

# Draw □□□□□□

□□

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## 1.

DrawRedDSLDrawblock

Draw draw draw View

## 2. Draw

DrawDraw

- X座標を指定する
- Y座標を指定する

座標系を指定する

[Coord-system] | ../images/coord-system.png

## 2.1. Line

例

```
line <point> <point> ...
<point> : 座標 (pair!).
```

例

座標系を指定する

## 2.2. Triangle

例

```
triangle <point> <point> <point>
<point> : 座標 (pair!)
```

NOTE:座標系を指定する

例

座標系を指定する

## 2.3. Box

例

```
box <top-left> <bottom-right>
box <top-left> <bottom-right> <corner>

<top-left>      : box座標 (pair!)
<bottom-right> : box座標 (pair!)
<corner>       : (整数) 隅の半径 (integer!)
```

例

座標系を指定するtop-left座標1隅の半径bottom-right座標2隅の半径radius座標系を指定する

## 2.4. Polygon

11

polygon <point> <point> ...

<point> : 点 (pair!)

11

□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

## 2.5. Circle

11

```
circle <center> <radius>  
circle <center> <radius-x> <radius-y>
```

```
<center> : 0000000 (pair!)
<radius> : 0000 (integer! float!)
<radius-x> : (00000) X000000000 (integer! float!)
<radius-y> : (00000) Y000000000 (integer! float!)
```

11

center radius  
23 X Y

## 2.6. Ellipse

11

```
ellipse <top-left> <size>
```

```
<top-left> : □□□□□□□□□□(pair!)
<size>      : □□□□□□□□□□ (pair!)
```

11

XXXXXXXXXXXXXXXXXXXXXXXXXXXX size XXXXYYXXXXXXXXXXXXXXXXXXXX NOTE: ellipse □ circle  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX

## 2.7. Arc

11

```
arc <center> <radius> <begin> <sweep>  
arc <center> <radius> <begin> <sweep> closed
```

```
<center> : 0000000 (pair!)
<radius> : 0000 (pair!)
<begin> : 000000000000 (integer!)
<sweep> : 000000000000 (integer!)
```

11

```

center radius
#####
#####2#####

```

closed

## 2.8. Curve

11

curve <end-A> <control-A> <end-B>  
curve <end-A> <control-A> <control-B> <end-B>

```
<end-A>      :  A (pair!)
<control-A>   :  A (pair!)
<control-B>   :  B (pair!)
<end-B>       :  B (pair!)
```

11

□ □

- 3000020000100000000000
- 400000000000000000000000

4

## 2.9. Spline

00

```
spline <point> <point> ...  
spline <point> <point> ... closed
```

```
<point> : 000 (pair!)
```

11

[illegible]

NOTE: 2D image is represented as a 2D array of pixels.

## 2.10. Image

□□

```
image <image>
image <image> <top-left>
image <image> <top-left> <bottom-right>
image <image> <top-left> <top-right> <bottom-left> <bottom-right>
image <image> <top-left> <top-right> <bottom-left> <bottom-right> <color>
image <image> <top-left> <top-right> <bottom-left> <bottom-right> <color> border
image <image> <top-left> <top-right> <bottom-left> <bottom-right> <color> crop
<offset> <size>
```

```
<image>      : image! word!
<top-left>   : pair!
<top-right>  : pair!
<bottom-left> : pair!
<bottom-right> : pair!
<color>      : tuple! word!
<offset>     : pair!
<size>       : pair!
```

□□

0x0 color

NOTE:

- 4
- border**

## 2.11. Text

□□

```
text <position> <string>

<position> : pair!
<string>   : string!
```

□□

**NOTE** | `none` pen color

## 2.12. Font

11

font <font>

```
<font> : [] (object! word!)
```

11

font!

## 2.13. Pen

[illegible]

### 2.13.1. Color pen

11

```
pen <color>
```

```
<color> :  (tuple! word!)
```

11

pen off

### 2.13.2. Linear gradient pen

00

```
pen linear <color1> <offset> ... <colorN> <offset> <start> <end> <spread>
```

```
<color1/N> :  (tuple! word!)
```

```
<offset>      : 000000000000000000000000 (float!)
```

```
<start>      : □□□□□□□□ (pair!)
```

```
<end>      : []<start>[] (pair!)
```

<spread> : 単語 (word!)

