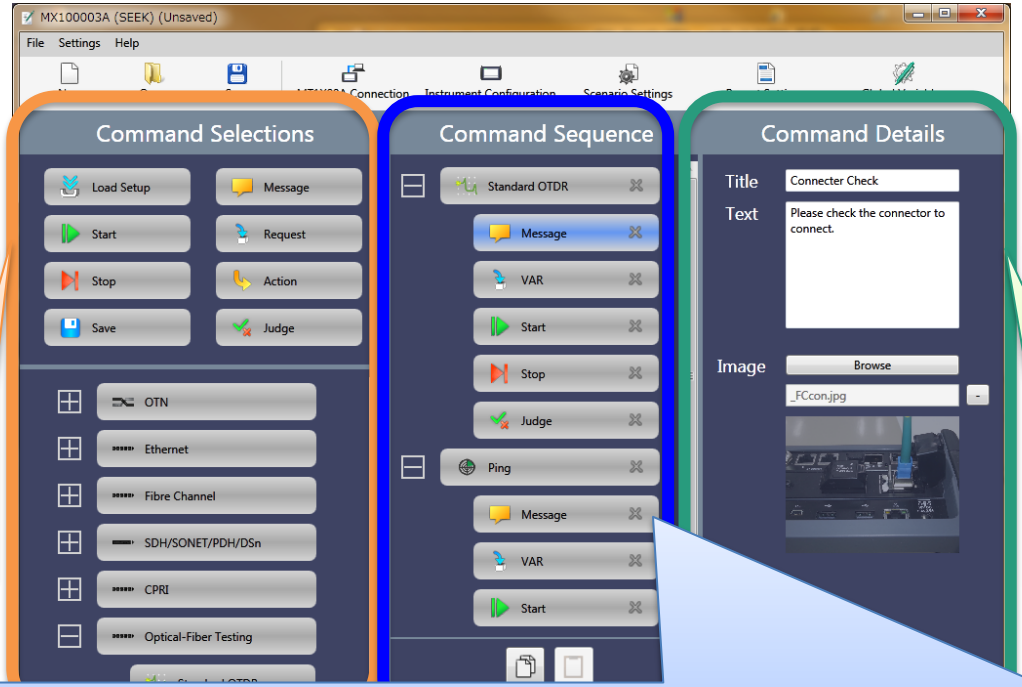
MU100090A: High Performance GPS Disciplined Oscillator

- Full Carrier Ethernet Installation and Troubleshooting Test Functions (RFC6349, RFC2544, ITU-T Y.1564, Ethernet OAM, Multi-Stream, BERT etc.)
- Synchronous Ethernet Testing & Analysis
- Time Synchronization Testing using PTP
- CPRI/OBSAI Fronthaul testing
- Optical Fiber Testing (OTDR, PM, LS, VIP)
- CPRI RF testing of Spectrum and Spectrograph
- WLAN, Bluetooth connectivity
- Report Creation in multiple formats PDF, XML and CSV

Product Introduction (2/2)

Scenario Environment Editing Kit (SEEK) MX100003A

- Free tool for creating automatic test scenarios for use on the MT1000A
- Test scenarios are created using the PC SEEK GUI with drag and drop operations



Command Selection
The MT1000A/MT1100A command functions are listed as icons here to create the test scenario using drag and drop operations.

Command Details
Comments, such as cable connection, test notes, etc., can be displayed here. Parameter input is also supported.

Test Scenario Creation Area
The scenario is created here by dragging icons from the command list into a series.

- Many areas are able to be configured, Instrument settings, Messages to the instrument user, Pass/Fail evaluation, file saving method, etc.

Note: MU100040A function is not supported, yet.

Work Flow

Office ⟷ Field

Measurement scenario file loading procedure

- USB Memory
- USB Cable
- LAN/WLAN

Step 1
Create/update measurement scenario

Step 2
Load measurement scenario into measuring instrument

Step 3
Perform automatic on-site measurement
- Scenario parameters can be edited on-site

Manage measurement reports
- Report (pdf)
- WireShark (pcap)
- Results file
- Measurement logs

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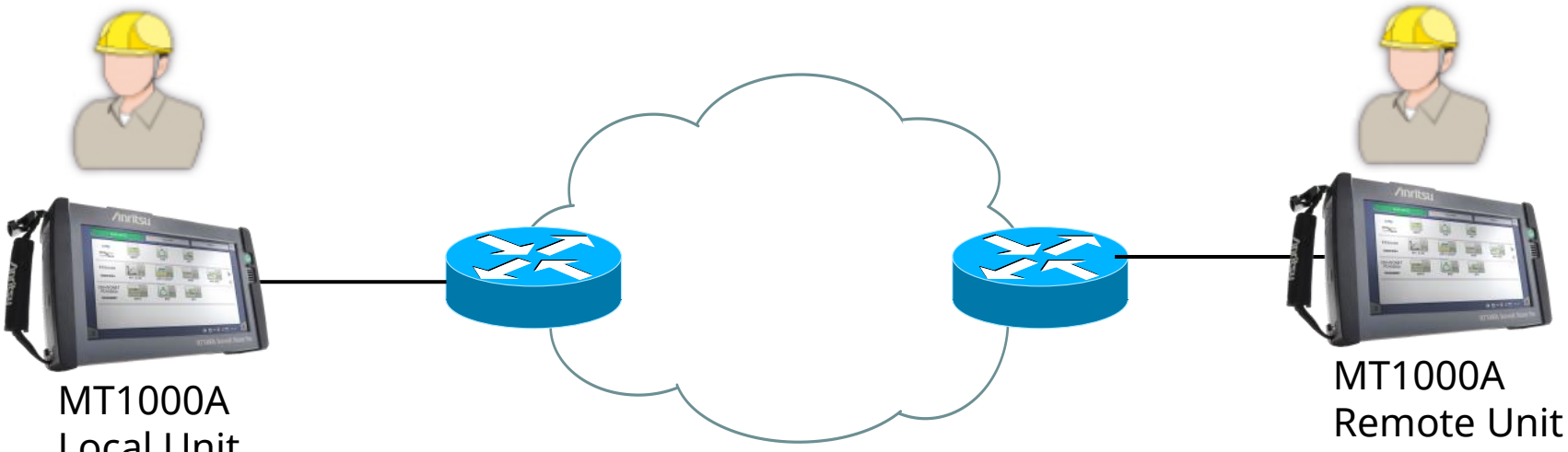
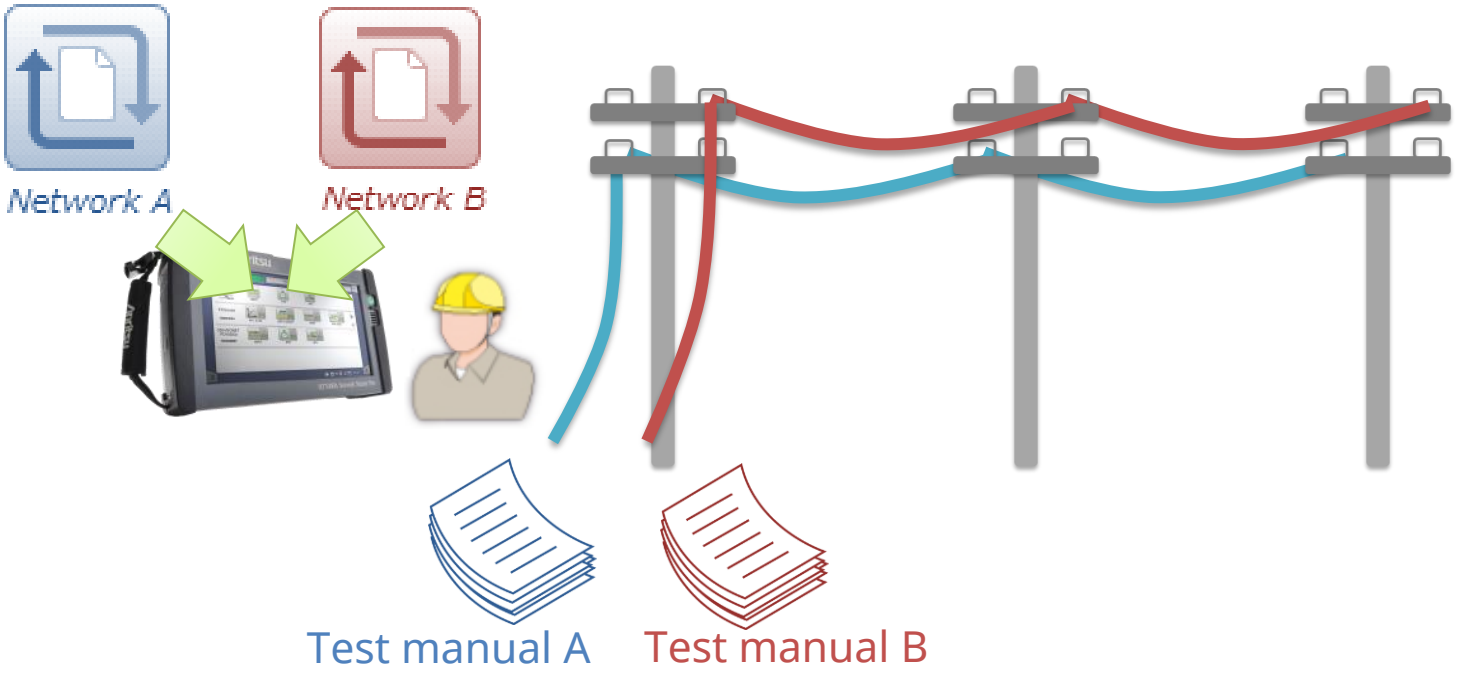
Example 1: Multiple Communications Check

- 10G Ethernet Communications Check
  - The MT1000A is connected to the circuit to be measured
  - Scenario is run on both the local and remote sides
    - Measurements are completed on Throughput, Frame Loss, Delay etc.
  - On-site technician completes tests without the requirement to configure: Network Addresses, Configuration Settings, Pass/Fail thresholds etc.



