API Changes							
Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
Added Arguments							
ESMF_StateGet	N/A	itemorderflag	Yes	18.7.8	19.7.8	Allow items to be returned in the order in which they were added	No impact
ESMF_StateRemove	N/A	relaxedFlag	Yes, but see Deprecated Interface section	18.7.14	19.7.14	Consistency with other container classes	No impact
ESMF_FieldBundleGet	N/A	itemorderflag	Yes	22.5.9	23.5.9	Allow items to be returned in the order in which they were added	No impact
ESMF_FieldBundleGet	N/A	itemorderflag	Yes	22.5.10	23.5.10	Allow items to be returned in the order in which they were added	No impact
ESMF_FieldBundleRead	N/A	timeslice	No	22.5.15	23.5.15	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_FieldBundleWrite	N/A	timeslice	No	22.5.30	23.5.30	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
	N/A	overwrite	No	22.5.30	23.5.30	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
	N/A	status	No	22.5.30	23.5.30	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_FieldRead	N/A	variableName	No	23.6.51	24.6.51	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_FieldRegrid	N/A	termorderflag	Yes	23.6.56	24.6.56	Support for bit-for-bit reproducibility	No impact
ESMF_FieldRegridStore	N/A	srcTermProcessing	Yes	23.6.58	24.6.58	Support for bit-for-bit reproducibility	No impact
	N/A	pipeLineDepth	Yes	23.6.58	24.6.58	Support for performance reproducibility	No impact
	N/A	ignoreDegenerate	Yes	23.6.58	24.6.58	Allow user to skip degenerate cells	No impact
	N/A	unmappedDstList	Yes	23.6.58	24.6.58	Get list of unmapped points	No impact
ESMF_FieldSMM	N/A	termorderflag	Yes	23.6.62	24.6.62	Support for bit-for-bit reproducibility	No impact
ESMF_FieldSMMStore	N/A	srcTermProcessing	Yes	23.6.64	24.6.64	Support for bit-for-bit reproducibility	No impact

API Changes							
Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
	N/A	pipeLineDepth	Yes	23.6.64	24.6.64	Support for performance reproducibility	No impact
ESMF_FieldSMMStore	N/A	srcTermProcessing	Yes	23.6.65	24.6.65	Support for bit-for-bit reproducibility	No impact
	N/A	pipeLineDepth	Yes	23.6.65	24.6.65	Support for performance reproducibility	No impact
ESMF_FieldWrite	N/A	variableName	No	23.6.67	24.6.67	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
	N/A	overwrite	No	23.6.67	24.6.67	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
	N/A	status	No	23.6.67	24.6.67	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_ArrayBundleGet	N/A	itemorderflag	Yes	24.5.9	25.5.9	Allow items to be returned in the order in which they were added	No impact
ESMF_ArrayBundleGet	N/A	itemorderflag	Yes	24.5.10	25.5.10	Allow items to be returned in the order in which they were added	No impact
ESMF_ArrayBundleRead	N/A	timeslice	No	24.5.15	25.5.15	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_ArrayBundleWrite	N/A	overwrite	No	24.5.26	25.5.26	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
	N/A	status	No	24.5.26	25.5.26	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_ArrayRedistStore	N/A	pipeLineDepth	Yes	25.5.28	26.5.28	Support for bit-for-bit reproducibility	No impact
ESMF_ArrayRedistStore	N/A	pipeLineDepth	Yes	25.5.29	26.5.29	Support for bit-for-bit reproducibility	No impact
ESMF_ArraySMM	N/A	termorderflag	Yes	25.5.33	26.5.33	Support for bit-for-bit reproducibility	No impact
ESMF_ArraySMMStore	N/A	srcTermProcessing	Yes	25.5.35	26.5.35	Support for bit-for-bit reproducibility	No impact
	N/A	pipeLineDepth	Yes	25.5.35	26.5.35	Support for performance reproducibility	No impact
ESMF_ArraySMMStore	N/A	srcTermProcessing	Yes	25.5.36	26.5.36	Support for bit-for-bit reproducibility	No impact

