



INTERACTIVE VIRTUAL REALITY FIRE INVESTIGATION

student
HANDBOOK

BY

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INTRODUCTION



Project Background

InterFIRE VR was funded by a grant from the Bureau of Alcohol, Tobacco and Firearms, United States Department of the Treasury, now the United States Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives. InterFIRE VR's content was developed over a period of more than two years by fire investigation experts from ATF, the United States Fire Administration, the National Fire Protection Association, and American Re-Insurance Company. The resulting interFIRE VR software provides both a strong overview and specific detail on all aspects of fire investigation.

From inception, interFIRE VR's goal was to improve the effectiveness of the fire investigation process by raising the base level of knowledge of all fire investigators. To this end, the interFIRE VR software and web site (www.interfire.org) train investigators and student investigators through instruction in the best practices in core critical actions before the fire, at the fire scene, and in the follow-up investigation. These best practices are a "street-proven" systematic protocol for investigating a fire. The critical fire investigation topics addressed in interFIRE VR include:

- Forming, staffing and equipping an effective Fire Investigation Unit
- The Team Concept
- Introduction to a systematic fire investigation protocol
- Conducting investigations with the jury in mind
- A systematic approach to witness interviews
- Recognition of fire patterns
- Evidence sampling and collection methods
- An overview of insurance documents and trial procedures

InterFIRE VR was designed to be easy to use. It has four components:

- **TUTORIAL:** A complete, step-by-step guide to preparing for a fire scene investigation, investigating the fire scene, and following up the scene investigation.
- **RESOURCE FILE:** A compendium of selected articles, abstracts, resources, and photographs on in-depth fire investigation topics.
- **SCENARIO:** A "virtual reality" practical exercise where the user conducts a real fire investigation on his or her computer, with constant feedback on progress.
- **WEB SITE (www.interfire.org):** An Internet resource updated regularly that keeps fire investigation professionals up-to-date on breaking legal and technical developments in the field. The investigator can also research product and vehicle recall information, MSDS information, and other fire investigation topics.

Since interFIRE VR was released, the Development Committee has acknowledged that the opportunities for how the software can be used have multiplied beyond the original expectations. In addition, user feedback has identified the need to create a Student Handbook to help students understand the many ways in which they can access the training in interFIRE VR. This Student Handbook will help you get the most out of interFIRE VR. You will learn tips, techniques, and approaches that will, when applied to the interFIRE VR software, add to your knowledge and refine your approach to the fire scene.

Organization of the interFIRE VR Student Handbook

Increasingly, interFIRE VR is being used in formal classroom training and seminars. This Handbook will assist students in using interFIRE VR by providing more specific guidance on how the software works than is provided in the CD-ROM booklet and the HELP menus. Your instructor may assign a number of different ways to work with interFIRE VR. This Handbook includes detailed explanations of the software to help you complete assigned tasks.

This Handbook is organized into seven sections:

Section 1: interFIRE VR QUICK START GUIDE: Gets you up and running with the software by explaining how to install and run the program.

Section 2: LEARNING FROM THE TUTORIAL: Shows you how to navigate the interFIRE VR Tutorial.

Section 3: USING THE RESOURCE FILE: Details effective ways for you to access the articles and tools.

Section 4: WORKING THE SCENARIO INVESTIGATION: Provides a step by step approach to investigating the Scenario.

Section 5: UNDERSTANDING THE VIRTUAL PROSECUTOR FEEDBACK: Helps you gain insight into your performance in the Scenario by explaining how to interpret the interFIRE's Virtual Prosecutor feedback and translate that into what sections you should review in the Tutorial.

Section 6: PARTICIPATING IN www.interfire.org: Lists a single training pathway of Tutorial, Scenario, and Resource File modules that are pertinent to specific profession. Following this profession-specific syllabus helps practitioners of that profession to understand their role in fire investigation, and cross-trains professionals in the responsibilities of others at the fire scene.

Section 7: MORE IDEAS FOR USING INTERFIRE VR IN THE CLASSROOM: Presents four ways to extend the capabilities of interFIRE VR beyond the single-user model and into different training environments.

In addition to this Handbook, the publication *The interFIRE VR User's Guide* provides more insight into how to get the most out of interFIRE VR and how to employ interFIRE VR in a variety of ways. Students may also use this publication to further their understanding of the software and its training implementations.

SECTION 1: *interFIRE* VR QUICK START GUIDE

1. Place “Disk 1 Tutorial” in the CD drive of your PC.
2. Most computers will automatically start the program. If this doesn’t happen, do the following:
 - a. Double-click “My Computer” and double-click your CD-ROM drive letter. If this automatically launches the installer menu, skip to Step 3. If not, go on to Step 2b.
 - b. Double-click “autorun.exe” in the CD-ROM contents window.
3. An information box will appear showing these four programs:



ABOVE: *Installer Main Menu*

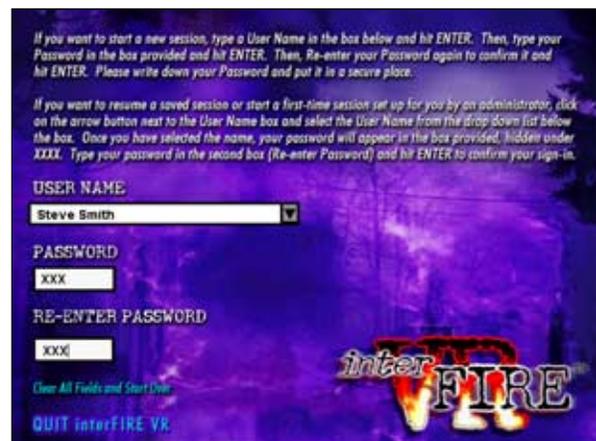
First, install the utility programs “QuickTime 4” and “Explorer 4.0.” To install, click the button for that program and follow the instructions. Once the installation is complete, you will be returned to this installer menu and can click on the button to install the next program. New computers will probably contain newer versions of *QuickTime* and *Explorer* than the versions that are on the *interFIRE* VR CD-ROM. If your computer contains newer versions and you try to load the version contained on the CD-ROM, a message will appear “A newer version is installed.”

Simply click “Cancel” and move to installing the next program. When you have finished installing *QuickTime* and *Explorer*, if necessary, move on to Step 4.

4. Now, install *interFIRE* VR by clicking “Install *interFIRE* VR.” Follow the installer instructions, clicking “Next”, “Agree” and “Finish” until the program is installed. When the installation is completed, you will see a message telling you so. Then, click the “X” at the top corner of the installer menu to close the installer menu.
5. To adjust the computer’s settings to run the program full-screen and at the proper color depth, double-click on “My Computer” on the desktop. Then, double-click “Control Panel,” then double-click “Display,” and slide the color dial to read “thousands of colors” or “millions of colors” and the Screen Resolution to read “640 x 480.” Click “Apply” and then “OK”. The computer is now ready to run the program.
6. To start *interFIRE* VR, go to the Task Bar at the bottom of the screen, click “Start,” move your cursor up to “Programs,” move the cursor over “*interFIRE* VR,” then click “*interfire.exe*”. If you would like to create a shortcut to the program, click “Start,” move your cursor up to “Programs,” move the cursor over “*interFIRE* VR,” then hold down the right mouse button while your cursor is on the fire icon and drag it out on the desktop. Release the mouse button. You can now start *interFIRE* by double-clicking this fire icon.
7. Once you have started the *interFIRE* VR software, you must first Log In. Follow the on-screen instructions to create a user file. Logging in with a password creates a file for your work. You can use your real name or any other user name you would like. The software only allows one file per user name, so if you want to start a new investigation from scratch, create a new user name.

This program can support ten or more students working separately and is designed to save all work for each user in an individual file. This permits you to spend whatever time you have available working on the investigation and save your work by exiting the program. The next time you open the Scenario under your user name and password, all your investigation work (interviews, photography, etc.) is restored to your file and you are returned to the same place you left off.

