

Hardware Usability Testing with Morae

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Introduction

This document assumes you are familiar with the concept of usability testing. If you're new to usability testing, start with **Usability Testing Basics** which explains the basics of usability testing, including information about how to figure out what to test, when to test, and how to test. **Usability Testing Basics** is available on the Morae Resource CD and in the [Morae Learning Center](http://www.techsmith.com/learn/morae/default.asp) (<http://www.techsmith.com/learn/morae/default.asp>).

Hardware or Mobile Device Usability Testing with Morae

Are you building things people merely tolerate...or things they love? Whether it's a mobile phone, GPS unit, or an espresso machine, you can improve the design by testing it in the hands of real customers.

Watch customers manipulate physical buttons and navigate on-screen menus. Capture their body language, verbal comments, and success rates. Use Morae's complete toolset to log, analyze, and present the data.

For a hardware or mobile device usability test, Morae can record from one or two cameras. With two cameras, you can record close-up video of the hardware or device, along with camera video of the user.

This document provides the following:

- ▶ [Set Up the Test](#)
- ▶ [Record and Log Test Sessions](#)
- ▶ [Analyze and Present Findings](#)
- ▶ [How to Retrieve Your Key Measures from Morae](#)

The document also contains the following appendices:

- ▶ [Appendix A: User Research Request](#)
- ▶ [Appendix B: Test Protocol Document](#)
- ▶ [Appendix C: Example Usability Test Report](#)
- ▶ [Appendix D: Usability Test Checklist](#)

Hardware or Mobile Device Usability Testing Considerations

Similar to software or Web usability testing, the goal of hardware or device testing is to measure the efficiency, effectiveness, and satisfaction of the use of a hardware product or device by having users perform real-world tasks with the product.

Because the device or hardware and the participant's interactions with it will be recorded using a camera, consider carefully what cameras, lighting, camera locations, and mounting hardware are needed to record the activity.

Because screen recording data will not be available, prepare your markers carefully to ensure that observers or the person logging on the recording computer will note events such as:

- ▶ Task start and end times
- ▶ The actions the participant takes (buttons clicked, menu items chosen)
- ▶ When a mistake or error is made
- ▶ Comments and quotes of the participants
- ▶ Observations of facial expressions and body language, etc.

Procedure

The test must be conducted in your lab (which can be as simple as a room with a computer and Web cam) or face-to-face at an off-site location. These tests cannot be conducted remotely using UserVue because the participant will be working directly with an artifact (hardware or a device), similar to paper prototype testing.

Also like paper-prototype testing, the device or hardware and the participant's interactions with it are recorded using a camera. A second camera can also be used to record participant's face with a Web cam via Picture-in-Picture.

Use the default configuration provided for paper prototype testing in Morae to record the test. Because there will be no screen recording used, the recording computer can also be used to log test data during the test by the facilitator or an assistant; consider having the facilitator log the test on the recording computer. Remember you may need to flip your camera while recording to make the prototype view properly in the recording.

Set Up the Test

Use the steps in this section to to set up the test in Morae Recorder. For more information on usability test planning, see **Usability Testing Basics**, available on the Morae Resource CD and in the [Morae Learning Center](#)



To set up a test in Recorder:

- [1. Create a Study Configuration](#)
- [2. Define the Scenario](#)
- [3. Define Tasks](#)
- [4. Define Markers](#)
- [5. Define Surveys](#)
- [6. Save Study Details](#)
- [7. Configure Recording Details](#)
- [8. Complete Test Set Up](#)



This document walks through this process at a high level. You can find more information on the full procedures and options in the help included in the Morae components or find both video and written tutorials in the Morae Learning Center: <http://www.techsmith.com/learn/morae/default.asp>.

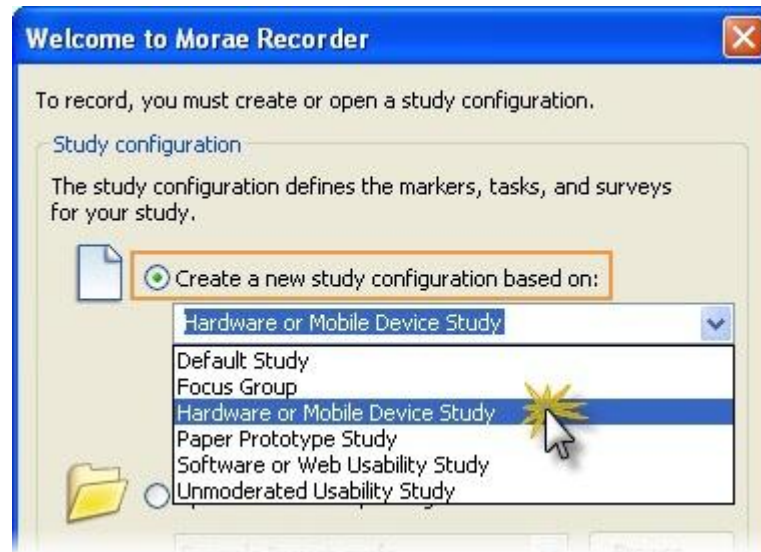
1. Create a Study Configuration

A *study* is a group of test sessions where participants complete the same tasks. In Morae, a *study configuration file* (.mrcfg) defines all test-specific information. This includes the scenario, tasks, markers, and surveys.

You use the same study configuration to record each of the test sessions. Only recordings with the same study configuration can be later searched and graphed together in Morae Manager.

Morae Recorder includes template study configurations to help you define study configurations for different kinds of studies. Templates contain sample tasks, markers, and surveys, along with pre-configured [Recording Details](#) which define how to record the session.

When you open Recorder, create a new study configuration based on **Hardware or Mobile Device Study**. When you click **OK**, the template study configuration opens in Recorder.



2. Define the Scenario

A scenario gives the participant the background to complete the tasks. It tells them why they are doing the tasks and any introductory information they may need to complete the task.

The scenario should be realistic and allow the participant to relate to the situation. For more on how to create a scenario, see **Usability Testing Basics**, available on the Morae Resource CD and in the [Morae Learning Center](#).

For example, to find out how users interact with your company web site, the scenario may be:

You will perform up to 4 different tasks using a cell phone.

You have just purchased a new cell phone and want to personalize it. Follow the instructions for each task and then perform the task as you would if you were actually doing this task for yourself.

Please talk out loud while you work, and keep a running dialog of your thoughts, actions, expectations, and reactions.

Do you have any questions?

Scenario in Morae Configuration

Recorder > Modify Study Details button > Description tab

Enter the scenario into the *Study instructions* field.

Study Details

Description Task Definitions Marker Definitions Survey Definitions

Enter a name, description and participant instructions for the study.

Study name: Hardware or Mobile Device Study

Study description: Use for testing a hardware device (cell phone, handheld, etc.) You can use up to two cameras. Point the primary camera at the hardware device, and the picture-in-picture camera at the participant.

Study instructions: You will perform up to 4 different tasks using a cell phone.
You have just purchased a new cell phone and want to personalize it. Follow the instructions for each task and then perform the task as you would if you were actually doing this task for yourself.
Please talk out loud while you work, and keep a running dialog of your thoughts, actions, expectations, and reactions.
Do you have any questions?

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Arial

OK Cancel Help

Morae Scenario Tips

- ▶ Use the Morae Add-In for Word to add the scenario to the test protocol (example in [Appendix B: Test Protocol Document](#)).
- ▶ To avoid printing test paperwork for participants, you can test with AutoPilot to present the tasks onscreen to the participant. AutoPilot presents the scenario to the participant right on the computer screen. See **AutoPilot** in the Morae Recorder help for more information.


For more information, in the Morae Recorder Help, see Define Study Details > Define the Study Description > Study Instructions.

