

BITS Download Manager (Beta)

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BITS (Background Intelligent Transfer Service)

Background Intelligent Transfer Service (BITS) is a component of Microsoft Windows operating systems that facilitates the transfer of files between machines. It is most commonly used by recent versions of Windows Update, Windows Server Update Services, and Systems Management Server to deliver software updates to clients, and is also used by Microsoft's instant messaging products to transfer files.

Technology

BITS uses unused bandwidth to transfer data. Normally, BITS transfers data in the background, i.e., BITS will only transfer data whenever there is bandwidth which is not being used by other applications, for example, when applications use 80% of the available bandwidth, BITS will use only the remaining 20%. BITS constantly monitors network traffic for any increase or decrease in network traffic and accordingly throttles its own transfers to ensure that other foreground applications (such as a web browser) get the bandwidth they need. BITS also supports resuming transfers in case of disruptions.

BITS DOWNLOAD MANAGER (Beta)

INTRODUCTION

Currently BITSmanager cannot be compared to other public download-managers like GetRight, FlashGet. At the moment, BITSmanager is in its nascent stage. The current version, BITS Download Manager (Beta) provides a simple GUI for the BITS (Background Intelligent Transfer Service) which is included in Win2000/XP.

Background Intelligent Transfer Service was primarily designed by Microsoft® for auto-updates (e.g. Windows® Update). The advantage of Background Intelligent Transfer Service is that it uses free bandwidth for the downloads. Your connection won't be slowed down if BITS is downloading files in the background.

Background Intelligent Transfer Service is a so-called "service" which is running in the background any time your system is running. With BITSmanager, you can use Background Intelligent Transfer Service for you own purposes, e.g. downloading personal files from the internet.

System Requirements

- Windows Vista/XP/2000
- .NET Framework
- 64 MB RAM (128 MB recommended)
- Wrapping BITS (API)

Transfers

BITS DOWNLOAD MANAGER transfers files, on behalf of requesting applications, asynchronously, i.e., once an application requests the BITS DOWNLOAD service for a transfer, it will be free to do any other job, or even terminate. The transfer will continue in the background, as long as the network connection is there. Even when a user is not logged on, BITS DOWNLOAD MANAGER continues the data transfer.

BITS DOWNLOAD MANAGER suspends any ongoing transfer when the network connection is lost, or the operating system is shut down. It resumes the transfer, from when it left off, when the computer is turned on later and the network connection is restored. Currently, BITS DOWNLOAD MANAGER supports transfers over HTTP and HTTPS.

Jobs

A BITS DOWNLOAD session has to be started from an application by creating a Job. A job is a container, which has one or more files to transfer. A newly created job doesn't have any file, files must be added to it specifying both the source and destination URIs. While a download job can have any number of files, upload jobs can have only one.

Scheduling

BITS DOWNLOAD MANAGER schedules each job to receive only a finite time slice, for which only that job is allowed to transfer, before it is temporarily paused to give another job a chance to transfer. Higher priority jobs get a higher chunk of time slice. Round-robin scheduling to process jobs in the same priority, and prevent a large transfer job from blocking smaller jobs.

When a job is newly created, it is automatically suspended (or paused). Resuming moves the job to queued state. When it is its turn to transfer data, it first connects to the remote server and then starts transferring. After the time slice expires, the transfer is temporarily paused and the job is moved to queued state. When it gets another time slice, it has to connect again before it can transfer. When the job is complete, BITS transfers ownership of the job to the application that created it.

BITS DOWNLOAD MANAGER includes built-in mechanism for error handling and attempt recovery. Errors can be either fatal or transient, either moves a job to its respective state.

