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## Introduction

1. [Getting Started in Simulation](#)
2. [Getting Started Tasks](#)

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## Getting Started in Simulation

This guide gets you started using MTS TestSuite software by running an example test in simulation mode. This allows you to familiarize yourself with the software without applying power to your test station.

Installation of the simulation software consists of launching two separate self-extracting executables, one for the MTS TestSuite software and one for the Series 793 simulation software.



Note:

Completing the tasks in this guide requires about 30 minutes.

### Series 793 Simulation self-extracting executable

This file installs a simulated version of MTS Series 793 software, including configuration and support files used with this guide. This software provides simulated real-time control of a test station.

**Parent topic:** [Introduction](#)

**Next topic:** [Getting Started Tasks](#)

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## Getting Started Tasks

1. [Perform the Checklist to Run in Simulation](#)
2. [Install the Simulation Software](#)
3. [Launch the Simulation Software](#)
4. [Familiarize Yourself with the MTS TestSuite Environment](#)
5. [Run the Example LCF Test](#)
6. [View the Example LCF Test Report](#)
7. [Run More Tests and Explore the Software \(Optional\)](#)
8. [Exit the Multipurpose Elite Application](#)
9. [Exit the Station Manager Application](#)
10. [Find More Information](#)

**Parent topic:** [Introduction](#)

**Previous topic:** [Getting Started in Simulation](#)

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## Perform the Checklist to Run in Simulation

Perform the tasks in the following checklist to run the software in simulation and view an example test report.

**Parent topic:** [Getting Started Tasks](#)

**Next topic:** [Install the Simulation Software](#)

**Related concepts**

[Install the Simulation Software](#)

[View the Example LCF Test Report](#)

[Run More Tests and Explore the Software \(Optional\)](#)

**Related tasks**

[Launch the Simulation Software](#)

[Familiarize Yourself with the MTS TestSuite Environment](#)

[Run the Example LCF Test](#)

[Exit the Multipurpose Elite Application](#)

[Exit the Station Manager Application](#)

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## Install the Simulation Software

**!** Important:

Install the MTS TestSuite application first and then install the MTS Series 793 Simulation software.

Access the installation instructions by clicking the Simulation Help link on the MTS Series 793 Simulation Software Setup window.

**Parent topic:** [Getting Started Tasks](#)

**Previous topic:** [Perform the Checklist to Run in Simulation](#)

**Next topic:** [Launch the Simulation Software](#)

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## Launch the Simulation Software

1. Launch the MTS Series 793 Station Manager application:
  - o Double-click the Station Manager icon located on your desktop, or
  - o Click Start > Programs > MTS 793 Software > Station Manager.

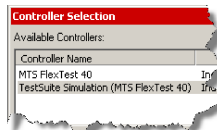


Station Manager Icon

2. In the Select Project window, select Project1 and click Open.

This step may not be necessary if Project1 was selected as the default when the software was installed.

3. Select TestSuite Simulation (MTS FlexTest 40), and then click OK. This step selects the controller used by the station configurations in this guide.



MTS TestSuite Simulation Selection

4. In the Open Station window, select Virt\_3-02\_CF\_LCF.cfg and click Open.

This opens the station configuration that was used to create the example test file provided with your software.

5. Minimize the Station Manager application.

At this point, the station configuration is loaded and the Station Manager application is providing real-time control of the simulated test station. You perform all other tasks with the Multipurpose Elite application.



Note:

With the Station Manager main window minimized, close all other Station Manager windows, such as the Scope, Meters, and Display Setup windows.

6. Start the Multipurpose Elite application:
  - o Double-click the Multipurpose Elite icon on your desktop, OR
  - o Click Start > Programs > MTS TestSuite > Multipurpose Elite.



MPE Icon

The application opens and connects to the station configuration. The controller and station configuration are shown in the title bar, which is labeled Multipurpose (MTS TestSuite Simulation (MTS FlexTest 40):Virt\_3-02\_CF\_LCF.cfg).

**Parent topic:** [Getting Started Tasks](#)

**Previous topic:** [Install the Simulation Software](#)

**Next topic:** [Familiarize Yourself with the MTS TestSuite Environment](#)

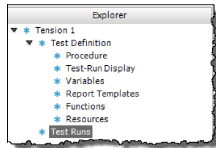
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## Familiarize Yourself with the MTS TestSuite Environment

1. On the File menu, click Open Test.
2. In the Open Test window, select Example LCF Strain Test, and then click Open.
3. On the Explorer panel, click the Procedure node to display a graphical view of the test.