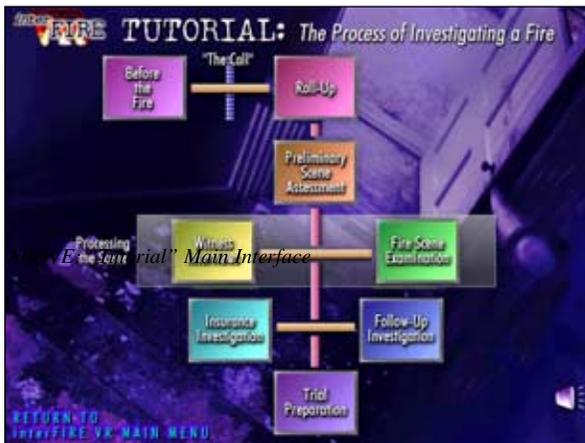
AT RIGHT: *Log-In Screen*



SECTION 2: LEARNING FROM THE TUTORIAL

Think of the Tutorial as a seminar covering all aspects of the fire investigation process from setting up and equipping a unit to trial testimony. You will be taught by some leading experts in their respective fields. You will learn from expert fire investigators, mechanical engineers, a pathologist, a AK-9 handler, an attorney, insurance investigators and others.

If you spend time reviewing the Tutorial, you will be rewarded by learning a proven, systematic approach to fire investigation. If you apply this approach to the fire scenes you work, you will gather more and better evidence at all types of fire incidents. [NFPA 921 Guide for Fire and Explosion Investigations](#), among other credible sources, requires systematic, objective collection of factual data to facilitate analysis and formulation of a hypothesis regarding cause using the principles of the scientific method. This Tutorial is a "best practices" systematic approach.

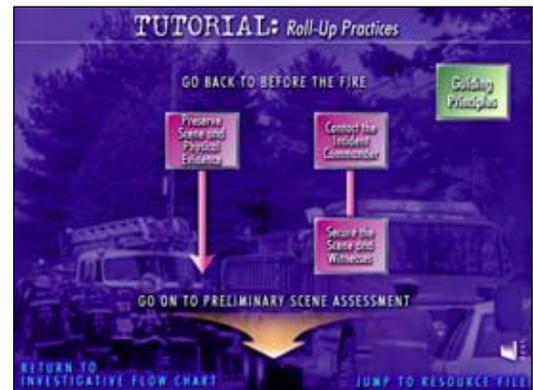


ABOVE: "Tutorial" Main Interface

On the sub-chart or timeline, it is recommended that you click on the boxes in order to review each step in sequence to gain an understanding of the entire process. If you are interested in only one step, click on that box to view a multimedia presentation. The presentation may be video, audio with stills, or text. To work the presentation, do the following:

- **FOR VIDEO:** Pause and Play the video by clicking on the Video Box. After you view a video clip once, it will not automatically restart every time you return to the screen. To play the video again, click on the Video Box.
- **FOR AUDIO AND STILLS:** Pause and Play the audio and stills by clicking on the Speaker button [speaker button graphic]. After you view an audio and stills presentation once, it will not automatically play again when you return to the screen. To play the presentation again, click the Speaker button.
- **FOR TEXT:** If the text portion of a step has more than once screen, use the MORE and BACK buttons to page through the text.
- **FOR LINKS:** Some steps have links to additional screens with more information. These links are denoted by colored words. Click on the colored words to follow the link.
- **TO RETURN:** Every screen has a "Return" button that will take you back to the previous screen.
- **TO PRINT:** To print the content of any screen, press the "P" key on your keyboard. This will print what is visible on the screen. If the section has multiple screens, you must print each screen individually using the "P" key. Make selections in the printer dialog box as you normally would.

The interFIRE VR Tutorial is a fire investigation protocol organized as a flow chart. The flow chart models the sections of the investigative process: Before the Fire, Roll-Up, Preliminary Scene Assessment, Witness Interview, Fire Scene Examination, Follow-Up investigation, Insurance Investigation, and Trial Preparation. Arrows connect the steps in this process. On this main screen, select any one of the boxes to view the sub-chart or timeline for the investigative actions under that section.



ABOVE: "Tutorial" Secondary Flow Chart

- **TO JUMP TO THE RESOURCE FILE:** Each Tutorial step links to additional, more detailed information on that topic in the Resource File. To see a list of topics covered, move your cursor over the **JUMP TO RESOURCE FILE** button. Once you are in the Resource File, return to the Tutorial using the "RETURN TO TUTORIAL" button. For more information on how to use the Resource File, see Section 3 of this Handbook.

To go on to the next step, click the arrow at the bottom of the sub-chart or timeline.

If your training goal is to learn the Tutorial's systematic approach from start to finish, follow this flow chart from beginning to end. For each stage in the protocol, begin by viewing the Guiding Principles, which will set the tone for what you will learn in this section. Then, move on to each specific step by clicking on the box for it. Click on the steps in order and listen to each step's explanation and view all the content under each protocol phase.

Your instructor may ask you to use the Tutorial in an alternate way. Here are some possibilities:

- **Topic-Specific** keys on a single skill and pulls out all the Tutorial sections related to that skill.
- **Procedures Check** helps compare your unit's operational method against interFIRE VR's national fire investigation protocol to help improve results.
- **Profession-Specific Pathways** show professionals who work at the fire scene how to pick out Tutorial sections that are of most relevance to their work.

Your instructor will provide you with directions on these ways to use the Tutorial. If you want to explore them for yourself, consult Section 2 of *The interFIRE VR User's Guide*.

You can also **REVIEW** the Resource File as a component of one of the Training Pathways suggested in this Student Handbook. **BROWSE** through the Resource File sections suggested in the Pathway you are following.

Each resource listed has an accompanying icon. These icons identify the type of resource:



HANDS-ON TOOLS are items like checklists that can be used in the field or referred to frequently.



FULL-LENGTH ARTICLES are reprinted from journals, monographs, and other published sources.



ABSTRACTS are brief descriptions of published articles with information on where to obtain the article.



BOOK REFERENCES are chapter and page citations for relevant material in textbooks.



TUTORIAL REFERENCES are pointers to interFIRE VR Tutorial sections.

SECTION 4 : WORKING THE SCENARIO INVESTIGATION

Think of the Scenario investigation as a "flight simulator" for fire investigators.

This "virtual reality" fire investigation was designed by experienced and successful public safety and private sector fire investigators. Every effort was made to create a realistic interactive scenario, an opportunity to learn or refresh knowledge and a challenge to the skills of any fire investigator, regardless of experience.

Here are some of the steps taken to make this case "real":

- A house was obtained, remodeled and furnished to the condition of an average home in an average suburban neighborhood that could be found anywhere in the country. This house was then set on fire and suppressed by the local fire department as any real house fire would be.
- All evidence and fire effects are as they actually happened during the burn. No items were altered, "staged," or "planted."
- Nine professional actors were hired to play the roles of people living and working in this average neighborhood. These actors knew only the details of their character and their relationships to other characters. They did not know "whodunit" or how it happened. They were not allowed to observe the fire unless their character was at the fire scene at the time of the fire. All their observations are real.
- The police and fire officials responding to this fire actually serve this community in those roles. They were not provided with any information and will respond to questions based on what they actually observed.
- The Accelerant Detection Canine Team you may tap to help process the scene is one of the ATF nationally certified AK-9 Teams. The handler was given no indication of the cause of this fire before the search. The canine alerts are real; evidence was not "planted" for the dog to find.
- The "5 Canal Street" house was fully instrumented with temperature and radiant heat flux measuring devices and videotaping equipment by Fire Protection Engineers from the Building and Fire Research Laboratory at the National Institute of Standards Technology (NIST) and Worcester Polytechnic Institute (WPI). This fire then was modeled and analyzed by Fire Protection Engineers who set up the instrumentation before the fire. A complete analysis can be found on www.interfire.org in the Feature Article entitled, "Full-Scale House Fire Experiment 5/6/98."

SCENARIO TIP:

Before you open your formal investigation into this incident, spend a few minutes practicing moving around the outside and inside of the house, zooming in (depress the Shift" key), zooming out (depress the "Ctrl" key), taking a photograph, collecting an item of evidence, conducting an interview or two, finding someone you want to talk with and using the AK-9 to search a room. This will familiarize you with how the program works. For this "practice run," register under a fictitious name and password to open the program. When you are ready, exit the software, restart, and begin again under your real user name.

Your challenge? - Solve this case!

START WITH THE RIGHT MINDSET

Experienced fire investigators who have "solved" this case have said the "virtual reality" fire scene is missing only the fire scene odor. Don't think of this as a computer game. Think of this as a real case and work it that way.

Can you figure out what happened at 5 Canal Street?

After dispatch, you will be "dropped" in front of the fire building. The apparatus is still on scene, as are a few civilian witnesses. The fire has just been extinguished. You are starting from scratch with little initial information beyond what the dispatcher provided. This situation closely mirrors real life—every fire investigation, including this one, develops from very little information at the start to a full picture at the end, depending on what the investigators can uncover.

HELP! WHERE DO I START?

