

API Changes							
Method name	Old value (700)	New value (710r)	Marked backward compatible in 700	Interface (700)	Interface (710r)	Rationale for change	Impact
Added Optional Arguments							
ESMF_GridCompCreate	N/A	gridList	Yes	17.4.4	17.4.4		
ESMF_GridCompCreate	N/A	mesh	Yes	17.4.4	17.4.4		
ESMF_GridCompCreate	N/A	meshList	Yes	17.4.4	17.4.4		
ESMF_GridCompCreate	N/A	locstream	Yes	17.4.4	17.4.4		
ESMF_GridCompCreate	N/A	locstreamList	Yes	17.4.4	17.4.4		
ESMF_GridCompCreate	N/A	xgrid	Yes	17.4.4	17.4.4	Allow to hold multiple Grid, Mesh, LocStream, and XGrid objects.	No impact.
ESMF_GridCompCreate	N/A	xgridList	Yes	17.4.4	17.4.4		
ESMF_GridCompGet	N/A	gridList	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	meshIsPresent	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	mesh	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	meshList	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	locstreamsPresent	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	locstream	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	xgridIsPresent	Yes	17.4.7	17.4.7		
ESMF_GridCompGet	N/A	xgrid	Yes	17.4.7	17.4.7	Allow to retrieve Grid, Mesh, LocStream, and XGrid objects.	No impact.
ESMF_GridCompGet	N/A	xgridList	Yes	17.4.7	17.4.7		
ESMF_GridCompSet	N/A	gridList	Yes	17.4.16	17.4.16		
ESMF_GridCompSet	N/A	mesh	Yes	17.4.16	17.4.16		
ESMF_GridCompSet	N/A	meshList	Yes	17.4.16	17.4.16		
ESMF_GridCompSet	N/A	locstream	Yes	17.4.16	17.4.16		
ESMF_GridCompSet	N/A	locstreamList	Yes	17.4.16	17.4.16		
ESMF_GridCompSet	N/A	xgrid	Yes	17.4.16	17.4.16	Allow to set multiple Grid, Mesh, LocStream, and XGrid objects.	No impact.
ESMF_GridCompSet	N/A	xgridList	Yes	17.4.16	17.4.16		
ESMF_StatePrint	N/A	filename	No	21.7.12	21.7.12	This debugging option should not have been made public and will be removed in the future.	No impact.
ESMF_RegridWeightGen	N/A	extrapMethod	No	24.3.1	24.3.1	Allow user to select the extrapolation method.	No impact.
ESMF_RegridWeightGen	N/A	extrapNumSrcPnts	No	24.3.1	24.3.1	Set the number of source points to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_RegridWeightGen	N/A	extrapDistExponent	No	24.3.1	24.3.1	Set the exponent to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_RegridWeightGen	N/A	weightOnlyFlag	No	24.3.1	24.3.1	Indicates that no grid information should be written to the weight file.	No impact.
ESMF_RegridWeightGen	N/A	tileFilePath	No	24.3.1	24.3.1	Allows to specify an alternative location of the mosaic tile files.	No impact.
ESMF_RegridWeightGen	N/A	extrapMethod	No	24.3.2	24.3.2	Allow user to select the extrapolation method.	No impact.
ESMF_RegridWeightGen	N/A	extrapNumSrcPnts	No	24.3.2	24.3.2	Set the number of source points to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_RegridWeightGen	N/A	extrapDistExponent	No	24.3.2	24.3.2	Set the exponent to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_RegridWeightGen	N/A	weightOnlyFlag	No	24.3.2	24.3.2	Indicates that no grid information should be written to the weight file.	No impact.
ESMF_FieldBundleRegridStore	N/A	extrapMethod	Yes	25.5.23	25.5.23	Allow user to select the extrapolation method.	No impact.
ESMF_FieldBundleRegridStore	N/A	extrapNumSrcPnts	Yes	25.5.23	25.5.23	Set the number of source points to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_FieldBundleRegridStore	N/A	extrapDistExponent	Yes	25.5.23	25.5.23	Set the exponent to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_FieldBundleRegridStore	N/A	srcTermProcessing	Yes	25.5.23	25.5.23	Support for bit-for-bit reproducibility	No impact.
ESMF_FieldBundleRegridStore	N/A	pipelineDepth	Yes	25.5.23	25.5.23	Support for performance reproducibility	No impact.