3. Define Tasks

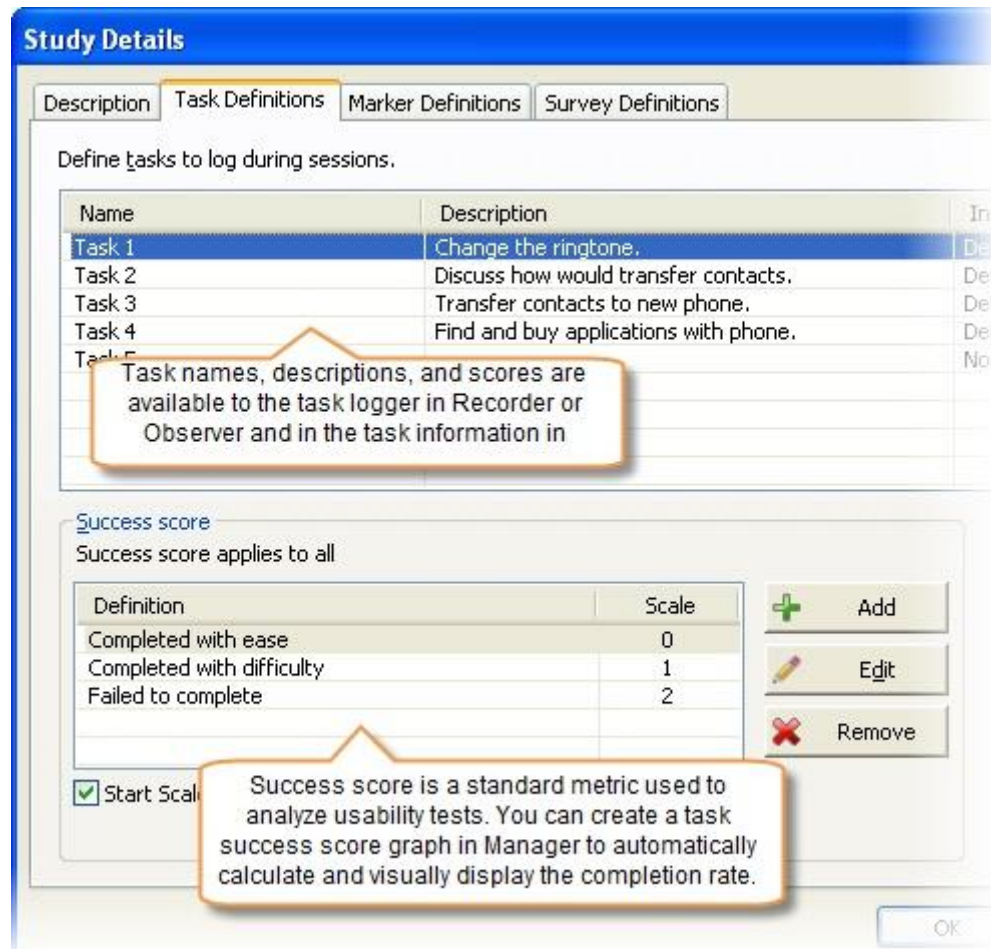
The tasks should relate to real-life actions that fit the scenario. For more on how to create a scenario, see **Usability Testing Basics**, available on the Morae Resource CD and in the [Morae Learning Center](#).


For example, if we use the example scenario of “You have just purchased a new cell phone and want to personalize it,” our first task is to change the ringtone.

Tasks in Morae Configuration

 Recorder > Modify Study Details button > Task Definitions tab

For each task, enter a *Name*, *Description*, and *Instructions for the participant*.



 Use the Morae Add-In for Word to add the tasks to the test protocol (example in [Appendix B: Test Protocol Document](#)) on the *Task* pages. Each task should be on a separate page so the participant can only see one task at a time.

For more information, in the Morae Recorder Help, see **Define Study Details > Define the Study Tasks**.

4. Define Markers

After you have come up with the scenario and tasks, create the markers. Markers allow the Observers to flag specific, important points in a recording and the start and end of tasks as they happen. It is important to figure out what kinds of actions you want to define marker for because, by flagging important points during recording, you can save time when you later analyze the results.


For example, mark:

- ▶ Participant actions
- ▶ Participant comments and questions
- ▶ Participant frustration
- ▶ Areas where a participant gets stuck
- ▶ Application or web site design issues
- ▶ Observations about how the participant performs a task
- ▶ Interesting comments or actions to include in a highlight video
- ▶ Moments when participant's access Help, want to contact customer service or technical support







You can also add notes to provide additional details for each marker. All the markers and notes are synchronized with the video and saved in the recording of each test session.

Morae also includes the ability to score markers, for example 0 (severe) to 2 (minor). Manager can automatically calculate the average severity of the errors.

Markers in Morae Configuration

 Recorder > Modify Study Details button > Marker Definitions tab

In Morae, a marker definition includes a letter (keyboard shortcut for logging), text description, and color. Each study configuration template includes a default set of markers. The Hardware or Mobile Device Study template includes the following markers:

 Q – Quote/comment	 X - Error
 H – User needs help	 O- Observation
 P - Participant prompted	 V – Video clip

Use the provided default markers, modify the markers, or create new markers that match the goals of your study or identify specific things you want observers to watch for during a session.

Morae Marker Tips

- ▶ There is no correct number of markers. The object of logging markers during a test is to make it easier to analyze the test results.
- ▶ If you have specific things you want to look for in a test, create a marker for that action, problem, etc.
- ▶ Later when you analyze your sessions in Manager, markers help you sift through data and focus on what you want to analyze. For example, viewing all the *Help requested* markers may reveal an error where people are really struggling.
- ▶ When you are ready to create video clips or a presentation for stakeholders, you save time by quickly going to the moments during the session that you marked to include in the highlight video.

For more information, in the Morae Recorder Help, see **Define Study Details > Define the Study Markers**.

5. Define Surveys

With surveys, you can collect information directly from the participants.

To collect a participant's survey responses, you can either ask the questions verbally and type the responses into the survey, have the participant take the survey on the computer running Recorder, or use the Morae Add-In for Word to print the surveys for the participant to fill in on paper.

After you import recordings into Manager, you can view and compare responses, create graphs based on the surveys, and export results, including any freeform answers.

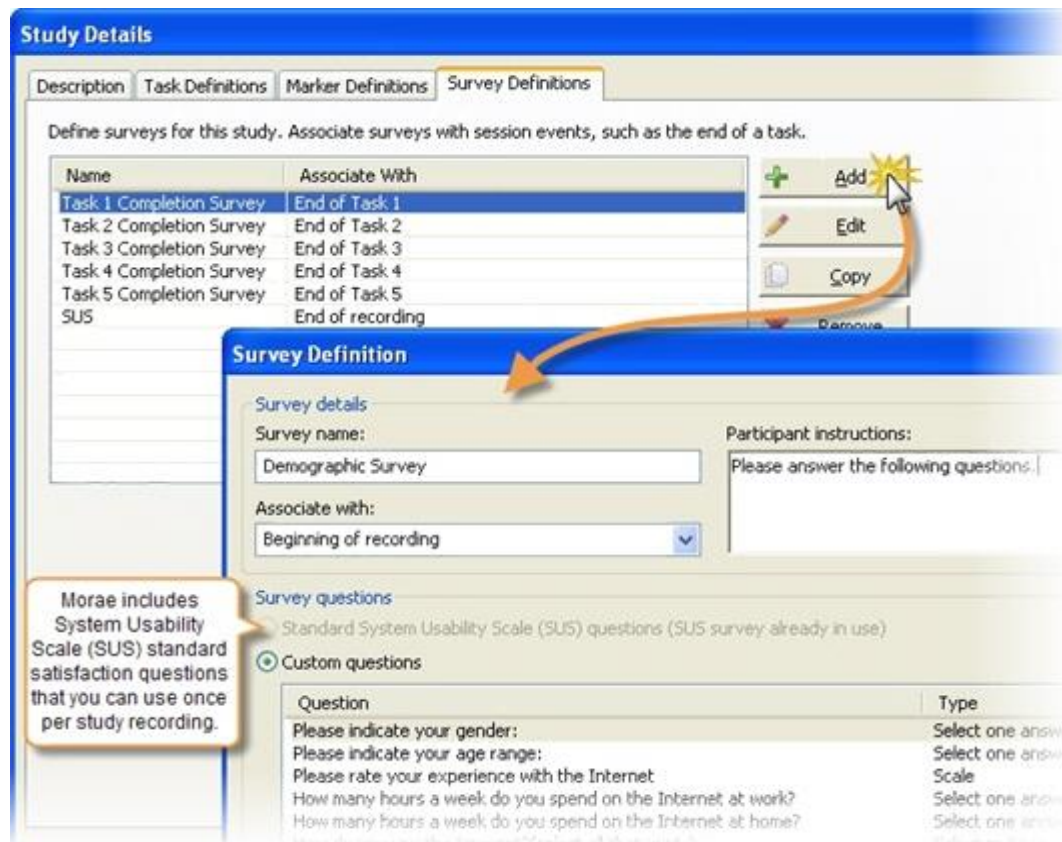
Morae can open multiple surveys to participants during a session. For example, use a survey before the test, after each task, and after the test.

The template study configuration includes surveys. Use or edit the surveys provided or create your own surveys.

Surveys in Morae Configuration

 Recorder > Modify Study Details button > Survey Definitions tab

Create and associate surveys with session events, such as the end of a task.




Morae Survey Tips

- ▶ Associate a survey with the beginning of recording, end of recording, or the end of each task.
- ▶ By associating a survey with a session event, it is “linked” to that event. Morae reads the survey associated with the current session event.
- ▶ Use the Morae Add-In for Word to add the surveys to the test protocol (example in [Appendix B: Test Protocol Document](#)).
- ▶ The System Usability Scale (SUS) is freely available for use in usability assessment and has been used for a variety of research projects; the only prerequisite for its use is that any published report must acknowledge the source of the measure. If you use the SUS, add the following to your report:

“SUS was developed as part of the usability engineering program in integrated office systems development at Digital Equipment Co Ltd., Reading, United Kingdom.”