Learning Pathway 3

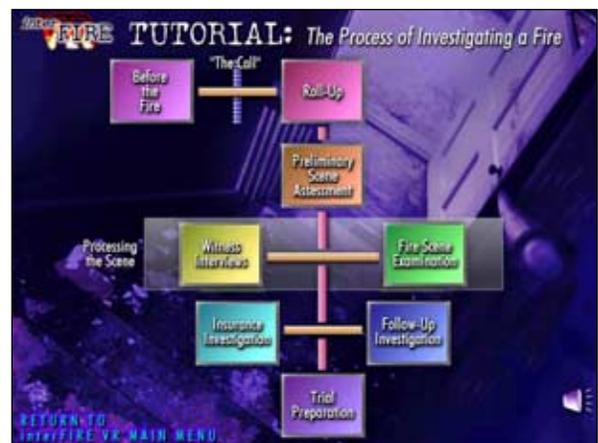
The interFIRE VR User's Guide lays out three Learning Pathways for the Scenario. For novice investigators, which most students are, the most directed Pathway is Learning Pathway 3. This Pathway is a step-by-step walk-through that applies the Tutorial fire investigation protocol to the Scenario virtual reality investigation. We suggest that students use this Pathway for their Scenario experience. However, your instructor may assign something different. For the other two pathways, please refer to *The interFIRE VR User's Guide*.

Consider keeping a notebook where you can write the details of the incident and any investigative leads uncovered. This notebook can be a valuable "off the computer" resource for putting together the case. You may wish to split the notebook into sections, such as "Witnesses," "Evidence," "Accidental Causes", "Leads to Follow Up", "Insurance/Financial Information", or other categories.

To work the Scenario in a directed way, follow these steps.

STEP 1: REVIEW THE TUTORIAL

It is recommended that you review the Tutorial before you begin the Scenario. Study the systematic fire investigation protocol in the flow chart to understand the tactical advantages of following this method closely. Review as much supporting information in the Resource File as possible.



AT RIGHT: "Tutorial" Main Interface

STEP 2: SELECT THE SCENARIO AND READ THE GAMEPLAY

Select "The Scenario" from the main menu. On the first screen, review the "Investigative Gameplay Description" to understand the organization of the Scenario and how its major functions are controlled. When you have finished, click "Answer the Call" and listen to the basic information provided by the dispatcher to you as principal investigator.



AT RIGHT: interFIRE VR Main Interface

STEP 3: CONSULT PROFESSIONALS

When you arrive at the fire scene, you will automatically be prompted to consult the Incident Commander first and then speak to the first responders. To do this, follow this procedure:

1. On the “Consult Professionals” screen, click “Incident Commander,” then click on the questions on the right to ask them of the Incident Commander. Listen to the responses and write down all pertinent information in your off-computer notebook.
2. When you have finished interviewing the Incident Commander, click “Consult Another Professional” in the lower right-hand corner of the screen. Now, interview both the First Responding Officer and the First-In Firefighter in the same way.



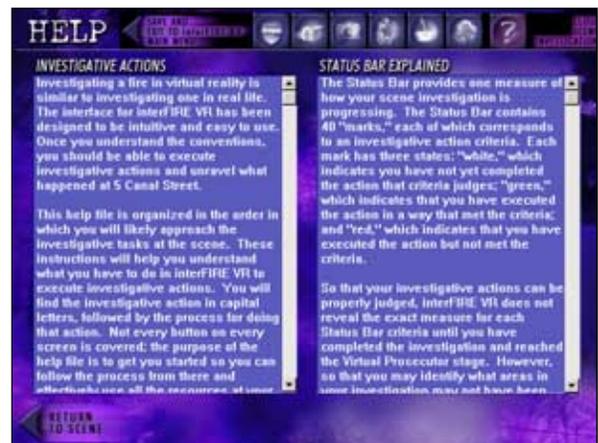
AT RIGHT: “Consult Professionals” Main Interface

3. On the screen for the First-In Firefighter, you may also “Request A Walkthrough With the First-In Firefighter” at this time, or wait until you have viewed the scene first. This walkthrough will allow you to ask questions about the various areas of the house and what the first-in firefighter observed when entry was made.
4. When you have finished interviewing all professionals, click “Return to Scene” on the “Consult Professionals” main screen. This will bring you back to the main virtual reality screen.

STEP 4: UNDERSTAND HOW THE SCENE INVESTIGATION WORKS

Before you begin taking investigative actions at the scene, click the “? HELP” button in the toolbar at the bottom of the “5 Canal Street Scene Investigation” main frame, hereafter referred to as “MAIN.” This Help frame explains the technical aspects of how the features of the software are used to execute investigative actions.

This screen also explains the Status Bar, which is tracking your progress in the Scenario investigation. Thoroughly review this text before continuing. Refer to this screen any time you want to know how to execute a common investigative action. Or, you may also refer to Scenario Learning Pathway 2 in The interFIRE VR User’s Guide, which contains much of the same content as the online HELP button. When you have finished, click “Return to Scene.”



ABOVE: “Help” Screen

– PAUSE AND DECIDE HOW TO CONTINUE –

At this point, pause and consider if you want to now try the scene investigation on your own. If you do, do not read further because the following steps will walk you through the main Scenario actions. After you attempt the investigation on your own, return to this point in the Handbook and start a new investigation, following the protocol outlined below. Compare that approach to the approach you took on your own. How closely did your process follow the recommended one? What were the advantages of the recommended protocol? What additional things did you learn from the recommended protocol? How did your theory change? How will you modify your approach in light of this recommended protocol?

If you want to continue with the step-by-step walkthrough at this time, read on.

STEP 5: SECURE THE SCENE

When you first begin the Scene Investigation, you may be tempted to plunge right into the origin and cause examination and begin recovering evidence. In this exercise, as in a real fire investigation, you must first secure the scene and witnesses, or risk having physical evidence contaminated and witnesses leaving the scene. These two actions are very important and failure to properly complete these actions can jeopardize the investigation. Review the Tutorial protocol if you have any questions about the importance of these actions.

To properly secure the scene in the virtual reality investigation:



ABOVE: Securing the Scene



1. From MAIN, click the “Pointing Finger (Give Instructions)” button.
2. Select “Secure Scene”.
3. Click on and execute each action on this screen, beginning with "Define Perimeter Area," then "Secure Witnesses," then "Specify Door for Scene Access." If you are unsure what door to restrict access to, find out from the First-In Firefighter which door was used to make entry. To do this, return to MAIN, select the "Badge (Consult Professionals)", then "First-In Firefighter" then "Request A Walkthrough with the First-In Firefighter." Observe which areas are most damaged. The most damaged area in an average fire is likely to be the fire's area of origin. The origin area usually contains the most productive evidence of causation and criminal activity; thus this area should be cordoned off until the investigator has sized-up the entire fire scene. You will not want to choose a door that directly accesses this area because you do not want evidence trampled or tracked around. Also consider which door is more convenient for the investigative team to use, and balance these two factors in your choice of scene access door.

STEP 6: PUT THE TEAM TO WORK

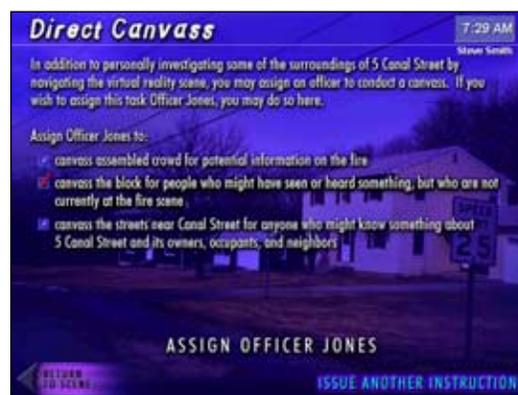
For best results, a fire investigator should implement the “Team Concept,” as outlined in the Tutorial. Although interFIRE VR acknowledges that there are circumstances in which investigators work alone, the “Team Concept” is recommended to maximize safety and maximize the probability that the case will be solved.

In the Scenario, you direct every stage of this investigation as if you are the lead investigator. Therefore, you have been given two police officers to assist you with some investigative tasks. Put them to work as soon as you can. Two critical tasks for these officers are to canvass the area (most important information will likely come from people closest to the scene) and locate persons for interview. To assign officers to these tasks, do the following:



DIRECT CANVASS

1. From MAIN, select the “Pointing Finger” (Give Instructions) button, then select “Direct Canvass.”
2. Assign Officer Jones to canvass one of the possible locations. After you make this assignment, it will take some time for Officer Jones to complete it. You will be notified on MAIN when he has results for you.
3. Then, return to the “Direct Canvass” screen and send Officer Jones out again to canvass a different area.
4. Repeat this process until all canvasses are complete.