ESMF_FieldBundleSMMStore	N/A	srcTermProcessing	Yes	25.5.32	25.5.32	Support for bit-for-bit reproducibility	No impact.
ESMF_FieldBundleSMMStore	N/A	srcTermProcessing	Yes	25.5.33	25.5.33	Support for bit-for-bit reproducibility	No impact.
ESMF_FieldBundleWrite	N/A	convention	No	25.5.35	25.5.36	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.

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ESMF_FieldBundleWrite	N/A	purpose	No	25.5.35	25.5.36	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_FieldEmptySetGrid	N/A	vm	Yes	26.6.39	26.6.39	Allows multi-step Field creation on a different VM than the Grid was created on.	No impact.
ESMF_FieldEmptySetLocStream	N/A	vm	No	26.6.41	26.6.41	Allows multi-step Field creation on a different VM than the Grid was created on.	No impact.
ESMF_FieldFill	N/A	const1	No	26.6.43	26.6.43	Allows user to set the fill value under the "const" fill scheme.	No impact.
ESMF_FieldRegrid	N/A	dynamicMask	Yes	26.6.57	26.6.57	Allows user to specify dynamic masking information.	No impact.
ESMF_FieldRegridStore	N/A	extrapMethod	Yes	26.6.59	26.6.59	Allow user to select the extrapolation method.	No impact.
ESMF_FieldRegridStore	N/A	extrapNumSrcPnts	Yes	26.6.59	26.6.59	Set the number of source points to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_FieldRegridStore	N/A	extrapDistExponent	Yes	26.6.59	26.6.59	Set the exponent to use for the inverse distance weighted average extrapolation method.	No impact.
ESMF_FieldRegridStore	N/A	dstStatusField	Yes	26.6.59	26.6.59	Outputs the regrid status (e.g. unmapped) for each destination location.	No impact.
ESMF_FieldRegridStore	N/A	regridMethod	Yes	26.6.60	26.6.60	Allows the user to choose the regrid method to use for interpolation.	No impact.
ESMF_FieldBundleWrite	N/A	convention	No	26.6.70	26.6.74	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_FieldBundleWrite	N/A	purpose	No	26.6.70	26.6.74	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_ArrayBundleSMMStore	N/A	srcTermProcessing	Yes	27.5.25	27.5.25	Support for bit-for-bit reproducibility	No impact.
ESMF_ArrayBundleSMMStore	N/A	srcTermProcessing	Yes	27.5.26	27.5.26	Support for bit-for-bit reproducibility	No impact.
ESMF_ArrayBundleWrite	N/A	convention	No	27.5.27	27.5.27	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_ArrayBundleWrite	N/A	purpose	No	27.5.27	27.5.27	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_ArrayRedist	N/A	zeroregion	Yes	28.5.28	28.5.28	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_ArraySMM	N/A	dynamicMask	Yes	28.5.35	28.5.37	Allows user to specify dynamic masking information.	No impact.
ESMF_ArrayWrite	N/A	convention	No	28.5.40	28.5.46	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_ArrayWrite	N/A	purpose	No	28.5.40	28.5.46	Allows specification of the Attribute package to be used when writing NetCDF metadata.	No impact.
ESMF_GridCreate	N/A	copyAttributes	Yes	31.6.6	31.6.6	Allows attributes on the new Grid to be copied from the original Grid.	No impact.
ESMF_GridCreate	N/A	copyAttributes	Yes	31.6.7	31.6.7	Allows attributes on the new Grid to be copied from the original Grid.	No impact.
ESMF_GridCreate	N/A	polekindflag	No	31.6.13	31.6.13	Allow the user to specify the type of pole to be used when creating a Grid from a file.	No impact.
ESMF_GridEmptyCreate	N/A	vm	Yes	31.6.30	31.6.33	Allows multi-step Field creation on a different VM than the Grid was created on.	No impact.
ESMF_GridGet	N/A	tile	Yes	31.6.32	31.6.35	Allow the user to query the tile within which a localDE is contained.	No impact.
ESMF_GridGet	N/A	staggerEdgeLWidth	Yes	31.6.34	31.6.37		No impact.
ESMF_GridGet	N/A	staggerEdgeUWidth	Yes	31.6.34	31.6.37		No impact.
