

TO: MSPM Distribution  
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These sections on pre-linking during Multics initialization have been updated to include the several sets of changes which have been made to the pre-linking strategy since the publication of the previous documents. Most important of the changes are the following: 1) It is no longer planned to perform any dynamic linking during Multics initialization. 2) The pre-linker has assumed responsibility for causing linkage segments to be combined.

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Identification

Overview of pre-linking during Multics initialization  
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Purpose

The following sections describe the pre-link modules used during Multics system initialization and during process creation (see Section BJ.9.07). The initialization pre-linker is used to combine linkage sections and to link all external references in the hard-core supervisor and the Multics initializer. Pre-linking avoids the necessity of providing a dynamic linker for the hard-core ring 0 supervisor. It also avoids the problem of initializing the Fault Interceptor Module and the Linker in an environment in which no links have as yet been made. Pre-linking allows hard-core supervisor linkage sections to be shared on a system-wide basis without having to contend with the interlocking problems which would exist if a dynamic linker wrote into ring 0 linkage sections. Another purpose of pre-linking is the combining of linkage sections in the hard-core supervisor and the Multics initializer. This drastically reduces the amount of core and the number of segments used by the supervisor and the initializer. Cf. BD.7.05 on combined linkage.

Description

The pre-linker is composed of two procedure segments: `pre_link_1` and `pre_link_2`. The first of these (described in Section BL.7.01) is used only for pre-linking during Multics initialization. `pre_link_1` contains the mechanism necessary to scan all segments found in the Segment Loading Table (SLT). It makes calls to the LOT Maintainer (BD.7.05) to combine linkage sections, and to `pre_link_2` to perform the actual linking. `pre_link_2` contains the mechanisms to scan through a given linkage section and to "snap" a given linkage pair. It is used in system initialization and in process creation.