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**Medm replacement rules for ISC**

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# 1 Medm Replacement Rules Definition

The medm replacement rules can be found in the files:

Used by	Path
Corner/EX medm screens	\$(USERAPPS)/isc/common/medm/iscecx_macro.txt
EY medm screens	\$(USERAPPS)/isc/common/medm/iscey_macro.txt

Archive: <https://redoubt.ligo-wa.caltech.edu/websvn/>

Files are:

iscecx_macro.txt	iscey_macro.txt
<pre> iscea=iscecx, isceb=iscey, enda=x, ENDA=X, endb=y, ENDB=Y, end=x, END=X, modelbase=/opt/rtcds, lscmodel=lsc, ascmodel=asc, omcmodel=omc, ascimcmodel=ascimc, isceamodel=iscecx, iscebmodel=iscey, iscexmodel=iscecx, isceymodel=iscey, iscmedm=isc/common/medm, lscmedm=lsc/common/medm, omcmedm=omc/common/medm, ascmedm=asc/common/medm, alsmedm=als/common/medm, lscfec=10, omcfec=, ascfec=19, ascimcfec=20, isceafec=85, iscebfec=95, iscexfec=85, isceyfec=95 </pre>	<pre> iscea=iscey, isceb=iscecx, enda=y, ENDA=Y, endb=x, ENDB=X, end=y, END=Y, modelbase=/opt/rtcds, lscmodel=lsc, ascmodel=asc, omcmodel=omc, ascimcmodel=ascimc, isceamodel=iscey, iscebmodel=iscecx, iscexmodel=iscecx, isceymodel=iscey, iscmedm=isc/common/medm, lscmedm=lsc/common/medm, omcmedm=omc/common/medm, ascmedm=asc/common/medm, alsmedm=als/common/medm, lscfec=10, omcfec=, ascfec=19, ascimcfec=20, isceafec=95, iscebfec=85, iscexfec=85, isceyfec=95 </pre>

## 2 Medm Replacement Rules Usage

Examples on how to use the replacement rules can be found in the file:  
\$(USERAPPS)/isc/common/medm/isc\_macro\_subst.txt.

### 2.1 Calling medm screens from within medm screens

The replacement rules for calling one medm screen from another one are as follows:

Used for	Replacement string (one line with no breaks)
Corner/EX	%(read \$(USERAPPS)/isc/common/medm/iscex_macro.txt), USERAPPS=\$(USERAPPS), SITE=\$(SITE),site=\$(site), IFO=\$(IFO),ifo=\$(ifo)
EY	%(read \$(USERAPPS)/isc/common/medm/iscey_macro.txt), USERAPPS=\$(USERAPPS), SITE=\$(SITE),site=\$(site), IFO=\$(IFO),ifo=\$(ifo)
Same end station	%(read \$(USERAPPS)/isc/common/medm/\$(iscea)_macro.txt), USERAPPS=\$(USERAPPS), SITE=\$(SITE),site=\$(site), IFO=\$(IFO),ifo=\$(ifo)
Other end station	%(read \$(USERAPPS)/isc/common/medm/\$(isceb)_macro.txt), USERAPPS=\$(USERAPPS), SITE=\$(SITE),site=\$(site), IFO=\$(IFO),ifo=\$(ifo)

## 2.2 Calling medm screens from top level

This does not work on the top level or first call, since the site and ifo variables are not defined yet. There are two top level versions, one for LHO and one for LLO:

