

New proposed identifier<4.10a (extendable and ITER compatible)		
index	name	description
1	rz	cylindrical R,Z ala eqdsk, within the corresponding COCOS convention
2	polar	2D polar coordinates (rho, theta) with magnetic axis as center of grid; theta and values follow the corresponding COCOS convention, theta=atan2(z-zaxis,r-raxis)polar angle
11	flux_psi_straight	flux surface type with psi as radial label, theta straight-field line(mod(index,10)=1), could be non-equidistant; magnetic axis as center of grid; following the corresponding COCOS convention
12	flux_psi_straight	flux surface type with psi as radial label, theta to have equal arc(mod(index,10)=2)
13	flux_psi_polar	flux surface type with psi as radial label, theta as polar angle, could be non-equidistant
14	flux_psi_hamada_like	flux surface type with psi as radial label, theta as hamada-like angle with jacobian being functi of psi only
19	flux_psi_chi_general	flux surface type with psi as radial label, theta as general angle defined through jacobian
21	flux_rhopolnorm_straight	flux surface type with radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)) and theta straight field line
22	flux_rhopolnorm_arc	flux surface type with radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)), theta to have equal arc
23	flux_rhopolnorm_polar	same as 13 but radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis))
24	flux_rhopolnorm_hamada_like	same as 14 but radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis))
29	flux_rhopolnorm_chi_general	same as 19 but radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis))
31	flux_rhotormnorm_straight	flux surface type with radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux and theta straight field line
32	flux_rhotormnorm_arc	flux surface type with radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux, theta to have equal arc
33	flux_rhotormnorm_polar	same as 13 but radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux
34	flux_rhotormnorm_hamada_like	same as 14 but radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux
39	flux_rhotormnorm_chi_general	same as 19 but radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux
41	flux_rhopol_straight	flux surface type with radial label is sqrt(psi-psi_axis) and theta straight-field line
42	flux_rhopol_arc	flux surface type with radial label is sqrt(psi-psi_axis), theta to have equal arc
43	flux_rhopol_polar	same as 13 but radial label is sqrt(psi-psi_axis)
44	flux_rhopol_hamada_like	same as 14 but radial label is sqrt(psi-psi_axis)
49	flux_rhopol_chi_general	same as 19 but radial label is sqrt(psi-psi_axis)
51	flux_rhotor_straight	flux surface type with radial label is sqrt(Phi/pi/B0), Phi being toroidal flux and theta straight-field line
52	flux_rhotor_arc	flux surface type with radial label is sqrt(Phi/pi/B0), Phi being toroidal flux, theta to have equal arc
53	flux_rhotor_polar	same as 13 but radial label is sqrt(Phi/pi/B0), Phi being toroidal flux
54	flux_rhotor_hamada_like	same as 14 but radial label is sqrt(Phi/pi/B0), Phi being toroidal flux
59	flux_rhotor_chi_general	same as 19 but radial label is sqrt(Phi/pi/B0), Phi being toroidal flux
91	irregular_rz	irregular grid, thus give list of vertices in dim1(1.ndim1), dim2(1.ndim1) and then all fields are values(1.ndim1,1); needs to know if R,Z, psi,theta for dim1, dim2? Used with connect and only for rz

as was not implemented up to 4.10a but should be if kept as is			
proposed relation with ITM grid_type(1-4)			
grid_type(1) string	grid_type(2) string	grid_type(3) string	grid_type(4) string
"1"	"rectangular"	"-1"	"na"
"2"	"inverse rhopolar"	"3"	"polar"
"2"	"inverse psi"	"1"	"straight field line"
"2"	"inverse psi"	"2"	"equal arc"
"2"	"inverse psi"	"3"	"polar"
"2"	"inverse psi"	"4"	"hamada_like"
"2"	"inverse psi"	"9"	"chi_general"
"2"	"inverse rhopolnorm"	"1"	"straight field line"
"2"	"inverse rhopolnorm"	"2"	"equal arc"
"2"	"inverse rhopolnorm"	"3"	"polar"
"2"	"inverse rhopolnorm"	"4"	"hamada_like"
"2"	"inverse rhopolnorm"	"9"	"chi_general"
"2"	"inverse rhotormnorm"	"1"	"straight field line"
"2"	"inverse rhotormnorm"	"2"	"equal arc"
"2"	"inverse rhotormnorm"	"3"	"polar"
"2"	"inverse rhotormnorm"	"4"	"hamada_like"
"2"	"inverse rhotormnorm"	"9"	"chi_general"
"2"	"inverse rhotor"	"1"	"straight field line"
"2"	"inverse rhotor"	"2"	"equal arc"
"2"	"inverse rhotor"	"3"	"polar"
"2"	"inverse rhotor"	"4"	"hamada_like"
"2"	"inverse rhotor"	"9"	"chi_general"
"3"	"irregular rz"	"-1"	"na"