Example 2: Optical Fiber Check

- Measuring Multiple Optical Fibers with an OTDR
  - Per site optical fiber testing requires different evaluation values, depending on the network requirements
    - The technician is required to set reference values for each site
  - The measurement conditions and reference values for each site and fiber can be pre-set in a scenario file
    - The field technician simply executes the MT1000A SEEK one button test



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Automatic Measurement Workflow

Office ⟷ Field

Step 1
Create/update measurement scenario

Step 2
Load measurement scenario into measuring instrument

Step 3
Perform automatic on-site measurement
- Scenario parameters can be edited on-site

Manage measurement reports
- Report (pdf)
- WireShark (pcap)
- Results file
- Measurement logs

Measurement scenario file loading procedure

USB Memory

USB Cable

LAN/WLAN

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Office Work (1/10)

Introduction

- A scenario file is created based on predetermined test contents to be executed on-site
- Displayed message dialogs reduce the technicians workload and shorten the overall test work time

The following items are required to create an automated test scenario for the MT1000A which can be downloaded from the Anritsu website

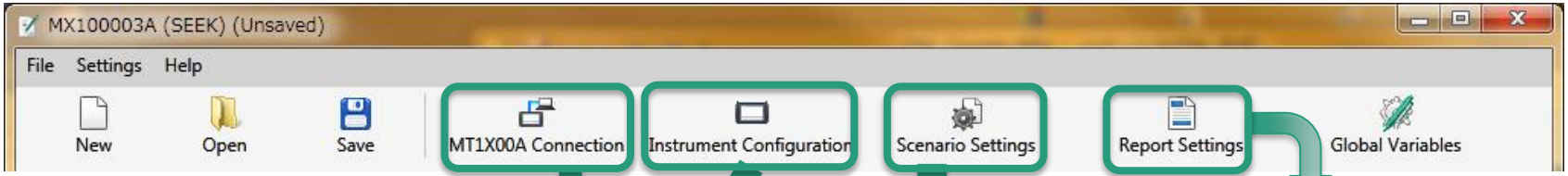
- Scenario Environment Editing Kit (SEEK) MX100003A (free software)
- SEEK Sample Scenarios
- Instruction manual for MX100003A MT1000A/MT1100A SEEK
- Scenario Creation Method

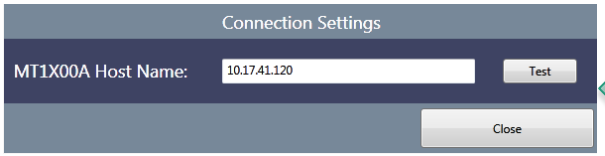
Search Anritsu Website for MT1000A and click [Download]

- Windows PC
- Connection between PC and MT1000A (USB cable, Ethernet connection, etc
  - Downloaded and install the software to a PC
    - Refer to the Instruction Manual for the installation method.

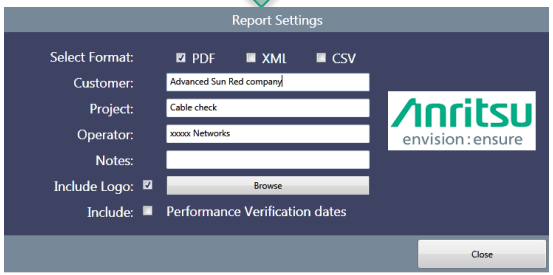
Office Work (2/10)

- Measurement modules, scenario icons, report file name, etc., are configured here.

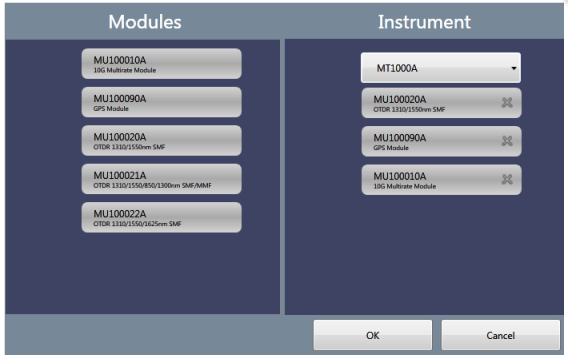




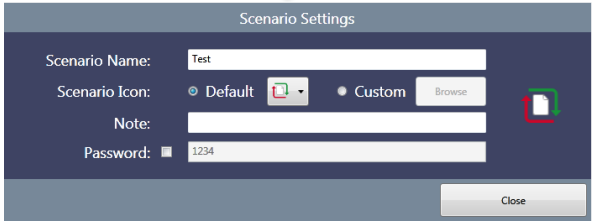
The scenario can be created with the tester connected allowing editing and confirmation of actual operation

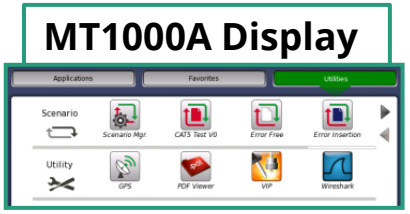


The report name and whether or not to use a timestamp can be set as a single action. User selectable logo can be inserted into the PDF report



Choose the main frame and module configuration to use

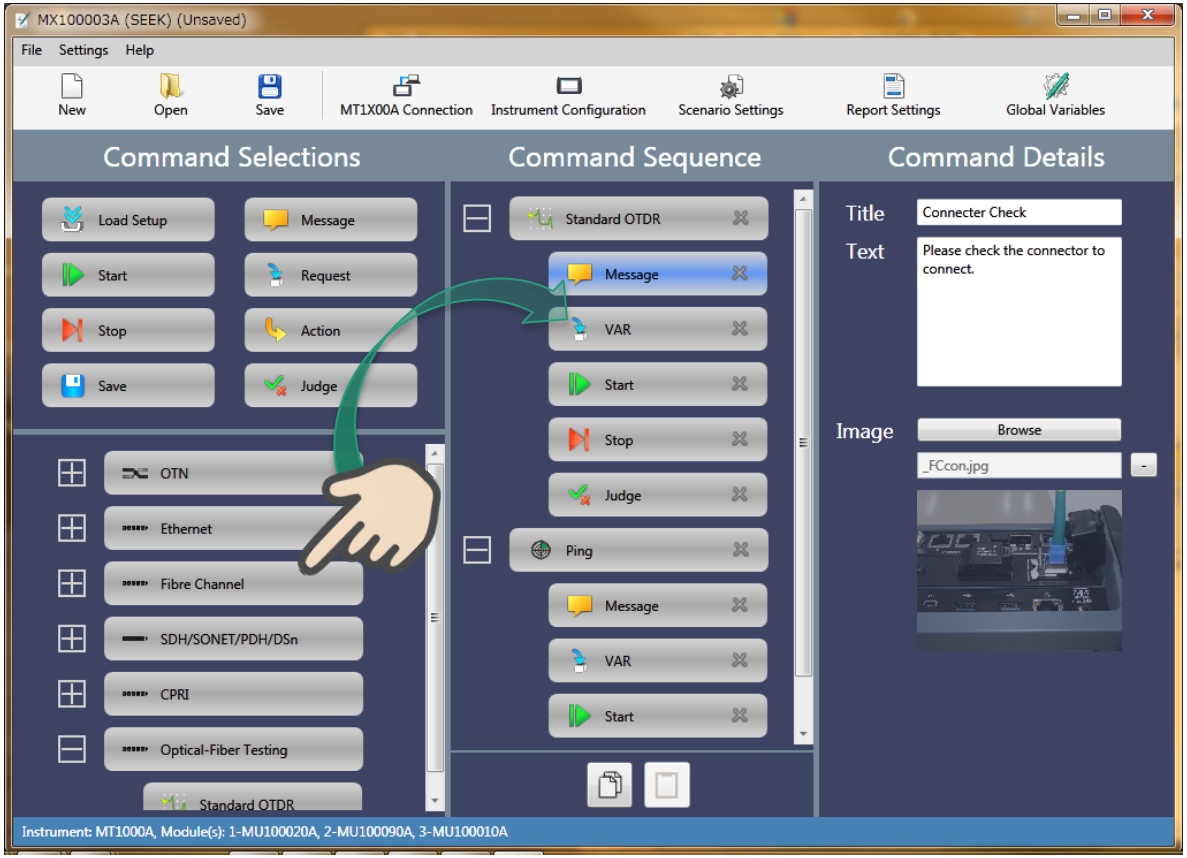




The file names and icons displayed at the MT1000A are configurable along with a password if required.

