

Enterprise Virtualization in Minecraft

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Objective

Create a Minecraft mod to facilitate connections to remote virtual machines through an in-game GUI.

Background

Minecraft is a 3D/VR game that enables the creation of complex virtual worlds. Mods enable modifying Minecraft. There are a few mods for virtualization and web browsing. However, these are not mature enough to enable access to multiple remote virtual machines within game. Being able to do this could greatly enhance Minecraft by allowing you to do many new things, such as interacting with your Minecraft server from anywhere.



A laptop block provides the player an interface between the game and the virtual machine.

Thanks to UI CS, Bruce Bolden, and Dr. Conte de Leon



The laptop crafting recipe

Value Proposition

Although Minecraft mods to provide virtualization do exist, they currently focus on locally hosted virtual machines and lack the versatility to be useful at enterprise scale. The ability for a platform-agnostic mod to connect to remote hosts using standard protocols will provide much utility that current mods cannot. We implemented this mod with an emphasis on versatility so that users are limited only by the limitations of the virtual machine, rather than by the mod functionality as well.

Concept Development

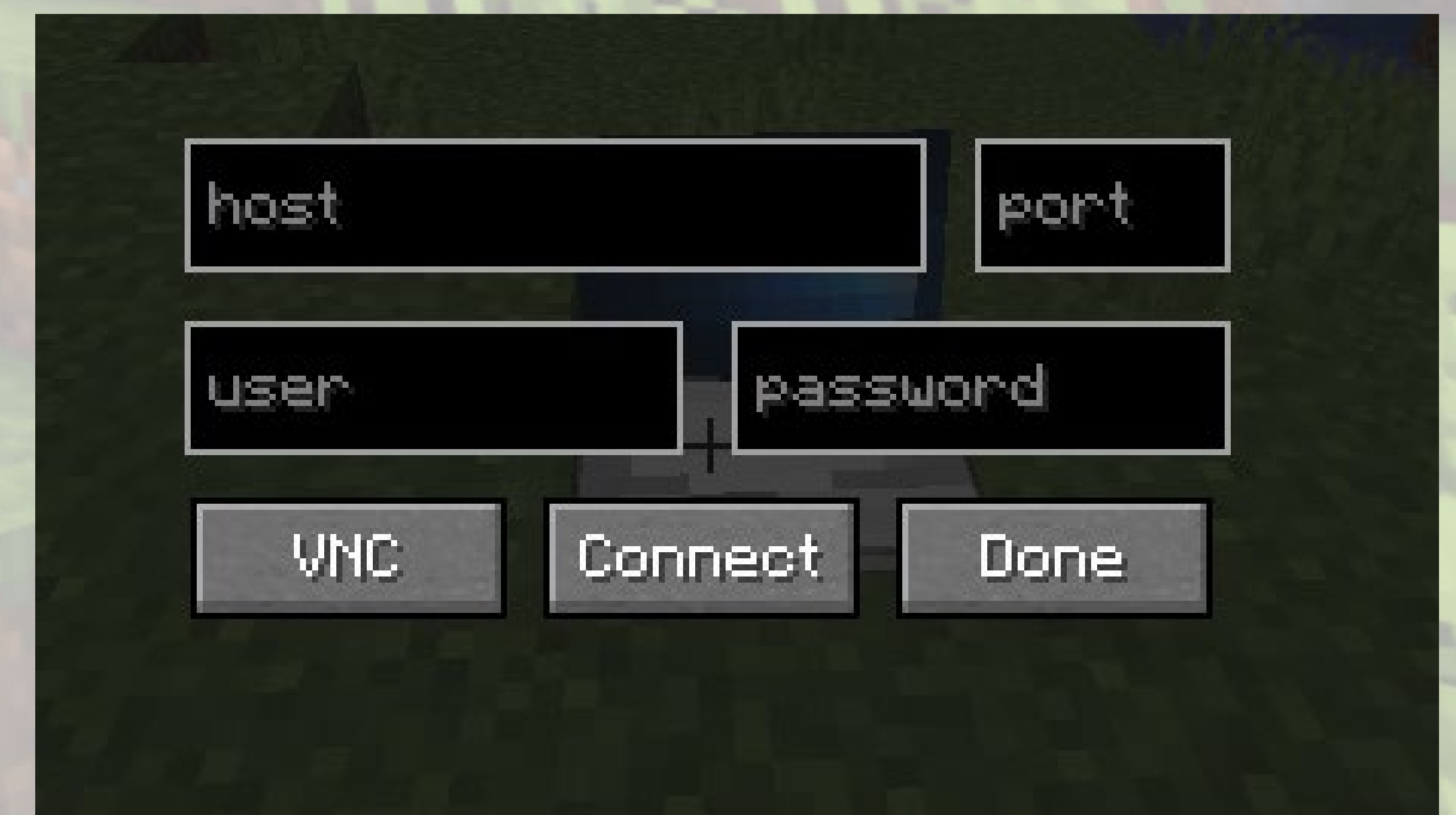
There were a few conceptual hurdles along the way. First, we needed to decide if we would have a Command Line Interface (CLI) system to interface with or one with a Graphical User Interface (GUI). We chose a GUI after deciding that a CLI implementation would be limited in functionality. Next, we needed to decide on which protocols would be best suited for handling this functionality. In the end, we decided to use Spice and/or VNC protocols, because they are easy to set up and they are platform agnostic. The user can decide which protocol to use in-game.

Final Design

Our final design includes three core features: A new laptop block, a UI interface for the laptop block, and a remote desktop connection. The laptop block is a new in-game block that can be crafted on a crafting table and placed anywhere. By right-clicking the block, you will open the laptop's UI interface that will allow you to put in your connection information for the remote machine. Finally, once you have opened the remote desktop connection, you will be able to interact with your remote machine.

Result

In order to prove the software works, we set up a Linux virtual machine on a remote server. Using the build version of the mod, we launched Minecraft on a Windows laptop. In the game of Minecraft, we built a laptop block, opened the GUI, and typed in all the connection information for our remote machine. This successfully opened a window to the remote machine and we were able to modify information on the server.



In-game interface for setting up a connection