

Web Accessibility: Taking control with speech

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I'm Kim Patch. I'm President of Redstart Systems. We make Utter Command, which is an add-on to Dragon NaturallySpeaking.

I'm going to give you a little background on me and on Utter Command. I also have a few things to say about standards. And I'll show you how you can get around the Web quickly and comfortably using speech.

15 years ago I was senior editor at PC Week, covering the Internet, and I got severe repetitive strain injuries in my hands. I started using speech recognition – the first version of Dragon Dictate, where you had to pause between words -- and it was frustrating. At one point I had a voice injury, and for three months I couldn't communicate with my voice or my hands. I was happy when NaturallySpeaking came out. Not having to pause between words made it possible to use speech again without injuring my voice, and it was faster.

But I was still badly injured, still trying to use speech hands-free, still often got frustrated, and I often cheated and used my hands. I also spent a lot of time writing custom macros. At one point I realized that the basic command structure was very inefficient – it took more than one speech command on average for every keyboard and mouse command.

That's how Utter Command got started. I started thinking about how people use language in command-and-control situations. Natural command-and-control is very efficient language and usually follows the order of events. When I applied that to speech commands a couple of interesting things happened.

First, commands became easier to remember. Second, it made it possible to speak in command phrases. This sped everything up tremendously.

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Utter Command is built on that intuitive command system. It also contains some applets that speed things up further. I should mention that Utter Command doesn't take anything away from Dragon – you can use a mix of commands if you want. Here are the elements of Utter Command:

The intuitive command system

- Commands are easy to remember because they're concise, consistent and follow the order of events.

Utter Command also contains some applets

- Rulers enable single-step mouse control
- UC List speeds up many types of tasks
- UC Clipboard is an advanced clipboard facility that allows you to sort as you copy

Utter Command also includes Extensive learning materials

- **The Full Reference** -- every command with brief explanation
- **Lessons** explain every command with examples and self-guided tours
- Self-guided tours are cross referenced
- Every subsection of the manual is accessible on-screen using a single speech command
- **On-screen guides** – guide tool makes it easier to implement procedures and train people on them. We use guides to remind users of commands and also for self-guided tours. We also provide custom guides that you can use for anything.)

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I'll show you how 3 of the key elements of Utter Command work so you can picture these abilities.

- The Rulers give you hands-free mouse control
- UC List lets you do a lot of things – in this demo I'll show you how to use this tool to name a mouse click, go to any folder, and jump straight to a keyword
- And I'll show you how the onscreen guides work

As you watch, also notice the way the commands are worded. Near the end of the demo you'll see me use a couple of command phrases. And as you watch keep in mind that these are general commands you can apply any program

The rulers let you use a single utterance to click anywhere on the screen.

Escape - Window Minimize

50 By 50

Rulers On

40 By 80

I can also use the UC list utility to name one or two mouse clicks in a row. Here's the type of thing I can do this ability:

WordPad Open

I want to bullet and color this text

Line Size 20

Bullet Touch

Color Red Touch

Go Home

This works because I've set it up using UC List. To set up another one I position the mouse, then say "Add Touch"

47 By 10 No Touch

Add Touch

Cap Center

Enter

I can easily set up control of any program on a computer this way including double clicks for drop-down lists.

UC List also allows you to go directly to any file, folder or website. I'll show you how the Folder command works.

Window Close No - Rulers Off

WordPad Close No

Windows New - Kim Folder

Notes Folder

Kim Folder

4 Down - Enter

To set up a new folder make sure the folder I want is in the address bar and say "Add Folder"

Add Folder

Enter

In this case it's named automatically.

Websites and folders and files all work the same way.

Window Close No

Now I'll show you our onscreen guides. These are help windows that everything else sizes around. You can put anything you want in these. They're especially good for speech instructions because the list of commands is the instructions. This is a good general tool for setting up procedures and training.

Custom 1 Guide

Now I'm going to use a Find command to jump around the guide

Find 5 Period

Bottom Find 3 Period

You can use commands like these to jump around any document – you can find numbers or words.

Window Close Times 2

PowerPoint Open Function 5

Speech 5 Enter Short

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Now I'll say a few words about standards.