Explorer Procedure Node

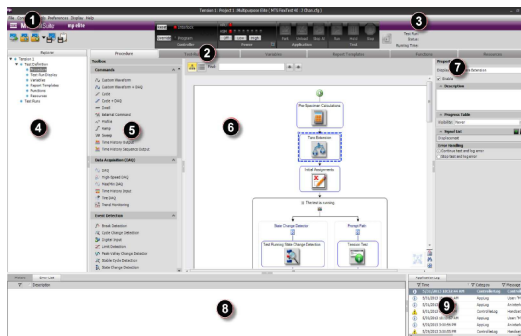
4. In the Procedure tab, select the Flowchart View and click each test activity and observe its associated properties.



Note:



A test is created by dragging test activities from the Toolbox panel into the Procedure tab and then defining the properties for the activities.

5. Review the features in the main window as shown in the following figure, which shows the Multipurpose Elite application with the Example LCF Strain Test open.



Multipurpose Elite Application Main Window

Main Window Options

Item	Item	Description
1	Menu bar and Quick Access panel	Provides menus and quick-access icons that allow you to perform tasks such as opening projects, running tests, and saving the project.
2	Control panel	Allows you to reset interlocks and manage station pressure.
		 Note: When control is provided by a handset, the application controls will be locked and overlaid by the handset exclusive control icon: 
3	Test Run Status panel	Shows test run information, including name, status, and running time.
4	Explorer panel	The Explorer panel shows a hierarchical view of all the information related to the test. The Toolbox panel contains components you can drag into procedures and displays.
5	Toolbox panel	The contents of the Toolbox panel change depending on the node selected in the Explorer panel: <ul style="list-style-type: none"> <li>• When you select the Procedure node on the Explorer panel, the Toolbox panel contains components that pertain to test activities such as commands, data acquisition, test flow control, and program actions.</li> <li>• When you select the Test-Run Display node on the Explorer panel, the Toolbox panel contains components that pertain to the display of test data, such as cycle, variable, and signal views.</li> </ul>
6	Workflow panel	When you click the Procedure tab, the workflow panel appears. On the workflow panel, you can choose to display the workflow contents using either the Flowchart View or the Outline View. The workflow panel provides a work area to create tests. You drag test activities from the Toolbox panel to the workflow panel to build tests. This area changes according to the currently selected Explorer node.
7	Properties panel	Allows you to define or change the information, characteristics, and appearance of the selected procedure activities and runtime display components. For example, you can use the Properties panel to change the amplitude of a cycle command test activity in a procedure, or the Y-axis signal selection on a signal scope in a runtime display.
8	Error List	Shows error and warning messages that describe both critical and noncritical conditions in the test definition. The Error List is dynamic and changes according to the part of the application you are using. Double-click the error message to show the source of the error in the Resources tab.
9	Application Log	Shows status information about events, such as logging into the application, defining and setting up projects, and loading and running tests. The application stamps each message with the generation date and time. You can type notes into the Application Log. Messages persist from one session to another.

Parent topic: [Getting Started Tasks](#)

Previous topic: [Launch the Simulation Software](#)

Next topic: [Run the Example LCF Test](#)

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## Run the Example LCF Test

The Example LCF Strain test is a simplified low-cycle fatigue test that yields realistic test data when run in simulation.

1. On the Control panel, click Reset to reset the simulated interlock condition.
2. Click the Power icon to open the Power Panel. Click Low then High for the Hydraulic Power Unit (HPU). Repeat for the Hydraulic Service Manifold (HSM), which simulates applying hydraulic pressure to the system.



Power Panel

3. On the Quick Access panel, click the New Test Run button; or, click File > New > New Test Run.



New Test Run Button

A test run is the record of a test performed on a single, selected specimen. Test runs are stored with the test.