Office Work (3/10)

- Information required for each procedure, parameters, Pass/Fail etc., can be adjusted and visualized here
- Each Application and operation is dragged and dropped into the Command Sequence.
- The Command Selection can be added within the visual procedure



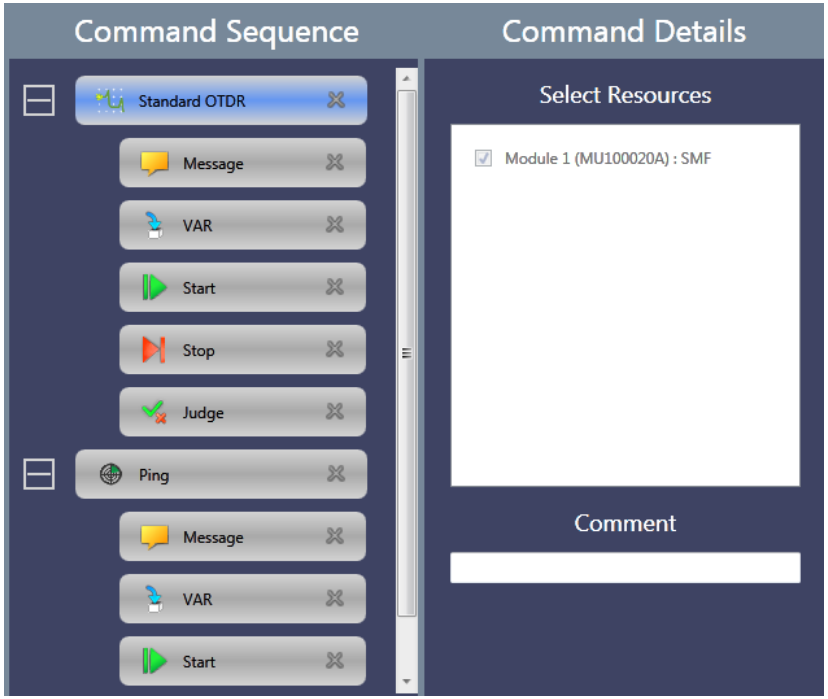
Office Work (4/10)

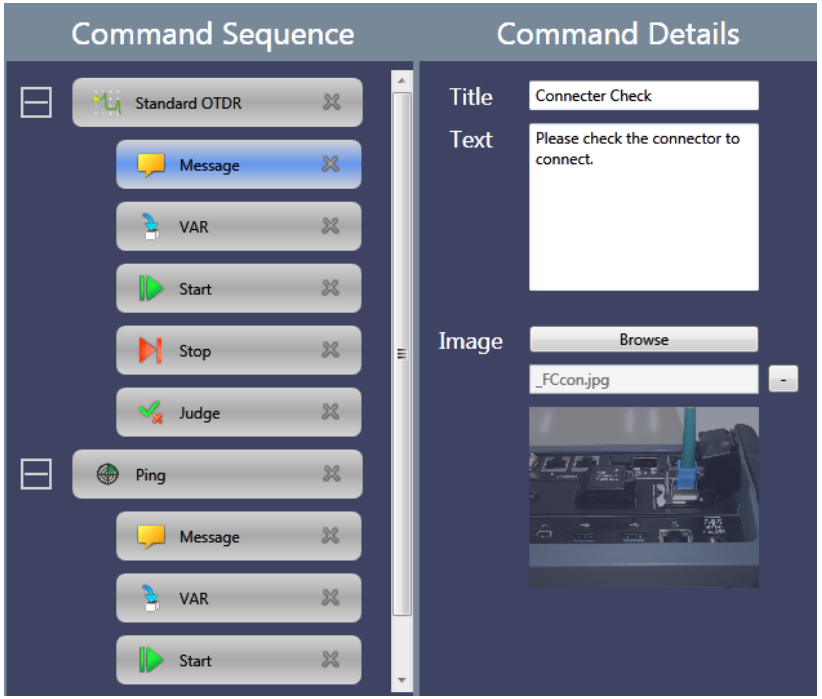
- Explanation of Commands
  - The following commands can be set by each application and are executed in accordance to their sequence

Command	Use
Load Settings	Loads settings file specified by application into scenario The settings file can also be loaded after starting the application.
Message	Displays screen message dialog
Start Measure	Starts measurement
Stop Measure	Stops measurement
Request	Displays dialog requesting input of a defined value
Execute	Sets MAC and IP address and sets processing contents
Evaluate	Sets Pass/Fail processing contents for test results
Save	Outputs test log report, saves results for each application, and executes report output

Office Work (5/10)

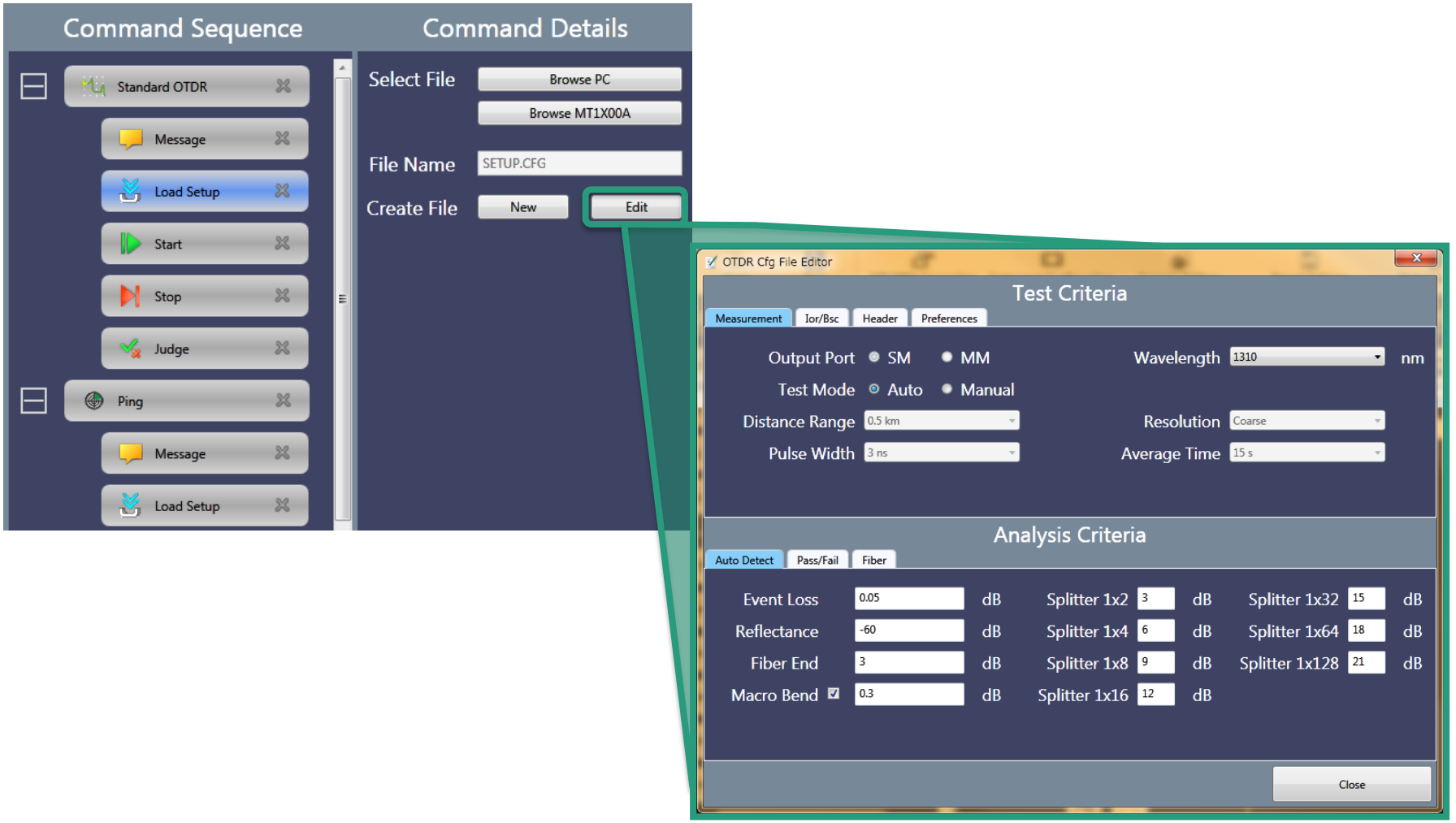
- The details for each command are set.
  - The detailed contents are different for each application and command.
  - The test procedure can be expressed in concrete terms by message commands. Images can also be displayed if necessary.