ESMF_GridGet	N/A	staggerAlign	Yes	31.6.34	31.6.37	Allow the user to get bound, width, and alignment information for a particular stagger in a Grid.	No impact.
ESMF_GridGet	N/A	staggerLBound	Yes	31.6.34	31.6.37		No impact.

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ESMF_MeshAddElements	N/A	elementDistgrid	No	33.4.4	33.4.4	Allow the user to explicitly set the elementDistgrid.	No impact.
ESMF_MeshAddNodes	N/A	nodalDistgrid	No	33.4.5	33.4.5	Allow the user to explicitly set the nodeDistgrid.	No impact.
ESMF_MeshCreate	N/A	nodalDistgrid	No	33.4.7	33.4.7	Allow the user to explicitly set the nodeDistgrid.	No impact.
ESMF_MeshCreate	N/A	elementDistgrid	No	33.4.7	33.4.7	Allow the user to explicitly set the elementDistgrid.	No impact.
ESMF_MeshCreate	N/A	vm	No	33.4.9	33.4.9	Support object creation on a different VM than that of the current context.	No impact.
ESMF_DistGridCreate	N/A	indexTK	Yes	35.6.7	35.6.8	Allows user to explicitly select between 32-bit vs 64-bit sequence indexing.	No impact.
ESMF_AttributeAdd	N/A	redundant	No	39.11.5	39.11.3	Allow redundant Attribute packages, which use the same convention and purpose.	No impact.
ESMF_AttributeGetAttPack	N/A	redundant	No	39.11.24	39.11.21	Allow redundant Attribute packages, which use the same convention and purpose.	No impact.
ESMF_AttributeUpdate	N/A	reconcile	No	39.11.44	39.11.41	Allow Attributes to be created on proxy PETs during the update phase, without also modifying the values of pre-existing Attributes.	No impact.
ESMF_LogGet	N/A	highResTimeStampFlag	No	47.7.9	47.7.10	Allows to query the precision of the time stamp used in the Log file.	No impact.
ESMF_LogSet	N/A	highResTimeStampFlag	No	47.7.12	47.7.13	Allows to set the precision of the time stamp used in the Log file.	No impact.
Changed Arguments							
ESMF_ArrayCreate	integer :: haloSeqIndexList(:)	integer(ESMF_KIND_<indexkind>) :: haloSeqIndexList(:)	Yes	28.5.6	28.5.6	Support for 32-bit and 64-bit sequence indices.	No impact.
ESMF_ArrayCreate	integer :: haloSeqIndexList(:)	integer(ESMF_KIND_<indexkind>) :: haloSeqIndexList(:)	Yes	28.5.8	28.5.8	Support for 32-bit and 64-bit sequence indices.	No impact.
ESMF_ArrayCreate	integer :: haloSeqIndexList(:)	integer(ESMF_KIND_<indexkind>) :: haloSeqIndexList(:)	Yes	28.5.10	28.5.10	Support for 32-bit and 64-bit sequence indices.	No impact.
ESMF_ArrayCreate	integer :: haloSeqIndexList(:)	integer(ESMF_KIND_<indexkind>) :: haloSeqIndexList(:)	Yes	28.5.12	28.5.12	Support for 32-bit and 64-bit sequence indices.	No impact.
ESMF_ArrayCreate	integer :: haloSeqIndexList(:)	integer(ESMF_KIND_<indexkind>) :: haloSeqIndexList(:)	Yes	28.5.14	28.5.14	Support for 32-bit and 64-bit sequence indices.	No impact.
ESMF_RouteHandlePrint	rhandle	routehandle	No	36.5.2	36.5.5	Consistent use of argument names across the API.	If argument label is used, it must now be renamed.
ESMF_VMRecv	recvData ESMF_KIND_I4	recvData ESMF_KIND_<kind>	Yes	49.5.22	49.5.22	Correctly reflect the typekind overloaded interface in the documentation. No actual API change.	No impact.
ESMF_AttributeCopy	copyflag	attcopy	No	39.11.8	39.11.6	Adjust to the new type name for ESMF_AttCopy_Flag	If argument label is used, it must now be renamed.
Removed Arguments							
ESMF_FieldSMMStore	N/A	transposeRoutehandle	Yes	26.6.65	26.6.65	Replaced the use of the optional argument in favor of overloading the interface with an alternative entry point. This allows for stricter intent() definition on the src object.	No impact.