4. The Specimen Selection window is shown. The specimens listed were created using the Specimen Editor. Select Virt\_3-02\_CF\_LCF and click OK.
5. The Setup Variables window is shown. You can change the values and set the order of the variables. Click OK.
6. In the Enter Control Parameters window, make the following changes and then click OK.
  - o Number of Cycles: 100
  - o Frequency: 5 Hz
  - o End Level 1: 0.01 mm/mm
  - o End Level 2: -0.01 mm/mm

The test designer defines the parameters listed in this window in the properties for the Operator Control Input test activity. In this example, the operator must enter values before the test run can start.

7. (Optional) In the work area, click the Pre-Test Variables and the Runtime Values tabs to verify the test-run settings.
8. In the work area, click the Monitor tab.

The test designer can use the Monitor tab to create displays that communicate information to the operator during test runs. The design can have one or more tabbed sections with charts, counters, and other status indicators.

9. On the Control Panel, click Run (green arrow button).



Run Button

The test executes for approximately 20 seconds. While the test runs, a Hysteresis and History graph shows runtime data. When 100 cycles are complete, a Creating Report progress bar appears, followed by a test report in Microsoft Excel.

10. (Optional) In the work area, click the Results tab to view the results of the test run.

**Parent topic:** [Getting Started Tasks](#)

**Previous topic:** [Familiarize Yourself with the MTS TestSuite Environment](#)

**Next topic:** [View the Example LCF Test Report](#)

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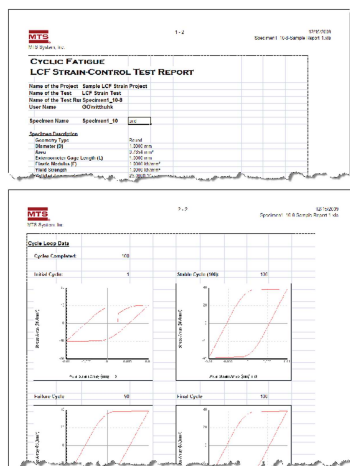
## View the Example LCF Test Report

A test report has been configured to appear automatically at the end of the test run. The elements in this report were defined in a report template designed with the MTS TestSuite Report Add-In for Excel.



**Note:**

After reviewing the test report, exit Microsoft Excel.



Example LCF Test Report

Parent topic: [Getting Started Tasks](#)

Previous topic: [Run the Example LCF Test](#)

Next topic: [Run More Tests and Explore the Software \(Optional\)](#)

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## Run More Tests and Explore the Software (Optional)

### Additional simulation tests

Perform additional test runs and change input values to see how the results change in the test report. Examine the test design in the Test Editor and Properties panel, and explore the software as desired.

MTS provides a number of sophisticated test templates that provide realistic data in simulation. You can import, open, and run these tests from the MTS TestSuite application. These tests are located in the following locations:

- On the MTS TestSuite Controller Simulation CD-ROM in the TestArchives folder
- or
- After installation, on your computer in the C:\MTS TestSuite\TestArchives folder.

Instructions on how to run these tests are found in the MPE Simulation Help portion of the Multipurpose Elite online help and the Simulation Help in the MTS Series 793 Simulation Software Installation window.

Parent topic: [Getting Started Tasks](#)

Previous topic: [View the Example LCF Test Report](#)

Next topic: [Exit the Multipurpose Elite Application](#)

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## Exit the Multipurpose Elite Application

To exit the MP Elite application:

1. On the Control Panel, click Off to remove simulated station pressure.
2. On the File menu, click Close Test, save as desired, and then click Exit.

Parent topic: [Getting Started Tasks](#)

Previous topic: [Run More Tests and Explore the Software \(Optional\)](#)

Next topic: [Exit the Station Manager Application](#)

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## Exit the Station Manager Application

To exit the Station Manager application:

1. Maximize the Station Manager application.
2. On the File menu, click Exit.

Parent topic: [Getting Started Tasks](#)

Previous topic: [Exit the Multipurpose Elite Application](#)

Next topic: [Find More Information](#)

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## Find More Information

### Online help

MTS TestSuite software provides online help that describes how to use the features of the software. Click Help > Contents or press F1 to open a help file.

### Related documentation

After installation, see the *Multipurpose Simulated Testing User Guide* (available through the Windows Start > Programs > MTS TestSuite > Documentation menu) for instructions on running simulated tests.

Parent topic: [Getting Started Tasks](#)

Previous topic: [Exit the Station Manager Application](#)

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