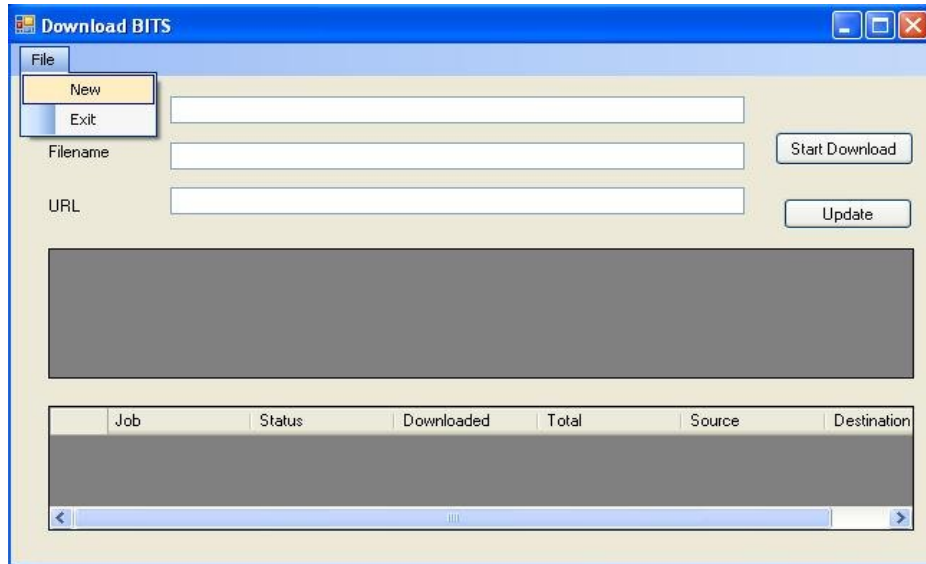
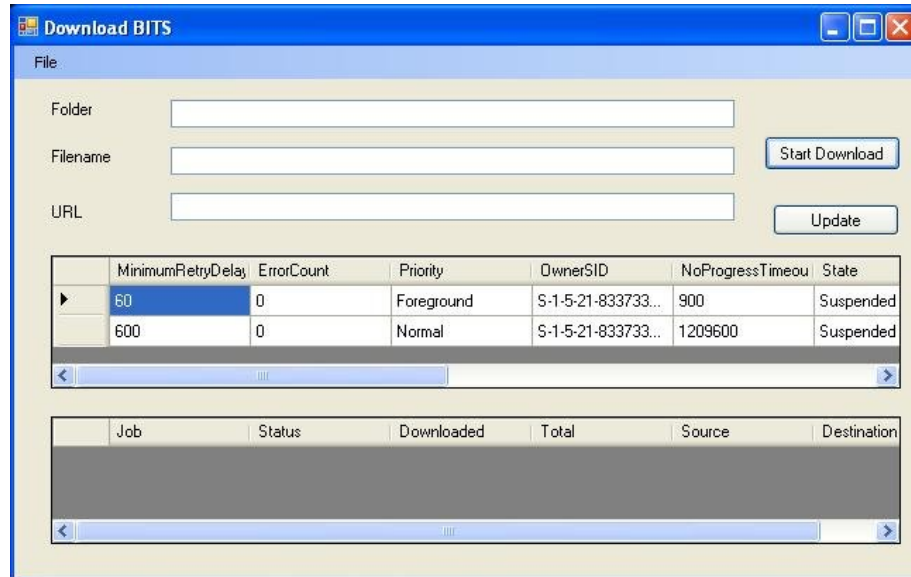
BITS DOWNLOAD MANAGER (Beta) GUI

The BITS DOWNLOAD MANGER GUI supports drag-and-drop feature. A download can be initiated by simple dropping the download link onto the Application.

About

BITSmanager is currently under development by Ankur Khetrapal, Aadith Raman, Anvay Lonkar and Sandeep Dalmia. We are students of Delhi College of Engineering, currently pursuing 6th semester of Computer Engineering.

SCREENSHOTS



FUTURE DEVELOPMENTS

The design of a more user friendly interface for the download manager is in progress. Another feature to be incorporated is a more comprehensive Notification System.

A parallel application, codenamed D+, a download manager like most of the publicly available download accelerators, is in development. The final aim is to incorporate the two applications, providing to the user the flexibility to choose the type of download manager.

Any enquiries or comments may be sent to ankurkhetrapal@uavindia.com