For more information, in the Morae Recorder Help, see **Define Study Details > Define the Study Surveys**.

6. Save Study Details

 File > Save Study Configuration or click the Save Configuration icon.

Study Details must be the same for **all** recordings in a study and include the items you have just defined:

- ▶ Study name, description, and instructions
- ▶ Tasks definitions and instructions
- ▶ Marker definitions and instructions
- ▶ Survey definitions and associations


By saving the study configuration, and reusing that configuration, all recordings in a study have the same configuration and can be imported into the same study in Manager.

7. Configure Recording Details

Recording Details included in Morae study configurations define how to record the session, including the following:

- ▶ File saving and processing options
- ▶ Video sources
- ▶ What data to capture
- ▶ Who logs tasks
- ▶ How to start and end test recordings

Recording Details in Morae Configuration

 Recorder > Recording Details button

The Recording Details of the template study configuration allow you to immediately conduct a recording.

The Recording Details for the *Hardware or Mobile Device Study* template include:

- ▶ Prompt for file saving details when recording stops
- ▶ Record from a camera and include a Picture-in-Picture video from a second camera
- ▶ Log tasks with the computer running Recorder
- ▶ Start and stop recordings manually with Recorder
- ▶ Allow Observers

Morae Recording Details Tips

- ▶ Recorder automatically chooses the source cameras for the main and PiP videos. Verify the selected sources are correct before recording.
- ▶ If you change any Recording Details settings, the rest of the settings update to provide a valid or recommended configuration, if needed.
- ▶ Recording Details are saved as part of the study configuration. While the Study Details must be the same for all recordings in a study, the Recording Details can vary in each recording.

For more information, in the Morae Recorder Help, see **Define Recording Details**.

8. Complete Test Set Up

Study configuration is now complete. Here are the final things to do before you start testing.

- ▶ [Create Test Protocol](#)
- ▶ [Finalize Morae Recorder Setup](#)

Create Test Protocol

The test protocol is a document of everything needed for a test. There is an example protocol document in [Appendix B: Test Protocol Document](#). Use this as a template to create the protocol for your test.

- ▶ [Test Session Setup Checklist](#)
- ▶ [Release Form](#)
- ▶ [Facilitator Script](#)
- ▶ [Participant Instructions and Surveys](#)
- ▶ [Assemble Participant Paperwork \(Optional\)](#)
- ▶ [Email Invitations for Observers](#)

Test Session Setup Checklist

Verify the test setup is the same at the beginning of each test. A test setup checklist makes it easier to go from one test to the next as quickly as possible and make sure you do not miss anything.

Make a list of all the things you need to do between tests and include it in test protocol document, such as:

- ▶ Reset the mobile device to the default settings.
- ▶ Clear the test area of any open documents, written notes, etc.
- ▶ Prepare participant forms (release form, surveys, etc.)
- ▶ Verify the cameras, camera angles, and lighting.

Release Form

A release form gives permission to record the test. Morae records the participant's interactions with the hardware or mobile device with video and audio.

If permission to record is denied, you may still conduct the test and take notes to use in reporting results, but you must not record the test session.

If the contents of your test require the participant to keep session and product information confidential, include a non-disclosure agreement to your form.

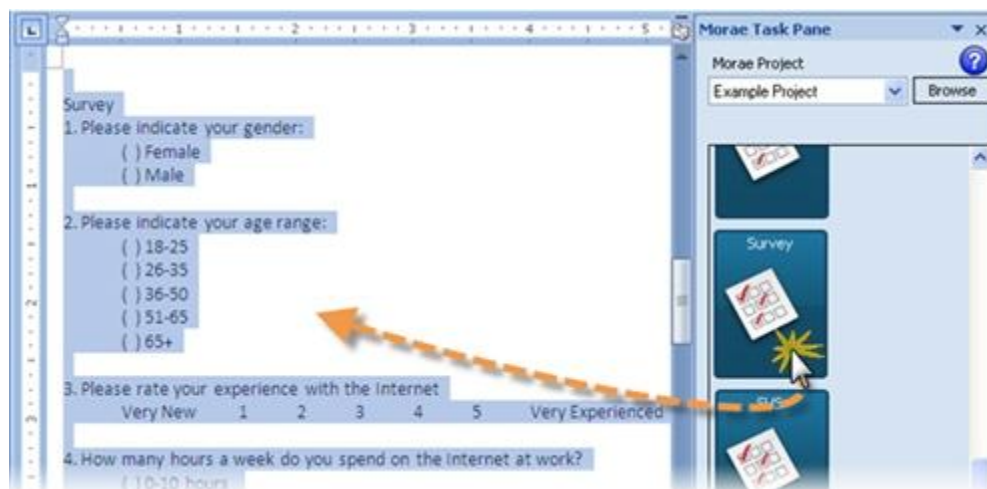
The example test protocol includes a sample release form that includes a non-disclosure agreement.

Facilitator Script

The facilitator script helps to explain the test session to the participant. The facilitator reads through the script at the beginning of each test session to ensure the participant understands what to expect during the test.

Participant Instructions and Surveys

Use the Morae Add-In for Word to put the scenario, tasks, and surveys into the protocol document. Open the study configuration in the add-in and drag the study and task instructions along with the surveys into the protocol.



For more information, click the help button in the Morae Add-In for Word.

Assemble Participant Paperwork (Optional)

Once you finish the protocol document, you need to assemble any paperwork needed for a test.

If you are printing paperwork, each participant needs a copy of the following:

- ▶ Release form
- ▶ Background questionnaire
- ▶ Scenario/session instructions
- ▶ Tasks

For the facilitator, print a copy of the protocol. In addition to the participant items listed above, the facilitator protocol includes the following:

- ▶ Title page
- ▶ Session setup checklist
- ▶ Participant paperwork coversheet
- ▶ Facilitator script
- ▶ Task success paths (the best way or ways to complete a task)
- ▶ List of debrief questions (follow up questions for the end of the test)

See the example test protocol in [Appendix B: Test Protocol Document](#) for an example of complete protocol.

Email Invitations for Observers

Verify that all observers have Morae Observer installed on his or her computer. To make sure that all people that observe the test can connect to the session, send an email to each observer with the following information:

- ▶ Name of test
- ▶ Date of test
- ▶ Time of test
- ▶ IP address or name of Recorder computer



You may also want to include a list of the test tasks and markers to let the observers understand what they should watch for during the test.



Finalize Morae Recorder Setup

Prior to a Morae test, complete the following tasks:

- ▶ **Complete the Pre-recording Checklist**
- ▶ **Run a Pilot Test Before Recording**

Complete the Pre-recording Checklist

The following checklist describes critical points that reduce the technical issues you may encounter and improve Morae's overall performance.

Step	Description
Verify the system requirements	Verify your system meets the recommended specifications to get the most efficient performance from Morae. For more information, see Morae System Requirements in the Morae Recorder Help.
Verify you have enough hard drive space	<p>Recording file sizes may be approximately 10–15 MB per minute, but the actual size varies depending on many factors. You should have extra space available for the best performance during recording.</p> <p>As a general rule, maintain 5–10 GB of extra hard drive space as a buffer beyond what your Morae recording files use.</p> <p> We recommend initially saving your recordings to a local hard drive to eliminate the chance of data loss that can occur when saving over a network or to an external device. After the file is saved, you can copy the recording file to an external device.</p>
Test your setup and scenario	<p>Test your setup before the actual recording session to resolve any possible complications (such as firewalls blocking Observer(s) from connecting, etc.).</p> <p>We recommend running a pilot recording for a short period of time to test Recorder's start and stop options and to verify Observer(s) can connect. For more information, see Run a Pilot Test Before Recording.</p> <p> In addition, use the Test Recording option in Recorder to create a 15 second recording to verify the screen, camera, and audio streams are being recorded properly.</p>
Verify Network Settings	<p>If Observer and Recorder are on the same Intranet, you do not need to disable firewalls.</p> <p>If they are not, verify that you either disabled any firewalls running on the Recorder or configured the firewalls to open the communication ports. See your network administrator for assistance.</p> <p>There are no firewall adjustments necessary on the Observer side.</p>
Open the study configuration in Recorder	Open the saved study configuration in Recorder.

Run a Pilot Test Before Recording

We recommend running a pilot test to verify Recorder is capturing data as expected. Conducting a short pilot recording helps you work out any network connectivity issues and test your automated start and stop options, if applicable.