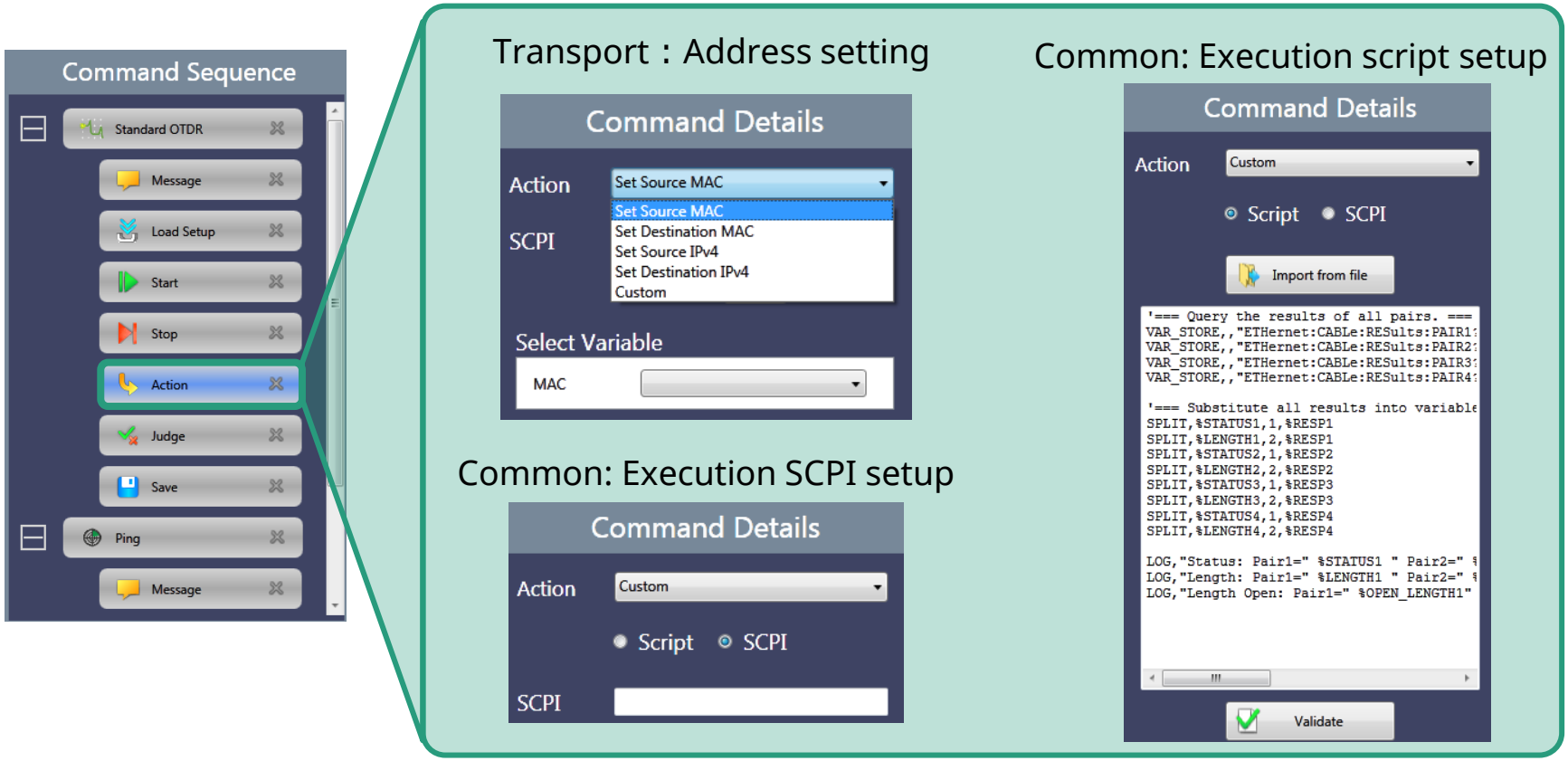
Office Work (6/10)

- Settings files not loaded previously can be edited directly by selecting [Load Settings] for OTDR.



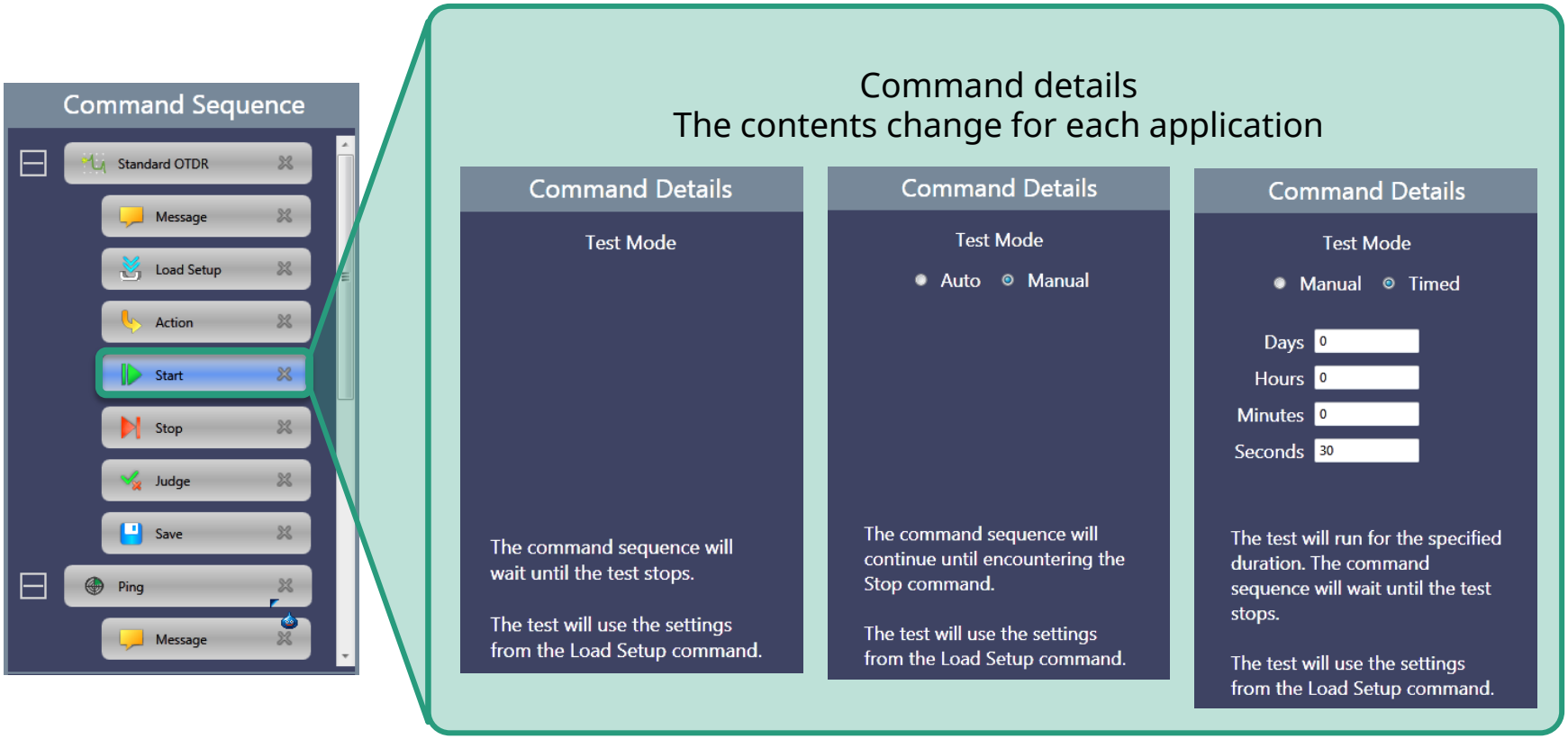
Office Work (7/10)

- The following operations can be executed via [Execute].
  - OTDR: Insert script or SCPI commands
  - Transport: Specify MAC and IP and Insert script or SCPI commands



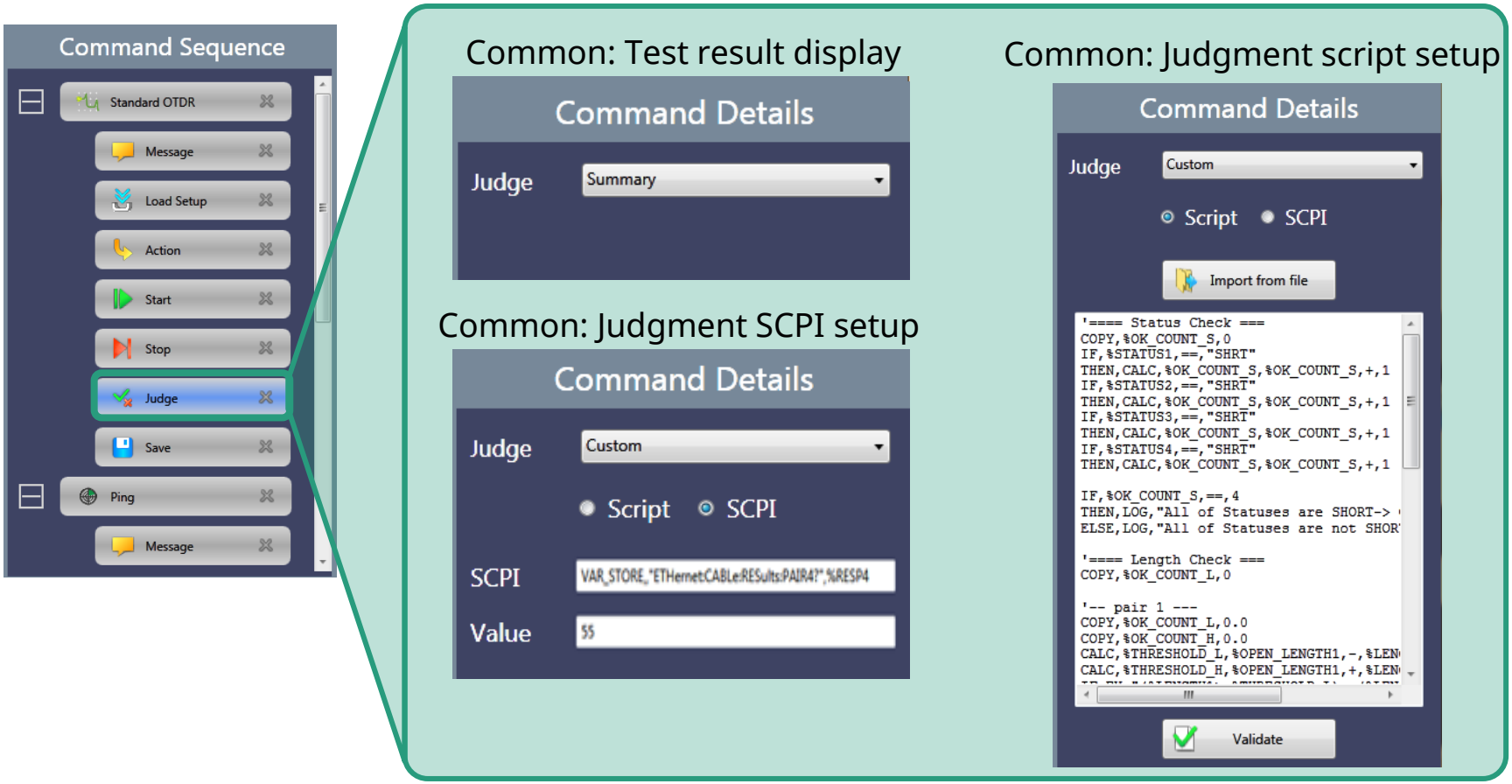
Office Work (8/10)

- The test is executed by [Start Measure]. Command details can differ with different applications
- The test is stopped by [Stop Measure]. (There are no command details.)