IMAS grid_type /index	IMAS grid_type/name	IMAS grid_type/description
1	rectangular	cylindrical R,Z ala eqdsk, within the corresponding COCOS convention (COCOS=11 is assumed in ITER)
2	inverse rhopolar_polar	2D polar coordinates (rho, theta) with magnetic axis as center of grid; theta and values follow the corresponding COCOS convention, theta=atan2(z-zaxis,r-raxis)polar angle (COCOS=11 is assumed in ITER)
11	inverse psi_straight field line	flux surface type with psi as radial label, theta straight-field line (mod(index,10)=1), could be non-equidistant; magnetic axis as center of grid; following the corresponding COCOS convention (COCOS=11 is assumed in ITER)
12	inverse psi_equal arc	flux surface type with psi as radial label, theta to have equal arc (mod(index,10)=2) (COCOS=11 is assumed in ITER)
13	inverse psi_polar	flux surface type with psi as radial label, theta as polar angle, could be non-equidistant (COCOS=11 is assumed in ITER)
14	inverse psi_hamada_like	flux surface type with psi as radial label, theta as hamada-like angle with jacobian being function of psi only (COCOS=11 is assumed in ITER)
19	inverse psi_chi_general	flux surface type with psi as radial label, theta as general angle defined through jacobian (COCOS=11 is assumed in ITER)
21	inverse rhopolnorm_straight field line	flux surface type with radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)) and theta straight field line (COCOS=11 is assumed in ITER)
22	inverse rhopolnorm_equal arc	flux surface type with radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)), theta to have equal arc (COCOS=11 is assumed in ITER)
23	inverse rhopolnorm_polar	same as 13 but radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)) (COCOS=11 is assumed in ITER)
24	inverse rhopolnorm_hamada_like	same as 14 but radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)) (COCOS=11 is assumed in ITER)
29	inverse rhopolnorm_chi_general	same as 19 but radial label is sqrt((psi-psi_axis)/(psi_edge-psi_axis)) (COCOS=11 is assumed in ITER)
31	inverse rhotormnorm_straight field line	flux surface type with radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux and theta straight field line (COCOS=11 is assumed in ITER)
32	inverse rhotormnorm_equal arc	flux surface type with radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux, theta to have equal arc (COCOS=11 is assumed in ITER)
33	inverse rhotormnorm_polar	same as 13 but radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux (COCOS=11 is assumed in ITER)
34	inverse rhotormnorm_hamada_like	same as 14 but radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux (COCOS=11 is assumed in ITER)
39	inverse rhotormnorm_chi_general	same as 19 but radial label is sqrt(Phi/Phi_edge), Phi being toroidal flux (COCOS=11 is assumed in ITER)
41	inverse rhopol_straight field line	flux surface type with radial label is sqrt(psi-psi_axis) and theta straight-field line (COCOS=11 is assumed in ITER)
42	inverse rhopol_equal arc	flux surface type with radial label is sqrt(psi-psi_axis), theta to have equal arc (COCOS=11 is assumed in ITER)
43	inverse rhopol_polar	same as 13 but radial label is sqrt(psi-psi_axis) (COCOS=11 is assumed in ITER)
44	inverse rhopol_hamada_like	same as 14 but radial label is sqrt(psi-psi_axis) (COCOS=11 is assumed in ITER)
49	inverse rhopol_chi_general	same as 19 but radial label is sqrt(psi-psi_axis) (COCOS=11 is assumed in ITER)
51	inverse rhotor_straight field line	flux surface type with radial label is sqrt(Phi/pi/B0), Phi being toroidal flux and theta straight-field line (COCOS=11 is assumed in ITER)
52	inverse rhotor_equal arc	flux surface type with radial label is sqrt(Phi/pi/B0), Phi being toroidal flux, theta to have equal arc (COCOS=11 is assumed in ITER)
53	inverse rhotor_polar	same as 13 but radial label is sqrt(Phi/pi/B0), Phi being toroidal flux (COCOS=11 is assumed in ITER)
54	inverse rhotor_hamada_like	same as 14 but radial label is sqrt(Phi/pi/B0), Phi being toroidal flux (COCOS=11 is assumed in ITER)
59	inverse rhotor_chi_general	same as 19 but radial label is sqrt(Phi/pi/B0), Phi being toroidal flux (COCOS=11 is assumed in ITER)
91	irregular_rz_na	irregular grid, thus give list of vertices in dim1(1.ndim1), dim2(1.ndim1) and then all fields are values(1.ndim1,1); needs to know if R,Z, psi,theta for dim1, dim2? Used with connect and only for rz (COCOS=11 is assumed in ITER)