

File created: 5-Dec-2020 16:26:58 {DSK}<Users>arunwelch>SKYDRIVE>DOCUMENTS>UNIX>LISP>LDE>ROOM  
S>MEDLEY-35>ROOMS-GEOMETRY.;2

previous date: 17-Aug-90 12:45:39 {DSK}<Users>arunwelch>SKYDRIVE>DOCUMENTS>UNIX>LISP>LDE>ROOMS>MEDLEY-35>ROOMS-GEOMETRY.;1

Read Table: XCL

Package: ROOMS

Format: XCCS

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```
(IL:RPAQQ IL:ROOMS-GEOMETRYCOMS
  ((FILE-ENVIRONMENTS IL:ROOMS-GEOMETRY)
   (IL:P (EXPORT ' (EXTERNALIZE-REGION INTERNALIZE-REGION EXTERNALIZE-POSITION INTERNALIZE-POSITION))
    (REQUIRE "ROOMS"))
   (IL:COMS
    ;; externalizing for suites & background text
    (IL:FUNCTIONS EXTERNALIZE-REGION INTERNALIZE-REGION EXTERNALIZE-POSITION INTERNALIZE-POSITION
      EXTERNALIZE-COORDINATE INTERNALIZE-COORDINATE)
    (IL:GLOBALVARS IL:SCREENWIDTH IL:SCREENHEIGHT))
   (IL:COMS
    ;; scaling used by placement editor & backgrounds
    (IL:STRUCTURES SCALE)
    (IL:VARIABLES *ONE-TO-ONE*)
    (IL:FUNCTIONS MAKE-SCALE EQUAL-SCALES)
    (IL:FUNCTIONS SCALE-WIDTH SCALE-HEIGHT SCALE-X SCALE-Y SCALE-REGION SCALE-POSITION)
    (IL:FUNCTIONS UN-SCALE-REGION UN-SCALE-POSITION UN-SCALE-HEIGHT UN-SCALE-WIDTH UN-SCALE-X
      UN-SCALE-Y)))

(DEFINE-FILE-ENVIRONMENT IL:ROOMS-GEOMETRY :COMPILER :COMPILE-FILE
  :PACKAGE "ROOMS"
  :READTABLE "XCL")

(EXPORT ' (EXTERNALIZE-REGION INTERNALIZE-REGION EXTERNALIZE-POSITION INTERNALIZE-POSITION))

(REQUIRE "ROOMS")

;; externalizing for suites & background text

(DEFUN EXTERNALIZE-REGION (REGION)
  (MAKE-REGION :LEFT (EXTERNALIZE-COORDINATE (REGION-LEFT REGION)
    IL:SCREENWIDTH)
  :BOTTOM
  (EXTERNALIZE-COORDINATE (REGION-BOTTOM REGION)
    IL:SCREENHEIGHT)
  :WIDTH
  (EXTERNALIZE-COORDINATE (REGION-WIDTH REGION)
    IL:SCREENWIDTH)
  :HEIGHT
  (EXTERNALIZE-COORDINATE (REGION-HEIGHT REGION)
    IL:SCREENHEIGHT)))

(DEFUN INTERNALIZE-REGION (REGION)
  (MAKE-REGION :LEFT (INTERNALIZE-COORDINATE (REGION-LEFT REGION)
    IL:SCREENWIDTH)
  :BOTTOM
  (INTERNALIZE-COORDINATE (REGION-BOTTOM REGION)
    IL:SCREENHEIGHT)
  :WIDTH
  (INTERNALIZE-COORDINATE (REGION-WIDTH REGION)
    IL:SCREENWIDTH)
  :HEIGHT
  (INTERNALIZE-COORDINATE (REGION-HEIGHT REGION)
    IL:SCREENHEIGHT)))

(DEFUN EXTERNALIZE-POSITION (POS)
  (MAKE-POSITION (EXTERNALIZE-COORDINATE (POSITION-X POS)
    IL:SCREENWIDTH)
  (EXTERNALIZE-COORDINATE (POSITION-Y POS)
    IL:SCREENHEIGHT)))

(DEFUN INTERNALIZE-POSITION (POS)
  (MAKE-POSITION (INTERNALIZE-COORDINATE (POSITION-X POS)
    IL:SCREENWIDTH)
  (INTERNALIZE-COORDINATE (POSITION-Y POS)
    IL:SCREENHEIGHT)))
```

```
(DEFUN EXTERNALIZE-COORDINATE (N RANGE)
  (LET ((EXTERNAL (/ N RANGE)))
    (TYPECASE EXTERNAL
      (INTEGER (FLOAT EXTERNAL))
      (OTHERWISE EXTERNAL))))
```

```
(DEFUN INTERNALIZE-COORDINATE (N RANGE)
  (ETYPECASE N
    (INTEGER N)
    ((OR FLOAT RATIONAL) (ROUND (* N RANGE)))))
```

```
(IL:DECLARE\ : IL:DOEVAL@COMPILE IL:DONTCOPY
(IL:GLOBALVARS IL:SCREENWIDTH IL:SCREENHEIGHT)
)
```

:: scaling used by placement editor & backgrounds

```
(DEFSTRUCT (SCALE (:CONSTRUCTOR MAKE-SCALE-INTERNAL))
```

::: used to scale coordinates. X-FACTOR & Y-FACTOR are the scale factor, and X-OFFSET & Y-OFFSET are added after scaling.