Follow these steps to run a pilot test:

Step	Notes
1. Open a study configuration.	In Recorder, open the study configuration (.mrcfg) for this study.
2. Start Recorder.	Click the Start button to start Recorder manually.
3. Connect Observers to Recorder.	Connect one or more Observers during the pilot test. Verify that you can successfully connect each to Recorder.
4. Complete a test task.	Run through one of the tasks. To test the logging functionality of Observer, have a team member practice setting markers while you complete the task.
5. Stop Recorder.	Either stop Recorder manually by clicking the Stop button in Recorder or use the keyboard shortcut <Ctrl + Alt + Shift + F9> .
6. Import the recording and run a search.	Save the test recording file and import it into a project in Manager. In Manager, verify the audio and video recorded correctly. Use the <i>Search</i> to verify markers were captured. See Analyze and Present Findings for more information on how to do this.

Record and Log Test Sessions

In this section, we discuss how to record and log test sessions. Everything in this section is done in Morae Recorder and Observer. Included in the section are the following:

- ▶ [Log Tasks on Recorder](#)
- ▶ [Observers and Logging](#)
- ▶ [Start and Stop the Recording](#)
- ▶ [Log the Sessions](#)
- ▶ [Send the Surveys](#)
- ▶ [Save the Recording](#)

Log Tasks on Recorder

When you record from one or two cameras with Recorder, you can log tasks and notes right on the computer running Recorder. This is the default task logger setting for camera only recordings.

Observers and Logging

Morae Observer connects to Recorder over a network and displays the full participant's experience, including the screen, audio comments, and camera video. Each person using Observer can log markers, marker scores, and text notes that are sent back to the Recorder and saved with the recording file.

By logging tasks, markers, and notes during the test session, you save time analyzing the recordings. In Manager, you can use the markers to pinpoint parts of the recordings you need to review, automatically create graphs, calculate marker scores, and more.

Observers can connect prior to the beginning a recording, as long as Recorder is running. Observers do not see the participant interaction until recording begins.

Benefits of Observer

Although you can log sessions in a variety of ways, using Observer in combination with Recorder provides the following benefits:

- ▶ Stakeholders can connect to watch live sessions without the need be in the room with the participant or an observation room. With Observer, stakeholders can connect from anywhere on the network.
- ▶ Anyone logged into an Observer computer can add markers during recording complete with text notes.
- ▶ Morae automatically collects and compiles everyone's notes. The recordings contain the markers and notes logged by all Observers.
- ▶ Observer automatically saves and indexes the markers and tasks with the accompanying video and audio streams.
- ▶ You can save a copy of the camera video and audio streams as a WMV file for immediate playback or to share with stakeholders.

For information on connecting Observers to a recording, in the Morae Observer Help, see **Connect to Recorder**.

Start and Stop the Recording

The default way to start and stop recordings is to manually start and stop Recorder using the following buttons:



Start



Stop

If this does not meet your needs, Morae provides flexible options to start Recorder depending on your equipment and participant set up.

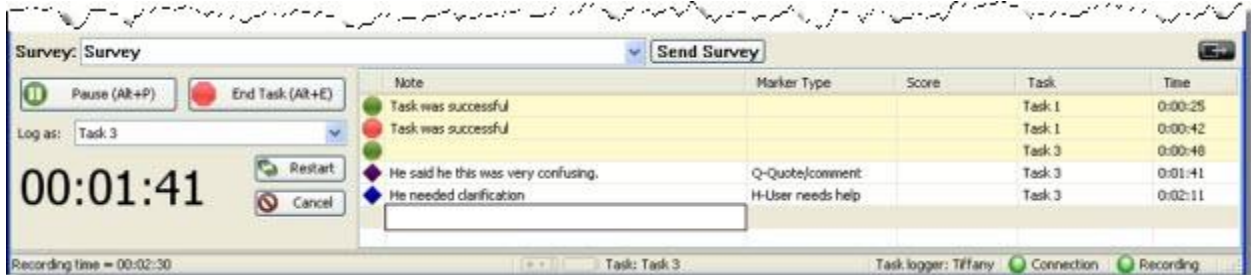
For more information, in the Morae Recorder Help, see **Define Recording Details > Recording Start Settings** and **Define Recording Details > Recording Stop Settings**.

Log the Sessions

Once recording starts, the facilitator prompts the participant to begin the test.

The person working on the computer running Recorder along with each person using Observer can log markers, marker scores, and add text notes to save with the recording file. The person working on Recorder is designated as the task logger logs tasks and task scores.

With both Recorder and Observer, you can save a copy of your markers and notes. Observers can also save a copy of the recording as a WMV file for immediate viewing.



At the end of a session, the tasks and task scores are saved with the recording. You can view the synchronized video, audio, and notes for each marker later when you import the recording into Manager.

By logging with Recorder and Observer during recording, you will save time analyzing the study in Manager. There should be no need to review entire recordings if you use Manager's powerful search and graphing features to quickly analyze the recordings.

The components used when logging in Recorder and Observer are:



For more information, in Morae Observer Help, see **Log a Session**.

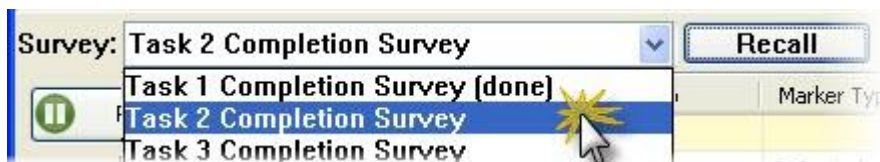
Send the Surveys

Open surveys on the computer running Recorder anytime during the session. When the surveys open, you can ask the participants the questions and fill out the surveys, let the participant fill out the surveys on the computer running Recorder, or use the Morae Add-In for Word to print the surveys for the participant to fill in on paper.

The person logging on the computer running Recorder and all Observers can access and deliver surveys.

- ▶ In Recorder, choose **View > Deliver Survey** or use the keyboard shortcut **<Ctrl + Alt + Shift + F8>**.

In Recorder or Observer, select and open surveys from the log.



Save the Recording

By default, when recording stops, you are prompted for file details. Enter a name and description for the recording. If you want to start another recording right away, in Recording Details, choose to defer the processing of the recording. You can later batch process recordings.

For additional options, in the Morae Recorder Help, see **Define Recording Details > File Details > Processing**.



You cannot save a recording without a name. You can lose the data from a recording if the test participant, or anyone else, closes the dialog prompting for these details after the recording stops.

Analyze and Present Findings

In this section, we discuss how to import recordings into Morae Manager, analyze data, create graphs, and create presentation materials for the test findings, including:

[1. Import Recordings](#)

[2. Edit Recordings](#)

[3. Analyze Recordings](#)

[4. Graph](#)

[5. Create Highlight Clips](#)

[6. Create a Report](#)

1. Import Recordings

To import recordings into Morae Manager, you first create a Morae project. Use a project to organize the recordings and studies in Manager.

You can have multiple studies in a single project. The following are possible reasons to have multiple studies in a single Morae project:

- ▶ You conduct the same test on different iterations of a product.
- ▶ You conduct various tests on the same product.
- ▶ You want to separate your studies by the experience level of participants.

You can import a single recording into multiple projects. When you import a recording into a project, the original recording is not touched. A copy of the recording is imported into the project. Any changes you make to this copy do not affect the original recording.

You can import Morae recording (.rdg), UserVue recording (.rdg) and standard video files (.avi, .wmv, .asf) into a project.

For more information on importing recordings and creating projects, in the Morae Manager Help, see **Create and Modify a Project > Create a New Project**.

2. Edit Recordings

View and edit the imported recordings in the Analyze Tab. In Manager:

- ▶ Review the main camera video automatically synchronized with the Picture-in-Picture video and audio.
- ▶ Create additional or edit the logged tasks, markers, notes, and scores.
- ▶ Search across recordings in a study for specific markers.
- ▶ View and edit survey answers.