- Standard keyboard shortcuts make the Web more accessible and easier to use for everyone – they're the hooks for accessibility applications including speech
- Apply standard keyboard shortcuts to Web apps, just like the desktop.
- Utter Command allows you to speak keyboard – say keys and keyboard shortcuts in phrases – to give you one way to control your computer that's easy to figure out

The ability to speak keyboard lets you do absolutely anything you can do with the keyboard. This allows you to assess a program whether or not someone has thought about special speech commands for that program.

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And as it turns out, there are times when speaking keyboard is easier than having to remember specific native speech commands.

Like when you want to move a couple of fields and Hit Enter

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Here are some more examples.

If the cursor is close to what you want on a menu it's really easy to say something like "2 Down Enter". And here's where you might start to run into trouble, especially on the Web. These are standard keys that work fairly consistently in desktop applications. They work well in some Web applications, but some pages and applications don't follow standard keyboard shortcuts.

If you use applications that don't use standard keyboard shortcuts complain about them. Does anybody use Google documents? Early on they were fairly inaccessible by keyboard, but they've gotten much better. There were a lot of comments in their forums from users about following standard keyboard shortcuts.

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We need to push for standards, but in addition, we need good ways to sidestep poor accessibility. (Good workarounds enable more people to more easily push for good standards.)

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And in doing workarounds, you sometimes come up with better solutions, especially when you're dealing with a new form of input like speech, which hasn't really been taken to its full potential.

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It's inefficient to open a browser, then a site – most of the time you open a browser your ultimate goal is a website, so why make it multiple steps?

The UC List site ability is similar to the folder ability you saw earlier.

New York Times Site
Redstart Systems Site
Weather Site
Tab Back
Tab Forward
Window Close

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Here are the Commands I just used

Slide 12:

Who's familiar with Rudolf Noe's mouseless browsing plug-in for Firefox? It numbers every link. Utter Command speech-enables the numbers.

Google Docs Site
Redstart Demo Enter
Zoom In 2
4 Go
Down Enter
Redstart Demonstration

I'm going to use link numbers to open a menu and select a horizontal line.

7 Go
86 Go

I can also say a number directly without having to open a menu first

86 Go
86 Go
Zoom Out 2
Window Close - Enter

Slide 13:

Here are the Commands I just used

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Now we'll go back to another UC List functionality -- I'll show you how the Tab List speeds filling out forms.

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Mixing text and tab key commands is a simple ability that's powerful in Web forms

- You can have different written and spoken forms for the text in this command. You can say, for instance, "e-mail", to represent more complicated text like "kim@redstart systems.com"

Here's how it works:

Demo 2 File

Zoom In 2

2 Tab Kimberly · 1 Tab Patch

1 Tab President · 1 Tab Redstart Systems

1 Tab Address · 2 Tab Boston

1 Tab Massachusetts · 2 Tab Zip

Zoom Out 2

1 Go

Tab Delete Repeat 10

Window Close

Slide 16:

Here are the Commands I just used

That took 10 steps to zoom in twice, fill out 8 fields, zoom out twice, erase 8 fields and close the window (It takes 43 steps by keyboard and mouse -- not counting letters)

This works well. You could call this a better solution. At the same time it requires keyboard standards – it's dependent on tab order being what you expect.

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An important part of providing structure is making sure to use the users variables efficiently.

You saw me say "Redstart Systems Site" to go directly to websites that I have my Site list – here's another way I can use my Site list: "Redstart Systems Site Address"

Express Eric

Cap Fast speech recognition

1 Tab

Redstart Systems Site Address

Dash check it out Exclamation Mark

Window Close · No · Window Close

Slide 18:

That took 13 steps. It would take 29 by keyboard and mouse.

Questions?

Any specific comments about any of the abilities?

What didn't you see that you would like to have seen?

What would you like to do on the Web using speech that you can't do now?

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Here's a Web task that's traditionally been difficult using speech – collecting information

- You'll see me use speech selection commands that work across all programs commands coupled with a clipboard utility that leverages the power of speech
- The clipboard utility leverages the power of speech by allowing you to sort information as you gather it

Redstart Systems Site

50 By 60

(Function 7)

2 Down 3 Downs

Copy to List 1 File

2 Down

2nd Word 3 Words

Copy to List 2 File

Address Copy to List 1 File

List 1 File

List 2 File

Window Close - Firefox Close

Slide 20:

Here are the Commands I just used

That took 13 steps. It would take 29 by keyboard and mouse.

Questions?