ABOVE: Directing A Canvass



LOCATE PERSONS

1. The second officer will help locate a number of witnesses you want to talk to. Select “Locate Person” from the “Give Instructions” screen.
2. Send Officer Smith to find one of the people listed. You may wish to start with the injured passerby jogger who was taken to the hospital, as the First Responding Officer informed you. Again, it will take time for Officer Smith to complete the assigned task. You can keep track of the time using the clock at the top right of the screen. When Officer Smith returns, you will be notified on MAIN.
3. Then, send her to find another person. Repeat this process until all persons have been located. The list of persons you can send Officer Smith to find will grow as you investigate the scene and talk to witnesses. Check back on the “Locate Person” screen often to see your options. Keep track of this activity in your off-computer notebook. Keep track of this activity in your off-computer notebook. Note that each police officer will accomplish the specific instructions you give and then wait for another instruction. To get the maximum benefit from their assistance, dispatch them on another assignment immediately after they finish the previous task.



ABOVE: Locating Persons

STEP 7: CONDUCT PRELIMINARY SCENE ASSESSMENT (SIZE-UP)

Before conducting the preliminary scene assessment, make sure you have spoken to all the responding professionals and walked through the scene with the First-In Firefighter. To conduct the walkthrough:



1. Click “Badge” (Consult Professionals) on MAIN, select “First-In Firefighter” and select “Request Walkthrough with the First-In Firefighter.”
2. On the map of the home, select each room and then ask the First-In Firefighter questions about his observations and actions at the scene.
3. When the walkthrough is finished, return to MAIN.



AT RIGHT: First-In-Firefighter Walkthrough

When you have completed the walk-through, use the Virtual Reality scene to get a first-hand look at the incident. To do this:



1. On MAIN, place your cursor over the VR box and hold down the left mouse button.



2. Slide the mouse from side to side and up and down to turn around in the scene. This will allow you to observe all areas of the room you are in from a wide angle.



3. To view individual objects and areas in the room, release the mouse button and move the mouse over the VR box. When the cursor changes to a “hand,” click there to view that area in more detail. Right now, you do not want to go into too much detail; you just want an overall understanding of the scene and the fire flow.



4. To move to another part of the scene, move the mouse around over the VR box without the mouse button down. When the cursor changes to a “thick arrow,” click there to move in that direction. Go throughout the house, on both floors and in the basement. Go out through the garage and into the backyard.



ABOVE: Using the Virtual Reality Scene

In the preliminary scene assessment, do not confine your attention to just the fire building. In every crime scene, the perpetrator must approach from somewhere to gain entry and then leave by an escape route. These pathways often contain critical evidence discarded by the criminal.

Make notes in your off-computer notebook as your investigation progresses.

STEP 8: INTERVIEW THE FIRST WITNESS

Now that you have a good overall picture of the scene, start interviewing witnesses. From MAIN, select “Interviewer (Interview Witnesses).” This will bring you to a menu of witnesses that you may interview. The only witness you can initially interview is the E911 caller, Mary Gilbert, who lives next door to the fire building. In many real-life investigations, the E911 caller is sometimes the only known early witness. These early witnesses are often critical because they were usually close to the fire and many have details on how it started, what caused it, and who else was present.

This menu of witnesses will grow as you investigate the scene and identify more witnesses, either through your own interviews or completion of assignments you give to the two police officers. Check the witness menu often, especially after notifications that witnesses have arrived.

Begin by interviewing Mary Gilbert, the neighbor. To do this:



1. Click on her picture on the “Interview Witnesses” screen.
2. Review the information provided, then click “Begin the Interview.”
3. Click on questions to ask them and note the witness’ responses, paging through pages of questions with the “MORE>” and “<BACK” buttons.
4. As you ask questions, the witness’ responses will compile in a written Witness Statement. View this witness statement from MAIN by selecting “Pen and Paper (Review Case File)” then “Witness Statements,” then the Witness’ name. Comparing witness statements will allow you to corroborate accounts.



AT RIGHT: Interviewing Witnesses



ABOVE: Interviewing Witnesses

STEP 9: SIZE-UP THE FIRE SCENE AND BEGIN DOCUMENTATION

After you make your preliminary assessment and conduct initial witness interviews, begin to document the fire scene. Documentation provides a visual and written record of the investigation that will be referred to again and again as the investigation progress and the case comes to trial. First, take overall photographs of the exterior and interior of the building before anything is disturbed. To do this:



PHOTOGRAPHS

1. Navigate to the area in the VR scene that you want to photograph (see Step 7 for directions).
2. Click the “Camera (Photograph)” icon when you want to take a picture of the area or item you are viewing. Remember that you are limited to 72 photographs. Use them wisely and save at least 20 pictures to use



ABOVE: Documentation—Taking Photographs

when you collect specific pieces of evidence during the investigation. The number of photographs you have left will display whenever you mouseover the “Camera (Photograph)” button on MAIN.

3. To review your photographs, click the “Pen and Paper (Review Case File)” button on MAIN and then select “Photographs.” You can review all your photos and make notes on them by typing in the box provided.

During this size-up, determine the security condition of all doors and windows that provide access to the fire building. Note the condition of these doors and windows on your Scene Diagram by doing the following:



DIAGRAM

1. Select “Diagram” from the “Review Case File” screen.
2. To note the condition of doors and windows, drag and drop either an “Open and Unlocked” or a “Closed and Locked” icon over each door and window on the diagram.
3. As you collect evidence, you will also drop evidence markers on this diagram. See Step 10 for more information on the evidence collection procedure.

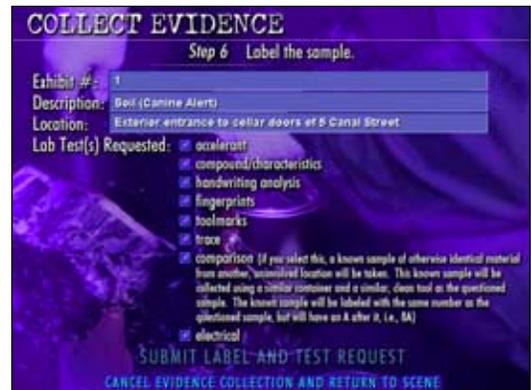


AT RIGHT: Documentation–Scene Diagram

STEP 10: EXAMINE THE SCENE, ELIMINATE ACCIDENTAL CAUSES AND BEGIN COLLECTING EVIDENCE

By this point, you should have begun to develop an emerging picture of the incident, the persons involved, and what further investigative leads you need to pursue. Now, most of your work will be focused on interviewing witnesses as they arrive, performing a detailed examination of the scene, collecting evidence and documenting your work.

To examine the scene in detail, navigate the VR movie as described in Step 7. This time, focus on each “hotspot” (the areas where the “hand” cursor appears) and thoroughly explore each item in the room of origin. Trace the fire flow by examining damage on furniture, floors, and walls. Determine where the area of fire origin is, then examine potential accidental causes in that area, including lamps, wall outlets, and appliances. Document evidence of electrical failure, or lack thereof, with photographs.



ABOVE: Evidence Collection Process, STEP 6

Collect items of evidence using the following process:

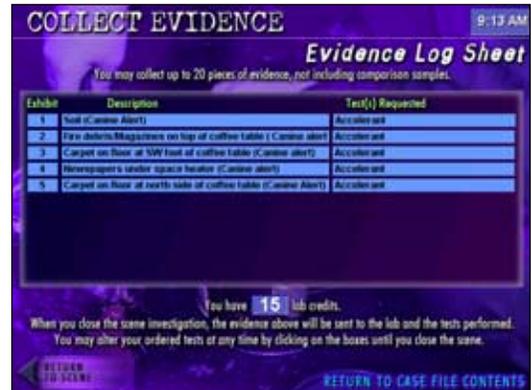
1. Once you have navigated to the item in the VR, click the “Collect As Evidence” button on that item’s details screen.
2. Click through the screens to Take a Photograph and Change Gloves.
3. Make your choices on the next screens to select a container, select a collection tool, and select lab tests. Click on the box of the item you want to specify (container, tool, and tests), then click Submit to move to the next step. Enter pertinent information as directed to on screen.
4. When prompted, drag and drop an evidence cone on the diagram at the location where you collected the evidence:
 - 4a. Select the floor you are on from the menu on the right.
 - 4b. Grab the cone by placing the cursor over the icon, pressing the left mouse button, then rolling the mouse until the icon is over the location where you collected the item.
 - 4c. Release the mouse button. The icon will drop and display the Exhibit Number for that piece of evidence. After you have dropped the evidence marker, click the button at the bottom of the screen to go on.