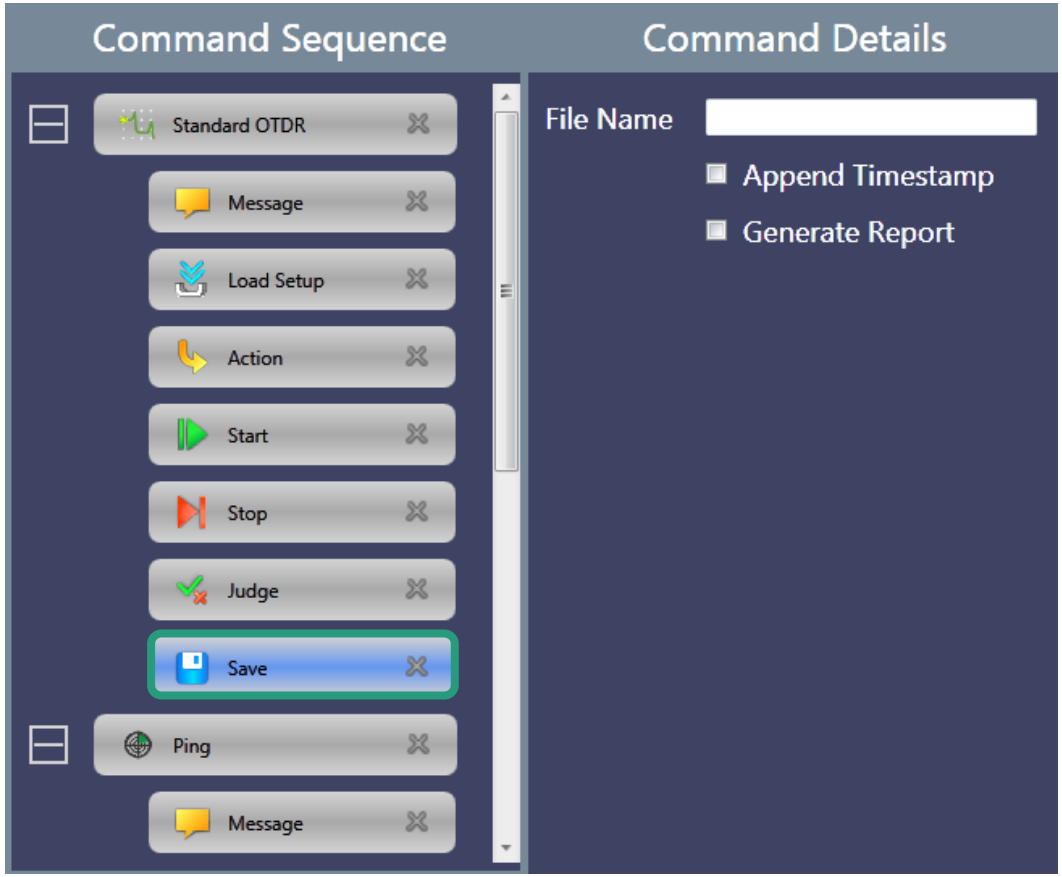
Office Work (9/10)

- In addition to displaying the MT1000A test results, [Evaluate] can be used to set any evaluation value



Office Work (10/10)

- [Save] sets the saved file name. There are also options to append a timestamp to the file name and create a report



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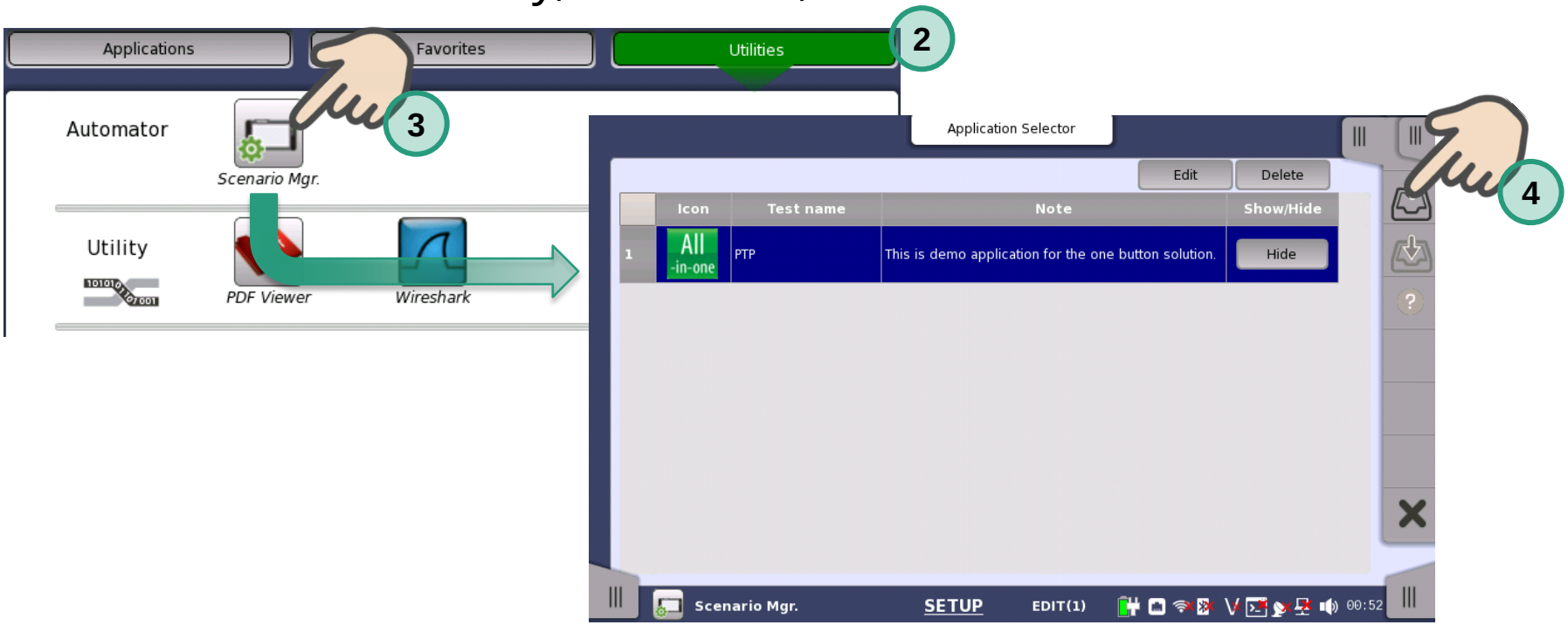
Registering Test Scenario (1/2)

1. Power-up MT1000A
2. Move to Utilities screen
3. Start Scenario Mgr.
4. Select and load created measurement scenario
   – Measurement scenarios are loaded using either USB memory, USB cable, or via LAN

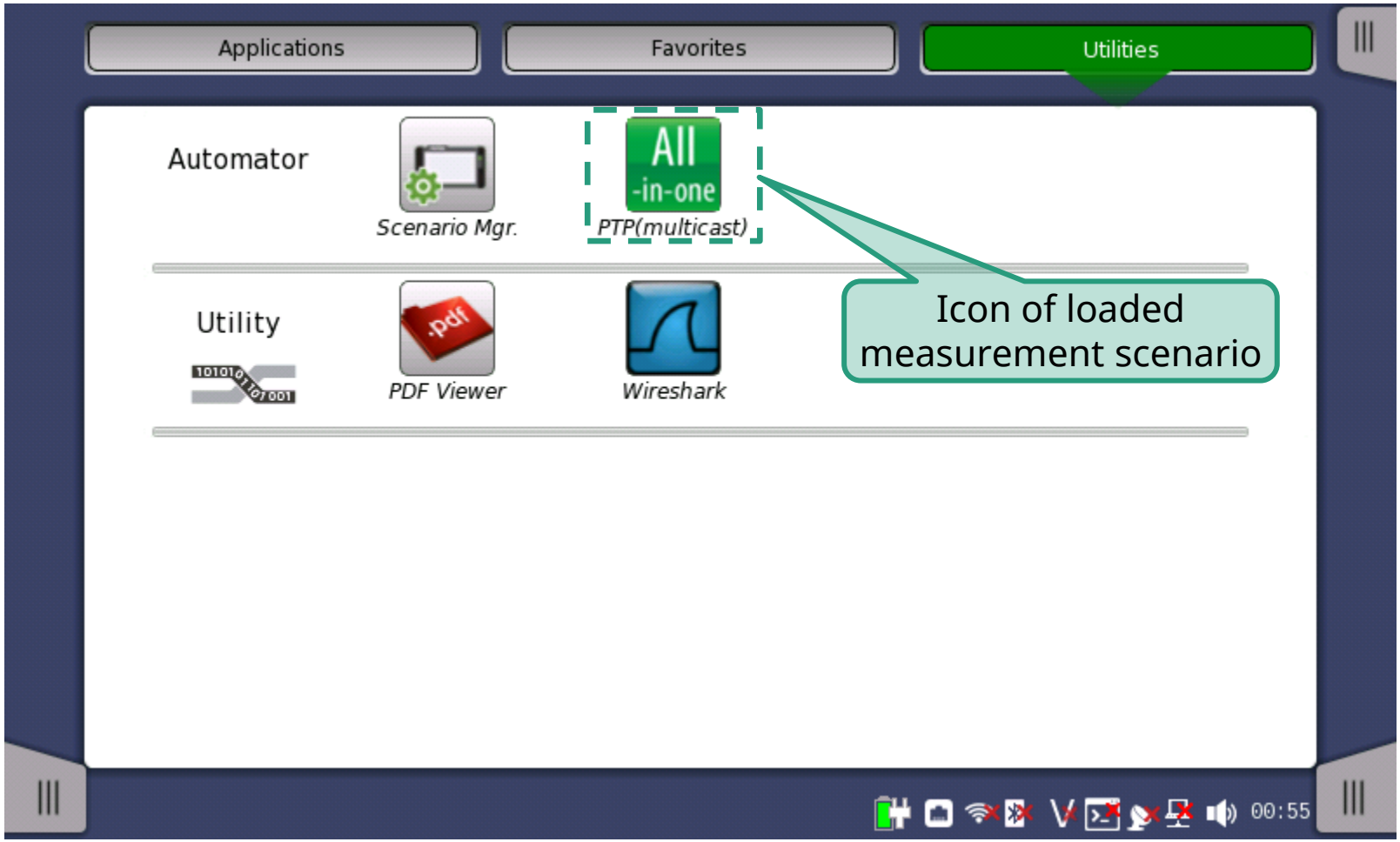
Measurement scenario file loading procedure

