

GPRS Network Interfaces

GPRS network interfaces used in **transmission plane** and **control plane**. It includes Um, Gb, Gn, Gp, Gi, Gr, Gc, Gf, Gd and Gs interfaces. Transmission plane provides means for exchange of the user data. The control plane is used to ensure availability of the transmission plane. The control plane also facilitates signaling between the Mobile Station (MS) and the GPRS network elements.

Transmission Plane

GPRS interface type	Between What?	Basic description	Protocol
Um	MS-BSS	Used between MS and BSS for exchange of user and signaling information	Physical RLC/MAC
Um	MS-SGSN	Used between MS and SGSN for exchange of user and signaling information	LLC SNDCP
Gb	SGSN-BSS	Used between SGSN and BSS for data transfer and mobility management	Physical network service BSSGP
Gn	SGSN-GGSN	Used to support mobility; applicable when GGSN and SGSN are located in the same PLMN	GTP-U
Gp	SGSN-GGSN	Used to support mobility; applicable when GGSN and SGSN are located in different PLMNs	GTP-U
Gi	GGSN-PDN	Used to exchange data with external packet data network	IP

Control Plane

GPRS interface type	Between What?	Basic description	Protocol
Um	MS-BSS	Used between MS and BSS for exchange of user and signaling information	Physical RLC/MAC
Um	MS-SGSN	Used between MS and SGSN for exchange of user and signaling information	LLC GMM SM SMS
Gb	SGSN-BSS	Used between SGSN and BSS for data transfer and mobility management	Physical network service

			BSSGP
Gn	SGSN-GGSN	Used to support mobility ;applicagle when GGSN and SGSN are located in same PLMN	GTP-C
Gp	SGSN-GGSN	Used to support mobility ;applicagle when GGSN and SGSN are located in different PLMNs	GTP-C
Gr	SGSN-HLR	Used by the SGSN to obtain subscriber information from HLR	MAP
Gc	GGSN-HLR	Used by the GGSN to retrieve information about the location and supported services for the MS,to be able to activate a packet data network address ;this is optional interface	MAP
Gf	SGSN-EIR	Used by SGSN to enagbel EIR to verify the IMEI retrieved from MS; this is optional interface	MAP
Gd	SGSN-SMS-IWMSC SGSN-SMS-GMSC	Used to deliver to and receive short message form MS to SM service center	MAP
Gs	SGSN-VLR	Used for coordinating the functions of SGSN and VLR when and Mobile has both GSM and GPRS services; this is optional interface	BSSAP+