For a more detailed explanation of the evidence collection procedure, please see *Learning Pathway 2*.

The software keeps an Evidence log of all the items you collect. To review the Evidence Log:



1. From MAIN, click “Pen and Paper (Review Case File)”, then “Evidence Log.” You can then see all the information about the item collected.
2. If you want to change the tests requested, click on the test in the list, and then change your selections by clicking to check and uncheck the boxes. Then click “Submit Label and Test Request” to save your changes. Be judicious about the items you collect and the lab examinations you request. Remember, you are limited to 20 items of evidence. At the bottom of the Evidence Log, the number of lab credits tells you how many more items of evidence you can collect.



ABOVE: Using the Evidence Log

Take the time to really explore the scene, photographing and collecting as you go. Make notes in your off-computer notebook of leads to explore.

SCENARIO TIP: YOU CAN ONLY COLLECT 20 ITEMS OF EVIDENCE.

This is to simulate the resource restraints that investigators will face in the field. Make sure you manage your evidence collection wisely by collecting only evidence that helps you establish the cause and responsibility for the fire.

Also, only order laboratory examinations that will help you establish how this piece of evidence is related to the crime and helps prove what happened and who is responsible.

STEP 11: EMPLOY CANINE UNIT

In the course of the scene examination, make use of the Canine Unit at your disposal by clicking the “Dog (Call Canine Unit)” button on MAIN. Then, request that the canine unit search different areas of the scene by doing the following:



1. Select the general area of the location from the menu on the left (“Exterior Grounds”, “Basement”, “First Floor”, or “Second Floor”).
2. Select the room to search from the diagram on the right.
3. If the accelerant detection canine alerts at a location, collect a debris sample from that location using the button “Collect Evidence from the Canine Alert in this Room” so the laboratory can verify the alert with an ignitable liquids test. Then, continue with the Evidence Collection procedure described in Step 10.



ABOVE: “Dispatch Canine Unit” Main Interface

STEP 12: GO FOR IT!

If you have followed the previous eleven steps, you now know how to do all the basic functions at the Scenario scene. Now, continue doing these actions—interviewing witnesses, examining items, collecting evidence, sending your officers to accomplish tasks, keeping your case file, documenting—until you have a hypothesis of causation supported by evidence. Keep track of your progress by monitoring green “ticks” on the Status Bar (further explained in *Section 5: Understanding the Virtual Prosecutor Feedback*). When you are ready, move on to the Follow-Up Investigation by clicking “Close Scene Investigation” on MAIN.

STEP 13: SPECIFY ORIGIN AND CAUSE DETERMINATION

Once you have clicked “Close Scene Investigation,” select “Yes” to wash the floor in the living room and examine any burn patterns revealed. To do this, navigate the VR movie as described in Step 7. Take photographs as necessary. When you are finished, click “click here to close the scene and make your origin and cause determination.” Make this determination by following these steps:



ABOVE: “Incendiary” Determination

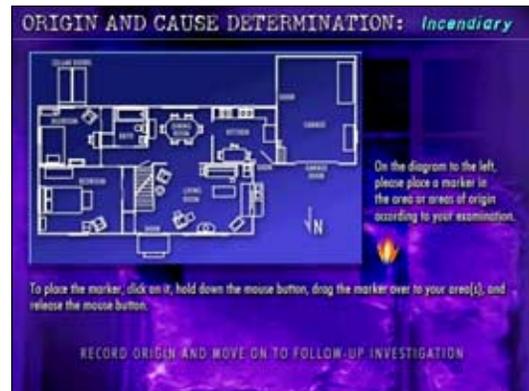


ABOVE: “Accidental” Determination



ABOVE: Origin and Cause “Undetermined”

1. Select whether the cause was “Accidental”, “Incendiary”, or “Undetermined” by clicking on the appropriate button.
2. As directed on the screen, specify the factors and evidence that support your determination. If your determination is correct, you will move on. If not, you will receive corrective feedback and will be sent back to the scene for further investigation.
3. When you have established the cause and have properly supported it with facts, you will be asked to specify the origin. To mark the origin, drag the “Fire” icon over the area of origin by clicking and holding down the mouse button over the icon, dragging the mouse over where you think the origin is, and releasing the mouse button to drop the icon. If you are correct, the Fire icon will “stick” on the diagram. If you are incorrect, the icon will pop back to its original position. Continue attempting to specify the area of origin until the icon sticks.
4. After the Fire icon sticks, click “Record Origin and Move on to Follow-Up Investigation”.



AT RIGHT: Origin and Cause Determination

SCENARIO TIP:

Remember: In this fire scene investigation exercise, as in a real fire investigation, you must base your scene classification on physical evidence and first hand accounts that corroborate the existence of evidence or some condition (i.e. a locked door had been forced opened by a would-be rescuer) justifying a conclusion (the building had been secure). In the Follow-Up Investigation, you will be able to review Lab Reports, Fire Incident Reports, Police Reports, Insurance Documents, Financial Records, and other items as you prepare a case for presentation to the Virtual Prosecutor.

STEP 14: FOLLOW-UP INVESTIGATION

In the Follow-Up Investigation, you can review your work at the scene and examine documentation collected in the Follow-Up phase. The buttons on this screen access the following information.

- Review the Case File you built at the scene by choosing “Photographs,” “Diagram,” “Witness Statements,” and “Evidence Log.”
- The results of the lab tests you ordered on collected evidence can be reviewed under “Lab Reports.”
- To review the reports filed by professionals who responded to the scene, select “Fire Incident Reports” and “Police Report.”
- To review possible financial motive for the fire, review the information under “Insurance Documents” and “Financial Records.”
- “Miscellaneous” contains some follow-up on a few additional items from the Scenario, depending on what actions you took at the scene.

While reviewing these documents, concentrate on matching physical evidence to witness statements to document evidence. Look for inconsistencies between one witness’ statement and other witness’ statements, physical evidence or document evidence.

Further refine your theory of the case, what happened, how the fire started, who was responsible, and what additional steps need to be taken in this case. Take notes in your off-computer notebook as necessary.

When you are ready to present your case to the Virtual Prosecutor, click “Case Summary” to proceed. You will be asked questions about your investigative conclusions, so make sure you are prepared!

STEP 15: VIRTUAL PROSECUTOR

Answer the five questions posed in the Case Summary by typing in the fields provided. Take your time with these answers; later on you will be able to analyze them in comparison to the “full and complete” answer from the “Virtual Prosecutor” who knows everything about the case. Take the time to fully explain all of the factors that you would cite in a comprehensive report and testify to on the witness stand in a criminal trial as an expert and the lead investigator of the 5 Canal Street fire.

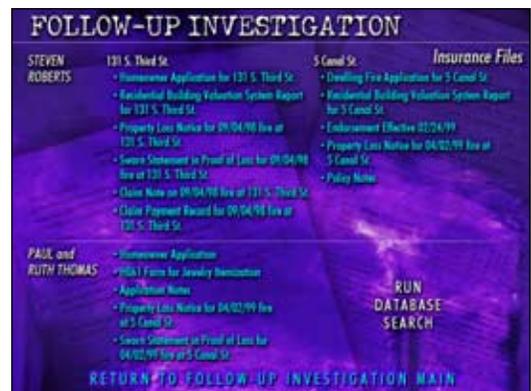
At the end of the investigation, you will have the opportunity to



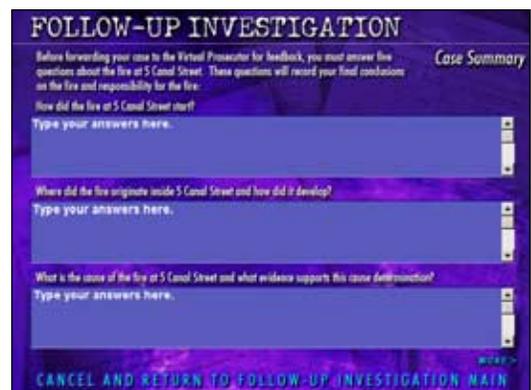
ABOVE: Conducting the Follow-Up Investigation



ABOVE: Reviewing Lab Reports



ABOVE: Conducting the Insurance Investigation



ABOVE: The “Case Summary”

compare your responses against the “Virtual Prosecutor,” who knows every detail of the origin and cause and criminal investigation. This valuable learning experience will enable you to see if you missed any important clues or if you “nailed” the case. You will also see, point-by-point, how you performed on the “Status Bar” requirements of the protocol. Each point explains the advantage of a particular step in the investigation.