- USB Memory
- USB Cable
- LAN/WLAN



Registering Test Scenario (2/2)

- The MT1000A Utility screen can also be used to confirm the test scenario icon registration



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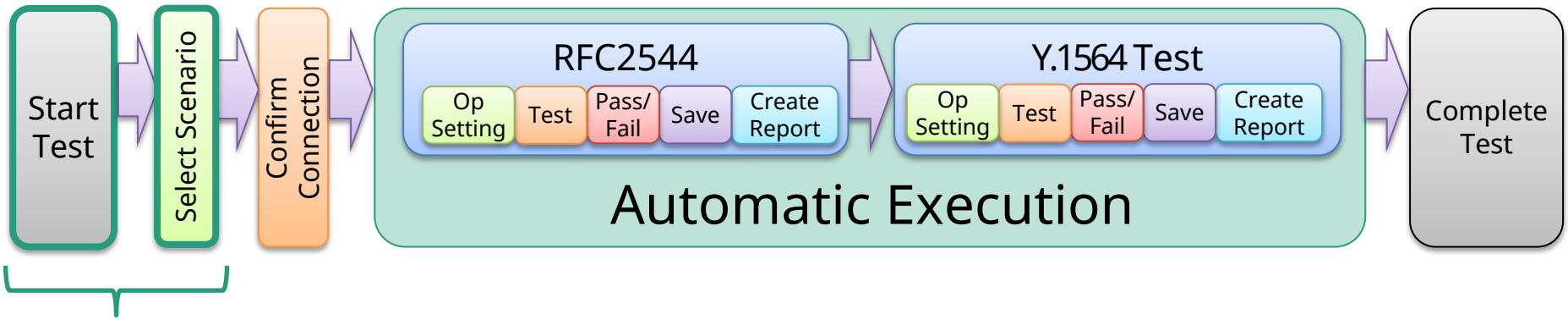
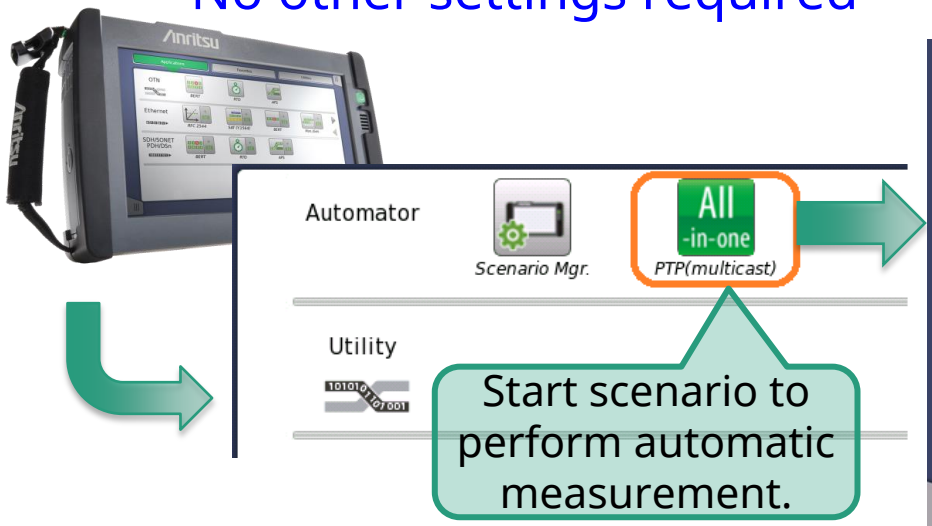
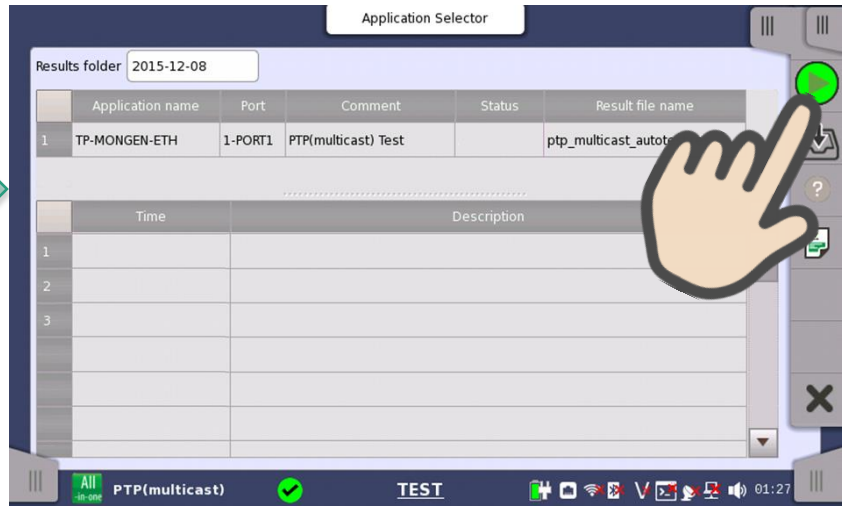
Field Work (1/7)

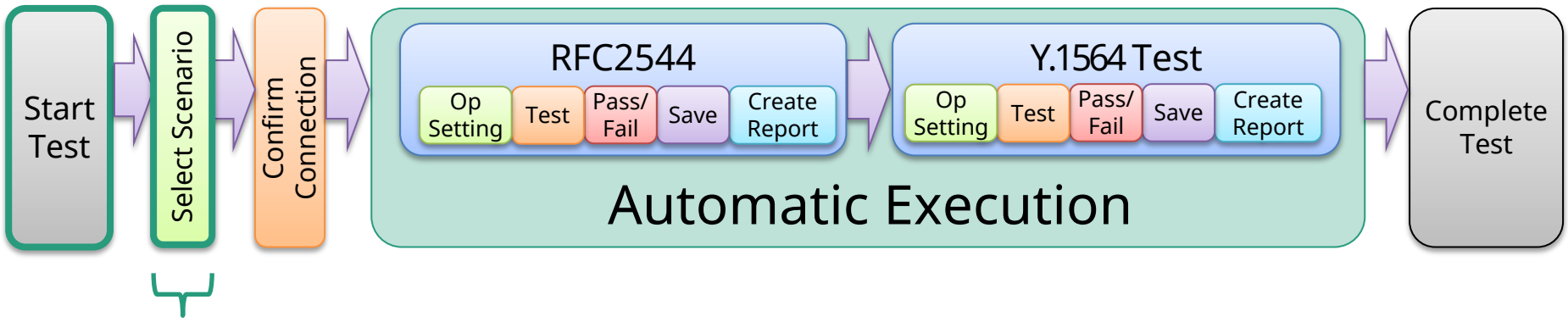


1. Power-up the MT1000A.
2. Select test scenario starting automatic measurement
   - No other settings required



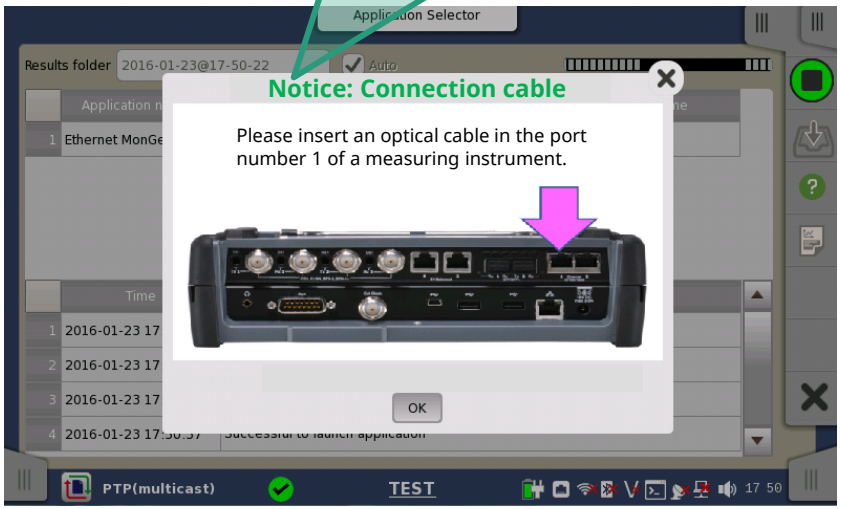


Field Work (2/7)