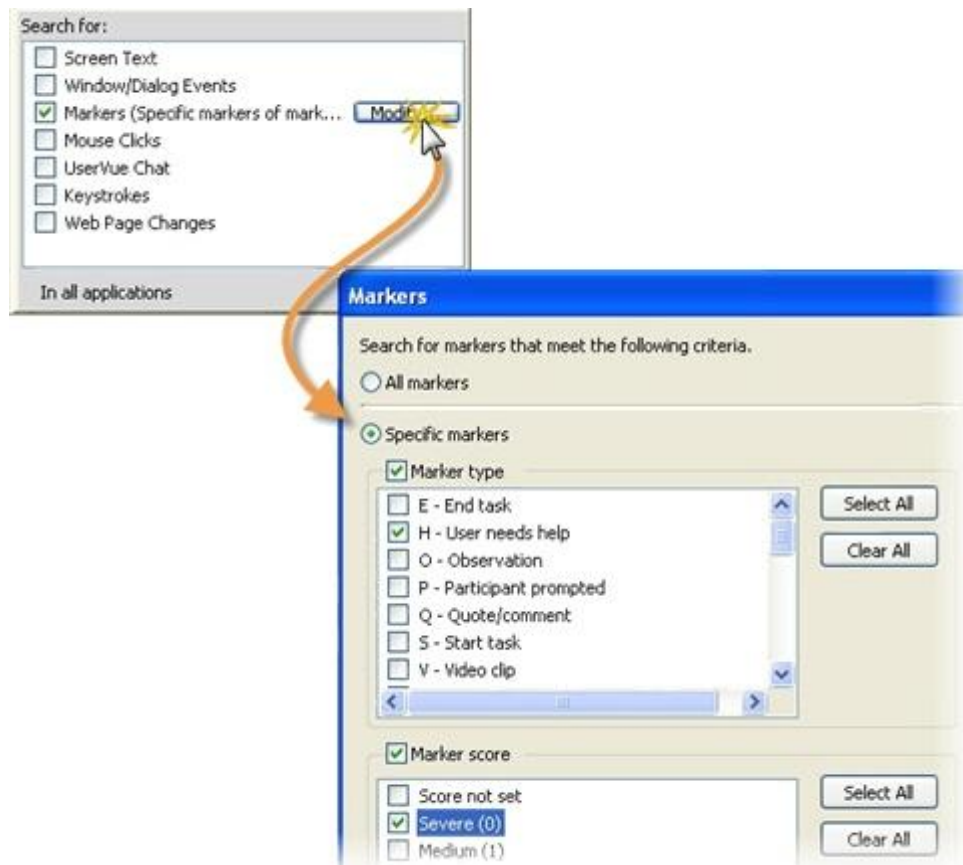
For information, in the Morae Manager Help, see **Analyze**.

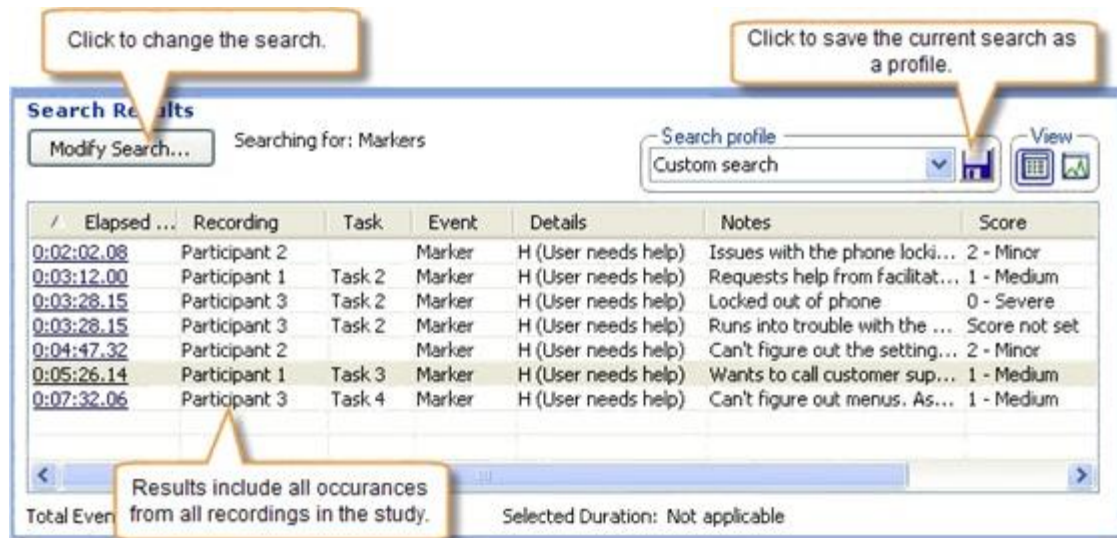
3. Analyze Recordings

For information on what kinds of things to look for in the recordings, see [How to Retrieve Your Key Measures from Morae](#).

Manager's *Search* allows you to quickly create custom searches to look for markers and tasks.

You can use the pre-defined search profiles, define a new search, or create and save your own search profiles.





For more information, in the Morae Manager Help, see **Analyze > Search for Data in Recordings**.

4. Graph Data, Tasks, Markers, and Surveys

Instead of manually calculating data and building graphs, Morae creates graphs to help you share results faster, without manual calculations and scrubbing of data.







Quantitative data provides hard evidence of usability issues, which complements the qualitative highlight videos. Highlight videos can be more powerful with graphs included to support the video clips.

Morae automatically calculates and graphs the usability metrics specified in the Common Industry Format (CIF) standard – effectiveness, efficiency, and satisfaction:

- ▶ Measure effectiveness with error rate and completion rate graphs
- ▶ Measure efficiency with a time on task graph
- ▶ Measure satisfaction with a System Usability Scale (SUS) survey or customized survey delivered to participants at the end of the recording

Example Uses of Graphs

Here are three examples of graphs you can create in the Morae Manager Present tab and the reasons why you might want to use these graphs.

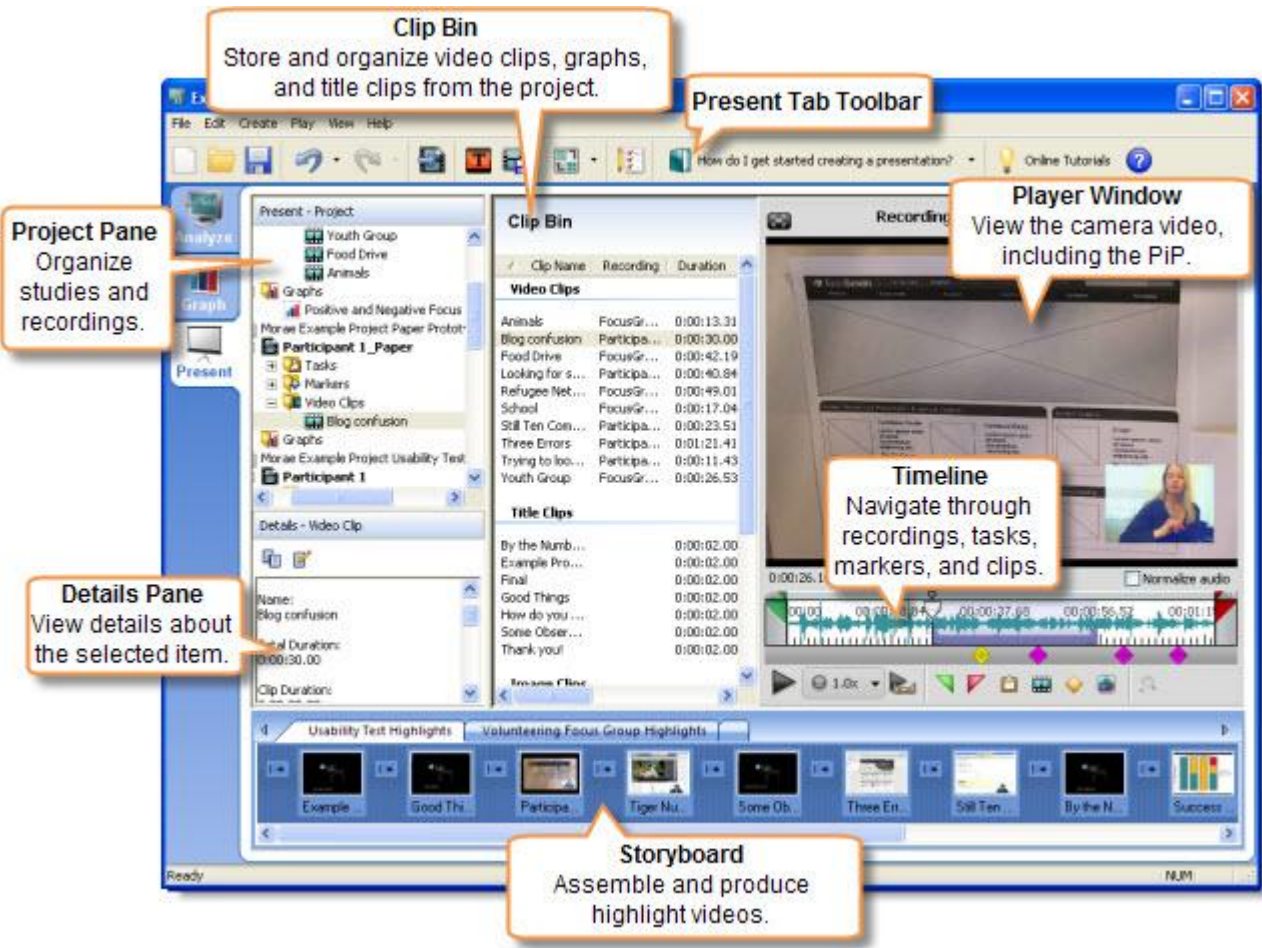
SUS Survey Graph			Use this graph to measure satisfaction from a System Usability Scale (SUS) survey. SUS scores can range from 0 (very little satisfaction) to 100 (very high satisfaction).
	Survey Analysis	SUS Survey Calculation	
Time on Task Graph			Use this graph to measure efficiency. Efficiency is usually measured by determining how quickly participants are able to complete scenarios or tasks. Participants may be able to successfully complete an activity, but they take a long time.
	Task Analysis	Time on Task	
Task Score Graph			Use this graph to measure effectiveness by reviewing the completion rates for tasks. Effectiveness is a way of trying to understand better how successfully users will be able to use a site or software. This is usually measured by determining how many scenarios or tasks participants are able to complete.
	Task Analysis	Task Score	

For more information, including more example graphs and uses, in the Morae Manager Help, see **Graph > Graph Analysis Examples**.

