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### Identification

The GE-645/DEC 338 Interface Procedure  
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### Purpose

The dataphone interface between the DEC 338 and the GE-645 requires special initialization procedures. A special mastermode segment, xray, is available for performing this function.

### Method

The xray procedure sets up GIOC command lists for the character synchronous adapter. The receive channel "listens" for synchronization information from the 338 followed by an 18-bit transmission. These 18 bits form a GE-645 core memory address which is placed in the CSA transmit channel command list. This channel then transmits the contents (36 bits) of this location to the 338. Telephone line speed limitations (2400 bps) restrict the number of requests and transmissions to a maximum of twenty per second.

The xray program uses GIOC channel 9 for "connecting" the CSA. It checks for a free channel before connecting and waits for completion of its connect after it has been issued. GIOC channel 140 (octal) is used for receiving and 142 for transmitting. Either GIOC may be used depending only on which CSA plugs are connected to the 201B Dataphone at the GE-645. The xray procedure is mastermode, slave access, and impure.

### Usage

xray is called by the Multics initializer as its first order of business. The CSA channels are activated and remain so as long as Multics is!

If, for some reason, one or both are not active, xray may be called from command level through the ring 0 gate segment as follows:

```
hcs_0xray
```

This will cause a "reconnection" and activation of the CSA channels. (Issuing this command while channels are active will cause a dataphone error to be noted by the PDP-8 but otherwise will not have any ill effects.)