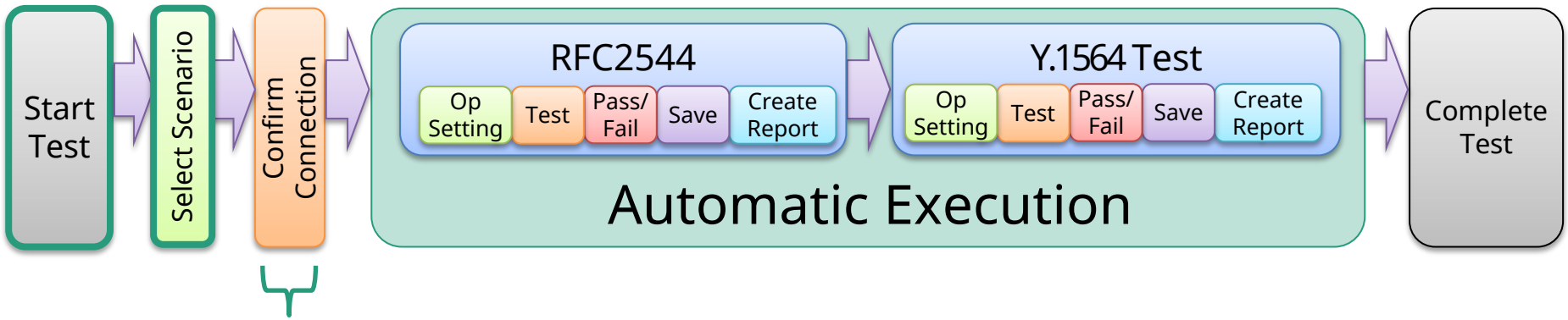


3. Confirm cables, connections and pre-test items as per MT1000A screen images

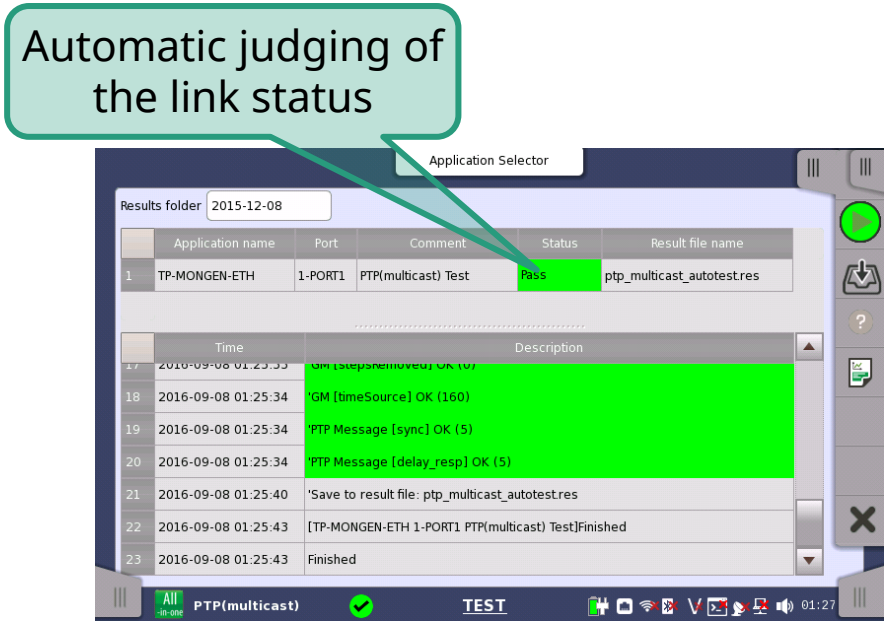
Connection details displayed on screen



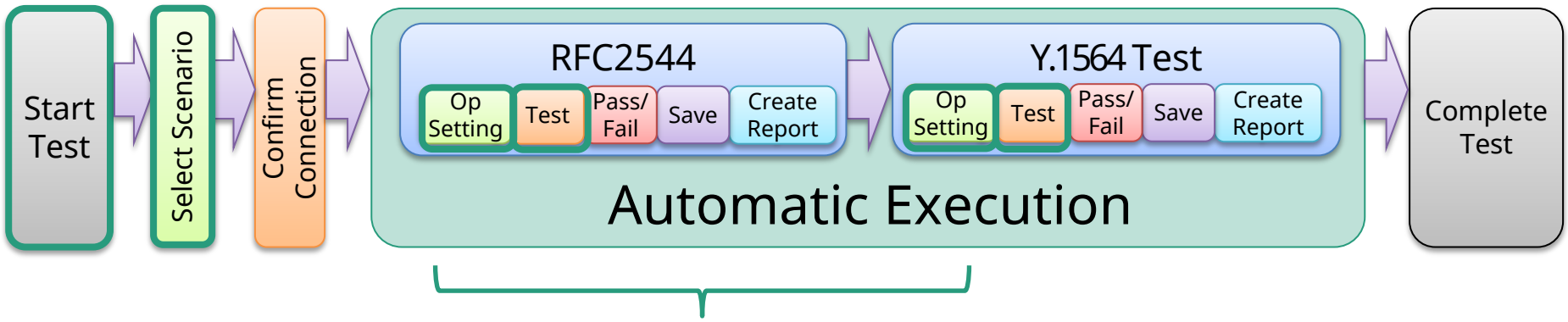
Field Work (3/7)



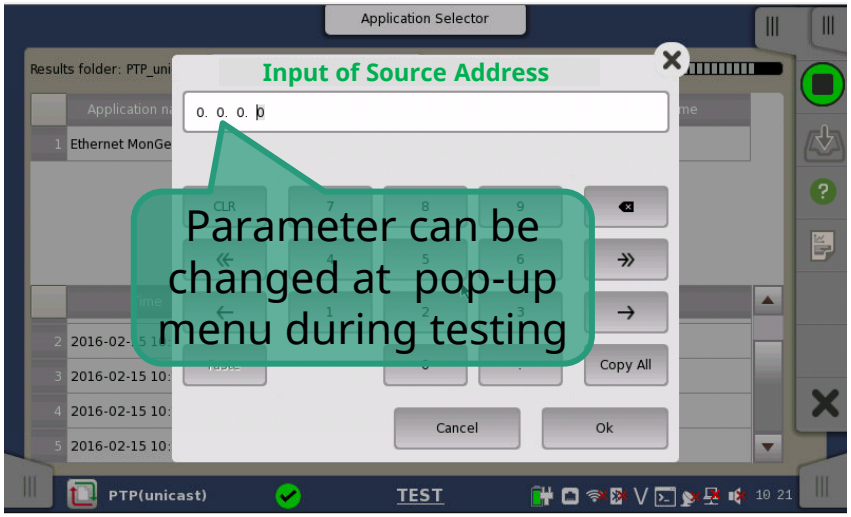
4. Warnings are displayed before testing starts, if the connection cannot be confirmed or the addresses are incorrect testing will not continue

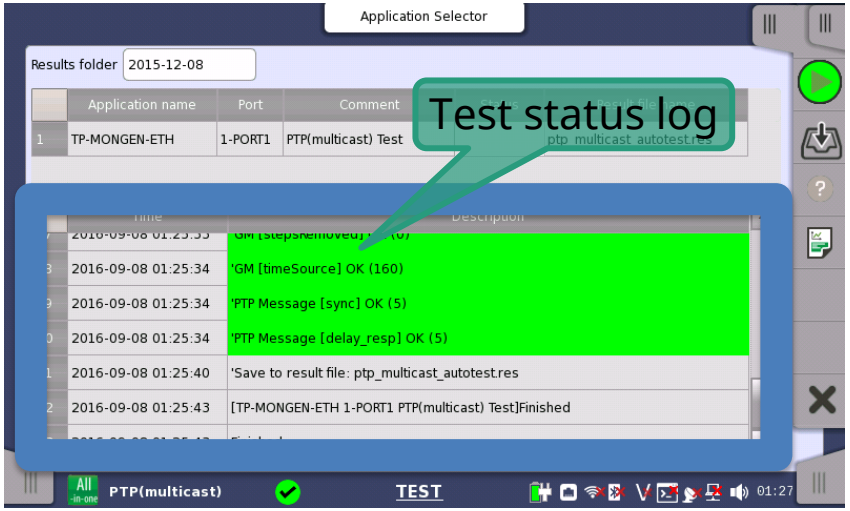


Field Work (4/7)