When you have finished, “Submit Answers and Send Your Completed Case File to The Virtual Prosecutor for Feedback.” You will then be brought to the Virtual Prosecutor screen. For more information on how to interpret the results of your investigation, see the next section of this Student Handbook, *Understanding the Virtual Prosecutor Feedback*.

SECTION 5: UNDERSTANDING THE VIRTUAL PROSECUTOR FEEDBACK

InterFIRE VR measures your investigation against the Virtual Prosecutor's standard and provides you with an opportunity to see how you can improve your next investigation. This section of the Handbook helps you understand the basics of the Virtual Prosecutor's feedback. For more detailed information, consult your instructor or *The interFIRE VR User's Guide*.

If you want to work the Scenario again without knowing "the answer," do not view "The Origin," "The Cause," "Case Summary," or "Case Solution" because these choices will reveal the person who was responsible and how the fire occurred.

You can print a composite of most of the Virtual Prosecutor feedback by clicking "Print Your Scenario Investigation Report" on the Virtual Prosecutor main. Here are the elements of the Virtual Prosecutor's feedback.

Case File

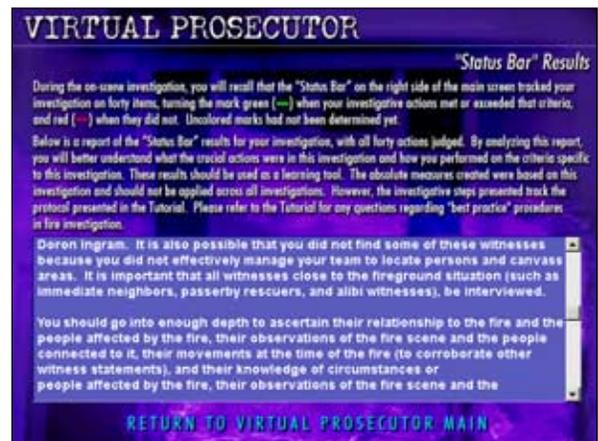
"Case File" contains all of the documentation you compiled during the course of the investigation: Photographs, Diagram, Witness Statements, Evidence Log, Lab Reports, Fire Incident Reports, Police Report, Insurance Documents, Financial Records, and Miscellaneous. The Case File will help you understand some of the elements of the incident, such as financial motive, that are listed in the Case Summary, as well as show how you fulfilled the Status Bar requirements. You may want to refer to this Case File as you review the rest of the Virtual Prosecutor feedback. If you have an instructor, he or she may want to review your Case File with you to determine how well you covered certain areas, such as Photographs taken, Diagram notations made, questions asked of witnesses (and recorded in their Statements), and Evidence collected.



ABOVE: Reviewing Your Case File

"Status Bar" Results

"Status Bar' Results" details how you performed on each of the forty measures of how well you investigated the scene. This text file lists the Criteria, whether or not you met it, and why this action is important. In this feedback piece, you can also learn the investigative advantages of performing each of these steps. The chart below summarizes Tutorial sections to review for criteria you failed to fulfill.



ABOVE: Status Bar Results

STATUS BAR CRITERIA	TUTORIAL SECTIONS TO REVIEW
1. Interview the Incident Commander First	<ul style="list-style-type: none"> • Roll-Up > Contact the Incident Commander • Preliminary Scene Assessment > Get Basic Incident Information
2. Interview First Responding Unit	<ul style="list-style-type: none"> • Preliminary Scene Assessment > Get Basic Incident Information • Witness Interviews > Conduct Interview and Re-Interview Witnesses
3. Interview First-In Firefighter	<ul style="list-style-type: none"> • Preliminary Scene Assessment > Get Basic Incident Information • Witness Interviews > Conduct Interview and Re-Interview Witnesses
4. Walk Through With First-In Firefighter	<ul style="list-style-type: none"> • Preliminary Scene Assessment > Walkthrough with First Respondent
5. Setting the Point of Ingress/Egress	<ul style="list-style-type: none"> • Roll-Up > Preserve Scene and Physical Evidence • Roll-Up > Secure the Scene and Witnesses
6. Setting the Perimeter	<ul style="list-style-type: none"> • Roll-Up > Preserve Scene and Physical Evidence • Roll-Up > Secure the Scene and Witnesses
7. Inspect Security of Doors and Windows	<ul style="list-style-type: none"> • Preliminary Scene Assessment > Size-Up the Structure
8. Right of Entry	<ul style="list-style-type: none"> • Preliminary Scene Assessment > Secure the Right to Enter
9. Examine the Woods	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow
10. Exterior "Size-Up"	<ul style="list-style-type: none"> • Preliminary Scene Assessment > Size-Up the Structure
11. Securing Witnesses	<ul style="list-style-type: none"> • Roll-Up > Secure the Scene and Witnesses
12. Canvassing the Crowd	<ul style="list-style-type: none"> • Witness Interviews > "Work the Crowd"
13. Canvassing the Block	<ul style="list-style-type: none"> • Witness Interviews > "Work the Crowd"
14. Walkthrough with the Tenant	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Witness Interviews > Conduct Interviews and Re-Interview Witnesses • Witness Interviews > Corroborate Information
15. Location of Living Room Contents	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Reconstruct Scene • Witness Interviews > Conduct Interviews and Re-Interview Witnesses • Witness Interviews > Corroborate Information
16. Interviewing Tasha Gilbert (minor child)	<ul style="list-style-type: none"> • Witness Interviews > Approach the Witness • Witness Interviews > Secure Consent
17. Photographing the Scene	<ul style="list-style-type: none"> • Fire Scene Examination > Document the Scene
18. Tracking and Tracing Information from Witnesses	<ul style="list-style-type: none"> • Witness Interviews > Conduct Interviews and Re-Interview Witnesses
19. Interviewing Material Fact Witnesses (Martin Wakiza, Mary Gilbert, Tasha Gilbert, Lily McCray, Dan Mezzi, Doron Ingram)	<ul style="list-style-type: none"> • Witness Interviews > Prioritize Witnesses • Witness Interviews > Approach the Witness • Witness Interviews > Secure Consent • Witness Interviews > Conduct Interviews and Re-Interview Witnesses • Witness Interviews > "Work the Crowd"
20. Interviewing Fleeting Witness (Meghan Branigan)	<ul style="list-style-type: none"> • Witness Interviews > Prioritize Witnesses • Witness Interviews > Approach the Witness • Witness Interviews > Secure Consent • Witness Interviews > Conduct Interviews and Re-Interview Witnesses

STATUS BAR CRITERIA	TUTORIAL SECTIONS TO REVIEW
21. Interview Owner (Steven Roberts)	<ul style="list-style-type: none"> • Witness Interviews > Conduct Owner Interview • Witness Interviews > Prioritize Witnesses • Witness Interviews > Approach the Witness • Witness Interviews > Secure Consent • Witness Interviews > Conduct Interviews and Re-Interview Witnesses
22. Interview Tenant #1 (Paul Thomas)	<ul style="list-style-type: none"> • Witness Interviews > Prioritize Witnesses • Witness Interviews > Approach the Witness • Witness Interviews > Secure Consent • Witness Interviews > Conduct Interviews and Re-Interview Witnesses
23. Interview Tenant #2 (Ruth Thomas)	<ul style="list-style-type: none"> • Witness Interviews > Prioritize Witnesses • Witness Interviews > Approach the Witness • Witness Interviews > Secure Consent • Witness Interviews > Conduct Interviews and Re-Interview Witnesses
24. Canine Unit Search of Living Room 25. Canine Unit Search of Outside Area	<ul style="list-style-type: none"> • Fire Scene Examination > Use Canine Units
26. The Tire Print	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Collect and Preserve Evidence > Impressions (Footprint, Tire Prints, Toolmarks)
27. Bottle in the Woods	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Collect and Preserve Evidence > Fire Debris (for ignitable liquids testing) • Fire Scene Examination > Collect and Preserve Evidence > Fingerprints
28. The Fiber	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Collect and Preserve Evidence > Fiber • Fire Scene Examination > Collect and Preserve Evidence > Fabric and Textiles
29. The Space Heater 30. The Outlet Behind the Couch 31. The Boiler 32. The Electrical Breaker Box 33. The Extension Cord Cluster Plug 34. The Lamp In the Corner 35. The Electrical Appliance in the Northwest Corner 36. The Duplex Outlet in the Northwest Corner	<ul style="list-style-type: none"> • Fire Scene Examination > Eliminate Accidental Fire Causes • Also access specific information on individual accidental causes by using the JUMP TO RESOURCE FILE button on this Tutorial screen.
37. Washing the Floor	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow
38. Examining the Room of Origin	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Document the Scene • Fire Scene Examination > Reconstruct Scene
39. Photographing Key Items	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Document the Scene
40. The Scene Diagram	<ul style="list-style-type: none"> • Fire Scene Examination > Document the Scene

The Origin

“The Origin” presents a diagram that shows the origin of the fire in comparison to where you placed your origin “Fire” icon. Compare your notation with the correct Origin. If you had difficulties specifying the origin, review the Tutorial sections “Fire Scene Examination > Examine the Scene and Analyze Fire Flow” and “Fire Scene Examination > Make Origin and Cause Determination.” Note the pattern indicated on the correct Origin specification.