00

```

#####pad#####repeat#####reflect#####Windows#####pa
d#####repeat#####

```

[illegible]

### 2.13.3. Radial gradient pen

□□

```
pen radial <color1> <offset> ... <colorN> <offset> <center> <radius> <focal> <spread>
```

```
<color1/N> :  (tuple! word!)
<offset>    :  (float!)
<center>    :  (pair!)
<radius>    :  <center>  (integer! float!)
<focal>     :  (pair!)
<spread>    :  (word!)
```

□□

spreadpadrepeatreflectWindowspadrepeat

focalcenterradius

### 2.13.4. Diamond gradient pen

□□

```
pen diamond <color1> <offset> ... <colorN> <offset> <upper> <lower> <focal> <spread>
```

```
<color1/N> :  (tuple! word!)
<offset>    :  (float!)
<upper>     :  (pair!)
<lower>     :  <upper>  (pair!)
<focal>     :  (pair!)
<spread>    :  (word!)
```

□□

spreadpadrepeatreflectWindowspadrepeat

focalupperlower

### 2.13.5. Pattern pen



11

```
pen pattern <size> <start> <end> <mode> [<commands>]
```

```
<size>      : <command>oooooooooooooooo (pair!)
<start>     : oooooooooooooooooooooooo (pair!)
<end>       : oooooooooooooooooooooooo (pair!)
<mode>      : oooooooooooooo (word!)
<commands>  : oooooooooDrawoooooooooo
```

00

```

Shape mode tile flip-x flip-
y flip-xy clamp

```

```
start 0x0 end <size>
```

### 2.13.6. Bitmap pen

11

```
pen bitmap <image> <start> <end> <mode>
```

```
<image> :  (image!)
<start>  :  (pair!)
<end>    :  (pair!)
<mode>   :  (word!)
```

11

```
mode tile flip-x flip-y flip-xy clamp
```

```
start[] 0x0 []end[]
```

### 2.13.7. Turning off the pen

11

pen off

11

□ □

## 2.14. Fill-pen

Shape

### 2.14.1. Color fill

11

fill-pen <color>

```
<color>      :  (tuple! word!).
```

11

```

#####fill-pen#####off#####

```

### 2.14.2. Linear gradient fill

11

```
fill-pen linear <color1> <offset> ... <colorN> <offset> <start> <end> <spread>
```

```
<color1/N> :  (tuple! word!)
```

```
<offset>      : 000000000000000000000000 (float!)
```

<start> : 00000000 (pair!)

```
<end>      : []<start>[] (pair!)
```

<spread> : 単語 (word!)

11

```

spreadpadrepeatreflectWindow
wspadrepeat

```

```
start=end[0][0] + [0]*len([0]*len([0]))
```

### 2.14.3. Radial gradient fill

11

```
fill-pen radial <color1> <offset> ... <colorN> <offset> <center> <radius> <focal>  
<spread>
```

```
<color1/N> :  (tuple! word!)
```

```
<offset>      : 000000000000000000000000 (float!)
```

<center> : 00000000 (pair!)

```
<radius> : <center> (integer! float!)
```

<focal> : 対向 (pair!)

<spread> : 単語 (word!)

□ □

```

spreadpadrepeatreflectWindow
spreadpadrepeat

```

fill-pen diamond focal center radius spread pad repeat reflect Windows pad repeat

#### 2.14.4. Diamond gradient fill

fill-pen diamond

```
fill-pen diamond <color1> <offset> ... <colorN> <offset> <upper> <lower> <focal>
<spread>
```

<color1/N> : list of colors for the gradient (tuple! word!)  
<offset> : (float!)  
<upper> : (pair!)  
<lower> : [<upper> (pair!)]  
<focal> : (pair!)  
<spread> : (word!)

fill-pen diamond

fill-pen diamond spread pad repeat reflect Windows pad repeat

fill-pen diamond focal upper lower spread pad repeat

#### 2.14.5. Pattern fill

fill-pen pattern

```
fill-pen pattern <size> <start> <end> <mode> [<commands>]
```

<size> : <commands> (pair!)  
<start> : (pair!)  
<end> : (pair!)  
<mode> : (word!)  
<commands> : Draw

fill-pen pattern

fill-pen pattern mode tile flip-x flip-y clamp

start 0x0 end <size>

#### 2.14.6. Bitmap fill

11

```
fill-pen bitmap <image> <start> <end> <mode>
```

```
<image> :  (image!)
<start> :  (pair!)
<end>   :  (pair!)
<mode>  :  (word!)
```