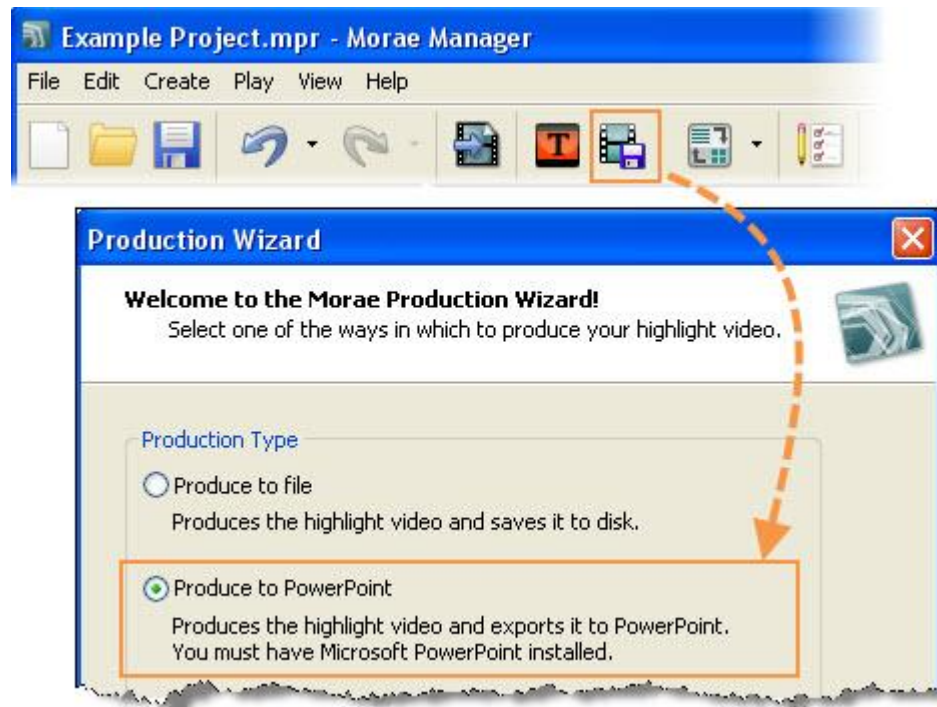
5. Create Highlight Clips

When you are ready to organize the results of your analysis into a highlight video for presentation, select Manager's Present tab. Use the Clip Bin and Storyboard to create, view, edit, and sort clips and graphs and assemble them into a video presentation.

In the Present tab, assemble the important video clips, graphs and tasks into a highlight video to share with stakeholders. Include just the participant's screen and audio in the highlight video or add a Picture-in-Picture (PiP) window showing the participant's facial expressions. The highlight video can be produced in AVI, WMV, or MPEG-4 format.



After you have your highlight clips together in the storyboard, click the **Produce Highlight Video** button and select the **Product to PowerPoint** option to produce the videos and send them into a PowerPoint presentation.

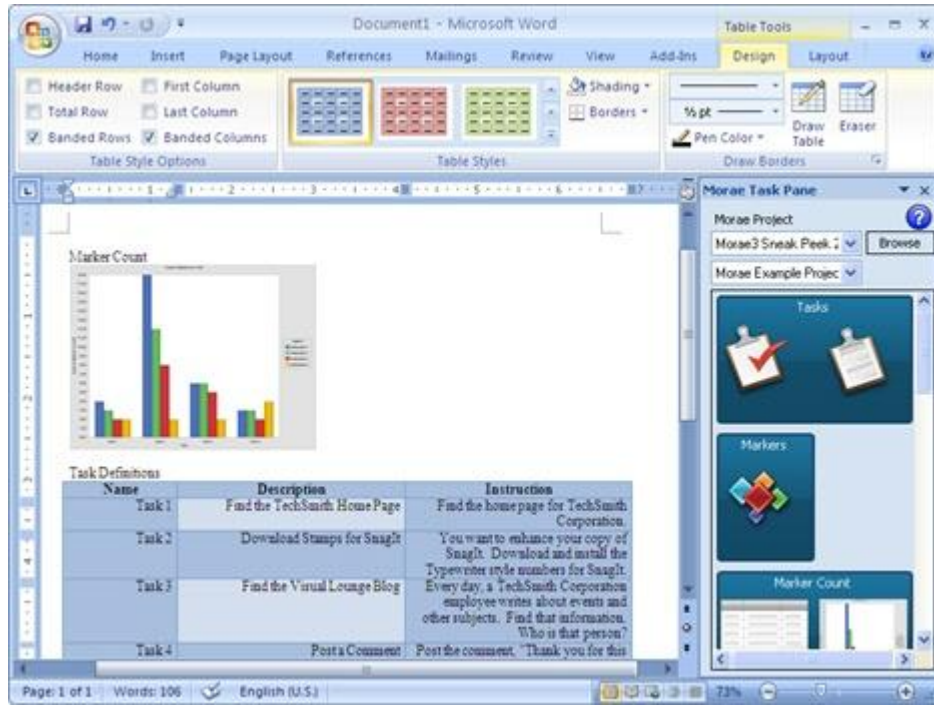


For more information on creating highlight clips and options for exporting other data from Manager, in the Morae Manager Help, see **Present**.

6. Create a Report

[Appendix C: Example Usability Test Report](#) is an example report showing where you can place graphs, data tables, and other information generated by Morae.

Use the Morae Add-In for Word to put items created in Manager, including graphs, graph tables, tasks, and surveys into the report. Open the project file in the add-in and drag the items into the document.



For more information on how to use the Morae Add-In for Word, click the help button in the Morae Add-In for Word.

How to Retrieve Your Key Measures from Morae

Name	What was Measured	How To Retrieve the Measure in Morae
Time on Task	The length of time it takes the participant to complete a task. May be averaged for all participants and can be compared between tests.	If this has not already been completed, set the start and end markers at the beginning and end of each task and create a task on the Morae Manager timeline. When all tasks are created, choose the Time on Task Graph in the Graph tab to see the results. Results may be averaged or viewed by task or by participant.
Task Success	Whether or not the participant was successful and to what degree: completed with ease, completed with difficulty, failed to complete.	Select each task's properties and set the participant's success score for each task. View the results on the Graph tab, Success Score.
Learnability	A task is repeated at least once to determine whether the time on task is shorter, fewer errors are made, or the task is more successful.	Note each participant's performance on the same or very similar tasks. On the Graph tab, choose Time on Task, Errors and/or Task Success and limit your results to the tasks that are similar. Look for trends such as lower time on task, fewer mistakes and greater success.
Satisfaction	Enumerates participants' overall feelings about a product before, during, and/or after a test.	Initial impression surveys, task exit surveys, the Satisfaction Usability Scale Survey (SUS) make be included with each configuration, and administered before the test, after each task or following the entire test. Set these up in your configuration before the test.
Mouse Clicks	Measures the number of clicks that a participant enters.	View the results on the graph tab by choosing Input Device Analysis. Part of the Rich Recording Technology™ data already captured in your recording.
Mouse Movement	Measures the distance the mouse travels.	View the results on the graph tab by choosing Input Device Analysis. Part of the Rich Recording Technology™ data already captured in your recording.
Problem/ Issue Counts	Records, counts, ranks, and/or categorizes problems observed.	Set up one or more markers to note problems in your recording configuration. You may wish to include a severity scale. Ask observers to make note when a problem is observed. To view result, search for those markers on the Analysis tab. Export them to spreadsheet for use with findings.

Optimal Path	Observes the path a participant takes to accomplish a task and compares it to a predefined optimal path.	<p>Make a recording of someone taking the “optimal path” as one of your “participants.”</p> <p>On the Analysis tab, view Windows/Dialog Events or Web Page Changes for each recording, ordered by participant. Compare each test participant to the optimal. Look for trends and common places where participants wandered “off the path.”</p>
Make Your Own	With Rich Recording Technology™ data, you can design the study that fits your needs	Search for events, create markers or analyze the data you need. Customized Graphs can be created to meet your specification.