The Cause

“The Cause” presents the correct answers that support the cause determination. In addition, all of your attempts to specify a cause are appended into a text file. Here, you can view how your understanding of the cause developed, including incorrect determinations and the feedback you received on them. Use this section to more fully understand the mistakes and corrections you made to the cause determination to arrive at the correct one.

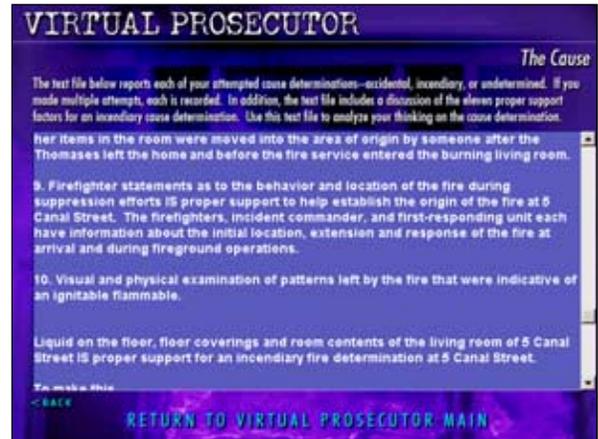
If you identify difficulties with understanding how to eliminate accidental causes, review the Tutorial section “Fire Scene Examination > Eliminate Accidental Fire Causes” and the Resource File material accessed from that screen. If you had difficulties specifying proper support for an incendiary cause determination, first review the feedback given in the text file compilation of your attempts. Then, review the Tutorial section “Fire Scene Examination > Make Origin and Cause Determination.” Finally, review the following topic-specific Tutorial sections:

- Roll-Up > Contact the Incident Commander
- Preliminary Scene Assessment > Get Basic Incident Information
- Fire Scene Examination > Examine the Scene and Analyze Fire Flow
- Fire Scene Examination > Use Canine Units
- Fire Scene Examination > Eliminate Accidental Fire Causes
- Witness Interviews > Conduct Interviews and Re-Interview Witnesses

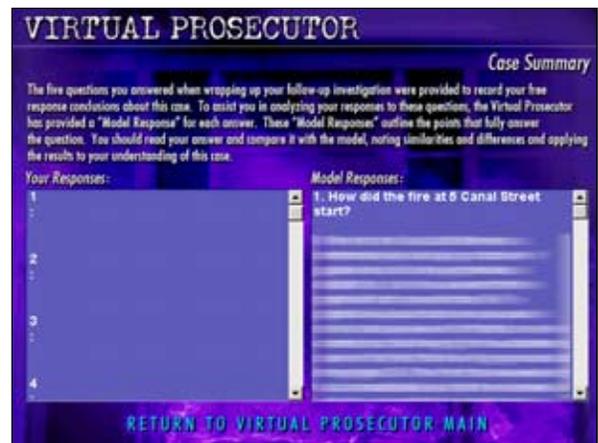
Case Summary

“Case Summary” provides a side-by-side comparison of your responses to the five Case Summary questions with full and complete “model” responses from the “Virtual Prosecutor.” Compare your response to each question with the model response. What points did you correctly identify? What details did you miss? On what points were you incorrect?

For each question, the table below lists both Scenario Case File sections and Tutorial sections that will help support the specifics of the model answer in this case, as well as the general procedures used to arrive at the conclusion. The Scenario Case File sections can be accessed from the Virtual Prosecutor Main Screen by clicking on “Case File.”



ABOVE: Understanding “The Cause”



ABOVE: Reviewing the “Case Summary”

QUESTION	SCENARIO CASE FILE	TUTORIAL SECTION
1. How did the fire at 5 Canal Street start?	<ul style="list-style-type: none"> • Lab Reports (especially for the canine alerts) • Photographs of the area of origin <p>ALSO:</p> <ul style="list-style-type: none"> • The Origin determination • The Cause determination 	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Collect and Preserve Evidence > Fire Debris • Follow-Up Investigation > Interpret Forensic Lab Results > Fire Debris and Ignitable Liquids Classification table
2. Where did the fire originate inside 5 Canal Street and how did it develop?	<ul style="list-style-type: none"> • Lab Reports (especially for the canine alerts) • Photographs of the scene • Diagram of the scene, with doors and windows condition noted • Witness statements of Dan Mezzi, the jogger who attempted rescue, • Fire Reports, Police Report, and information from the Incident Commander, and the First-In Firefighter. <p>ALSO:</p> <ul style="list-style-type: none"> • The Origin determination 	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Collect and Preserve Evidence > Fire Debris • Follow-Up Investigation > Interpret Forensic Lab Results > Fire Debris and Ignitable Liquids Classification table
3. What is the cause of the fire at 5 Canal Street and what evidence supports this cause determination?	<ul style="list-style-type: none"> • Lab Reports for fire debris, door ways and locks, and possible ignitable liquid containers and wrappers • Evidence Log of physical evidence recovered • Photographs, especially of the elimination of accidental causes, including the space heater • Lab Reports for canine alerts • Diagram of the scene, with doors and windows condition noted • Witness Statements from the owner (Steven Roberts), the tenants (Paul and Ruth Thomas), and the jogger (Daniel Mezzi) about the condition of the structure before the fire, their actions at the time of the fire, the condition of doors and windows in the structure, and the individuals with key access to the home. • Fire and Police Reports of first responder activities <p>ALSO:</p> <ul style="list-style-type: none"> • The Cause determination 	<ul style="list-style-type: none"> • Fire Scene Examination > Examine the Scene and Analyze Fire Flow • Fire Scene Examination > Collect and Preserve Evidence • Follow-Up Investigation > Interpret Forensic Lab Results • Fire Scene Examination > Eliminate Accidental Causes • Witness Interviews > Conduct Interviews and Re-Interview Witnesses
4. Who set this fire and what evidence supports your conclusion?	<ul style="list-style-type: none"> • Evidence Log of physical evidence recovered • Lab Reports, especially of fire debris and possible ignitable liquid containers and wrappers • Lab Reports of trace evidence and fingerprints found at the scene • Financial Investigation records 	<ul style="list-style-type: none"> • Witness Interviews > Conduct Interviews and Re-Interview Witnesses • Witness Interviews > Conduct Owner Interview • Follow-Up Investigation > Interpret Forensic Lab Results • Follow-Up Investigation > Consult

	<ul style="list-style-type: none"> • Insurance Investigation records and database search • Witness Statements, especially the owner (Steven Roberts) and tenants (Paul and Ruth Thomas), on the topics of who had access to the scene and what the pre-fire condition of the scene was and pre-fire activity of witnesses • Witness Statement of Tasha Gilbert and what she observed the morning of the fire • Witness Statements of Deanna Kelly and Ronaldo Reyes • Witness Statement of Doron Ingram • Witness Statement of Meghan Branigan about a car she observed and the Lab Report for that print 	<p>Additional Sources of Information</p> <ul style="list-style-type: none"> • Follow-Up Investigation > Conduct Financial Investigation • Follow-Up Investigation > Search Electronic Databases • Insurance Investigation > Know How to Use Insurance Information • Insurance Investigation > Understand and Request Insurance Information • Insurance Investigation > Consult Insurance Personnel • Insurance Investigation > Interpret Insurance Records • Insurance Investigation > Search Electronic Databases
5. What additional steps would you take in this investigation to formulate a case against the responsible party?	[N/A]	<ul style="list-style-type: none"> • Witness Interviews > Conduct Suspect Interview • Entire Follow-Up Investigation section • Fire Scene Examination > Use Canine Unit • Entire Insurance Investigation section • Fire Scene Examination > Collect and Preserve Evidence

Case Solution

“Case Solution” plays a reenactment of how the fire occurred. Watch this video and think critically about how your theory of the case compares to what actually happened.