11

```
mode=tileflip-xflip-yflip-xyclamp
```

```
start[] 0x0 []end[]
```

### 2.14.7. Turning off the filling

00

```
fill-pen off
```

00

□ □

## 2.15. Line-width

00

line-width <value>

```
<value> : [] (integer!)
```

11

□ □

## 2.16. Line-join

00

line-join <mode>

```
<mode> :  (word!)
```

11

□ □

- **miter** □□□□□□
- **round**
- **bevel**
- **miter-bevel**

[Line-join] | ../images/line-join.png

**NOTE** miter-bevel □□□□□□□□□□□□□□ □□□□ □□□□□□□□□□□□ miter □ bevel □□□□□□□□□□

## 2.17. Line-cap

11

line-cap <mode>

```
<mode> : □□□□□□□□□□ (word!).
```

11

□ □

- flat □□□□□□
- square
- round

[Line-cap] | ../images/line-cap.png

## 2.18. Anti-alias

11

anti-alias <mode>

```
<mode> : □□□□□□ 'on' □□□□□□ 'off'
```

□ □

**Draw** NOTE:

## 2.19. Matrix

11

```
matrix <matrix-setup>
matrix 'pen <matrix-setup>
matrix 'fill-pen <matrix-setup>

<matrix-setup> : pre/post-multiplied (block!)
```

11

[illegible]

matrix-setup 6number!

```
matrix [a b c d e f]
```

□ □

$$\begin{bmatrix} a & c & e \\ b & d & f \\ 0 & 0 & 1 \end{bmatrix}$$

## 2.20. Reset-matrix

11

reset-matrix

00

□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

$$\begin{vmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{vmatrix}$$

## 2.21. Invert-matrix

11

invert-matrix

00

□ □

## 2.22. Push

00

```
push <draw-block>
```

```
<draw-block> : Draw (block!).
```

11

**PUSH**

## 2.23. Rotate

11

```
rotate <angle> <center> [<commands>]
```

```
rotate pen <angle>
```

```
rotate fill-pen <angle>
```

```
<angle>      : 角度 (integer! float!)
```

<center> :□□□□□□ □□□□□□ (pair!)

```
<commands> : Draw
```

11

[illegible]

penfill-penwordpenfill-pen

## 2.24. Scale

00

```
scale <scale-x> <scale-y> [<commands>]
```

```
scale pen <scale-x> <scale-y>
```

```
scale fill-pen <scale-x> <scale-y>
```

<scale-x> : XXXXXXXXXX (number!)

`<scale-y>` : Y□□□□□□□□ (number!)

```
<commands> : Draw
```

[illegible]

## 2.25. Translate

```
<offset> : 0000 (pair!)
<commands> : 00000000Draw0000000000000000
```

[illegible]

## 2.26. Skew

```
skew <skew-x> <skew-y> [<commands>]
skew pen <skew-x> <skew-y>
skew fill-pen <skew-x> <skew-y>

<skew-x>      : Xxxxxxxxxx (integer! float!)
<skew-y>      : yyyyyyy Yxxxxxxxxx (integer! float!)
<commands>    : xxxxxxxDrawxxxxxxxxxx
```

[illegible]

## 2.27. Transform



11

```
transform <angle> <center> <scale-x> <scale-y> <translation> [<commands>]
```

```
<angle>      : 角度 (integer! float!)
<center>     : 位置 (pair!)
<scale-x>    : X 方向のスケール (number!)
<scale-y>    : Y 方向のスケール (number!)
<translation> : 変位 (pair!)
<commands>   : 描画コマンド
```

11

[illegible]

## 2.28. Clip

□ □

```
clip <start> <end> <mode> [<commands>]
clip [<shape>] <mode> [<commands>]
```

```
<start>      : 0000000000000000 (pair!)
<end>        : 0000000000000000 (pair!)
<mode>       : 000000000000000000000000word!0
<commands>   : 000000Draw000000000000
<shape>      : Shape000000000000
```

11

```

startendShapeDraw

```

[illegible]

- `replace` `replace`
- `intersect`
- `union`
- `xor`
- `exclude`

### 3. Shape

11

```
shape [<commands>]
```

```
<commands> : shape[] [] [] [] [] []
```

11

```

shape()
Draw()
Shape()

```

- [illegible]

## NOTE

```
000000000000000000000000lit-word000000000000000000000000
```

### 3.1. Move

00

```
move <position>      000000
```

```
'move <position>          000000
```

```
<position> : 00000000 (pair!)
```

11

□ □

### 3.2. Line

11

```
line <point> <point> ...
```

```
'line <point> <point> ... 000000
```

<point> : 二点 (pair!)

00

[illegible]





11

```
vline <end-y>      00000000
'vline <length>    00000000

<end-y> : Y00000000 (integer! float!)
<length> : 00000000 (integer! float!)
```

11

□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

### 3.10. Line-width

Draw□□□□□□□□□□

### 3.11. Line-join

Draw□□□□□□□□□□

### 3.12. Line-cap

Draw□□□□□□□□□□

### 3.13. Pen

Draw□□□□□□□□□□

### 3.14. Fill-pen

Draw□□□□□□□□□□

4.