Appendix A: User Research Request

Collect the following information to use as the base of a usability test.

Item	Description	Examples
Background	Introduce the product and give background on why you want to gather user feedback.	The product team is looking to gain insight into how users interact with the company web site. We'd like to learn more about user's expectations for the site and how they find what they've looking for, i.e. search engine, web site search, browsing, etc. When originally creating the company web site, it was meant to contain mainly contact information and product documentation. Now that we've moved on to provide additional resources, downloads, tutorial videos, and more, we're not sure that the format of the site is appropriate.
Participants	Desired qualities of participants.	We'd prefer participants with no or little experience with the TechSmith web site, but they should be comfortable using the internet.
Usability Goals	What you hope to learn with this test.	Before we redesign our web site, we'd like to learn more about how our users interact with the currently available materials. By learning about our users, we will be able to make informed design decisions.
Key Points	What kinds of actions or features the test tasks should cover. Also may include a list of the questions the team wants the usability test to answer.	The tasks should cover working with the web site in a couple of different ways. The tasks should help answer the following questions: <ul style="list-style-type: none"> ▶ Can users easily find the web site? ▶ Can users find a specific item on the site? ▶ Can users successfully download an accessory for a product? ▶ Can the users find and use the blog?
Timeline	The timeline for testing: <ul style="list-style-type: none"> ▶ When the product will be ready for testing ▶ When the team would like to discuss the results ▶ Any other constraints. 	The web site is available for testing at the current time. The team would like the results back to us by the end of this quarter, as we will start design next quarter.
Additional Information	Anything else that needs to be taken into consideration.	The whole product team will be out for a conference from February 1 through February 5. Since we would like everyone to observe each test, please do not schedule testing for these dates.

Appendix B: Example Protocol

(Name of Project) Protocol

Facilitator Script, Data-Collection Sheets, and Participant Forms

For (Product), ABC Corporation

[Version 1|Date]

(Product Project)Protocol

This document is the observation protocol for the (Name of Project), which ABC Corporation will conduct with up to 10 participants throughout Southeast and Mid-Michigan. This document contains all the materials needed for the observation sessions, including the session set-up checklist, the facilitator's script, data-collection sheets, and participant forms.

Session Set-Up Checklist

Before a session begins, the usability team performs all set-up tasks for the session as follows:

Computer	✓
Start computer	
Set up camera	
Open Morae Recorder	
Check camera angle	
Do test recording	
Verify sound and video in test recording	
Clear cache or data in program	
Participant Paperwork	
Release and Non-disclosure agreement	
Background Questionnaire	
Session Instructions and tasks	
Additional Points	

Facilitator Tips

Usability testing is conducted in a way that solicits the user's thinking and feelings without interfering with his or her own discovery process. No judgment should be apparent to the user about the user's activities, and no direct help is usually offered.

If the user appears stumped, a prompt such as "Do you see anything on this screen that will help you?" may be asked, but normally, the user will not be told exactly how to succeed, unless that has been scripted into the protocol for a specific purpose. Failure is an appropriate outcome for some tasks. A debrief on thoughts, problems points, and observations from the test are usually conducted.

Observers logging for the test administrator will want to capture start and stop times, significant statements, errors and problems, and other noteworthy events. Accuracy is not critical – but timeliness can be. Capturing as many observations as appropriate is preferable to perfect grammar while logging.

User observation is usually conducted in a free form. Chat with participants until they forget they are being recorded.

Questions should generally be limited and open-ended questions such as "I noticed that you have a post-it note to remind you of XXXX. Can you tell me why? Can you tell me about a time when you needed to remember this item but had trouble?" Diplomacy and tact are absolute requirements.

Observers want to make sure those activities, comments, and surroundings are captured. Tasks may be timed from start to finish. This would be especially helpful for repetitive tasks, but any process that might take time would be worth capturing. Try to be unobtrusive as they work, even at the expense of capturing data. Notes can be taken later – this is qualitative data, not quantitative.

Introduction/Facilitator Script

The purpose of the Introduction is to help participants feel comfortable with the observation process in general and to explain their role in helping to improve the usability of (the Product) in particular.

Start Time: _____

Begin the session by saying:

Thank you, [name], for agreeing to participate in this user study. My name is [name], and I'll be working with you today. In this study, we're exploring how people who use our products like to work. We'd like to talk with you and watch you perform the tasks that you perform in the course of your work every day. We may ask you some questions while you work.

I will try to be as unnoticed as I can sometimes, and at other times, I might ask you about what you are doing, to help me understand your work patterns better.

Administer Questionnaire and Non-disclosure

Okay, let's talk about how we would like to work with you this session. I'd like to position myself here, and record your activity on the computer. I may also make the notations in my notebook as well.

I'm going to give you this series of (number) tasks to perform, with a scenario to explain why you are doing these tasks. As you work, feel free to perform whatever tasks you think are appropriate, whether they are related to our products, to computers, or not. I can try to provide anything you might feel is missing. What I'd like you to do, though, is to talk out loud about the things that you are thinking, doing, feeling and expecting.

You are free to ask me any questions. However, depending on the type of study we are doing, I may or may not answer you, or I may answer with another question.

Please feel free to talk about anything you encounter, especially any problems you have during the tasks. I am not the developer of these products—I'm part of an objective evaluation team—so you can feel free to give me your candid opinions. You won't hurt anyone's feelings. Your comments are important, which is why we'll be taking notes and videotaping the session, which also gives us a record of what you're looking at. I'd like to remind you at this time that your name will not be used in our report, and that all information you provide today will be reported anonymously.

I want you to know that you are free to stop or take a break at any time, and that will not affect the consideration we will be providing. Please let me know if you need anything to make yourself more comfortable.

Do you have any questions for me?

Participant Paperwork

This page is a cover sheet for all session data pertaining to this participant. Store each participant's session data in his or her own folder or envelope and labels each page of notes and forms with the participant's number.

Participant #: _____

Session: _____ **(date/time)**

Pre-session Paperwork

Before testing begins, the participant fills out the following forms:

- ▶ **Understanding Your Participation** (Video release/authorization)
Permits recording the session. If permission is denied, you may still conduct the session and use the participant's data in reporting results. If it includes a non-disclosure agreement, the participant is required to keep session and web site/product information confidential.
- ▶ **Background Questionnaire** (to verify screened-for participant characteristics and to provide a background and usage context in which to interpret t data)

Once setup is complete and all forms are filled out, the facilitator begins with the introduction.

The facilitator will hand the forms on the following pages to the participant at the appropriate times during the test session.

Understanding Your Participation

Please read this page carefully.

ABC Corporation is asking you to participate in a (Type of Study) study. By participating in this evaluation, you help us improve our products.

We will observe you and record information about how you work. We may record your comments and actions using written records, recorders and video cameras.

By signing this form, you give your permission for ABC Corporation to use:

- ▶ recorded voice (if you consent to this, initial here _____)
- ▶ verbal statements (if you consent to this, initial here _____)
- ▶ session recording (if you consent to this, initial here _____)

This data will be used solely for the purposes of product design and development. Your full name will not be used during any presentation of the results of this study.

Any information you acquire about our products is confidential and proprietary and is being disclosed to you only so you may participate. By signing this form, you agree not to talk about this product to anyone. You may tell them that you helped to evaluate an Internet web site.

You may withdraw from the evaluation at any time. If, at any time, you need a break, please inform the observer immediately. If you have questions, you may ask at any time.

If you agree with these terms, please indicate your agreement by signing below.

Name (Printed)

Address

Signature

Date

Background Survey Page 1

Please take a few minutes to answer the following questions to help us better understand your use of computers and the Internet. No information from this survey will be linked to you in any way.

Participant: _____

Computer Use

1. What type of computer do you use?

At home: PC Mac

At work: PC Mac

2. About how many hours a week do you use a computer?

At home: _____

At work: _____

3. What do you typically use your computer for?

Games and pleasure

Graphics

Accounting/Finance

Data storage (i.e., databases)

Email or chat

Internet

Word Processing

Other _____

Internet Use

1. How long have you been using the Internet? _____

2. Which Internet browser or browsers do you use?

Browser	# Years Used	# Months Used
Internet Explorer		
Mozilla Firefox		
Other:		
Other:		

Background Survey Page 2

Participant: _____

3. How would you rate your experience and proficiency using the Internet?

Poor		Average		Excellent
1	2	3	4	5

4. What do you usually do on the Internet

- | | |
|--|--|
| <input type="checkbox"/> surfing | <input type="checkbox"/> selling |
| <input type="checkbox"/> email | <input type="checkbox"/> site development |
| <input type="checkbox"/> chat | <input type="checkbox"/> interactive games |
| <input type="checkbox"/> information gathering | <input type="checkbox"/> MP3 downloading |
| <input type="checkbox"/> buying | <input type="checkbox"/> Other |
-

5. Have you ever made any online purchases?

- No
- Yes How often?
-

What have you purchased?