- How does your sequence of events preceding and after ignition compare to the actual sequence of events?
- How does your origin and cause determination compare to what you see in the video?
- How did the canine alerts, physical evidence recovered, and damage patterns observed compare to the effects of the actions at the time of fire ignition?
- How did your theory of how the fire started compare to what actually happened?
- How did your elimination of accidental causes compare to potential accidental causes seen in the video?
- How does your determination of who was responsible compare to who was actually responsible?
- How does the physical evidence deposited at the scene compare to the physical evidence you recovered?
- Did you find everything, including fingerprints?
- How does the video reenactment compare to your theory of how the fire occurred? Can you reconcile the differences between the statements of the tenants as to how they left the living room and the physical evidence present post-fire?
- How does your theory of how the scene was accessed compare to the actual access method?
- How does the actual movement of the fire compare to your theory?



ABOVE: Reviewing the “Case Solution”

SECTION 6: PARTICIPATING IN *www.interfire.org*

The fourth leg of the interFIRE VR training program is a web site dedicated to keeping members of the fire investigation community up to date on important legal and technical information affecting their field. Available from anywhere with an Internet connection, this web site contains powerful features that make it an important, daily resource.

You can connect to www.interfire.org directly from the interFIRE VR software by clicking the button “CONNECT TO www.interfire.org” on the main software menu accessed after you sign-in. You must have an Internet connection open for the www.interfire.org web site to display. If you have a dialup connection, connect first, then jump to www.interfire.org. Or, you can enter <http://www.interfire.org> directly into the Address Bar in your Web browser.

Features of the www.interfire.org web site include:

- A Training Center with new online training modules to improve your fire investigation skills.
- The Resource File has been placed online containing the same articles, photographs and content as in the interFIRE VR CD-ROM.
- Feature articles – A constantly changing series of articles written by recognized experts in the field about important developments and new techniques.
- Links to the NHTSA (National Highway Transportation Safety Administration) and the CPSC (Consumer Product Safety Council) to obtain source information about defective vehicles and product recalls of products that could pose fire hazards.
- Link to MSDS (Material Safety Data Sheets) information on thousands of chemicals.
- Links to dozens of fire investigation web sites.
- Legal Updates from trial and appellate courts, updated weekly, on fire and arson cases nationwide.
- Message Boards where you can pose a fire investigation-related question under a user name and receive responses from all over the world. There are also specialized message boards for fire investigation, accelerant detection canine handlers, evidence technicians, and insurance investigators.

The web site is constantly being updated and improved. Check back often and become part of this community.

SECTION 7 : MORE IDEAS FOR USING *interFIRE* VR IN THE CLASSROOM

This Student's Handbook focuses on *interFIRE* VR in a classroom setting. *The interFIRE VR User's Guide* contains more information on innovative ways to use *interFIRE* VR. Here are a few ideas excerpted from the User's Guide. Your instructor and the User's Guide have more information on implementing these ideas.

Team Up

Work the virtual reality fire investigation Scenario as a team:

- **Assign Roles.** Make sure each person (or pairs of team members) has a computer and a copy of the *interFIRE* VR software. Designate a Team Leader and divide up the attendees into Team Concept roles.
- **Divide Up Duties.** Divide up the Scenario investigation tasks by role and assign them to the appropriate team members. Encourage investigators to talk to each other and share information as they work the scene.
- **Physically Organize.** Seat the Photography and Schematics member next to the Origin and Cause member(s) so s/he can follow and take photographs on his/her machine as directed by the origin and cause investigators working on their machines. Place the Evidence Collection member on the other side of the O&C team, so he/she can follow along and collect evidence at the direction of the O&C investigators. The Immediate Area Investigation can work on the witness interviews and locating witnesses, talking with O&C to keep up on the scene examination. The General Area Investigation team can move out into the rest of the house and yard, searching for evidence and performing tasks like noting the condition of doors and windows and reporting it to the Photography and Schematics member for documentation.
- **Meet Regularly.** Set times for team meetings, led by the Team Leader, where each participant shares the information they have gathered. Make new assignments as required.
- **Determine Cause and Origin.** When all tasks at the scene have been discharged, hold a team meeting to determine the origin and cause. Share all information gathered during the investigation and create a hypothesis on the cause of the fire. Discuss the elements of proof that your team has assembled, and consult textbook references as needed. Discuss all possible points of support for your team's determination of cause and origin and specify them in the software.
- **Assign Follow-Up Duties.** Once you move on to the Follow-Up, reassign personnel to cover the Follow-Up Investigation duties, including witness statements, insurance files, financial documents, lab reports, and fire and police reports. Meet again to report findings.
- **Report to the Virtual Prosecutor.** When the Follow-Up Investigation is finished, move on to Report Out. As a group, formulate the answers to the five questions and type them in on one or all of the computers. During the Virtual Prosecutor phase, review these answers compared to the model answers and review and discuss the other feedback measures, such as the status bar performance and the origin and cause determination accuracy.

Cross-Train

One of the goals of *interFIRE* VR was to provide a breadth of information on the many different actions of professionals that affect the outcome of fire investigations, including fire suppression, evidence collection, photography, insurance investigation, and trial preparation. Professionals using *interFIRE* VR may gravitate towards the topics they know the most about or in which they are the most interested. This is a natural tendency and deepens your knowledge in your specialty.

However, *interFIRE* VR can also be a valuable cross-training tool for disciplines with which you are less familiar. To cross-train using *interFIRE* VR, try the following. The next time you sit down with *interFIRE* VR, select the topic with which you are LEAST familiar. Work that topic thoroughly, beginning with the Tutorial section(s) and then moving into the more specific articles in the Resource File. If your interest takes you further, seek out a colleague in this specialty and talk about how you, in your "normal role," can be of more help in the area you have just learned about.

Drill Down

“Drilling down” means exploring a single topic in depth, rather than surveying across the entire process. This approach allows you to explore one topic at a time, focusing on the details.

To drill down, pick a single topic in fire investigation, such as accidental fire causes. Begin by viewing the tutorial section on this topic. Then, read all the articles on the topic in the Resource File. Then, approach the scene at 5 Canal Street by just focusing on the one topic you have selected.

The "drill down" approach will work for a variety of specific topics. Try:

- accidental causes
- evidence collection
- criminalistics (trace evidence)
- ignitable liquid residue sampling techniques
- incendiary fire causes
- use of the AK-9 unit
- insurance investigation
- financial investigation
- interviewing
- fire patterns and fire dynamics
- working with professionals at the scene
- firefighting
- arson prevention
- investigative toolkit preparation

Mock Trial

After your class has worked the interFIRE VR Scenario, either individually or as a team, divide into three teams or individuals: prosecutor, defense counsel, and expert witness(es). Have the prosecutor and defense counsel each prepare an opening argument for the case at 5 Canal Street, including who is being charged with the crime and laying out the evidence against that person. Ask a local prosecutor or attorney to act as judge and present the arguments in a mock trial. Then, call the expert witness(es) to testify on the case.

Afterwards, debrief the exercise, evaluate the arguments and the presentations, as well as the testimony given. If a more elaborate presentation is possible, consider assigning people to play key witnesses in the case, including the defendant. This exercise will give investigators and first responders a better appreciation of how these cases are presented in court and how the fire investigation will be scrutinized at trial.

If a full trial isn't practical for your class, set up mock depositions on interFIRE VR with a local prosecutor. Work the Scenario before you meet with the prosecutor and then show your case file on the computer to the attorney. Discuss the case and what would be an issue at trial. Then, conduct a mock deposition on the case where you are the expert witness, first with the attorney acting as a prosecutor and then as defense counsel. This exercise will help you sharpen your testifying technique.

SECTION 8: CONCLUSION

InterFIRE VR was created as a response to a national crisis – an unacceptably high incidence of arson in our cities and towns and a historically poor arson conviction rate for arson offenses. This program was designed by experts from the fire service, law enforcement, fire codes and standards and the property insurance industry to provide a unique training approach that will help improve the skills of all fire investigators and allied professionals. InterFIRE VR was never intended to replace standard fire investigation training, but only to supplement to it. By getting the most from your training course and interFIRE VR, you are part of the solution and will be better equipped to serve your community.