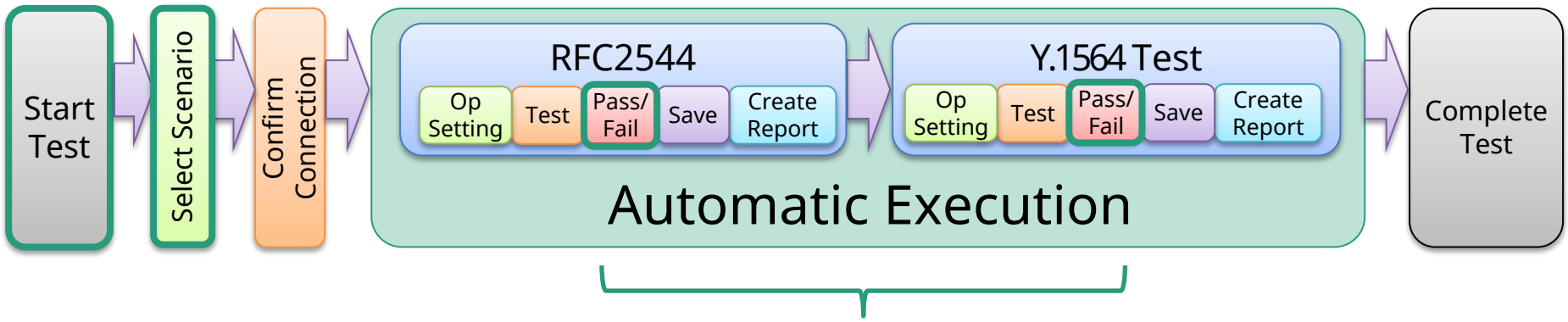


5. Test MAC and IP addresses can be changed, parameter inputs can be specified. Work errors are eliminated as the technician only inputs required information once. The test progress status can be confirmed via the real-time log

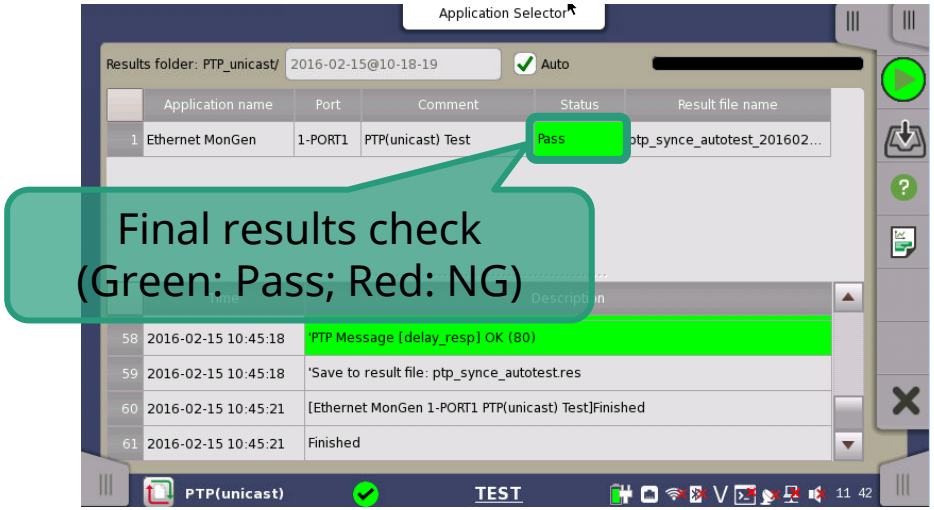




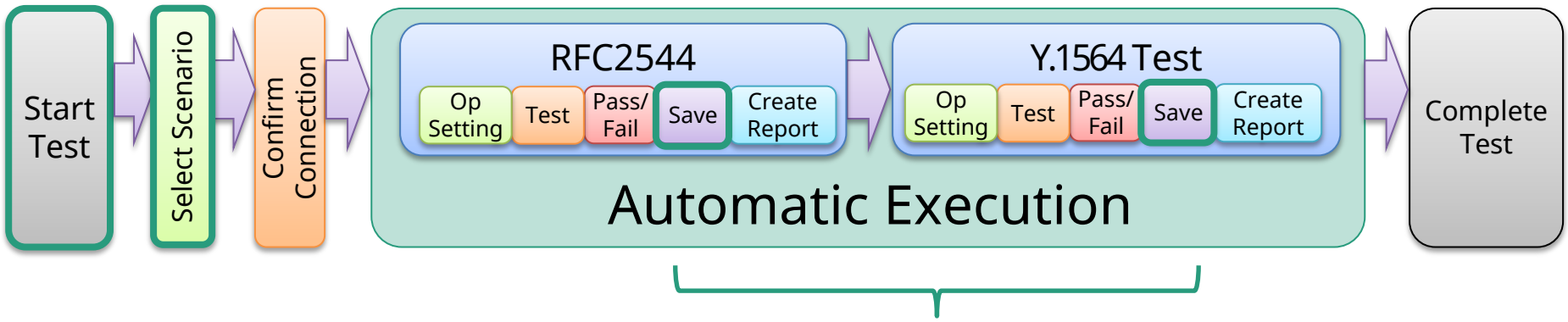
Field Work (5/7)



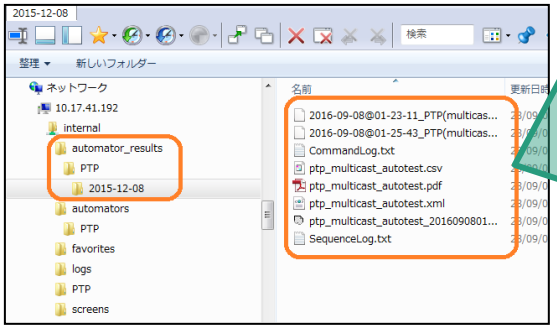
6. The [Pass/Fail] evaluation is displayed on-screen when the test completes. If the test is failed, the exact test failure point can be confirmed in the log



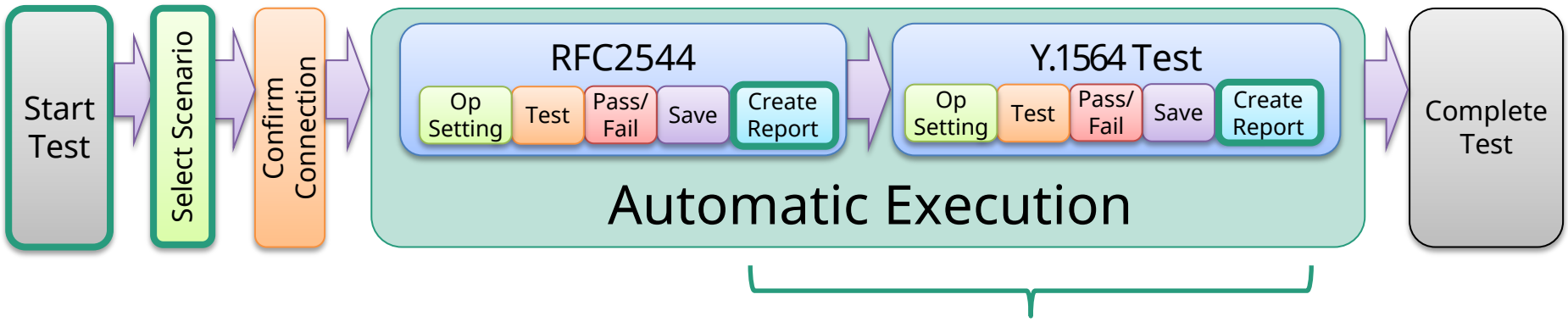
Field Work (6/7)



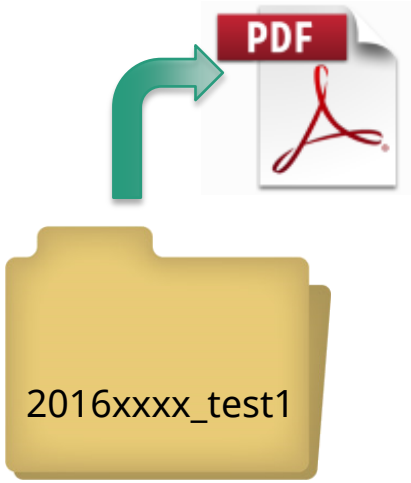
- As test results are saved automatically on the unit securely, they can easily be confirm. Additionally, a new folder is created for each SEEK test holding the results, this prevents any confusion when managing results files



Field Work (7/7)



- Post-test report is saved in the same folder, as results are able to be saved in PDF format, there is no requirement to edit the report



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Operating Environment and Procurement

- SEEK software PC requirements
  - CPU: Intel Core i5 @2.4 GHz or better,
  - Memory: 4 GB or better,
  - HDD: 200 GB Hard drive or better,
  - OS: Windows7 Professional 32/64-bit (SP1)
Windows8 32/64-bit
Windows8.1 32/64-bit
  - Interface: Ethernet (10/100/1000 Mbps) or WLAN or USB

- MT1000A requirements
  - Version v7.02 or later

- Procurement
  - Software:
    - https://www.anritsu.com/en-au/test-measurement/support/downloads/software/dwl17488
  - Sample Scenarios:
    - https://www.anritsu.com/en-au/test-measurement/support/downloads/software/dwl17512

- Proposal Outline
- Product Introduction
- Work Flow
- Application Examples
- Automation Steps
  - Step 1: Office Work
  - Step 2: Registering Test Scenario
  - Step 3: Field Work
- Operating Environment and Procurement
- Summary

Summary

- Automation of commissioning tests shortens test times and cuts costs
  - Reduces Field Technician Workload
    - Automated testing with measuring instrument which eliminates re-work while on-site
    - Simplification enables less experienced technicians to achieve the same level of accuracy as experienced technicians
  - Shortens Test Times
    - Reduces workload by automation of configuration and saving settings and results for each test
    - On-the-spot evaluation ensures decision to re-test upon a result failure can be completed with full confidence

- **Automated testing using the MT1000A unifies work flows and cuts field work costs**

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