API Changes

Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
	N/A	pipeLineDepth	Yes	25.5.36	26.5.36	Support for performance reproducibility	No impact
ESMF_ArrayWrite	N/A	overwrite	No	25.5.38	26.5.38	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
	N/A	status	No	25.5.38	26.5.38	Consistency and completeness of the I/O interfaces	If keywords are not used for the optional argument, they must now be introduced.
ESMF_GridCreate	N/A	coordNames	No	28.6.14	29.6.13	Allow user to select coordinate to use in file	No impact
ESMF_XGridCreate	N/A	sideAMesh	No	31.6.4	32.6.4	Support for creating XGrid from Mesh	No impact
	N/A	sideBMesh	No	31.6.4	32.6.4	Support for creating XGrid from Mesh	No impact
	N/A	sideAMeshPriority	No	31.6.4	32.6.4	Support for creating XGrid from Mesh	No impact
	N/A	sideBMeshPriority	No	31.6.4	32.6.4	Support for creating XGrid from Mesh	No impact
ESMF_XGridCreateFromSparseMat	N/A	sideAMesh	No	31.6.5	32.6.5	Support for creating XGrid from Mesh	No impact
	N/A	sideBMesh	No	31.6.5	32.6.5	Support for creating XGrid from Mesh	No impact
	N/A	sideAMeshPriority	No	31.6.5	32.6.5	Support for creating XGrid from Mesh	No impact
	N/A	sideBMeshPriority	No	31.6.5	32.6.5	Support for creating XGrid from Mesh	No impact
ESMF_XGridGet	N/A	sideAMesh	No	31.6.7	32.6.7	Support for retrieving a Mesh from XGrid	No impact
	N/A	sideBMesh	No	31.6.7	32.6.7	Support for retrieving a Mesh from XGrid	No impact
ESMF_ConfigFindLabel	N/A	isPresent	Yes	43.3.4	44.3.4	Presence test for label without error being generated	No impact
Removed Arguments							
ESMF_FieldWrite	append	N/A	No	23.6.67	24.6.67	Consistency and completeness of the I/O interfaces	Use the new "status" argument

API Changes

Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
ESMF_ArrayWrite	append	N/A	No	25.5.38	26.5.38	Consistency and completeness of the I/O interfaces	Use the new "status" argument

Arguments Name Changes

Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
ESMF_XGridCreate	sideA	sideAGrid	No	31.6.4	32.6.4	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideB	sideBGrid	No	31.6.4	32.6.4	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideAPriority	sideAGridPriority	No	31.6.4	32.6.4	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideBPriority	sideBGridPriority	No	31.6.4	32.6.4	Support both Meshes and Grids in XGrid	Use the new argument keyword.
ESMF_XGridCreateFromSparseMat	sideA	sideAGrid	No	31.6.5	32.6.5	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideB	sideBGrid	No	31.6.5	32.6.5	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideAPriority	sideAGridPriority	No	31.6.5	32.6.5	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideBPriority	sideBGridPriority	No	31.6.5	32.6.5	Support both Meshes and Grids in XGrid	Use the new argument keyword.
ESMF_XGridGet	sideA	sideAGrid	No	31.6.7	32.6.7	Support both Meshes and Grids in XGrid	Use the new argument keyword.
	sideB	sideBGrid	No	31.6.7	32.6.7	Support both Meshes and Grids in XGrid	Use the new argument keyword.