What problems, if any, do you encounter most often when purchasing online?

6. How often do you use the (Product)?

- Never
- Once or twice
- Once a year
- Once a month
- At least once a week

(Study Name)

Usability Study

Participant ID:

Test Date/time:

Caution



This is the administrator's version of the usability test. This version includes the success path for each task. Not to be given to the user before the usability session.

(Remove this information and the success paths prior to giving the test to a participant.)

Test Scenario/Session Instructions

You will be performing up to ___ different tasks using _____.

<<Provide needed information about the scenario: role, location, etc.>>

Instructions for each task are given in the shaded text boxes.

Task 1.

Task 1 instructions here.

Tip: Ask an easy question for early success.

Task 1 Success Path.

Provide an answer for the facilitator version only. Remove from the participant version.

Task 2.

Task 2 instructions here.

Task 2 Success Path.

Provide an answer for the facilitator version only. Remove from the participant version.

Task 3.

Task 1 instructions here.

Tip: Ask an easy question for early success.

Task 3 Success Path.

Provide an answer for the facilitator version only. Remove from the participant version.

Thank you for participating in the study!

Debrief Topics

List topics here that will be relevant to understanding, including problems, errors, events and quotes. In an A/B test, show the alternative and solicit feedback, if appropriate. Ask nonjudgmental, open ended questions, such as, "I noticed that you did x? Can you tell me about what you might have expected?"

Appendix C: Example Report

[Product Name]
[Company Name]
**[Usability Study
Type]**

Date

User Experience Project Contributors

UX Team Member	Role
[Name]	[e.g., Project Manager, Lead, Facilitator, Observer, Designer, Analyzer, etc.]

Contents

Executive Summary

Summarize points of report here:

- ▶ Name and describe the product
- ▶ Summary of method(s) including number and type of participants and tasks
- ▶ Results expressed as mean scores or other suitable measures of central tendency
- ▶ Reason for and nature of the test

Summary of Performance Results

User #	Measure 1	Measure 2
Participant 1		
Participant 2		
...		

Methodology

Objectives (Or Research Goals)

[This evaluation was designed to answer the following questions:

- ▶ List usability questions here
- ▶ ...
- ▶ More stuff on research goals...]

Product

[Information on product; version; if pre-release which build; if prototype then details on mode of prototype (low-fi/paper, wireframe; hi-fi/flash); if web product then similar information including URLs; etc.]

Participant Profile

[How participants were recruited. Compensation/considerations offered.

Total number of participants. User types (e.g. experienced and inexperienced) and number of, etc.

Participant information, e.g. profession, interest or motivation for product use, and information from demographic/background questionnaire.

Include links to (in network drives or locations in this document as appendices) background questionnaire, tables of results from questionnaire, and participant screener or recruitment communication materials, if necessary.]

	Characteristic 1	Characteristic 2	...	Characteristic N
Participant 1				
Participant 2				
...				
Participant N				

Research Design

Timeline

[Information on when the tests took place.]

Research Component	Dates
Recruiting	[Date] – [Date]
Test planning and design	[Date] – [Date]
Conducting research	[Date] – [Date]

Analysis	[Date] – [Date]
Results Presentation	[Date] – [Date]

Research Environment

Where tested.

Information on lab, remote, or off-site area, equipment, event (if applicable), recording methods used, etc.

Test Design

[Information on type and length of test (e.g. “One-on-one sessions lasted an hour for each participant, and included:”

Informed consent form for participation – Participants were asked to sign a consent form before they participated.

Background questionnaire – We administered a brief questionnaire to gather background information on participant work, technology, and product experience.

Verbal overview of study – Participants were given a description of the general nature of the study and advised on how best to perform during the test.

Research performance – Participants were asked to perform several tasks using the product. The tasks were in the context of doing x activity to provide a realistic context for testing. Participants were asked to think aloud and describe any confusion while performing tasks. This was used to identify areas of difficulty, as well as usage patterns and types of participant errors.

Post-study debriefing -- Participants were debriefed at the end of the session on certain areas of their performance or to give further feedback.

Post-study questionnaire – A post-study questionnaire was administered to obtain satisfaction ratings.

Include links to (in network drives or locations in this document as appendices) to test protocol document (and prototype files, if applicable).]

Results

Constraints

Information about constraints.

Metrics

[Key usability goals included effectiveness, which refers to how well a system does what it is supposed to do; efficiency, or the way a system supports users in carrying out their tasks; and satisfaction, which relates to the subjective responses users have to the system.

Effectiveness is typically exhibited by task success, efficiency by time on task, and satisfaction is typically measured with a scale.

The quantitative measures included:

- ▶ Time on task
- ▶ Error rate
- ▶ Success score (or task success)

The qualitative measures included:

- ▶ participant satisfaction ratings (post-study questionnaire)
- ▶ verbal feedback during and after the session]

Time on Task

Insert graphs and table of data.

Error Rate

Insert graphs and table of data.

Success Score

Insert graphs and table of data.

Satisfaction Ratings

Insert graphs and table of data.

Usability Issues and Recommendations

Usability Issue	Recommendation	Severity

Conclusion and Next Steps

[Information/recommendations to team on how to proceed with recommendations and suggestions on further research/design work to be done.]

Appendix

[Put Possible Appendices to Related Docs Here]

Appendix D: Usability Test Checklist

Usability Test Checklist

The purpose of this checklist is to identify the activities required for planning and executing a successful usability test.

1. Meet with Stakeholders to Conduct an Initial Interview

- Review the system to be tested
- Document concerns and define problem statements
- Determine acceptable usability goals and purpose
Use these to determine your “[Key Evaluation Measures](#)”
- Review user profiles or types of users
- Determine a preliminary test date
- Document:
 - Intent of the test
 - Overall methodology planned
 - Business objectives and goals
 - Usability goals
 - Users and user groups to be tested

2. Recruit Participants

- Document the number of participants in each user group to be tested
- Develop a testing schedule based on preferred times and dates
- Develop a screener to vet participant qualifications according to user group
- Use any resources to contact users:
 - Internal or customer databases
 - E-mail contacts
 - Newsletter, product, or web site posts
 - Professional recruiting agencies
 - News, web site, or social-networking service ads
- Schedule participants

3. Plan the Test

- Design test scenario and task list
- Determine key evaluation measures
- Create a usability test protocol containing:
 - Anticipated machine set up (lab, off-site, etc.)
 - Checklist for setting up and facilitating each test session
 - Introduction script
 - Non-disclosure and recording agreements
 - Background questionnaire
 - Tasks (including success criteria, participant test booklets, etc., if needed)
 - Debrief questions
 - Post-task or post-test satisfaction surveys, if needed
- Schedule any facilities or space required for lab setup, observation, or participant debrief/greeting
- Load the necessary software and data needed to conduct the test
- Confirm test dates and time with participants, including location, maps or directions, and contact information
- Create a folder for each participant containing all participant paperwork included in the test protocol
- Prepare “thank you” notes and considerations for participants
- Invite executives, managers, development team members, marketing staff, and other stakeholders to observe the tests

4. Run-through the Test

- Install final software and/or prototypes and configure the test machine
- Review test objectives, metric measures, and areas of concern with observers
- Run a pilot usability test, including recording
- Revise test materials as needed based on pilot test

5. Conduct the Test

- Power up lab machine, check cameras and microphones
- Send connection information (e.g. IP address) for using Morae Observer to stakeholders and observers
- Check availability of refreshments for participants
- Greet your participant at test site as scheduled
- Ensure participant comfort (e.g., temperature, seating, etc.)
- Have the participant fill out the non-disclosure/recording agreement and any background questionnaires (if not using Morae to deliver surveys and questionnaires)
- Start the Morae recording
- Review the test procedure with the participant (using the Introduction script)
- Use best practices for facilitation
- Debrief participant after test (including post-test questionnaire and any questions)
- End Morae recording
- Thank the participant, give any considerations for participation, and walk participant out
- Reset your test or lab machine, clear data, and save participant activity as appropriate following each test session
- Collect all test materials, save recording file, review with observers as time permits, and store notes and materials in folder; debrief with stakeholders and observers periodically

Repeat these steps for each participant test session

6. Analyze the Test

- Using Morae Manager, review your test and conduct analysis on key evaluation measures
- Make highlights video clips of interesting moments
- Document findings and recommendations (collaborate with development and stakeholders)
- Create a presentation or report
- Present findings and highlights tape to stakeholders

7. Next Steps

- Send thank you notes and considerations to participants (if not already done)
- Determine “lessons learned” and communicate to peer group
- Finalize project portfolios, organize and/or archive recordings, and store materials for later reference