# Lab 11.1.6: The Steps of the Troubleshooting Cycle

**Estimated Time:** 25 Minutes

**Objective**

Upon completion of this lab, you will be able to describe the importance of, and identify the steps involved in, the troubleshooting cycle.

**Equipment**

This is a written lab. No equipment is necessary.

**Scenario**

You have just started a new job, as a computer technician, with a small consulting group. The company has approximately 50 employees with varying levels of computer expertise. As a computer technician, your primary responsibility is to provide desktop support to these employees.

You have recently gone through job orientation and have received training on the procedures for responding to computer problems. The training included an introduction to the hardware and software in use, common errors, common symptoms, and using the troubleshooting cycle to effectively solve problems. You consider the training informative and, coupled with your previous computer experience, you are confident in performing your job duties.

The end user is complaining that their computer has stopped responding. It is your responsibility to troubleshoot and resolve this problem.

**Procedures**

The troubleshooting steps can be very useful in solving computer problems. Sometimes, a problem will require common sense and the solution is straightforward. Other times, the solution will require a broad level of technical knowledge. In this lab, you will "walk through" the troubleshooting cycle as an example of solving computer problems. The lab will begin with step one, which is gathering information from the end user.

## Step 1

After arriving on scene, you begin the troubleshooting cycle by defining the problem. Start by identifying the general symptoms and then determine the possible causes for the existing problem.

For future references, you have brought along a notebook to document your findings.

Upon arrival, what environmental factors can you assess? How is an assessment of the environment beneficial?

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## Step 2

The next step is to gather pertinent information from the end user. Initially, you should ask general questions with the goal of obtaining a broad idea about the computer problem. Your questions will gain focus as information is obtained from the end user.

What questions could be asked to obtain a broad idea about the problem?

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After questioning, you learn that the computer is not producing any sound. Everything else appears to be functioning correctly.

You can now assume the problem is related to the multimedia (sound) capabilities of the computer. What questions could you ask or actions could you take to better define the problem?

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During questioning, you find out that the end user has been having problems ever since a recent sound card upgrade. You attempt to reproduce the error by playing an audio file. Sure enough, the audio does not produce any sound. You inspect the audio player and it appears to function correctly. Then, visually inspect the speaker cables and verify the speakers are turned “On”. You see no apparent problems with the connected devices and the speakers are turned “On”.

Gathering information is by far the most important step of the troubleshooting cycle.

## Step 3

Given the above scenario, what are the most likely causes of the malfunctioning soundcard?

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The user has stated that he is having problems producing sound from his machine and there has been a recent upgrade performed on his soundcard. From this information, you can infer the problem is related to the recent upgrade of the sound card.

You have verified that both the audio player and speakers are functioning properly. You have also verified the speakers are connected correctly. Since you have verified the speakers and audio player are working, you figure it is unlikely they are causes to the problem. You continue the troubleshooting cycle by creating solutions for the apparent bad sound card installation.

 

## Step 4

Effectively developing a solution involves gathering correct information, knowledge of the computer components, and the ability to recognizing symptoms.

The problem has been isolated to a bad installation of the sound card.

Give an example of a solution that might solve this user's problem:

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Your solution should focus around the different aspects of the sound card installation. Based on your experience, you are aware that most sound card problems result from a bad or outdated driver, improperly installed sound card, or system resource conflicts.

For example, a sample solution might include verifying proper installation of the sound card in the PCI slot. If the problem still exists, you will check for system resource conflicts. Finally, you will update or reinstall the driver.

## Step 5

The first aspect of your solution involves simply checking the installation of the soundcard.

What precautions need to be taken before working inside the computer case?

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You verify the soundcard has been properly inserted and has good connections. It appears to be properly inserted. Your experience has told you to check for obvious solutions first. If the problem still exists, move onto the second aspect of your solution, which is to check if there are any system resource conflicts.

The user is running Windows 98 and you check resource conflicts in the Device Manager.

In the Device Manager for Windows 98, what will indicate a system resource conflict?

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You do not notice any problems and move on to updating or installing the device driver for the sound card. In order to get the latest device driver for the sound card, you visit the website for the sound card manufacturer. You conduct a search for the sound card driver and locate a new driver. This driver is different from the one the user installed because it includes a Windows 98 patch that resolves known compatibility issues. You install the new driver and then reboot the machine.

 

## Step 6

The fifth step is determining if the problem has been solved. If the problem appears to be solved, than the troubleshooting process has been successfully completed. If the problem is not fixed, than you will be required to return to previous steps and continue the troubleshooting process. Sometimes, it might be necessary to undo changes made to the system and revert to the old configuration. In either case, be certain to properly document your results. Documenting your results will help you work more productively in the future.

After boot-up, you play an audio file and hear sound out of the speakers. The problem has been resolved and the troubleshooting cycle has come to an end.

### Troubleshooting

What are the steps in the troubleshooting cycle?

Step 1 - _____

Step 2 - _____

Step 3 - _____

Step 4 - _____

Step 5 - _____

### Reflection

It has been stated that troubleshooting is cyclical, what does this mean?

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Why are the steps in the troubleshooting cycle useful for solving computer problems?

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What is the most important step in the troubleshooting cycle, and why is it so important?

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If the problem exists after the solution has been implemented what steps should be taken?

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