ESMF_FieldSMMStore	N/A	transposeRoutehandle	Yes	26.6.66	26.6.67	Replaced the use of the optional argument in favor of overloading the interface with an alternative entry point. This allows for stricter intent() definition on the src object.	No impact.
ESMF_ArrayRedistStore	N/A	transposeRoutehandle	Yes	28.5.30	28.5.30	Replaced the use of the optional argument in favor of overloading the interface with an alternative entry point. This allows for stricter intent() definition on the src object.	No impact.

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ESMF_ArrayRedistStore	N/A	transposeRoutehandle	Yes	28.5.32	28.5.32	Replaced the use of the optional argument in favor of overloading the interface with an alternative entry point. This allows for stricter intent() definition on the src object.	No impact.
ESMF_ArraySMMStore	N/A	transposeRoutehandle	Yes	28.5.33	28.5.33	Replaced the use of the optional argument in favor of overloading the interface with an alternative entry point. This allows for stricter intent() definition on the src object.	No impact.
ESMF_ArraySMMStore	N/A	transposeRoutehandle	Yes	28.5.34	28.5.34	Replaced the use of the optional argument in favor of overloading the interface with an alternative entry point. This allows for stricter intent() definition on the src object.	No impact.
ESMF_LocStreamCreate	N/A	meshname	No	32.4.14	32.4.14	The dummy variable for the mesh metadata in the UGRID file is now automatically identified.	If the argument is specified, it must now be removed.
ESMF_MeshCreate	N/A	meshname	No	33.4.8	33.4.8	The dummy variable for the mesh metadata in the UGRID file is now automatically identified.	If the argument is specified, it must now be removed.
ESMF_AttributeCopy	N/A	attreeflag	No	39.11.8	39.11.6	This flag was found to be unnecessary for any of the options currently available.	If the argument is specified, it must now be removed.
Added Methods							
ESMF_IsInitialized	N/A	N/A	N/A	N/A	16.4.2	Allows to query whether the framework has been initialized.	No impact.
ESMF_IsFinalized	N/A	N/A	N/A	N/A	16.4.3	Allows to query whether the framework has been finalized.	No impact.
ESMF_FieldBundleSMMStore	N/A	N/A	N/A	N/A	25.5.34	Support reading weights from file.	No impact.
ESMF_FieldSMMStore	N/A	N/A	N/A	N/A	26.6.66	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_FieldSMMStore	N/A	N/A	N/A	N/A	26.6.68	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_FieldSMMStore	N/A	N/A	N/A	N/A	26.6.69	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_FieldSMMStore	N/A	N/A	N/A	N/A	26.6.70	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_ArrayRedistStore	N/A	N/A	N/A	N/A	28.5.31	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_ArrayRedistStore	N/A	N/A	N/A	N/A	28.5.33	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_ArraySMMStore	N/A	N/A	N/A	N/A	28.5.40	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_ArraySMMStore	N/A	N/A	N/A	N/A	28.5.42	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_ArraySMMStore	N/A	N/A	N/A	N/A	28.5.43	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_ArraySMMStore	N/A	N/A	N/A	N/A	28.5.44	Overload the interface to offer the transposeRoutehandle option with correct intent() on the src object.	No impact.
ESMF_SparseMatrixWrite	N/A	N/A	N/A	N/A	28.5.47	Support writing sparse matrix information to disk as a weight file.	No impact.
ESMF_DynamicMaskSetR8R8R8	N/A	N/A	N/A	N/A	28.6.1	Implementation of the dynamic masking feature.	No impact.
ESMF_DynamicMaskSetR8R8R8V	N/A	N/A	N/A	N/A	28.6.2	Implementation of the dynamic masking feature.	No impact.

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ESMF_DynamicMaskSetR4R8R4	N/A	N/A	N/A	N/A	28.6.3	Implementation of the dynamic masking feature.	No impact.
ESMF_DynamicMaskSetR4R8R4V	N/A	N/A	N/A	N/A	28.6.4	Implementation of the dynamic masking feature.	No impact.
ESMF_DynamicMaskSetR4R4R4	N/A	N/A	N/A	N/A	28.6.5	Implementation of the dynamic masking feature.	No impact.
ESMF_DynamicMaskSetR4R4R4V	N/A	N/A	N/A	N/A	28.6.6	Implementation of the dynamic masking feature.	No impact.