Draw

Property	Value
background	white
pen color	black
filling	off
anti-alias	on
font	none
line width	1



11

```
fill-pen linear <grad-offset> <grad-start-rng> <grad-stop-rng>
           <grad-angle> <grad-scale-x> <grad-scale-y> <grad-color> <offset>
           <grad-color> <offset> ...
```

```
fill-pen radial <grad-offset> <grad-focal> <grad-radius>
          <grad-angle> <grad-scale-x> <grad-scale-y> <grad-color> <offset>
          <grad-color> <offset> ...
```

```
fill-pen diamond <grad-offset> <grad-focal> <grad-radius>
    <grad-angle> <grad-scale-x> <grad-scale-y> <grad-color> <offset>
    <grad-color> <offset> ...
```

```
<grad-type>      : 文字列 (word!)
<grad-offset>    : 文字列 (pair!)
<grad-start-rng> : 文字列 (integer!)
<grad-stop-rng>  : 文字列 (integer!)
<grad-focal>     : 文字列 (pair!)
<grad-radius>    : 文字列 (integer!)
<grad-angle>     : 文字列 (integer! float!)
<grad-scale-x>   : 文字列 (integer! float!)
<grad-scale-y>   : 文字列 (integer! float!)
<qrad-color>     : 文字列 (tuple! word!)
```

11

linear radial diamond

11

```
fill-pen linear 0x100 0 400 red green blue box 0x100 400x300
```

[Grad-pen] | ../images/grad-pen.png

**NOTE** □□□□□□□□□□□□□□□□256□□□□□□

9.

Red Draw Red

```
Red [
  Title: "Graphics generator for Draw documentation"
  Author: "Nenad Rakocevic"
  File: %draw-graphics.red
  Needs: View
```

]

```
Arial: make font! [name: "Consolas" style: 'bold]  
small: make font! [size: 9 name: "Consolas" style: 'bold]
```

```
save %line-cap.png draw 240x240 [  
  font Arial  
  text 20x220 "Flat"  
  text 90x220 "Square"  
  text 180x220 "Round"  
  
  line-width 20 pen gray  
  line-cap flat   line 40x40 40x200  
  line-cap square line 120x40 120x200  
  line-cap round  line 200x40 200x200  
  
  line-width 1 pen black  
  line 20x40 220x40  
  line 20x200 220x200  
]
```

]

```
save %line-join.png draw 500x100 [  
  font Arial  
  text 10x20 "Miter"  
  text 170x20 "Round"  
  text 330x20 "Bevel"  
  
  line-width 20 pen gray  
  line-join miter line 140x20 40x80 140x80  
  line-join round line 300x20 200x80 300x80  
  line-join bevel line 460x20 360x80 460x80  
  
  line-join miter  
  line-width 1 pen black  
  line 140x20 40x80 140x80  
  line 300x20 200x80 300x80  
  line 460x20 360x80 460x80  
]
```

]

```
save %coord-system.png draw 240x240 [  
  font small  
  text 5x5 "0x0"  
  line-width 2  
  line 20x20 200x20 195x16  
  line 200x20 195x24  
  
  line 20x20 20x200 16x195  
  line 20x200 24x195  
  
  font Arial  
  text 205x12 "X"
```



```

    text 12x205 "Y"
]

save %grad-pen.png draw 400x400 [
    pen off
    fill-pen linear 0x100 0 400 red green blue box 0x100 400x300
]

save %grad-pen-more.png draw 600x400 [
    pen off
    fill-pen linear 0x0 0 200 red green blue box 0x0 200x200
    fill-pen linear 200x0 0 200 255.0.0 255.255.0 0.255.0 0.255.255 0.0.255 box 200x0
400x200
    fill-pen linear 400x0 0 200 255.0.0 0.1 255.255.0 0.2 0.255.0 0.4 0.255.255 0.8
0.0.255 .9 255.0.255 1.0 box 400x0 600x200
    fill-pen blue box 0x200 200x400 fill-pen radial 100x300 0 100 255.0.0 0.255.0
0.0.255 box 0x200 200x400
    fill-pen blue box 200x200 400x400 fill-pen diamond 300x300 0 100 30 255.0.0
0.255.0 0.0.255 box 200x200 400x400
    fill-pen diamond 500x300 0 100 30 3.0 1.5 255.0.0 0.255.0 0.0.255 box 400x200
600x400
]

```