
# Extensions

## Introduction

As part of the rapid changes "initiative", in order to refine NS2 in an iterative manner, the need to promote changes quickly and efficiently arose. Stemming from a byproduct of this necessity a new pipeline was added to the current NS2 Build System: *Extensions*.

This new Build Pipeline allows UWE the means to implement changes without the need for "traditional" Steam releases. Utilizing this new system, obviously, does not come without a set of caveats. Many steps will be taken in order to mitigate the impact of this change.

## Technical Overview

When a Server is first started the main process will perform a HTTP (port 80) call to a remote host. This remote host will return a simple space-delimited list of all *Active* Extensions. The HTTP call to the Extensions listing server, will terminate automatically if the host is unreachable or unavailable. The maximum amount of time this terminate action will be no more than 10 seconds. Typically, the extensions listing server will respond in less than 450ms. The amount of data transferred will be very small, generally no more than 250 to 320 bytes per request.

This HTTP-call is required to be a blocking process, so it will add to a Server's startup and map-change time (A maximum of 10 seconds but typically less than 1s). Servers will cache (stored in memory) the retrieved list of extensions. This action is repeated on all map changes. All extensions will appear normally when Clients are connection to a Server. The listing server is hosted on Amazon's EC2 service.

When the Server-World is started, it parses the retrieved extensions-list and inserts them into the mods store. They are always inserted at the head of the mounted mods, and as a result will always be mounted before any admin-defined mods (regardless of MapCycle or cmd-line arguments).

Since the extensions use the existing mod functionality, this means the same historical issues can arise with them (i.e. Steamworks is down for whatever reason and data can't be downloaded). As a result, this system will have a dedicated global backup server for all extensions it delivers. The backup server is hosted on Amazon's EC2 service. It will only serve files specific to extensions, and will *not* act as a backup for all NS2 mods.

On a final Note, UWE will take great care to mitigate potential impact on existing mods. Between individual developer's tests and the playtesting process, we will strive for minimal impact of this new functionality. Furthermore, this system will only ever deliver Lua oriented changes and will never push any binaries (i.e. Engine changes).

Thank you!

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