ESMF_GridCreate1PeriDimUfrm	N/A	N/A	N/A	N/A	31.6.25	Allow easy creation of block distributed spherical grid with uniform coordinates.	No impact.
ESMF_GridCreateCubedSphere	N/A	N/A	N/A	N/A	31.6.27	A method to create a 6-tile cubed sphere grid object with automatically calculated grid coordinates.	No impact.
ESMF_GridCreateMosaic	N/A	N/A	N/A	N/A	31.6.28	A method to create a multi-tile grid object from a GRIDSPEC mosaic file and its associated tile files.	No impact.
ESMF_MeshCreate	N/A	N/A	N/A	N/A	33.4.10	Allow the user to create a Mesh from element information only.	No impact.
ESMF_MeshCreate	N/A	N/A	N/A	N/A	33.4.11	Allow the user to create a Mesh from element information only.	No impact.
ESMF_MeshCreateCubedSphere	N/A	N/A	N/A	N/A	33.4.12	A method to create a cubed sphere mesh object with automatically calculated grid coordinates.	No impact.
ESMF_DistGridCreate	N/A	N/A	N/A	N/A	35.6.10	Allow the use of 64-bit arbitrary sequence indices.	No impact.
ESMF_DistGridCreate	N/A	N/A	N/A	N/A	35.6.11	Allow the use of arbitrary sequence indices for DistGrids with multiple DEs per PET.	No impact.
ESMF_DistGridConnectionGet	N/A	N/A	N/A	N/A	35.7.1	Provide access to the connections defined in a DistGrid object.	No impact.
ESMF_RouteHandleCreate	N/A	N/A	N/A	N/A	36.5.1	Allow a RouteHandle to be created from an existing RouteHandle on a different set of PETs.	No impact.
ESMF_RouteHandleDestroy	N/A	N/A	N/A	N/A	36.5.2	Provide a way to destroy a RouteHandle object without having to call a specific Release method.	No impact.
ESMF_RouteHandleGet	N/A	N/A	N/A	N/A	36.5.3	Provide access to the name of a RouteHandle.	No impact.
ESMF_RouteHandleSet	N/A	N/A	N/A	N/A	36.5.6	Allow the name of a RouteHandle to be set.	No impact.
ESMF_LogFoundNetCDFError	N/A	N/A	N/A	N/A	47.7.9	A method to test for and log NetCDF errors.	No impact.
ESMF_TraceRegionEnter	N/A	N/A	N/A	N/A	50.4.1	Allows a user to define the beginning of a traced region.	No impact.
ESMF_TraceRegionExit	N/A	N/A	N/A	N/A	50.4.2	Allows a user to define the end of a traced region.	No impact.
Removed Methods							
ESMF_AttributeAdd	N/A	N/A	N/A	39.11.1	N/A	Removed the specList style Attribute interfaces, which are only meant to be used internally.	If used, will need to switch to the convention/purpose overloaded method of the same name.
ESMF_AttributeAdd	N/A	N/A	N/A	39.11.2	N/A	Removed the specList style Attribute interfaces, which are only meant to be used internally.	If used, will need to switch to the convention/purpose overloaded method of the same name.
ESMF_AttributeGet	N/A	N/A	N/A	39.11.23	N/A	Removed the specList style Attribute interfaces, which are only meant to be used internally.	If used, will need to switch to the convention/purpose overloaded method of the same name.
Changed Methods							

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ESMF_LogFoundError	function	recursive function	Yes	47.7.8	47.7.8	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
ESMF_DELayoutCreate	function	recursive function	Yes	48.6.4	48.6.4	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
ESMF_DELayoutCreate	function	recursive function	Yes	48.6.5	48.6.5	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
ESMF_DELayoutDestroy	subroutine	recursive subroutine	Yes	48.6.6	48.6.6	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
ESMF_DELayoutGet	subroutine	recursive subroutine	Yes	48.6.7	48.6.7	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
ESMF_VMGet	subroutine	recursive subroutine	Yes	49.5.16	49.5.16	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
ESMF_VMWtimeDelay	subroutine	recursive subroutine	Yes	49.5.30	49.5.30	Allow the method to be called from a multi-threaded section of the code. Also support re-entrance in recursive regions.	No impact.
Named constant value changes							
N/A	ESMF_Copy_Flag	ESMF_AttCopy_Flag	No	N/A	N/A	Conform to constants convention.	Search and replace.