Push-And-Pull Switching 1.0.0 BETA User Guide

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1 Introduction

Push-and-Pull Switching is a window switching technique using window overlapping to implicitly define groups. Push-and-Pull Switching further allows to switch between groups and restack the focused window to any position to change its group assignment. It can run in the mainstream Windows Operating System.

2 Installation

You can double click *PushAndPullSwitchingSetup.msi* or *setup.exe* to install Push-and-Pull Switching, because Push-and-Pull Switching technique was implemented in C#, so you need to install .Net framework, but you do not take care this, the install program will detect .Net framework automatically, if .Net framework does not exist, then the install program will install automatically.

3 How to use Push-and-Pull Switching

3.1 Group Switching

Push-and-Pull Switching installs itself into your Startup folder and thus will automatically run every time you log into your computer. The icon of Push-and-Pull Switching will display in the Tray region in bottom right corner of the desktop.

When invoked, our algorithm first creates groups of no overlapping windows. Groups are created by considering windows in decreasing Z order (from foreground to background) and creating a new group each time a window overlaps with one of the windows of the current group. Our algorithm further considers the amount of overlapping as a parameter: a window with reduced overlapping with the current group can be added to it. The amount of overlapping for a given window is computed as the percentage of pixels

occluded. If a window overlaps several windows, the maximum value is computed to decide if the window can be added to the group. We set the default overlapping threshold to 15% and you can change it by yourself, for next version we will add visual feedback for novice users to help visualize groups by changing the color of the windows border.

For keyboard shortcuts, we use by default Ctrl+↑ to push a group and Ctrl+↓ to pull a group. Similarly pressing the Ctrl key and rotating the mouse wheel backward pushes a group and rotating forward pulls a group. Pushing and pulling consist in swapping all the windows from one group to the other but preserving the relative Z order within each group. Pulling a group brings all windows within the group closer to foreground. Pushing a group does the opposite. During push and pull operations, only the first group created (closer to foreground) can be pushed or pulled . Upon release of the Ctrl key, the window with the highest Z order gets the keyboard focus. We chose to give keyboard focus to this window as it represents the last accessed window within the group and we consider the user is more likely to interact with it.

3.2 Restacking the Focused Window

We use Ctrl+Shift keys instead of Ctrl to restack the focused window, our algorithm creates groups by considering only the windows in intersection with the focused window. Pushing or pulling moves it in front or behind the related group. Releasing Ctrl+Shift gives the keyboard focus to the window with the highest Z order from the frontmost group.

4 How to close Push-And-Pull Switching

You can right-click the program icon in the Tray region pop-up menu, then clicking exit item or pressing shortcut key *Alt+E* to close program.

5 Version Information

1.0.0 BETA This was the first public release.