```
(X-OFFSET 0 :TYPE INTEGER)
(X-FACTOR 1 :TYPE (OR INTEGER FLOAT RATIONAL))
(Y-OFFSET 0 :TYPE INTEGER)
(Y-FACTOR 1 :TYPE (OR INTEGER FLOAT RATIONAL))
```

```
(DEFGLOBALVAR *ONE-TO-ONE* (MAKE-SCALE-INTERNAL))
```

```
(DEFUN MAKE-SCALE (REGION)
```

::: return a scale which scales the screen into REGION

```
(MAKE-SCALE-INTERNAL :X-FACTOR (FLOAT (/ (REGION-WIDTH REGION)
                                          IL:SCREENWIDTH))
  :X-OFFSET
  (REGION-LEFT REGION)
  :Y-FACTOR
  (FLOAT (/ (REGION-HEIGHT REGION)
            IL:SCREENHEIGHT))
  :Y-OFFSET
  (REGION-BOTTOM REGION))
```

```
(DEFUN EQUAL-SCALES (SCALE-1 SCALE-2)
  (AND (= (SCALE-X-FACTOR SCALE-1)
          (SCALE-X-FACTOR SCALE-2))
        (= (SCALE-Y-FACTOR SCALE-1)
          (SCALE-Y-FACTOR SCALE-2))))
```

```
(DEFMACRO SCALE-WIDTH (WIDTH SCALE)
  `(ROUND (* ,WIDTH (SCALE-X-FACTOR ,SCALE))))
```

```
(DEFMACRO SCALE-HEIGHT (HEIGHT SCALE)
  `(ROUND (* ,HEIGHT (SCALE-Y-FACTOR ,SCALE))))
```

```
(DEFININE SCALE-X (X SCALE)
  (+ (SCALE-WIDTH X SCALE)
    (SCALE-X-OFFSET SCALE)))
```

```
(DEFININE SCALE-Y (Y SCALE)
  (+ (SCALE-HEIGHT Y SCALE)
    (SCALE-Y-OFFSET SCALE)))
```

```
(DEFUN SCALE-REGION (REGION SCALE)
  (IF (EQ SCALE *ONE-TO-ONE*)
    REGION
    (MAKE-REGION :LEFT (SCALE-X (REGION-LEFT REGION)
                                  SCALE)
                 :BOTTOM
                 (SCALE-Y (REGION-BOTTOM REGION)
                           SCALE)
                 :WIDTH
                 (SCALE-WIDTH (REGION-WIDTH REGION)
                               SCALE)
                 :HEIGHT
                 (SCALE-HEIGHT (REGION-HEIGHT REGION)
```

SCALE)))))

```
(DEFUN SCALE-POSITION (POS SCALE)
  (IF (EQ SCALE *ONE-TO-ONE*)
    POS
    (MAKE-POSITION (SCALE-X (POSITION-X POS)
                        SCALE)
                  (SCALE-Y (POSITION-Y POS)
                        SCALE))))
```

```
(DEFUN UN-SCALE-REGION (REGION SCALE)
  (MAKE-REGION :LEFT (UN-SCALE-X (REGION-LEFT REGION)
                                   SCALE)
              :BOTTOM
              (UN-SCALE-Y (REGION-BOTTOM REGION)
                            SCALE)
              :WIDTH
              (UN-SCALE-WIDTH (REGION-WIDTH REGION)
                                SCALE)
              :HEIGHT
              (UN-SCALE-HEIGHT (REGION-HEIGHT REGION)
                                SCALE)))
```

```
(DEFUN UN-SCALE-POSITION (POS SCALE)
  (MAKE-POSITION (UN-SCALE-X (POSITION-X POS)
                              SCALE)
                (UN-SCALE-Y (POSITION-Y POS)
                              SCALE)))
```

```
(DEFMACRO UN-SCALE-HEIGHT (HEIGHT SCALE)
  `(ROUND ,HEIGHT (SCALE-Y-FACTOR ,SCALE)))
```

```
(DEFMACRO UN-SCALE-WIDTH (WIDTH SCALE)
  `(ROUND ,WIDTH (SCALE-X-FACTOR ,SCALE)))
```

```
(DEFUN UN-SCALE-X (X SCALE)
  (UN-SCALE-WIDTH (- X (SCALE-X-OFFSET SCALE)
                    SCALE)))
```

```
(DEFUN UN-SCALE-Y (Y SCALE)
  (UN-SCALE-HEIGHT (- Y (SCALE-Y-OFFSET SCALE)
                       SCALE)))
```

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