Attribute Convention and Purpose Name Changes

Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
Attribute package methods	CIM	CIM 1.5	No	36.11.1-36.11.28	37.11.1-37.11.28	Change values to a more usable and consistent format.	Use the new value.
Attribute package methods	Model Component Simulation Description	ModelComp	No	36.11.1-36.11.28	37.11.1-37.11.28	Change values to a more usable and consistent format.	Use the new value.
Attribute package methods	Platform Description	Platform	No	36.11.1-36.11.28	37.11.1-37.11.28	Change values to a more usable and consistent format.	Use the new value.
Attribute package methods	Responsible Party Description	RespParty	No	36.11.1-36.11.28	37.11.1-37.11.28	Change values to a more usable and consistent format.	Use the new value.

API Changes							
Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
Attribute package methods	Citation Description	Citation	No	36.11.1-36.11.28	37.11.1-37.11.28	Change values to a more usable and consistent format.	Use the new value.
Attribute package methods	Scientific Properties Description	SciProp	No	36.11.1-36.11.28	37.11.1-37.11.28	Update values according to new conventions.	Use the new value.
Attribute package methods	Component Properties Description	CompProp	No	36.11.1-36.11.28	37.11.1-37.11.28	Update values according to new conventions.	Use the new value.
Attribute package methods	Inputs Description	Inputs	No	36.11.1-36.11.28	37.11.1-37.11.28	Change values to a more usable and consistent format.	Use the new value.
Added Interfaces							
ESMF_SciCompAssignment(=)	N/A	SciComp assignment(=)	N/A	N/A	17.4.1	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompOperator(==)	N/A	SciComp operator(==)	N/A	N/A	17.4.2	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompOperator(/=)	N/A	SciComp operator(/=)	N/A	N/A	17.4.3	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompCreate	N/A	ESMF_SciCompCreate	N/A	N/A	17.4.4	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompDestroy	N/A	ESMF_SciCompDestroy	N/A	N/A	17.4.5	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompGet	N/A	ESMF_SciCompGet	N/A	N/A	17.4.6	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompPrint	N/A	ESMF_SciCompPrint	N/A	N/A	17.4.7	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompSet	N/A	ESMF_SciCompSet	N/A	N/A	17.4.8	Allow automatic documentation of model metadata in CESM	No impact
ESMF_SciCompValidate	N/A	ESMF_SciCompValidate	N/A	N/A	17.4.9	Allow automatic documentation of model metadata in CESM	No impact
ESMF_StateRemove	N/A	ESMF_StateRemove	N/A	N/A	19.7.15	Consistency with other container classes	No impact

API Changes							
Method name	Old value (530)	New value (610)	Marked backward compatible in 530	Interfaces affected (530)	Interface (610)	Rationale for change	Impact
ESMF_RegridWeightGen	N/A	ESMF_RegridWeightGen	N/A	N/A	22.3.1	Allow user to generate regrid weights from grid files. The weights are written to a file.	No impact
ESMF_RouteHandlePrint	N/A	ESMF_RouteHandlePrint	N/A	N/A	34.5.1	Standard ESMF class method	No impact
ESMF_AttributeGet	N/A	ESMF_AttributeGet	N/A	N/A	37.11.8	Allow retrieval of internal object information	No impact
ESMF_AttributeGet	N/A	ESMF_AttributeGet	N/A	N/A	37.11.10	Allow retrieval of internal object information	No impact
ESMF_AttributeSet	N/A	ESMF_AttributeSet	N/A	N/A	37.11.28	Specify whether information is to be used for the retrieval of internal object information	No impact
ESMF_UtilSort	N/A	ESMF_UtilSort	N/A	N/A	48.4.6	Add a general purpose in-place sorting utility	No impact
Deprecated Interfaces							
ESMF_StateRemove	ESMF_StateRemove	N/A	Yes	18.7.14	19.7.14	Consistency with other container classes	No impact - but migration to the new ESMF_StateRemove interface 19.7.15 is recommended
Removed Interfaces							
ESMF_GridCreate	ESMF_GridCreate	N/A	No	28.6.13	N/A	Replace GFDL GridSpec package with the CIM 1.5.1 grids package	Code relying on this interface will no longer work