<b>Used by LLO</b>	<b>Replacement string (one line with no breaks)</b>
Corner/EX	%(read \$(USERAPPS)/isc/common/medm/iscesx_macro.txt), USERAPPS=\$(USERAPPS), SITE=LLO,site=llo,IFO=L1,ifo=l1
EY	%(read \$(USERAPPS)/isc/common/medm/iscey_macro.txt), USERAPPS=\$(USERAPPS), SITE=LLO,site=llo,IFO=L1,ifo=l1
Same end station	%(read \$(USERAPPS)/isc/common/medm/\$(iscea)_macro.txt), USERAPPS=\$(USERAPPS), SITE=LLO,site=llo,IFO=L1,ifo=l1
Other end station	%(read \$(USERAPPS)/isc/common/medm/\$(isceb)_macro.txt), USERAPPS=\$(USERAPPS), SITE=LLO,site=llo,IFO=L1,ifo=l1
<b>Used by LHO</b>	
Corner/EX	%(read \$(USERAPPS)/isc/common/medm/iscesx_macro.txt), USERAPPS=\$(USERAPPS), SITE=LHO,site=lho,IFO=H1,ifo=h1
EY	%(read \$(USERAPPS)/isc/common/medm/iscey_macro.txt), USERAPPS=\$(USERAPPS), SITE=LHO,site=lho,IFO=H1,ifo=h1
Same end station	%(read \$(USERAPPS)/isc/common/medm/\$(iscea)_macro.txt), USERAPPS=\$(USERAPPS), SITE=LHO,site=lho,IFO=H1,ifo=h1
Other end station	%(read \$(USERAPPS)/isc/common/medm/\$(isceb)_macro.txt), USERAPPS=\$(USERAPPS), SITE=LHO,site=lho,IFO=H1,ifo=h1

## 2.3 Accessing medm directories

Referencing a path to a medm directory is done like this:

Usage	Replacement tokens (with alternative)
ALS medm path	\$(USERAPPS)/\$(alsmedm)/ \$(USERAPPS)/als/common/medm/
ASC medm path	\$(USERAPPS)/\$(ascmedm)/ \$(USERAPPS)/asc/common/medm/
ISC medm path	\$(USERAPPS)/\$(iscmedm)/ \$(USERAPPS)/isc/common/medm/
LSC medm path	\$(USERAPPS)/\$(lscmedm)/ \$(USERAPPS)/lsc/common/medm/
OMC medm path	\$(USERAPPS)/\$(omcmedm)/ \$(USERAPPS)/omc/common/medm/

The path to other subsystems can easily be written in the same form using \$(USERAPPS). Referencing medm filters generated by the RTC is done like this:

Usage	Replacement
path to ASC filters	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(ascmodel)/
path to ASC IMC filters	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(ascimcmodel)/
path to LSC filters	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(lscmodel)/
path to OMC filters	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(omcmodel)/
path to ISC EX filters	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(iscexmodel)/
path to ISC EY filters	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(isceymodel)/
path to filters of same end	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(isceamodel)/
path to filters of other end	\$(modelbase)/\$(site)/\$(ifo)/medm/\$(ifo)\$(iscebmodel)/

## 2.4 Front end codes

Referencing a path to a medm directory is done like this:

Usage	Replacement rule	Example
ASC FEC	\$(ascfec)	19
ASC IMC FEC	\$(ascimcfec)	20
LSC FEC	\$(lscfec)	10
OMC FEC	\$(omcfec)	8
ISC EX FEC	\$(iscexfec)	85
ISC EY FEC	\$(isceyfec)	95
Same end ISC FEC	\$(isceafec)	
Other end ISC FEC	\$(iscebfec)	

## 2.5 Other substitution rules

Referring to site, interferometer end stations can be done like this:

Usage	Replacement rule	Example
Userapps directory	\$(USERAPPS)	
Site (lower case)	\$(site)	llo
Site (upper case)	\$(SITE)	LLO
Interferometer (lower case)	\$(ifo)	h1
Interferometer (upper case)	\$(IFO)	H1
Same end station (lower case)	\$(end)	x
Same end station (upper case)	\$(END)	X
Same end station (lower case)	\$(enda)	x
Same end station (upper case)	\$(ENDA)	X
Other end station (lower case)	\$(endb)	y
Other end station (upper case)	\$(ENDB)	Y
Channel (base) name	\$(channel)	\$(IFO):ALS-\$(END)_QPD_A

### 3 Medm Screen Titles

All ISC medm screens need to have a title bar which identifies the interferometer, end station (for screen which this is important), title and optional time and date string.

<b>Field</b>	<b>Replacement rule</b>	<b>Example</b>
Left (interferometer): Corner End only screens	\$(IFO) \$(IFO) End \$(END)	L1 H1 End Y
Middle (title) Overview Hardware chassis/box	'label' \$(channel)	Interferometer Alignment \$(IFO):ALS-\$(END)_QPD_A
Right (date/time) optional	\$(IFO):FEC-\$(lscfec)_TIME_STRING	Wed 4/31/2013 12:00:01